Deliverable 4.1

Outcomes, Impacts and Perceptions Change

PEDAL Consulting
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ROBIN

DEPLOYING CIRCULAR BIOECONOMIES AT
REGIONAL LEVEL WITH A TERRITORIAL APPROACH

Funded by
the European Union

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ABBREVIATIONS

CBE	Circular Bioeconomy
CCRI	Circular Cities and Regions Initiative
DoA	Description of the Action
EU	European Union
KPI	Key Performance Indicator
MA&E	Monitoring, Assessment and Evaluation
MARCs	Multi-Actor Regional Constellations
NGO	Non-governmental organisation
PMS	Policy Monitoring System

RAP	Regional Action Plan
SMEs	Small and Medium-sized Enterprises
WP	Work Package

Executive Summary

The Deliverable 4.1 “Outcomes, Impacts, and Perceptions Change” provides a comprehensive evaluation of the ROBIN project, focusing on the framework designed to monitor, assess, and evaluate the project’s outcomes, impacts, and perception changes, while providing a deeper understanding of the project’s effectiveness in advancing sustainable bioeconomy strategies.

This deliverable delivers a systematic approach to tracking progress, analysing stakeholder engagement, and measuring the effectiveness of implemented interventions, thereby contributing to the broader discourse on sustainable bioeconomy strategies. Drawing on a structured multi-phase methodology, the document synthesizes empirical data, stakeholder feedback, and a structured evaluation processes to generate critical insights into the project’s effectiveness in fostering governance innovation and advancing circular bioeconomy policies.

Methodology and Process

To ensure a rigorous and systematic assessment, the evaluation framework was designed as a multi-stage process, incorporating diverse data collection and stakeholder engagement methods. The methodological approach included the following phases:

- **Methodology Framework**: This initial phase established a structure for monitoring and evaluation, defining clear objectives and data collection methodologies. It also set a structured periodicity for data collection, ensuring a dynamic and responsive assessment process.
- **Alpha Testing Phase**: Conducted with a diverse set of stakeholders from the ROBIN 5 pilot regions to test initial assumptions, gather feedback, and refine data collection instruments, focusing on governance models and structures.
- **Beta Testing Phase**: Validation involving stakeholders from 18 external regions to evaluate project implementation, assess interim results, and identify ongoing challenges in applying the ROBIN framework.
- **Final Interviews**: In-depth qualitative interviews with key stakeholders from the ROBIN 5 pilot regions to capture final insights on the project's outcomes, policy implications, and shifts in stakeholder perceptions.

This multi-phase approach ensured the reliability and validity of the findings by integrating both qualitative and quantitative data collection techniques. The framework not only outlined clear objectives for monitoring, assessment, and evaluation but also facilitated adaptive learning, allowing regional partners to iteratively refine governance models based on real-world feedback.

Key Findings and Outcomes

The evaluation identified significant advancements in promoting bio-based innovations, influencing policy discourse, and enhancing stakeholder engagement within the circular bioeconomy sector. Key insights from the Alpha Testing, Beta Testing, and Final Interviews phases reveal:

- **Strengthened Stakeholder Collaboration**: The project fostered meaningful engagement between policymakers, industry leaders, and civil society actors, facilitating cross-sectoral dialogue on bio-based solutions and governance frameworks.
- **Positive Perception Shifts**: Survey data and qualitative interviews indicate a growing acceptance of bio-based innovations. Findings reveal a gradual yet tangible shift in attitudes, with increased awareness and recognition of the environmental and economic benefits of bio-based solutions.
- **Policy and Regulatory Contributions**: The project's findings have informed policy discussions at regional and European levels, contributing to recommendations aimed at strengthening the regulatory environment for bio-based solutions.
- **Socio-Economic Benefits**: The study highlights the economic potential of bio-based industries in regional development, including opportunities for job creation, innovation, and integration within the circular economy framework.

A detailed description of the monitoring, assessment, and evaluation framework, together with the key findings from Alpha Testing, Beta Testing, and Final Interviews, is provided in the main body of the deliverable. Comprehensive supporting data and region-specific analyses are available in the Annexes.

1. Introduction

Context

The Deliverable 4.1 has been prepared within the framework of the ROBIN project, which seeks to empower European regions to accelerate the transition to a circular bioeconomy through the adaptation and development of inclusive governance models. In alignment with the project's objectives and the obligations defined under the Horizon Europe Grant Agreement No. 101060504, the deliverable provides a comprehensive account of the monitoring, assessment, and evaluation activities undertaken to measure the project's outcomes, impacts, and changes in stakeholder perceptions. It contributes directly to the project's ambition to produce evidence-based recommendations and foster mutual learning among regional authorities, stakeholders, and the broader bioeconomy community.

Introduction

This deliverable presents the outcomes of the monitoring, assessment, and evaluation activities conducted within the ROBIN project, with a specific focus on assessing project outcomes, impacts, and shifts in stakeholder perceptions. The document details the comprehensive **Monitoring, Assessment, and Evaluation (MA&E) Framework** that underpinned the evaluation strategy throughout the project's lifecycle. It further describes the implementation of three validation phases – **Alpha Testing, Beta Testing, and Final Interviews** – each applying a structured methodology designed to capture both quantitative indicators and qualitative transformations. Special emphasis has been placed on triangulating multiple sources of evidence to ensure the robustness, credibility, and validity of findings.

Beyond the presentation of methodologies and empirical results, the deliverable provides a critical analysis of regional variations, governance developments, stakeholder engagement dynamics, and emerging changes in perceptions related to the circular bioeconomy. The insights gathered support not only the evaluation of ROBIN's achievements but also contribute to the formulation of evidence-based policy recommendations and capacity-building strategies.

The Annexes form an integral part of the deliverable. They offer an in-depth account of the empirical findings and instruments employed during the evaluation process, including extensive summaries from Alpha Testing, Beta Testing, and Final Interviews across each ROBIN region. Furthermore, the Annexes incorporate the Baseline and Endline questionnaires, the Beta Testing questionnaire, and the Final Interview outline. These supplementary materials provide granular insights and serve as a practical resource for future replication and adaptation of the ROBIN methodology in other territorial contexts.

The structure of this deliverable is organized as follows:

- **Chapter 2** introduces the conceptual framework and key terminologies underpinning monitoring, assessment, and evaluation within the ROBIN project;
- **Chapter 3** outlines the methodological approach and principles guiding the evaluation activities;

- **Chapter 4** describes the monitoring, assessment and evaluation framework set up and operated,
- **Chapter 5** presents the key results of the three validation phases; and
- **Chapter 6** concludes with reflections on project impact, lessons learned, and recommendations for future governance efforts.
- The **Annexes** complement the main chapters by providing detailed empirical evidence and region-specific narratives.

2. Understanding Basic Concepts

To ensure the success and replicability of its governance models, the ROBIN project emphasizes a clear understanding of key MA&E concepts. This chapter lays the conceptual foundations necessary for measuring the project's outcomes, impacts, and shifts in perceptions. It provides definitions, clarifies the distinctions between outputs, outcomes, and impacts, and contextualizes the MA&E focus within the diverse realities of the participating regions.

2.1 Defining monitoring and evaluation

The ROBIN project seeks to empower regional authorities in **fostering just, inclusive, and resilient economic development**. By **supporting regions in the co-creation and adaptation of governance models and structures**, the project accelerates the achievement of circular bioeconomy objectives across five diverse European regions – Germany, Greece, Ireland, Slovakia, and Spain.

The objective of the Work Package 4 (WP4) is to ensure the monitoring, assessment, and evaluation of project outcomes, impacts, and shifts in perceptions. This process aims to inform policymaking, promote mutual learning, and facilitate the widespread adoption and sustainable exploitation of results through an evidence-based approach. This document serves as a guide, providing a structured framework for these activities:

1) **Aligning Objectives**: Harmonizing MA&E objectives with the objectives of the project, ensuring a focused and purposeful approach of the MA&E.
2) **Defining Clear Objectives**: The MA&E framework sets clear objectives for monitoring, assessment and evaluation, providing a clear methodology.
3) **Providing Tools and Instructions**: The document defines the tools and provides instructions, complemented by a well-defined periodicity for data collection.
4) **Resulting in Evidence-Driven Guidelines**: The MA&E activities will result in evidence-driven replication guidelines and policy recommendations. This tangible outcome offers valuable insights for the broader adoption of successful governance models.

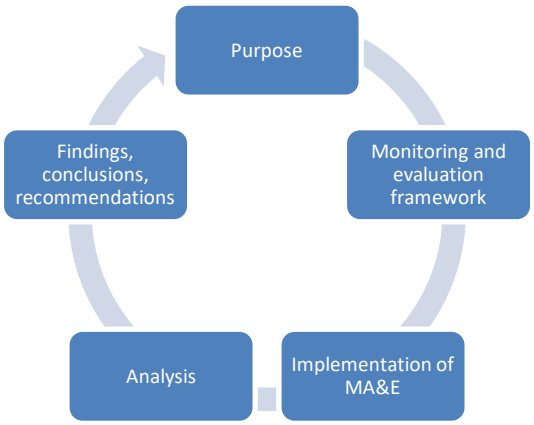


Figure 1: The main stages of the monitoring and assessment activities

2.2 Outputs, Results, Impacts & Indicators

To accurately assess the ROBIN project's progress and effectiveness, it is crucial to distinguish between outputs, outcomes, impacts, and perception changes. This section clarifies these key concepts and their relevance to the project's objectives.

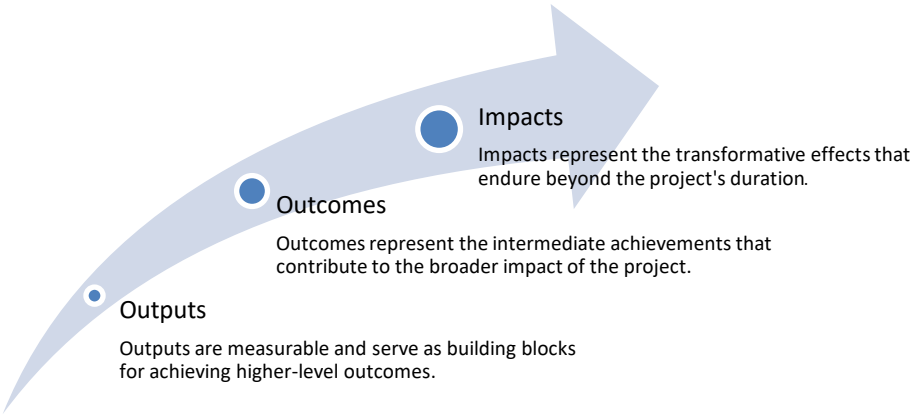


Figure 2: Link between outputs, outcomes and impacts

Outputs

Outputs refer to the tangible and immediate deliverables resulting directly from the project's activities. In the context of ROBIN, these include the development of the Toolbox for the adaptation or creation of governance models. However, the proposed MA&E framework does not primarily focus on this level of project results.

Outcomes

Outcomes represent the direct effects of the project's outputs and activities. In ROBIN, these include enhanced capacities of regional authorities and stakeholders to facilitate an inclusive circular bioeconomy transition, increased engagement of regional and local actors in bioeconomy

governance, and the integration of local bio-based economic opportunities into broader bioeconomy strategies.

Impacts

Impacts refer to the long-term and transformative changes brought about by the project. ROBIN's anticipated impacts include improved regional governance models with greater stakeholder participation, a deeper understanding of the bioeconomy among key actors, and the development of well-informed bioeconomy strategies that foster sustainable business opportunities.

Perception Change

ROBIN's MA&E framework places significant emphasis on evaluating shifts in perceptions, particularly changes in attitudes and awareness among target audiences. This includes perspectives on local bio-based opportunities, collaboration along and across value chains, and perceived empowerment to drive the transition to a circular bioeconomy at the regional level. Additionally, it assesses regional and local actors' awareness and motivation to adopt more socially and environmentally sustainable practices, as well as their perception of collaboration within their respective regions.

2.3 ROBIN MA&E Focus

The ROBIN regions display significant variation across multiple dimensions, including regional size, geographical characteristics, economic conditions, social dynamics, the level of bioeconomy development, and existing governance structures. While the ROBIN methodology for designing or adapting governance models is applied consistently across all regions, expected outcomes differ due to varying governance needs. Some regions possess well-established strategic documents and action plans supported by existing governance structures, whereas others lack such frameworks entirely or only have them partially in place. These regional specificities are reflected in the RAPs (Regional Action Plans) developed within WP2.

Regional authorities played a central role in the development and adaptation of governance models within ROBIN. Another key stakeholder group is the MARCs (Multi-Actor Regional Constellations), which worked alongside regional authorities to assess regional strengths, weaknesses, opportunities, and threats (WP2). MARCs were actively involved in the co-creation of governance models, contributed to shaping action plans for implementation, and played a crucial role in the deployment of the ROBIN Toolbox.

A core objective of the project is to broaden stakeholder engagement throughout the implementation of regional activities and the subsequent operationalization of governance models. These additional stakeholders were selectively involved in specific activities, offering their expertise, insights, and experiences to support regional authorities and MARCs.

The MA&E framework was designed to systematically track and analyse project outcomes, long-term impact, and changes in stakeholder perceptions, as outlined in the following sections of this document.

3. Overall Approach

This chapter outlines the methodology adopted for the development of the MA&E framework within the ROBIN project. It presents the overall strategic approach, the key steps taken, and the principles that guided the framework's creation. Special attention is given to ensuring that the framework aligns closely with the project's objectives, while capturing the complexity of regional governance contexts and supporting an evidence-based evaluation of progress and impact. By incorporating a multi-layer and participatory methodology, the framework seeks to offer a comprehensive and robust tool to assess project achievements, stakeholder engagement, and long-term transformative effects.

3.1 Key Steps

When designing the MA&E framework, it was crucial to align the intervention logic with the overall objectives of the ROBIN project and the transformative changes it seeks to achieve. Recognizing the project's ambition to accelerate the circular bioeconomy transition through improved governance models, a structured and participatory process was applied.

*ROBIN adopts a **multi-layer methodology** for measuring the overall progress and impact of its activities, incorporating a **participatory approach**.* By incorporating different layers of assessment, a multi-layer methodology provides a more nuanced and comprehensive evaluation of the project's overall progress and effectiveness.

Figure 3: Steps in development of the framework

With regard to the expected outcomes of MA&E, the initial step was therefore to translate the project objectives into the objectives of monitoring, evaluation and assessment of changes in perceptions.

In this step, the key document was the Grant Agreement, based on which the objectives of the MA&E framework, key evaluation questions, indicators, data sources, data collection methods, time period of data collection, as well as the responsible entities were defined.

3.2 From Project Objectives to Monitoring and Evaluation

As stated in the DoA**: "*ROBIN is set to empower Europe's Regions to adapt their governance models and structures in ways that accelerate the achievement of their circular bioeconomy targets, while promoting social innovation and accounting for different territorial contexts*."**

The ROBIN project utilizes a structured methodology to support regional partners in the transitioning towards more powerful governance models and structures in bioeconomy. Based on this main goal, the following objectives were defined in the DoA:

- *Objective 1 (O1): "**Understand the state of play** and **animate MARCs to advance circular bioeconomy governance** in European Regions".*
    - ROBIN aims to ensure a better understanding of how such models are shaped by their external and internal environments and which architectures apply. For this purpose, a typology of existing governance models was developed, and good uptake practices were identified.
    - 5 MARCs were established in the 5 ROBIN regions, comprised of key regional stakeholder representatives, providing key inputs in the initial phase of the project concerning the existing governance models, challenges and barriers, but also drivers and opportunities were defined. The MARCs are also expected to play a key role in the process of governance models creation/adaptation throughout the project implementation.
- *Objective 2 (O2): "**Co-create a need driven and user-validated digital Toolbox to drive the circular bioeconomy transition in a variety of regional settings"**.*
    - To drive the transition towards innovative and effective bioeconomy governance models, the project aim is to develop a practical ROBIN Toolbox, consisting of actionable knowledge, a portfolio of coordination and support actions and user-friendly tools, which is expected to help the regions meet their unique challenges and opportunities, addressing economic, social and environmental dimensions.
- *Objective 3 (O3): "**Deploy the ROBIN Toolbox to guide the development and operation of appropriate governance models and structures** in five European regions".*
    - ROBIN has designed a structured methodology, tailored to the bioeconomy development level and the territorial characteristics of the regions. It guides the ROBIN regions in the process of regional governance models' creation/adaptation while deploying the ROBIN Toolbox is expected to facilitate the development and operationalization of the governance models and structures that are able to drive the circular bioeconomy transition.
    - The transition process will be co-created and co-implemented with the MARCs and other regional actors, ensuring engagement of a diverse groups of stakeholders in the process.
- *Objective 4 (O4): "**Evaluate results, and use evidence** to communicate the project results, **inform policy, promote mutual learning** and **facilitate widespread uptake** and sustainable exploitation".*
    - To ensure sustainability and use of ROBIN results after the project end, it is key to grasp and assess the impact of ROBIN, producing the evidence to back its communication messages and the dissemination of the results.
    - Data will be collected to learn if the expected change(s) occurred, especially if there was progress in governance models' creation/adaptation achieved.

The Table 1 provides an overview of the project objectives, associated objectives of monitoring, evaluation and perception change assessment, as well as the main focus of monitoring, evaluation and assessment.

Table 1: From project objectives to objectives of monitoring, assessment and evaluation

Project objective defined in the DoA	Focus of monitoring, assessment and evaluation	Monitoring, evaluation and assessment objective
Objective 1 (O1): **Understand the state of play and animate MARCs to advance circular bioeconomy governance** in European Regions.	Active engagement of MARC members and other stakeholders in the development of circular bioeconomy governance models and structures and understanding of opportunities, needs and gaps in governance models for bioeconomy transition, including the contextual factors shaping governance models.	○ Monitor stakeholders' engagement in the collaborative policy making ○ Evaluate the effectiveness of the project in promoting a better understanding of existing governance models, gaps and needs.
Objective 2 (O2): **Co-create a need driven and user validated digital Toolbox to drive the circular bioeconomy transition in a variety of regional settings**	Evaluate provision of a relevant and efficient Toolbox to drive the circular bioeconomy transition in a variety of regional settings	○ Evaluate the alignment of the Toolbox with regional challenges and opportunities
Objective 3 (O3): **Deploy** the ROBIN **Toolbox to guide the development and operation of appropriate governance models and structures** in five European regions.	Monitor and evaluate the deployment of the ROBIN Toolbox in guiding the development and operation of governance models and structures across five European regions and enhancement of stakeholder engagement, improved bioeconomy strategies.	○ Assess the contribution of the Toolbox on regional bioeconomy transition efforts while addressing economic, social, and environmental dimensions. ○ Evaluate the evolution of capacities within the region to ensure the transition to a circular bioeconomy and the development of appropriate governance models and structures.
Objective 4 (O4): **Evaluate results, and use evidence** to communicate the project results, **inform policy**, **promote mutual learning** and **facilitate widespread uptake** and sustainable exploitation.	Utilize findings to effectively communicate project outcomes, inform policy decisions, foster mutual learning among stakeholders, and facilitate widespread uptake and sustainable exploitation of the project's achievements.	○ Assess the progress of development or adjustment of circular bioeconomy governance models and structures supporting bioeconomy transition. ○ Collect feedback from regional authorities, MARC members and other stakeholders on challenges, achievements, and lessons learned in the process of innovative Regional Circular Bioeconomy

		Governance Model design and development. ○ Collect feedback on the long-term impact and utilization of ROBIN results.

3.3 Multi-layer Methodology

The multi-layer methodology is ensured from several aspects. The approach taken consists of **a comprehensive and multi-faceted methodology, involving various metrics, and evaluation criteria** to ensure a thorough examination of different aspects of the project's performance.

In practice, to capture a comprehensive understanding of its progress, the following levels are assessed within different work packages.

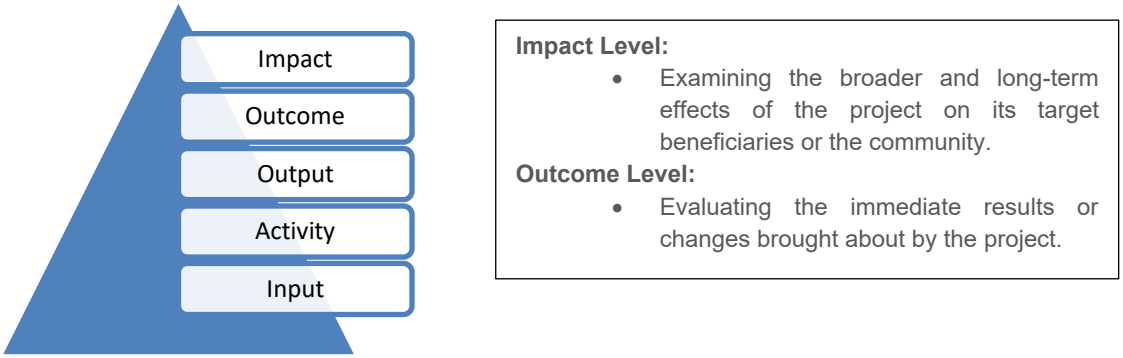


Figure 4: Multi-layer methodology

3.4 Participatory approach

A cornerstone of ROBIN's methodology is its **strong participatory dimension**. With regional representatives both as partners and beneficiaries, **the project facilitates continuous dialogue with key stakeholders throughout the project lifecycle**. This participatory process ensures that **the framework captures regional needs, perspectives, and lessons learned**.

Moreover, the inclusion of regional representatives within the consortium enhances connectivity and communication with other regional stakeholders, including both MARC members and additional actors. From the perspective of MA&E, the participatory approach is structured around stakeholder dialogue at three distinct levels, differentiated by the degree and intensity of their engagement in project activities:

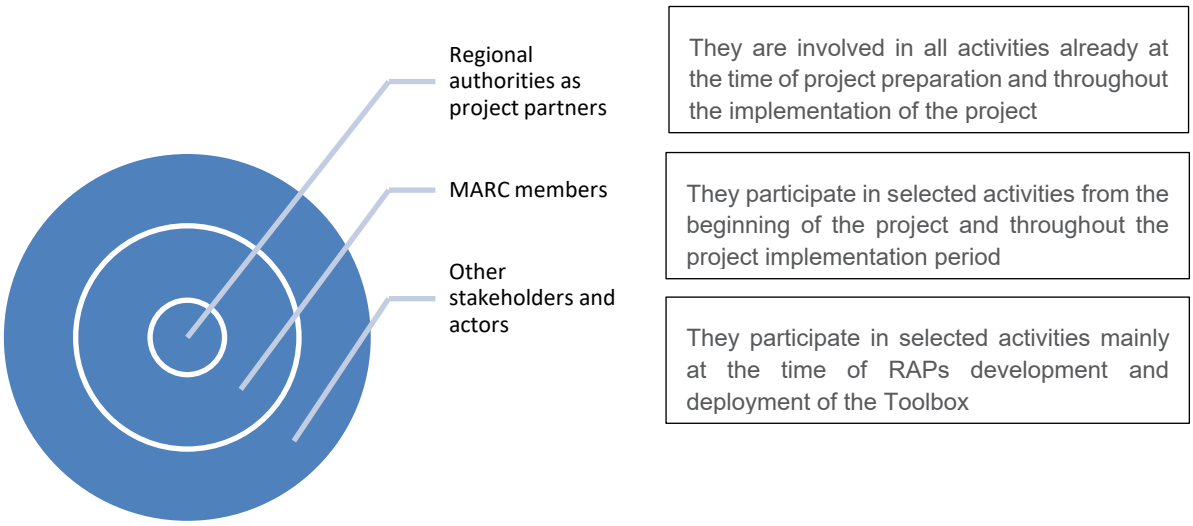


Figure 5: Key stakeholders to be involved in MA&E

3.5 Triangulation

In addition to that, triangulation was ensured by g**athering data from multiple sources to enhance the reliability and validity of the data collected**.

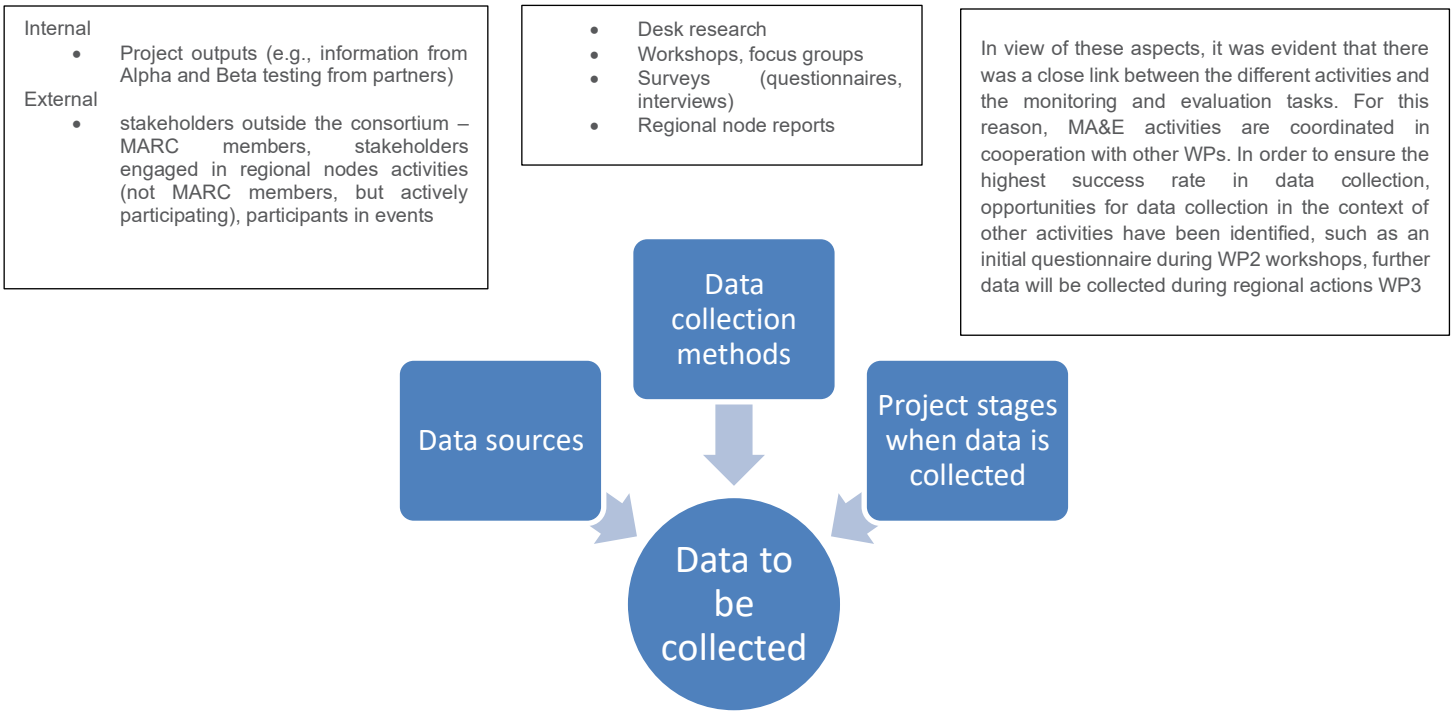


Figure 6: ROBIN approach to ensure reliability and validity data collected

4. Monitoring, Assessment and Evaluation Framework

This section provides an insightful exploration into the monitoring methods and tools embraced by ROBIN to systematically track the progress, effectiveness, and impact of its initiatives.

4.1 Monitoring methods

Figure 7 below illustrates the project's overall methodology, highlighting the integral role of monitoring, assessment, and evaluation. **Data collection was strategically integrated with other project activities to maximize synergies.** In collaboration with Work Package leaders, opportunities for data collection were identified and incorporated into relevant project actions.

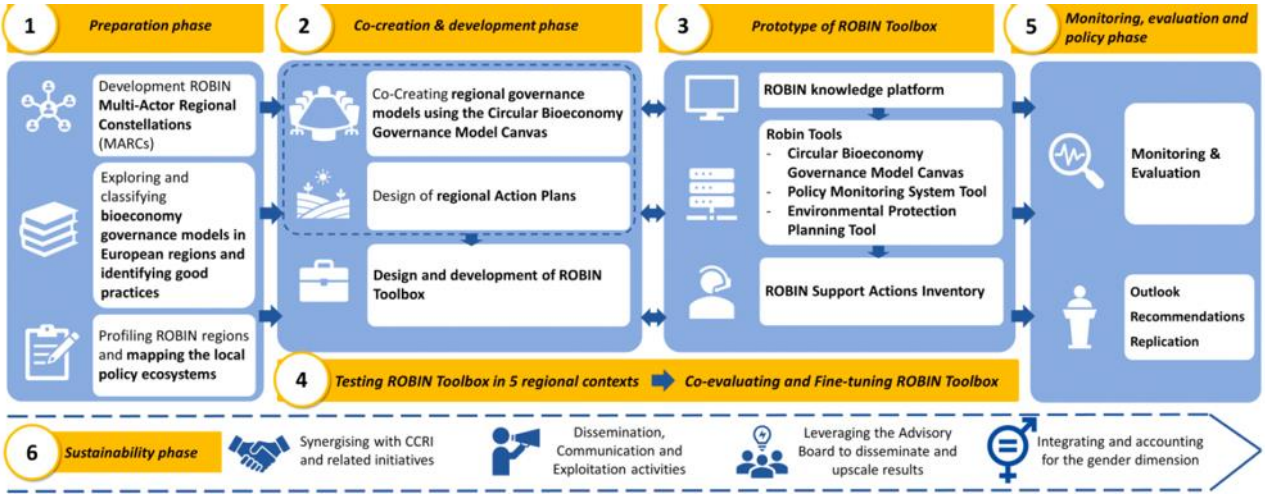


Figure 7: The overall methodology of the ROBIN project

The ROBIN project facilitated the creation of regional nodes, consisting of MARC members, as well as other key actors and stakeholders in the region. Throughout the project, the regional nodes implement several activities engaging these stakeholders, as defined in the RAPs. In addition to that, the regional nodes engage the stakeholders in various events, e.g. the stakeholder events.

In this context, the ROBIN MA&E includes several methods to ensure that data and other information are collected at all project levels and from all regional nodes' activities.

The key processes employed include:

- **Obtaining data on the overall progress of governance model development** from regional node coordinators through the regional node regular updates;
- **Gathering feedback on specific aspects of governance model development or adjustment** from participants in regional node updates and report;

- **Collecting of data from event participants on their perceptions of the process of developing governance models** from regional nodes events, as well as **understanding needs, gaps and opportunities** to accelerate transition towards circular bioeconomy in the region; and
- **Obtaining information on main outcomes and impacts, as well as lessons learnt** from key stakeholders through stakeholder interviews.

Table 2: Timeline of data collection

	Oct. 23	Nov. 23	Dec. 23	Jan. 24	Feb. 24	Mar. 24	Apr. 24	May 24	Jun 24	Jul. 24	Aug. 24	Sep. 24	Oct. 24	Nov. 24	Dec. 24	Jan. 25	Feb . 25	Mar. 25	Apr. 25
Month Action	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
WP4					Baseline questionnaire		Toolbox questionnaire			Endline questionnaire Regional report				Beta questionnaire		Toolbox questionnaire	Final round of interviews	Regional report	

4.1.1 *Method 1: Collection of Feedback from Key Stakeholders via Alpha Testing Questionnaires*

The Alpha Testing phase of the ROBIN project was designed to assess the initial impact of the ROBIN Toolbox on governance models and structures within the circular bioeconomy. This phase (March-August 2024) involved a structured evaluation process through the administration of two key questionnaires – the Baseline Questionnaire and the Endline Questionnaire – aimed at capturing stakeholder perceptions before and after the Alpha Testing period.

- **Baseline Questionnaire** (Annex IV): Baseline Questionnaire was conducted at the outset of the Alpha Testing phase, targeting project partners, MARC members, and other key regional actors engaged in the development and improvement of governance models. This instrument gathered insights from a diverse set of stakeholders to establish an initial understanding of expectations, challenges, and contributions related to the ROBIN Toolbox. A minimum of 10 respondents, from different stakeholder groups, participated in the survey to ensure a representative dataset.
- **Endline Questionnaire** (Annex IV): Following the completion of the Alpha testing and validation process, the Endline Questionnaire was administered to the same group of respondents. This follow-up assessment aimed to measure changes in stakeholder perceptions regarding the ROBIN Toolbox, evaluating its practical relevance and effectiveness in shaping governance structures.

By comparing responses from both questionnaires, **the Alpha Testing phase provided valuable data on the evolution of stakeholder perspectives and the extent to which the ROBIN Toolbox contributed to advancing governance in the circular bioeconomy**.

Both the Baseline and Endline Questionnaires consisted of 29 questions distributed across the following seven sections:

- *Section I:* **Basic information about the respondent**
- *Section II:* **Capacities in designing, implementing, monitoring and evaluating the bioeconomy governance models**
- *Section III:* **Stakeholders engagement**
- *Section IV:* **Local potentials and innovation assets**
- *Section V:* **Opportunities**
- *Section VI:* **Policy Areas**
- *Section VII:* **Business Models and Social Measures**

The findings from the Alpha Testing phase served as a foundation for subsequent stages of evaluation, particularly the Beta Testing phase and Final Interviews, allowing for a comprehensive assessment of the ROBIN project's impact.

The primary objective of the project was to engage a broad spectrum of stakeholders, ensuring that diverse perspectives were integrated not only into the development of the Regional Circular Bioeconomy Governance Models but also throughout their operational phase. A central strategy for fostering stakeholder engagement involved the organization of various events that provided stakeholders with opportunities for active participation.

Table 3: Method 1 – Collection of Feedback from Key Stakeholders via Alpha Testing Questionnaires

Method 1 summary	
How is data collected (Method and tool)	WP4: Two questionnaires (**Annex IV**) during the Alpha Testing Phase, focusing on collecting data on project outcomes, impacts and change occurred.
When is data collected (Timing)	Baseline questionnaire before the start of the Alpha Testing and validation – until M17. Endline questionnaire after the Alpha testing and validation execution – until M23.
Who collects data (Data processor)	The respective regional node coordinator, supported by the contributor.
How on-time delivery is ensured (From design to action)	Regional node is provided with templates and responsible for mobilising stakeholders, incl. MARC members. WP4 leader, responsible for collection of WP4 questionnaires, prepared the questionnaires in advance, allowing partners to translate the questionnaires. Regional nodes were asked to contact the selected stakeholders to fill in the questionnaires.

How is data used (Steps forward)	WP4: The regional node aggregated and anonymised the data and uploaded it to a dedicated reporting database. Task 4.1 leader (PED) used the data from the questionnaires for assessment and evaluation purposes.

4.1.2 *Method 2: Collection of Feedback from External Stakeholders via Beta Testing Questionnaire*

Beta Testing, as the second phase of testing and validation, was a crucial step in refining the Toolbox and other aspects of the project by engaging regional authorities and stakeholders beyond the initial project participants. The Beta Questionnaire was developed to gather data following the completion and evaluation of the first testing and validation phase (Alpha Testing).

- **Beta Questionnaire**: (Annex V): Beta Questionnaire was designed to be completed by stakeholders from external regions, distinct from the pilot regions of the ROBIN project, which had already participated in Alpha Testing. The primary objective of the Beta Questionnaire was to assess the perceptions of the ROBIN project after the second testing and validation phase from the perspective of stakeholders who were new to the project. It focused on key areas to gather relevant, targeted feedback from these new stakeholders.

The questionnaire was structured to allow participants to provide both quantitative and qualitative feedback, which enabled the following objectives:

- **Assess stakeholders' understanding and perceptions** of governance models and opportunities within the circular bioeconomy,
- **Identify barriers and enablers to implementation** in diverse contexts, and
- **Collect actionable insights** for refining tools and governance frameworks.

The Beta Questionnaires consisted of 15 questions distributed across the following four sections:

- *Section I:* **Respondent Information**
- *Section II:* **Circular Bioeconomy Governance Models**
- *Section III:* **Circular Bioeconomy Opportunities**
- *Section IV:* **Circular Bioeconomy Enablers & Partnerships**

The questionnaire was thus designed to collect structured feedback from stakeholders in at least two external regions. This structured approach ensured comprehensive stakeholder engagement and facilitated the collection of diverse perspectives, which are needed for the continuous improvement of the ROBIN project.

Table 4: Method 2 – Collection of Feedback from External Stakeholders via Beta Testing Questionnaire

Method 2 Summary	
How is data collected (Method and tool)	WP4: One questionnaire (**Annex V**) during the Beta Testing Phase, focusing on collecting data on project outcomes, impacts and change occurred.

When is data collected (Timing)	Beta questionnaire during the Beta Testing and validation execution – until M31.
Who collects data (Data processor)	The respective regional node coordinator, supported by the contributor.
How on-time delivery is ensured (From design to action)	The respective regional node coordinator was provided with the template and instructions in advance.
How is data used (Steps forward)	WP4: The regional node aggregated and anonymised the data and uploaded it to a dedicated reporting database. Task 4.1 leader (PED) used the data from the questionnaire for assessment and evaluation purposes.

4.1.3 *Method 3: Collection of Feedback from Selected Stakeholders via Final Interviews*

The purpose of the Final Interviews was to gather in-depth qualitative data regarding the activities and outcomes of the ROBIN project, as well as the overall progress made by the ROBIN regions in the development of the Regional Circular Bioeconomy Governance Models. These results were used as a cross-reference to the data collected through previous methods and served to complement the quantitative information gathered through other approaches.

During months 28-31 (Dec 2024 – March 2025), as the activities of the regional nodes neared completion, PED conducted interviews with four stakeholders, representing a range of internal and external stakeholder groups, using a semi-structured questionnaire. The interviews began with a brief presentation summarizing the progress toward achieving the project objectives, with a particular emphasis on the activities of the regional nodes aimed at facilitating the development and operationalization of circular bioeconomy governance models. Each stakeholder was then invited to share their perspectives on the impact and significance of the activities carried out by their respective regional node, providing insights based on their expectations for the project.

Furthermore, the interviews were utilized to cross-reference the results obtained through quantitative methods. The focus of the interviews was to explore the underlying factors influencing the trajectory of impacts and to identify any attributions stemming from other concurrent projects and initiatives.

Table 5: Method 3 – Collection of Feedback from Selected Stakeholders via Final Interviews

Method 3 Summary	
How is data collected (Method and tool)	Final round of interviews (**Annex VI**) with selected stakeholders (4 per region, 20 in total) conducted close to the end of the project.
When is data collected (Timing)	M28-M31

Who collects data (Data processor)	PED as the Task 4.1 leader.
How on-time delivery is ensured (From design to action)	The interviews were planned well in advance. Selection of the stakeholders to be interviewed were done in collaboration with the regional node, which also provide support in contacting and arranging the interviews.
How is data used (Steps forward)	PED aggregated and anonymised the data and uploaded it to a dedicated reporting database. PED, as the Task 4.1 leader, used it for the assessment and evaluation purposes.

The interviews were conducted remotely via Microsoft Teams, involving a total of **20 stakeholders across five regions**. Stakeholders from each region participated in a single group interview, with **four representatives per region**. The interviews lasted between 40 and 60 minutes and included participants from all sectors of the Quadruple Helix, meaning representatives of Public Authority, Higher Education/Research, Business, and Civil Society/NGO (Non-governmental organisation).

The Final Interviews (Annex VI) consisted of 7 questions distributed across the following three sections:

- *Section I:* **Governance Model Development and Stakeholder Engagement**
- *Section II:* **ROBIN Toolbox Effectiveness**
- *Section III:* **Lessons Learned and Recommendations for Future Governance Models**

All responses were anonymized and used solely for project assessment and reporting purposes. The interviews were not recorded; instead, the interviewers documented the discussions through written notes. Furthermore, in compliance with the ROBIN Privacy Policy, all interviewees signed a Consent Agreement before participating in the interviews.

4.2 Assessment and Evaluation techniques

The following section presents the methods used to assess and evaluate the ROBIN project's outcomes. It describes the mixed-methods approach for data collection and analysis across different phases, ensuring the triangulation of findings; a summary of data collection activities and their timeline is also provided.

The assessment and evaluation activities were based on **the systematic aggregation and analysis of quantitative and qualitative data collected throughout the Alpha Testing, Beta Testing, and Final Interview phases**. The evaluation framework incorporated **a mixed-methods approach**, enabling the triangulation of multiple data sources and the cross-validation of findings across different stages and stakeholder groups.

Quantitative data, gathered through structured questionnaires, were analysed using descriptive statistical methods. **Changes in stakeholder perceptions, governance capacities, engagement**

dynamics, and knowledge levels were measured to assess the evolution of regional bioeconomy governance models over time.

Regional comparisons were performed to identify patterns, divergences, and commonalities across the five ROBIN pilot regions. This regional dimension of the analysis was critical for understanding the contextual factors influencing the outcomes and impacts observed, and for highlighting both region-specific achievements and shared challenges.

Qualitative data, collected primarily through the Final Interviews and open-ended survey responses, were subjected to thematic analysis. **Key themes and narratives were identified, allowing a deeper understanding of the motivations, barriers, and enablers influencing the implementation of circular bioeconomy governance models at the regional level.**

Through this multi-layered analysis, the evaluation sought not only to assess the direct results of the ROBIN interventions but also to capture the broader systemic changes fostered by the project activities. Particular attention was paid to **shifts in stakeholder perceptions**, as these changes represent crucial indicators of the project's potential to generate long-term transformational impacts within regional governance ecosystems.

The findings of the assessment and evaluation activities are presented in the subsequent sections, structured by testing phase and complemented by comparative tables and region-specific insights.

4.3 Summary and timeline

To provide a full picture, the summary and timeline below includes all the data collection activities.

Table 6: Summary of methods, target groups, partners responsible for data collection and timeline

Method	Target group	Partner responsible for data collection	Timeline
Collection of Feedback from Key Stakeholders via Alpha Testing Questionnaires	Regional nodes representatives Regional stakeholders – MARC and other key actors and stakeholders participating in the events Participants of stakeholder engagement events	Partners in each region	1. Initial survey conducted in WP2 2. Survey collecting baseline data at the beginning and endline data at the end of the Alpha Testing and Validation phase; and survey collecting data from external stakeholders during the Beta testing Initial survey: until M10 Baseline (Alpha): until M17 Endline (Alpha): until M23

Collection of Feedback from External Stakeholders via Beta Testing Questionnaire	Regional stakeholders coming from external regions Participants of stakeholder engagement events coming from external regions	Partners in each region	Survey collecting data from external stakeholders during the Beta testing Beta (Beta): until M31
Collection of Feedback from Selected Stakeholders via Final Interviews	4 stakeholders per region (Quadruple Helix)	PED	Until M31

5. Key Results

5.1 Alpha Testing Phase (Method 1)

5.1.1 *Summary of Findings from Each Region*

The following sections present the summaries of the main findings from the Alpha Testing conducted across the five ROBIN project regions. A detailed description of the findings from each region can be found in Annex I.

Table 7: Respondent Numbers by Region

Region	Baseline	Endline
Andalusia, Spain	15	12
Baden Württemberg, Germany	10	10
Central Macedonia, Greece	10	10
Southern Region, Ireland	11	10
Žilina, Slovakia	10	10

Table 8 summarizes **seven key dimensions across all five ROBIN regions**, comparing baseline and endline results from the Alpha testing phase. In total, 35 respondents participated at baseline and 32 at endline across Andalusia, Baden-Württemberg, Central Macedonia, Southern Region, and the Žilina Region.

Table 8: Cumulative results and main findings across all five ROBIN regions

Dimension / Region	Andalusia (ES)	Baden-Württemberg (DE)	Central Macedonia (GR)	Southern Region (IE)	Žilina Region (SK)
Governance capacity	Strong experience in designing & implementing governance models, though gaps remain in monitoring & driving innovation	Governance questions largely unanswered (no authority reps); overall capacity unclear	Moderate-to-high experience in design & evaluation; notable improvement in M&E over time	Mixed levels of expertise; capacity to formulate actionable plans remains limited	Growing competence in design & implementation, but persistent gaps in M&E and innovation support
Stakeholder engagement	Perceived opportunities and collaborative policymaking improved, yet need	Moderate engagement with slight gains; low familiarity with	Clear positive shift in engagement levels; barriers are identified though	Engagement perceptions rose marginally, but actual	Stronger recognition of benefits and more frequent collaboration;

	for more inclusive processes	solutions to overcome barriers	solution-awareness varies	involvement still uneven	engagement opportunities rising
Local potential & innovation	Solid capacity to exploit local bio-assets; potential to deepen support	Upward trend in capacity to leverage bio-assets; some areas still need reinforcement	Improved ability to exploit assets and to develop acceleration strategies	Strategy-development capacity improving, though uneven across stakeholders	Marked gains in both asset exploitation and strategy development capacities
Business & market opportunities	Stable-to-high knowledge of transnational markets; need for more proactive promotion	Strong baseline knowledge; perceptions held steady with slight gains	Noticeable improvements in knowledge of transnational and regional opportunities	Knowledge stable, but regional/local authority capacity to promote these remains low	Growing understanding of cross-border markets; authority capacity remains mixed
Policy & strategy gaps	Widespread call for stronger bio-economy policies and clearer monitoring frameworks	Policy questions unanswered due to missing authority data	Increased awareness of which policy areas need improvement; environmental assessment gap still large	Gaps in actionable plan capacity and policy familiarity persist	Positive shift in policy knowledge; further policy support needed to drive transition
Business models & social measures	Solid but static knowledge; capacity building needed for novel models and measures	High motivation and improved capacity to develop new models	Strong motivation, with growing capacity to craft innovative business & social measures	Emerging capacities with some limited gaps; need more training/support	Noticeable uptick in confidence and capacity to design new models and measures
Environmental awareness & action	Moderate familiarity with climate-neutral benefits; high motivation to adopt sustainable practices	Strong commitment; motivation and early action-plan development evident	High motivation and social focus; footprint assessment capabilities still maturing	Motivation steady, but environmental-impact estimations largely unavailable	Motivation very high; growing capacity for footprint assessment and action plans

Sample retention was strongest in Baden-Württemberg and Central Macedonia, which both held steady at 10→10 respondents, and likewise in the Southern and Žilina regions. By contrast, Andalusia saw its sample shrink from 15 to 12 (-20%), highlighting potential challenges in follow-up survey logistics.

In **governance capacity**, Andalusia reported that 42% of endline respondents rated their experience designing bioeconomy models at the top two levels (4-5), yet they still lag in monitoring and evaluation skills. In Central Macedonia, those claiming “very good” or “excellent” governance experience more than doubled, from 2 to 5 participants.

For **stakeholder engagement**, Andalusia’s endline data show that 83% of respondents selected “good” or “excellent” opportunities (scores 4-5), up from just 27% at baseline. The Žilina Region exhibited an even more dramatic shift, from only 10% in the top two categories at baseline to 80% at endline.

Regarding **local innovation potential**, Žilina’s endline figures reveal 80% of respondents rating regional capacity to leverage bio-assets as 4-5, compared with a solitary “good” rating at baseline.

Baden-Württemberg also saw improvements, with “very good” ratings increasing from 4 to 5 out of 10.

Finally, **transnational business knowledge** in Andalusia eliminated all “no knowledge” responses by endline, and Central Macedonia’s “very good” ratings leapt from 30% to 70%, underscoring rapidly growing market awareness.

These figures point to gains in engagement, governance confidence, and innovation capacity – particularly in Central Macedonia and Žilina – while also flagging attrition in Andalusia and ongoing needs in monitoring, policy development, and action-plan implementation.

5.1.2 *Comparison of Regions and Main Findings*

Key Findings Across Regions

Across all regions, the Alpha Testing Phase yielded several consistent insights:

- **Enhanced Stakeholder Engagement**: Active participation in co-creation workshops demonstrated stakeholders’ strong willingness to engage in the development and refinement of regional governance models.
- **Feedback on Tools and Processes**: Initial evaluation of the Toolbox revealed the need for greater clarity and usability of data-collection instruments, informing improvements for subsequent testing phases.
- **Early Identification of Challenges**: Limited experience in monitoring and evaluating bioeconomy strategies emerged as a common concern, underscoring the need for capacity-building efforts.
- **Perception of Governance Models**: Respondents viewed the emerging governance frameworks positively, noting progress in collaboration and policy alignment.
- **Regional Variations**: Shared trends emerged alongside differences in experience, preparedness, and readiness across regions, reflecting diverse starting points and emphasizing the need for adaptable, context-specific implementation strategies.

Conclusion and Impact of ROBIN

The Alpha Testing Phase was pivotal in shaping the future trajectory of the ROBIN project, providing essential evidence on the functionality and regional relevance of the ROBIN Toolbox.

- **Foundations for Capacity Building:** The identification of a widespread gap in experience related to the monitoring and evaluation of bioeconomy strategies underscored the importance of integrating capacity-building measures into the project's next phases.
- **Strengthened Stakeholder Dynamics:** The robust engagement observed in co-creation activities reaffirmed the critical role of stakeholder collaboration in driving regional governance innovation.

- **Progress in Governance Development:** Early assessments indicated a positive reception of the governance models in progress, suggesting meaningful advancement in policy coordination and stakeholder alignment.
- **Informed Refinement of Tools:** Feedback gathered during this phase directly influenced the refinement of the Toolbox, particularly regarding the clarity and user-friendliness of its components.
- **Insights for Tailored Implementation:** Variations between regions confirmed the necessity for flexible, context-adapted strategies, guiding the project's emphasis on regional specificity in future interventions.

Overall, the insights obtained during Alpha Testing were instrumental in refining project methodologies, strengthening regional engagement strategies, and aligning the ROBIN Toolbox more closely with the diverse needs of European regions transitioning towards circular bioeconomy governance.

5.2 Beta Testing Phase (Method 2)

5.2.1 Summary of Findings from Each Region

The following sections present the summaries of the main findings from the Beta Testing conducted across the five ROBIN project regions. A detailed description of the findings from each region can be found in Annex II.

Table 9: Summary results of the Beta Testing

Region	# Respondents	Section I: Governance Models	Section II: Capacity & Motivation	Section III: Knowledge & Awareness	Section IV: Overall Perception of ROBIN
Andalusia, Spain	3	Governance models at early stage; recognized need for improved stakeholder coordination	Motivation was strong, but constrained by resource limitations	Limited knowledge at the start; strong improvement after Toolbox use	High appreciation for the Toolbox; increased clarity on circular bioeconomy
Baden-Württemberg, DE	5	Moderate development of governance models; fragmentation noted	Strong individual motivation, but structural limitations identified	Notable improvement in understanding of CBE concepts	ROBIN helped to visualize cross-regional inspiration; valued peer learning

Central Macedonia, GR	3	Clear governance structures in place, but limited formal strategy	Medium to high motivation; need for better financial support	Good initial awareness, which was further deepened through Beta engagement	Toolbox seen as practical and adaptable; boosted readiness for regional planning
Southern Region, IE	4	Governance efforts emerging; strong informal collaboration, lacking formal mechanisms	Motivation and willingness high; capacity and expertise still developing	Strong improvement in policy-related knowledge; increased strategic thinking	Strong perceived value in regional learning and adaptability of Toolbox
Žilina, SK	8	Well-developed governance vision; fragmented implementation and lack of vertical coordination	High motivation, growing capacity; still affected by institutional fragmentation	Broad awareness of CBE principles, significantly enhanced through cross-regional exchange	ROBIN considered highly relevant; inspired policy alignment and stronger stakeholder engagement

The cumulative results from the Beta testing phase offer clear insights into the evolving landscape of regional governance in the circular bioeconomy. With a total of **23 respondents** across five diverse regions the findings provide a comparative view of regional progress in governance, capacity, awareness, and overall perception of the ROBIN Toolbox.

Section I: Governance Models

Across the regions, governance structures were generally acknowledged to be in **early to moderate stages of development**, though trajectories varied. In **Andalusia**, stakeholders openly recognized the early-stage nature of governance efforts, emphasizing the need for better coordination mechanisms. **Southern Ireland** reported a similar situation, where informal collaboration was strong but lacked formalized structures or strategic anchoring.

On the opposite end, the **Žilina Region** presented a relatively **well-developed governance vision**, though respondents cited challenges with implementation, especially in vertical coordination between policy levels. **Central Macedonia** reported having clear structures but limited strategic direction, while **Baden-Württemberg** highlighted fragmented efforts despite moderate institutional maturity.

This pattern reveals that **while most regions have laid foundational governance frameworks**, execution and strategic coherence remain areas in need of support. The Toolbox was particularly appreciated for clarifying governance steps and promoting integration.

Section II: Capacity and Motivation

Respondents from all five regions expressed **high levels of motivation** to engage in circular bioeconomy governance. However, this motivation was **consistently tempered by resource limitations** – including insufficient human, financial, and technical capacity.

In **Žilina**, motivation was described as "high," supported by growing capacity and proactive engagement, though hampered by institutional fragmentation. Similarly, **Baden-Württemberg** respondents noted strong individual interest, yet pointed to structural constraints within the governance system. **Southern Ireland** stood out for its enthusiastic participation despite early-stage capacity levels, suggesting strong potential for growth if supported by targeted training and institutional investment.

The results in this section underscore the **critical need for capacity-building efforts**, which the ROBIN project directly addresses through tailored modules and peer exchange formats.

Section III: Knowledge and Awareness

The most notable transformation occurred in this dimension. All regions reported a **clear increase in awareness and understanding of circular bioeconomy principles** following their exposure to the ROBIN Toolbox and related activities.

In **Andalusia** and **Southern Ireland**, the improvement in knowledge was particularly significant. Respondents in Andalusia, who initially reported limited familiarity with circular bioeconomy concepts, later reflected greater confidence and clarity. Similarly, in **Southern Ireland**, awareness grew substantially, especially in areas related to policy strategy and systems thinking.

Even in regions with higher initial knowledge, such as **Central Macedonia** and **Žilina**, respondents reported that the Toolbox **deepened their understanding**, offered more structured guidance, and introduced valuable cross-regional comparisons.

This reinforces the effectiveness of the Toolbox not only as a decision-making aid but also as an **educational and empowerment tool**, accessible to a wide range of stakeholders.

Section IV: Overall Perception of the ROBIN Toolbox

The overall perception of the ROBIN Toolbox was **consistently positive across all five regions**. Respondents valued the structure, adaptability, and the potential for the Toolbox to support real-world governance enhancements. Many highlighted the inspiration they drew from examples and outputs from other ROBIN regions, especially in shaping their own strategies.

In **Central Macedonia**, for instance, the Toolbox was described as "practical and adaptable," while stakeholders in **Southern Ireland** noted its relevance for regional learning and capacity building. **Baden-Württemberg** respondents appreciated the visual clarity and cross-regional insights that the Toolbox facilitated, and in **Žilina**, its policy alignment features were seen as particularly valuable for guiding long-term governance adjustments.

The Beta phase also showed that **respondents anticipated long-term benefits** from adopting ROBIN's tools and methods. This optimism speaks to the broader systemic value of the project—not just as a short-term intervention, but as a catalyst for sustained, adaptive governance in the circular bioeconomy.

5.2.2 *Comparison of Regions and Main Findings*

Key Findings Across Regions

Across all regions, the Beta Testing Phase yielded several consistent insights:

- **Understanding and Perception of Circular Bioeconomy**: ROBIN Toolbox improved stakeholders' understanding of circular bioeconomy governance, though the impact varied by region.
- **Applicability of the ROBIN Toolbox**: Decision-making support tools of the Toolbox and territorial approaches were among the most valued elements.
- **Long-term Benefits**: Most respondents anticipated positive impacts from the project, with varying levels of confidence.

Comparison of Regions

Table 10: Comparison of Regions, Beta testing, ROBIN Project

Region	Development of Circular Bioeconomy	Impact of ROBIN on Understanding	Key Challenges	Valued ROBIN Elements	Anticipated Changes
Andalusia, Spain	Beginning stages to advanced	Strong positive impact	Lack of human resources, expertise	Toolbox, cross-regional collaboration	High potential for governance improvement
Baden-Württemberg, DE	Beginning stages to advanced	Limited impact	Limited expertise, financial constraints	Toolbox, circular economy principles	Uncertainty about governance changes
Central Macedonia, GR	Beginning to moderately developed	Moderate impact	Lack of human resources, limited expertise	Community engagement, Toolbox	Possible but uncertain changes
Southern Region, IE	Beginning stages to not developed	Strong positive impact	Financial constraints, lack of human resources	Toolbox	Some governance improvements expected
Žilina, SK	Beginning to moderately developed	Strong positive impact	Financial constraints, lack of human resources	Cross-regional collaboration, Toolbox	Strong anticipation of benefits

Conclusion and Impact of ROBIN

The Beta Testing Phase successfully validated the ROBIN Toolbox across diverse regional settings, identifying key strengths and areas for improvement.

- **ROBIN Project's Contribution**: The Toolbox serves as a valuable instrument for decision-making, capacity building, and policy development.
- **Regional Differences**: Some regions (e.g., Andalusia, Southern Region, Žilina) showed strong enthusiasm, while others (e.g., Baden-Württemberg) exhibited more scepticism.
- **Future Steps**: Addressing funding and expertise gaps, strengthening interregional cooperation, and refining the ROBIN Toolbox based on stakeholder feedback.

Monitoring Progress on Environmental Indicators: A Post-Beta Assessment (KPI-5)

To assess progress toward KPI-5 (Key Performance Indicator 5: Improved socio-economic and environmental impacts), the ROBIN project relied on a two-stage evaluation process combining quantitative baseline data collected during the Alpha phase with post-intervention measurements gathered after the Beta testing. Particular attention was given to environmental indicators, as defined by the *Policy Monitoring System* of the ROBIN Toolbox, which serves as the official measurement tool referenced in the Grant Agreement.

In practice, regional nodes assessed the implementation of support actions and their perceived impact on the originally identified environmental challenges. The environmental assessment covered indicators related to the production of bio-based materials (e.g. textiles, plastics, chemicals), the environmental footprints in exporting countries, the financial support to bio-based sectors and the investments in urban adaptation via nature-based infrastructure and ecosystem-based approaches. The level of progress was recorded using the same PMS (Policy Monitoring System) scale for each indicator.

The results demonstrated that all regions reported measurable progress, around 27% on average, overcoming the target of 10-15% set by KPI-5. Notably, the largest improvements were observed in regions that started with limited engagement in the bioeconomy (e.g., Žilina, Central Macedonia, and the Southern Region of Ireland), while more advanced regions (e.g., Andalusia and Baden-Württemberg) reported more modest progress, reflecting their already well-established capacities. Specifically, Andalusia improved from 39% to 50%, Baden-Württemberg from 44% to 54% and Central Macedonia, Southern Region and Žilina from 0% to 38%, 33% and 42% respectively.

The findings underline the project's contribution to enhancing environmental coordination and stakeholder engagement, particularly in regions with less developed bioeconomy ecosystems.

5.3 Final Interviews (Method 3)

5.3.1 Summary of Findings from Each Region

The following sections present the summaries of the main findings from the Final Interviews conducted across the five ROBIN project regions. These interviews provided valuable qualitative

insights into stakeholder experiences, assessing the perceived effectiveness of the ROBIN Toolbox and its practical application within regional bioeconomy governance. The analysis highlights both the strengths and challenges encountered by stakeholders, offering a comprehensive understanding of how the project contributed to advancing governance models. Additionally, the findings identify lessons learned, which may inform future policy development and the implementation of bioeconomy governance strategies at regional and European levels.

A more in-depth analysis of the findings from each region is provided in Annex III.

Andalusia, Spain

Respondents in Andalusia recognized **the project's success in fostering regional networking**, **supporting knowledge exchange, and advancing governance structures for the circular bioeconomy**. Workshops and validation activities empowered stakeholders, with the Quadruple Helix approach seen as particularly valuable. Businesses and civil society organizations were actively involved, notably through operational groups like Oleovaloriza. However, **limited awareness of bioeconomy concepts among some stakeholders and administrative burdens were identified as barriers**. **The ROBIN Toolbox was widely appreciated for guiding planning and monitoring**, although participants **recommended enhancing cross-sectoral good practices and providing ongoing updates**.

Baden-Württemberg, Germany

The main impact in Baden-Württemberg was **the reinforcement of networking and stakeholder dialogue**, particularly among businesses and public authorities. Although the region already had a strong bioeconomy strategy, **ROBIN provided added value by fostering interdisciplinary cooperation**. **Challenges included reaching actors beyond the established bioeconomy community and addressing scepticism among businesses** regarding governance frameworks. **The Toolbox was considered useful, particularly for structuring discussions**, but participants suggested **improving user-friendliness, translating materials into regional languages, and offering more practical implementation guidelines**.

Central Macedonia, Greece

In Central Macedonia, **the project significantly strengthened multi-stakeholder engagement, with a focus on involving businesses, youth, and vulnerable groups**. The co-creation of governance models and the emphasis on community participation were highly valued. Key **challenges included low initial awareness of bioeconomy concepts and over-reliance on public sector leadership**. **The Toolbox was praised for its policy support instruments**, particularly the Environmental Protection Planning Tool, but respondents **recommended making tools more concise and offering structured online learning resources** to sustain engagement beyond the project's duration.

Southern Region, Ireland

In the Southern Region of Ireland, **ROBIN advanced understanding of circular bioeconomy governance, although stakeholder engagement faced obstacles**, particularly among SMEs and local communities. Respondents highlighted **the academic focus of project activities**, suggesting the need for simpler, more business-oriented tools and strategies. **Awareness-raising activities were seen as crucial** to overcome the perception of governance as bureaucratic. **The Toolbox was valued for strategic planning but required adaptation to be more accessible** for different stakeholder groups, particularly through sector-specific guidelines and improved usability.

Žilina, Slovakia

The Žilina region **leveraged ROBIN to reinforce its existing strategies for circular and bioeconomy development**. Stakeholders emphasized the importance of the Quadruple Helix model and **praised the project for facilitating cooperation among local authorities, SMEs, academia, and civil society**. Practical applications, such as the Regional Circular Economy Centres, were seen as key successes. **Challenges included limited time availability among stakeholders and the absence of strong national-level support**. **The Toolbox was considered highly effective, particularly for knowledge sharing and cross-regional learning**, though **emphasis was placed on integrating bioeconomy topics into existing governance structures** to avoid creating parallel processes.

5.3.2 Overall Findings – Assessment and Evaluation of Results

Governance Model Development and Stakeholder Engagement

Across all five regions, **the development of Regional Circular Bioeconomy Governance Models was widely acknowledged as a key achievement**. The ROBIN project effectively facilitated multi-stakeholder engagement through the Quadruple Helix approach, fostering collaboration among public authorities, businesses, academia, and civil society organizations.

Key findings across regions:

- **Advancement of Governance Models**: ROBIN provided significant support in developing Regional Circular Bioeconomy Governance Models, a widely recognized success across the regions.
- **Enhanced Networking and Cooperation**: ROBIN played a crucial role in strengthening inter-regional collaboration, knowledge exchange, and stakeholder networks.
- **Public-Private Collaboration as a Driving Force**: Regions with strong cooperation between governments, businesses, and research institutions saw the most progress. Expanding these partnerships and establishing dedicated bioeconomy platforms could enhance long-term engagement.
- **Stakeholder Engagement Disparities**: While engagement efforts were successful in some regions, others struggled to involve key actors, particularly private sector stakeholders and agricultural communities. Additionally, over-reliance on public authorities and bureaucratic constraints limited participation from the private sector and civil society.

- **Limited Awareness & Knowledge Gaps**: Many stakeholders, especially outside governance circles, have limited understanding of bioeconomy concepts. Education and targeted communication campaigns should be prioritized.

ROBIN Toolbox Effectiveness

The ROBIN Toolbox was generally seen as a valuable resource for policy development, stakeholder engagement, and capacity-building. However, its complexity and "academic language" were a concern, particularly for SMEs, local authorities, and civil society organizations.

Key findings across regions:

- **Utility Across Sectors and Regional Adaption**: Businesses utilized the Toolbox for strategic planning, policymakers for governance framework development, and civil society for monitoring and advocacy. The ability to tailor governance models to regional needs was seen as a major advantage.
- **Call for Simplification and Customization**: The ROBIN Toolbox was valuable but stakeholders recommended clearer guidelines, regional language support, and user-friendly interfaces to enhance accessibility and practical application, and maximize the impact.
- **Need for Continuous Updates**: The Toolbox requires regular updates and regional adaptations to remain relevant, with suggested improvements such as online courses, interactive elements, and structured support for implementation. It was highlighted that sustainability efforts should be carried out especially by future EU-funded initiatives under the same topic, and in general, the project's output should be highly promoted and used as starting point for improved tools.

Lessons Learned and Recommendations for Future Governance Models

The interviews highlighted critical insights for the future of circular bioeconomy governance, emphasizing **the need for inclusive stakeholder engagement, practical implementation strategies, policy coherence, and long-term sustainability measures**.

Key findings across regions:

- **Importance of Multi-Stakeholder Involvement**: Successful models require the active participation of farmers, SMEs, researchers, and policymakers to ensure inclusivity and long-term sustainability. The success of the national bioeconomy strategy is the sum of clear and tailored regional strategies, possible with continuous communication between the two levels.
- **Need for Practical Implementation Strategies**: There was a consensus that future efforts should focus on tangible actions rather than theoretical discussions, with a shift toward implementation-oriented initiatives. More practical, action-oriented support mechanisms are needed to help stakeholders move from strategic planning to real-world bioeconomy applications.
- **Enhancing Communication Strategies**: A more structured approach to knowledge dissemination, including storytelling techniques and showcasing success stories, would increase engagement and visibility.
- **Overcoming Barriers to Adoption**: Key obstacles included lack of policy alignment at the national level, insufficient financial support mechanisms, and competing regional priorities.

- **Sustaining Engagement Beyond the Project Lifecycle**: Several respondents expressed concerns about the long-term impact of ROBIN beyond the project duration. Ensuring long-term commitment requires institutional integration, structured funding opportunities, continuous stakeholder capacity-building, and integration into policy frameworks.

Opportunities for future actions:

The ROBIN project has also paved the way for new initiatives in circular bioeconomy governance:

- **Securing Long-Term Support and Financing**: Ensuring stable funding, institutional backing, and integrating bioeconomy initiatives into existing policy and funding programs will be essential for sustained impact.
- **Enhancing Cross-Sectoral and Cross-Border Collaboration**: Stakeholders identified opportunities for transnational partnerships, engaging the private sector, sharing best practices, and leveraging EU funding mechanisms to enhance cooperation.
- **Integrating Circular Bioeconomy into Policy Frameworks**: Several stakeholders emphasized the need to embed circular bioeconomy governance within existing regional, national, and EU regulatory frameworks to enhance legitimacy, impact, and alignment.
- **Expanding Business and Market Development**: Stakeholders expressed interest in scaling up bioeconomy initiatives, developing new business models, facilitating access to financing for startups and SMEs, and fostering innovation in bioproducts and waste valorization.
- **Promoting and Replicating Regional Success Models**: Highlighting and systematically replicating successful bioeconomy initiatives across regions could facilitate structured knowledge transfer, dedicated platforms, and broader implementation.

Conclusion and Impact of ROBIN

The Final Interviews confirmed that **the ROBIN project significantly contributed to strengthening circular bioeconomy governance across all five regions**. The key takeaways underscore **the importance of continued stakeholder engagement, policy alignment, and adaptation of governance models to regional needs**. By addressing existing challenges and leveraging new opportunities, ROBIN's legacy can foster a more inclusive, resilient, and effective bioeconomy transition across Europe.

Table 11: Summary Table for Key Findings by Region

Key Findings	Andalusia (ES)	Baden-Württemberg (DE)	Central Macedonia (GR)	Southern Region (IE)	Žilina Region (SK)
Networking & Collaboration	Strong	Strong	Strong	Moderate	Strong

Stakeholder Engagement Challenges	Low awareness, public-sector focus	Abstract concept, reaching businesses	Over-reliance on public authorities, complex terminology	Academic focus limits SME engagement	Limited national-level support
ROBIN Toolbox Usefulness	High – governance & education	High – policy & discussions	High – policy & planning	Moderate – too complex for SMEs	High – best practices & networking
Suggested Toolbox Improvements	More cross-sectoral practices, funding mechanisms	Clearer guidelines, sustainability focus	Shorter, time-efficient tools, more languages	Simpler navigation, sector-specific guidelines	No major suggestions
Lessons Learned	Public-private collaboration, knowledge exchange	Tailored engagement, clear priorities	Multi-stakeholder model, regional observatory	Need for workshops, clear value chains	National policy alignment, practical focus
Opportunities for Future Actions	Business model development, policy integration	Mainstreaming bioeconomy in policy	Cross-sector collaboration, biomass utilization	Regional collaboration, renewable energy	EU project participation, cross-border cooperation

6. Conclusion

The concluding chapter synthesizes the key findings of Deliverable 4.1 "Outcomes, Impacts, and Perceptions Change," highlighting the results of the evaluation process across five European regions involved in the ROBIN project. It **reflects on the significance of the findings, discusses their broader implications, offers evidence-based recommendations, acknowledges methodological limitations, and presents final reflections to guide future actions towards a more sustainable, circular bioeconomy**.

Summary of Findings

The evaluation undertaken for Deliverable 4.1 reveals a series of notable outcomes achieved across the project regions, based on a robust combination of qualitative and quantitative data collection and analysis. Key results are summarized below to provide a clear overview of the project's main accomplishments.

The Deliverable 4.1 "Outcomes, Impacts, and Perceptions Change" presents a comprehensive evaluation of the ROBIN project's activities across five European regions: Andalusia (Spain), Baden-Württemberg (Germany), Central Macedonia (Greece), the Southern Region (Ireland), and Žilina (Slovakia). Through a multi-phase methodology including the Monitoring, Assessment, and Evaluation framework, Alpha Testing, Beta Testing, and Final Interviews, both qualitative and quantitative data were collected. Key findings include:

- **Stakeholder Collaboration:** All regions reported enhanced cooperation among public authorities, academia, industry, and civil society, driven by co-creation workshops and quad-helix platforms.
- **Perception Shifts:** Participants acknowledged a positive change in their understanding of circular bioeconomy concepts, with increased trust in bio-based innovations.
- **Policy Influence:** Insights from ROBIN informed regional and EU-level policy discussions, contributing to action plans, governance models, and regulatory recommendations.
- **Socio-Economic Benefits:** Pilot initiatives (e.g., waste-treatment replication in Andalusia, biomass mapping in Greece) demonstrated measurable gains in resource efficiency, economic diversification, and community engagement.

Interpretation of Results

To better understand the broader meaning of these findings, this section interprets the outcomes within the specific contexts of each region, demonstrating how ROBIN's methodologies translated into tangible impacts on local governance, stakeholder collaboration, and policy development.

The collected data reveal that the ROBIN project effectively bridged knowledge gaps and catalyzed institutional change. At the regional level:

- **Andalusia:** The replication of bio-waste treatment and the establishment of inter-territorial networks underscore the region's growing capacity to scale circular initiatives.

- **Baden-Württemberg:** Integration of multiple EU projects through a centralized Resource Hub highlights the value of strategic coordination in mature bioeconomy contexts.
- **Central Macedonia:** Youth-driven pilots and creative engagement activities illustrate how participatory methods can deepen environmental awareness and civic ownership.
- **Southern Region:** The strong academic anchoring has laid a theoretical foundation, though the need for more pragmatic workshops points to necessary adjustments in outreach.
- **Žilina:** Reinforcing existing governance frameworks has accelerated policy implementation, demonstrating the benefit of formalized quad-helix structures.

Together, these results indicate that co-created governance models and the ROBIN Toolbox have advanced both the understanding and practical implementation of circular bioeconomy strategies.

Implications

Beyond immediate outcomes, the results of the ROBIN project hold significant implications for circular bioeconomy governance more broadly. This section explores how the findings can inform future initiatives, regional strategies, and research directions within and beyond the project's pilot areas.

The findings carry significant implications for the broader field of circular bioeconomy governance:

- **Evidence-based Policy:** Demonstrating tangible impacts bolsters the case for embedding quad-helix methodologies into regional and EU policy frameworks.
- **Scalability:** The success of pilot regions suggests that the ROBIN approach can be scaled to additional territories, with adjustments for local contexts.
- **Cross-sector Learning:** Facilitating knowledge exchange among diverse stakeholders can accelerate innovation in bio-based solutions, enhancing resilience and sustainability.
- **Research Directions:** The combined qualitative and quantitative evaluation underscores the need for mixed-methods research in future governance studies.

Limitations

While the evaluation demonstrates strong positive results, it is important to acknowledge the methodological and contextual limitations. The following points highlight these limitations to ensure a balanced and critical interpretation of the findings.

Despite the methodology, certain limitations warrant consideration:

- **Sample Size & Diversity:** Respondents varied in number and background, potentially affecting comparability across regions.
- **Temporal Scope:** The evaluation captures short- to medium-term impacts; long-term outcomes remain to be assessed.
- **Contextual Variability:** Regional political, economic, and cultural differences may limit direct transferability of certain approaches.

- **Data Gaps:** In some regions, quantitative metrics (e.g., precise resource savings) are incomplete, highlighting that survey fatigue can be a challenge for every data collection pursuit.

These limitations suggest caution in generalizing results without further longitudinal studies and broader stakeholder outreach.

Final Thoughts

Final reflections are provided here to underscore the project's achievements and to emphasize the pathways for sustaining its impact into the future:

- By **engaging diverse stakeholders, shaping governance models, and providing adaptable planning instruments**, the ROBIN project has demonstrated the power of co-creation, participatory governance, and flexible tools in advancing circular bioeconomy transitions.
- **The structured evaluation process has provided clear evidence of impact, from shifting perceptions to informing policy**, and the project's legacy will depend on sustaining these gains through continued coordination, capacity-building, and innovation.

Future Directions

These findings underscore the ROBIN project's role in shaping governance models, informing policy frameworks, and advancing sustainable bioeconomy strategies. The structured evaluation process has provided evidence of the project's impact, demonstrating its ability to influence regional decision-making and foster long-term sustainability transitions.

Moving forward, further research should focus on scaling the ROBIN framework beyond pilot regions, enhancing cross-regional knowledge exchange, and strengthening policy integration mechanisms. **The insights from this deliverable serve as a foundation for future strategic actions, ensuring that the momentum generated by the project translates into lasting socio-economic and environmental benefits.** By continuously refining governance approaches and fostering collaborative networks, the ROBIN project can contribute meaningfully to the ongoing transition towards a more sustainable and circular bioeconomy.

The findings presented in the Deliverable 4.1 "Outcomes, Impacts, and Perceptions Change" reveal the diverse and far-reaching impacts of the ROBIN project, showcasing both tangible results and subtle shifts in perceptions. By analysing stakeholder feedback, the document highlights not just the immediate effects of the project, but also its broader implications for the regions involved. **Key transformations include stronger stakeholder engagement, positive changes in stakeholder perception, and measurable socio-economic benefits, all contributing to the project's long-term success.**

Through a rigorous multi-phase methodology, including the preparation of the Monitoring, Assessment and Evaluation framework, and collection of data via Alpha Testing, Beta Testing, and Final Interviews, the evaluation process ensured both qualitative and quantitative data collection methods.

The evaluation revealed several key accomplishments, including significant progress in fostering stakeholder collaboration, improving perceptions of bio-based innovations, and

informing policy development. The project engaged a diverse range of stakeholders, creating cross-sectoral dialogue on bio-based solutions and governance frameworks. **The project also contributed to policy discussions at both regional and EU levels, offering recommendations to strengthen the regulatory environment for bio-based solutions.**

While the ROBIN project has made significant strides, there are still challenges to address, particularly in keeping momentum going after the formal end of the initiative. Future efforts should focus on strengthening knowledge-sharing, enhancing collaboration, and ensuring that the lessons learned are integrated into policy frameworks for lasting impact. **This deliverable thus serves as an essential stepping stone for future work in sustainable development, providing valuable insights for policymakers, practitioners, and scholars dedicated to driving transformative change.**

In summary, **this deliverable offers an evaluation of the ROBIN project's ability to influence outcomes and shift perceptions**, reaffirming the importance of evidence-based approaches in tackling complex societal challenges.

Annexes

Annex I: Alpha Testing Phase (Method 1)

Andalusia, Spain

The Alpha testing in Andalusia, Spain, involved more respondents than initially planned (same 10 respondents planned), with 15 participating in the Baseline and 12 in the Endline questionnaire, which led to some deviations in the overall results.

Table 0.1: Stakeholder Participation in baseline and endline data collection, Andalusia

Stakeholder group	Regional authority	Local authority	External advisory/ consulting entity	Researcher or affiliated to a higher education institution.	Business entity/ entrepreneur	Business association, cluster or innovation centre	NGO/CSO	Other.
Baseline	4	0	0	3	2	4	2	
Endline	3			2	4	2	1	

Key trends and changes identified during the Alpha testing

The data shows that Andalusia is making progress in its bioeconomy transition, with increased stakeholder engagement, growing awareness of the challenges, and a focus on local bioeconomy potential. However, there are still challenges, particularly in enhancing monitoring, policy development, collaboration opportunities, and capacity-building in both governance and business models. Addressing these gaps will be essential to sustaining the region's momentum toward a more circular, sustainable bioeconomy.

- **Bioeconomy Governance Capacity**: The region demonstrated strong capacity in bioeconomy governance, especially within regional and local authorities. Respondents showed varying but improving levels of experience in designing, implementing, monitoring, and evaluating bioeconomy governance models. Especially in the case of monitoring and evaluation of bioeconomy strategies, where the results indicate there is space for improvement. While regional and local authorities demonstrated some expertise, the gaps were noted in their capacity to drive innovation and sustainability.

- **Stakeholder Engagement**: Opportunities for stakeholders' participation in the circular bioeconomy transition were identified, but engagement levels varied. Respondents showed awareness of barriers to engagement and potential solutions, indicating a need for more inclusive policymaking.

- **Local Potential and Innovation**: The region exhibited strengths in supporting bioeconomy-related assets and strategies for the circular bioeconomy development. However, the data suggest there is room for improvement of the capacity to exploit local bio-based assets.

- **Opportunities**: The data shows a consistently high level of awareness of business opportunities in the circular bioeconomy within region and also outside the region. On the other hand, there seems to be a room for improvement of capacities of the regional/local

authorities to identify and promote collaboration opportunities at the transnational and the regional level.

- **Policy Areas**: The need to improve policy areas that promote the circular bioeconomy was widely recognized.
- **Business Models and Social Measures**: Respondents highlighted the importance of developing novel business models and social measures, although more capacity building is required to downsize non-environmentally friendly practices.
- **Environmental Awareness and Action**: There was a moderate level of familiarity with climate-neutrality benefits and low environmental footprint products, with respondents motivated to adopt more sustainable and socially responsible practices.

Section II: Capacities in designing, implementing, monitoring and evaluating the bioeconomy governance models

Questions 4-7 were answered by regional/local authorities only.

Respondents showed very good or excellent levels of experience in designing, implementing, monitoring, and evaluating bioeconomy governance models.

The regional and local authorities demonstrated expertise in design and implementing the bioeconomy governance models that drive the development of innovation- and sustainability-driven bioeconomy strategies.

Table 0.2: Experience in designing regional bioeconomy governance models: baseline and endline data comparison, Andalusia

Q4: Experience in the design of regional bioeconomy governance models	0 - no experience	1	2	3	4	5 - excellent experience
Baseline	0	0	0	0	3	2
Endline	0	0	0	0	1	2

Table 5.3 presents the perception of experience and capacity in the area of designing and implementing the bioeconomy governance models that drive the development of innovation- and sustainability-driven bioeconomy strategies (Question 5).

At the beginning of Alpha testing, three respondents reported having very good experience and capacity (option a), while two respondents had some experience and capacity (option b). No respondent reported limited or no experience (options c and d).

By the end of Alpha testing period, two respondents maintained a high level of experience and capacity (option a), and one respondent reported some experience and capacity (option b). No respondent indicated limited or no experience.

Table 0.3: Experience and capacity in designing and implementing bioeconomy governance models: baseline and endline data comparison, Andalusia

Q5: Experience and capacity in the area of designing and implementing the bioeconomy governance models that drive the development of innovation- and sustainability-driven bioeconomy strategies.	a) The organization is very experienced and has very good capacity in the indicated area.	b) The organization has some experience and capacity in the indicated area.	c) The organization has limited experience and capacity in the indicated area.	d) The organization has no experience and capacity in the indicated area.	e) Other
Baseline	3	2	0	0	0
Endline	2	1	0	0	0

Compared to other regions, respondents in the Andalusia region also reported that their experience in monitoring and evaluation of the bioeconomy strategies (Question 6) is at a high level (Table 5.4).

Although the respondents reported a slightly lower level in monitoring and evaluation of the bioeconomy strategies, they reported a fairly good or a good level of experience in this aspect.

In the baseline questionnaire, all five respondents reported fair experience (score 3) in the area.

In the endline questionnaire, two respondents reported a "good experience" (score 4), and one reported a "fair experience" (score 3). No responses were recorded for the other experience levels, showing improvement from the baseline.

Table 0.4: Experience in monitoring and evaluation of bioeconomy strategies: baseline and endline results, Andalusia

Q6: Experience monitoring and evaluation of the bioeconomy strategies.	0 - no experience	1	2	3	4	5 - excellent experience
Baseline	0	0	0	5	0	0
Endline	0	0	0	2	1	0

Also in question 7, the results of which are presented in **Table 5.5** the respondents in Andalusia region reported a higher level of experience and capacity in the area of monitoring and evaluation of the circular bioeconomy.

In the baseline questionnaire 4 out of 5 respondents reported some experience and 1 respondent reported limited experience in this area.

By the end of the evaluation period, three organizations reported having some experience and capacity (option b), with no responses in other categories.

Overall, the results show a stable but concentrated level of moderate experience and capacity, with no significant increase in higher or lower experience levels over time.

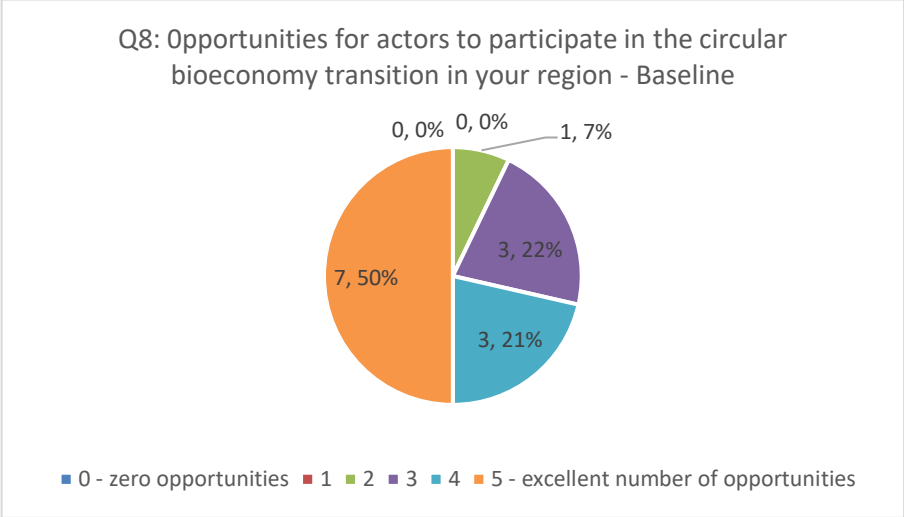
Table 0.5: Experience and capacity in monitoring and evaluation of the circular bioeconomy: baseline and endline comparison, Andalusia

Q7: Experience and capacity in the area of monitoring and evaluation of the circular bioeconomy.	a) The organization is very experienced and has very good capacity in the indicated area.	b) The organization has some experience and capacity in the indicated area.	c) The organization has limited experience and capacity in the indicated area.	d) The organization has no experience and capacity in the indicated area.	e) Other
Baseline	0	4	1	0	0
Endline	0	3	0	0	0

Section III: Stakeholders engagement

Figure 8 presents respondents' perceptions of the opportunities for actors to engage in the circular bioeconomy transition in their region (Question 8), rated on a scale from 0 (zero opportunities) to 5 (excellent number of opportunities).

The data shows an improvement in perceptions, with a shift toward higher scores (4 and 5), indicating an increased number of opportunities for participation in the circular bioeconomy transition over time.



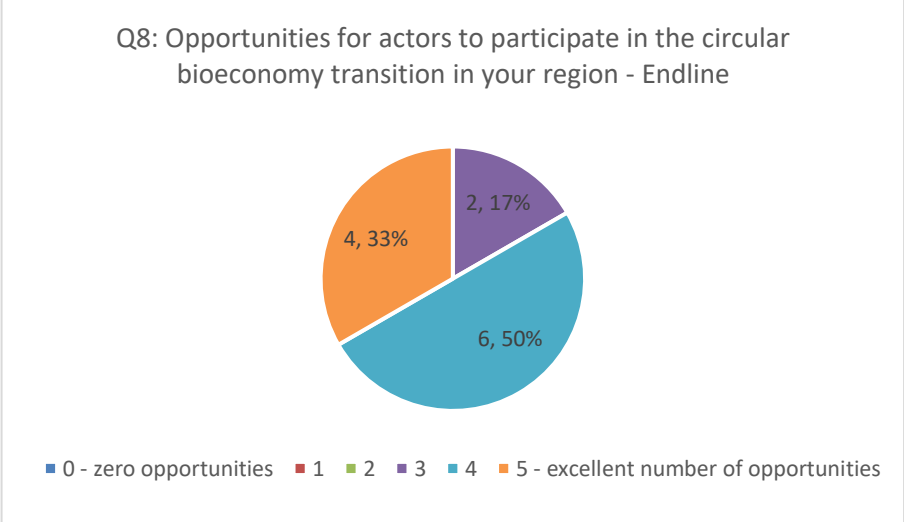


Figure 8: Opportunities for actors to participate in the circular bioeconomy transition: baseline and endline comparison, Andalusia

At the beginning of Alpha testing, one respondent rated the opportunities as limited (score 2), three respondents rated them as 3 (moderate), and three respondents rated them as 5 (excellent number of opportunities). No respondents rated opportunities as 0 or 1, meaning no or very limited opportunities.

By the end of Alpha testing, two respondents rated the opportunities as 3 (moderate), six respondents rated them as 4 (good), and four respondents rated them as 5 (excellent number of opportunities).

Figure 9 displays the reported levels of engagement of various actors in collaborative policy making (Question 9), rated on a scale from 0 (no engagement) to 5 (excellent level of engagement).

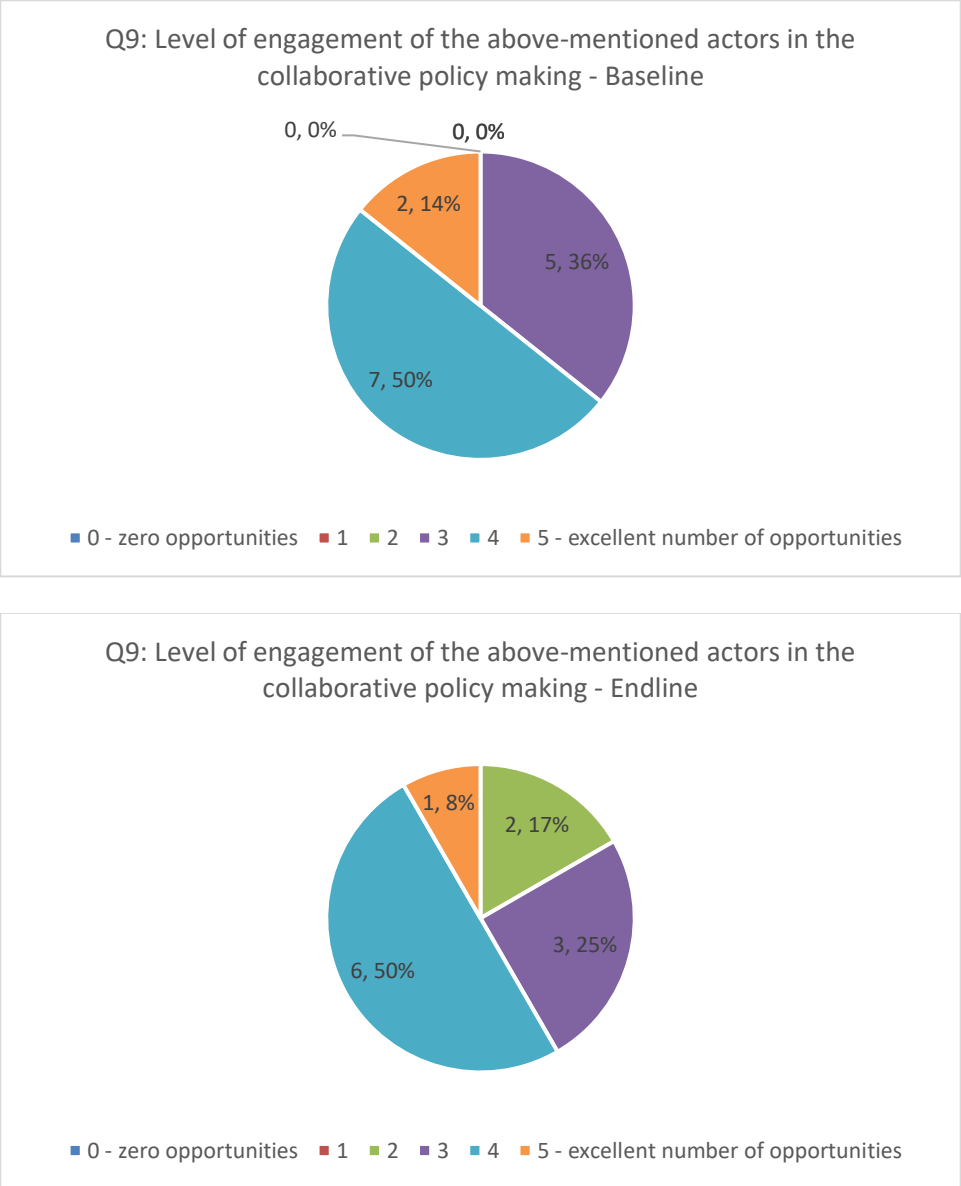


Figure 9: Level of engagement of actors in collaborative policy making: baseline and endline results, Andalusia

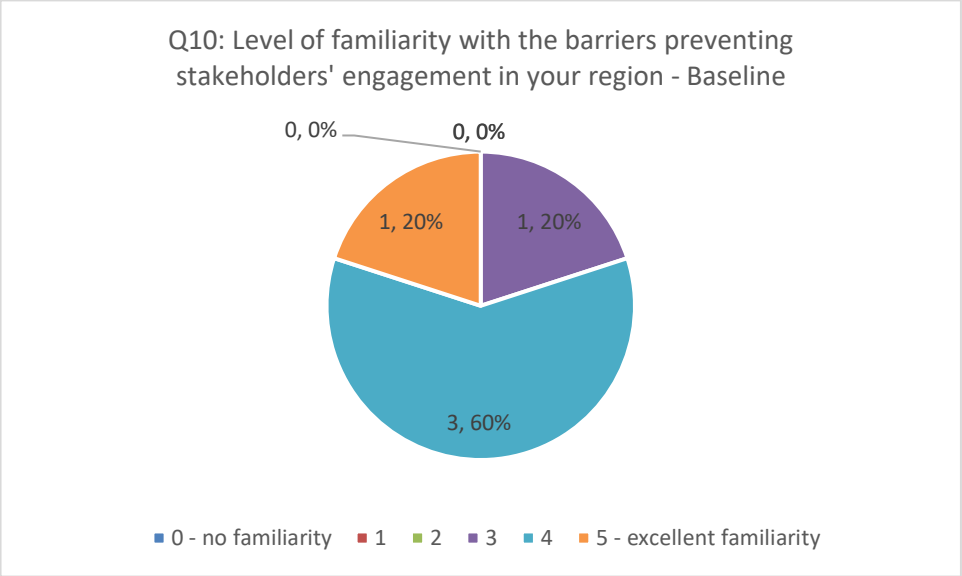
At the beginning of Alpha testing, five respondents rated the engagement level as 3 (moderate engagement), seven rated it as 4 (good engagement), and two rated it as 5 (excellent engagement). No respondents rated the level of engagement as zero, one, or two. This indicates a predominantly positive perception of engagement opportunities among actors.

At the end of Alpha testing, two respondents rated the engagement level as 3, three rated it as 4, and six rated it as 5. The results demonstrate an overall increase in engagement, with a shift towards higher ratings (4 and 5), suggesting improved collaborative policy-making opportunities for the actors involved.

When it comes to the level of familiarity of the representatives of regional and local authorities with the barriers preventing stakeholders' engagement in the region (Question 10), as **Figure 10** shows, all respondents taking part in the survey stated their level of familiarity is moderate (level 3, one respondent), good (score 4, 3 respondents) or excellent (score 5, 1 respondent).

In the endline questionnaire, the data indicates a slight shift. One respondent scored a familiarity level as 3, while four respondents scored their familiarity as 4. One respondent reported a score of 5.

Overall, the results demonstrate an increase in the number of respondents expressing familiarity with the barriers preventing stakeholder engagement, which is evident in the rise of those indicating good familiarity (score 4) from baseline to endline.



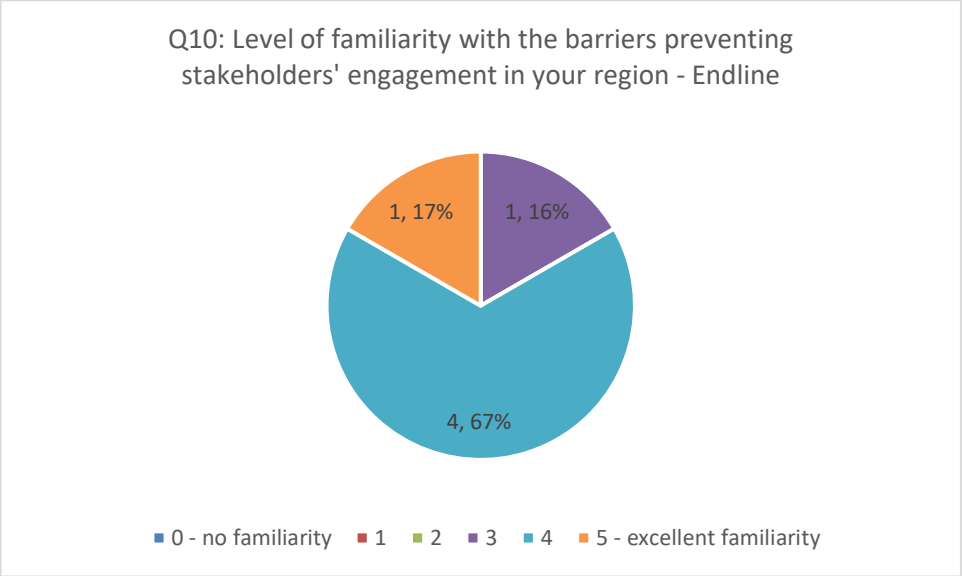


Figure 10: Familiarity with barriers preventing stakeholders' engagement: baseline and endline results, Andalusia

Table 5.6 presents the levels of familiarity reported by respondents regarding solutions to overcome barriers to stakeholder engagement (Question 11), rated on a scale from 0 (no familiarity) to 5 (excellent familiarity).

Table 0.6: Familiarity with solutions to overcome barriers: baseline and endline comparison, Andalusia

Q11: Level of familiarity with the solutions to overcome the above-mentioned barriers	0 - no familiarity	1	2	3	4	5 - excellent familiarity
Baseline	0	0	0	2	2	1
Endline	0	0	0	1	1	1

At the beginning of Alpha testing, no respondents indicated scores of 0, 1, or 2, suggesting a lack of awareness about solutions. Two respondents rated their familiarity as 3 (moderate familiarity), two respondents rated it as 4 (good familiarity), and one respondent rated it as 5 (excellent familiarity). This indicates a generally moderate to high level of familiarity with potential solutions.

In the end of Alpha testing, familiarity levels shifted slightly, with one respondent reporting a familiarity level of 3, one at 4, and one at 5. No responses were recorded for 0, 1, or 2.

The results reflect a stable level of familiarity with solutions, with a concentration of respondents indicating moderate to good familiarity (score 3 and 4) and a consistent acknowledgment of excellent familiarity (score 5).

Table 5.7 below summarizes the levels of knowledge reported by organizations regarding multi-actor business models and social measures necessary for implementing the circular bioeconomy (Question 12), classified into four categories.

Overall, the findings suggest a stable level of very good knowledge within organizations.

Table 0.7: Knowledge of multi-actor business models and social measures for circular bioeconomy implementation: baseline and endline comparison, Andalusia

Q12: Level of knowledge of the multi-actor business models and social measures necessary for the implementation of the circular bioeconomy	a) The organization has very good knowledge of the indicated area	b) The organization has some knowledge of the indicated area	c) The organization has limited knowledge of the indicated area	d) The organization has no knowledge of the indicated area	e) Other
Baseline	2	3	0	0	0
Endline	2	1	0	0	0

Initially, two respondents indicated they have very good knowledge (option a), while three organizations reported having some knowledge (option b). No organizations stated they have limited knowledge (option c), no knowledge (option d), or classified their knowledge as "other" (option e). This indicates a relatively high level of familiarity among the organizations regarding the necessary models and measures.

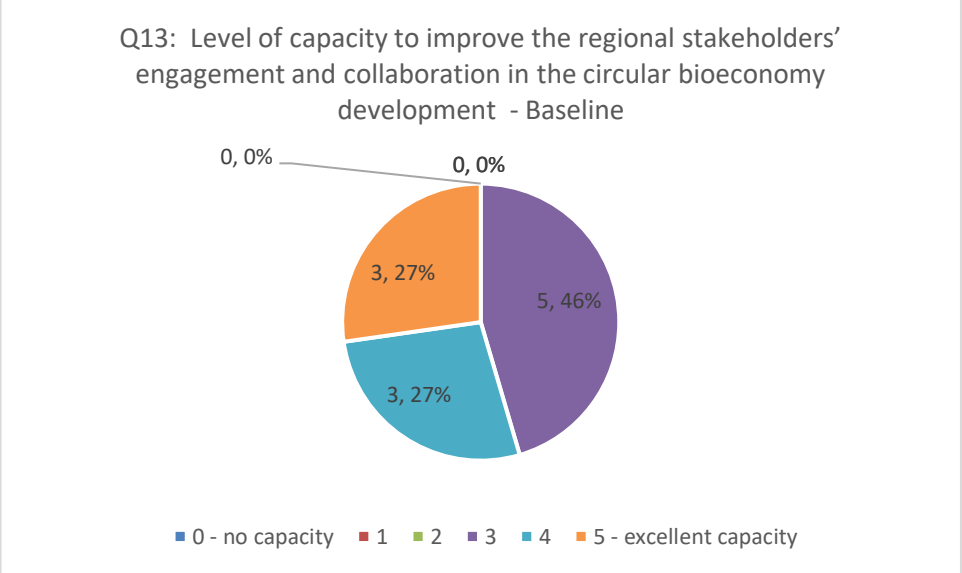
By the end of Alpha testing, two organizations maintained their status of having very good knowledge (option a), while only one organization reported having some knowledge (option b). There were no responses indicating limited or no knowledge.

The graphs in **Figure 11** illustrate the perceived capacity of organizations to improve regional stakeholders' engagement and collaboration in the development of the circular bioeconomy (Question 13), rated on a scale from 0 (no capacity) to 5 (excellent capacity).

The results show a shift in perceptions, with a slight decrease in the number of organizations reporting moderate capacity (3) but a consistent acknowledgment of good (4) and excellent (5) capacity. This suggests a stabilizing capacity among organizations to enhance stakeholder engagement and collaboration in circular bioeconomy initiatives over time.

At the beginning of Alpha testing, five organizations rated their capacity as 3 (moderate capacity), three rated it as 4 (good capacity), and three rated it as 5 (excellent capacity). This indicates a generally favourable perception of capacity among organizations at the baseline.

By the end of Alpha testing, only one organization reported a capacity level of 3, while one organization rated its capacity as 4, and three organizations reported a capacity level of 5.



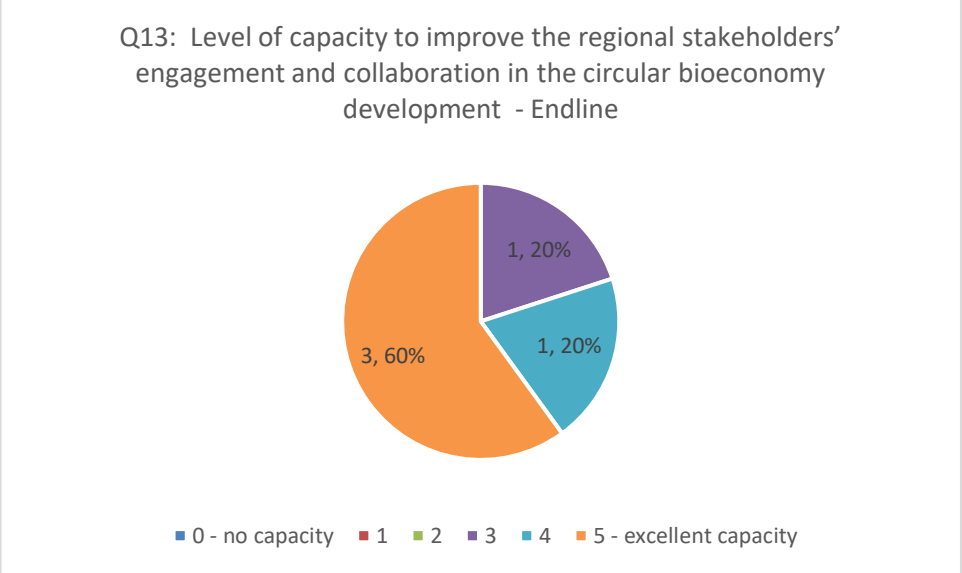


Figure 11: Perceived capacity to enhance stakeholder engagement and collaboration in circular bioeconomy development: baseline and endline data, Andalusia

As **Table 5.8** presents, there was a good level of capacity to improve the regional stakeholders' engagement and collaboration in the circular bioeconomy development among representing regional/local authorities, business associations, clusters and innovations centres (Question 14).

The results indicate a shift towards stronger perceptions of capacity being highly beneficial, with an increase in the number of respondents rating their capacity at the highest level (score 5) and a decrease in those reporting moderate or lower levels. This suggests a growing recognition of the importance of capacity in enhancing stakeholder engagement and collaboration in the circular bioeconomy over time.

Table 0.8: Perceived benefit of stakeholders' engagement and collaboration in circular bioeconomy development: baseline and endline comparison, Andalusia

Q14: Level of capacity to improve the regional stakeholders' engagement and collaboration in the circular bioeconomy development	0 - not beneficial	1	2	3	4	5 - very beneficial
Baseline	0	0	1	3	1	6
Endline	0	0	0	0	1	4

At the beginning of Alpha testing, one respondent rated the capacity as 2 (somewhat beneficial), three rated it as 3 (moderately beneficial), one rated it as 4 (beneficial), and six respondents rated their capacity as 5 (very beneficial). No respondent reported a score of 0 or 1, indicating a generally positive perception of the benefit of their capacity to engage stakeholders.

At the end of Alpha testing, no respondents reported scores of 0 to 3, while one respondent rated the capacity as 4, and four respondents rated it as 5 (very beneficial).

Section IV: Local potentials and innovation assets

Regarding the region's capacity to support the exploitation of bioeconomy related assets, respondents in the region showed a high level of knowledge, both at the beginning and at the end of the Alpha testing.

Figure 12 illustrates the perceived capacity of regions to support the exploitation of bioeconomy-related assets (Question 15), rated on a scale from 0 (no capacity) to 5 (excellent capacity). The data indicates a consolidation of capacity at moderate to good levels, with no respondents reporting low capacity. However, there is a shift away from the highest rating (score 5) towards a more concentrated assessment of good capacity (score 4), indicating that respondents recognize solid but not necessarily excellent capacity of the region to support exploitation bioeconomy-related assets.

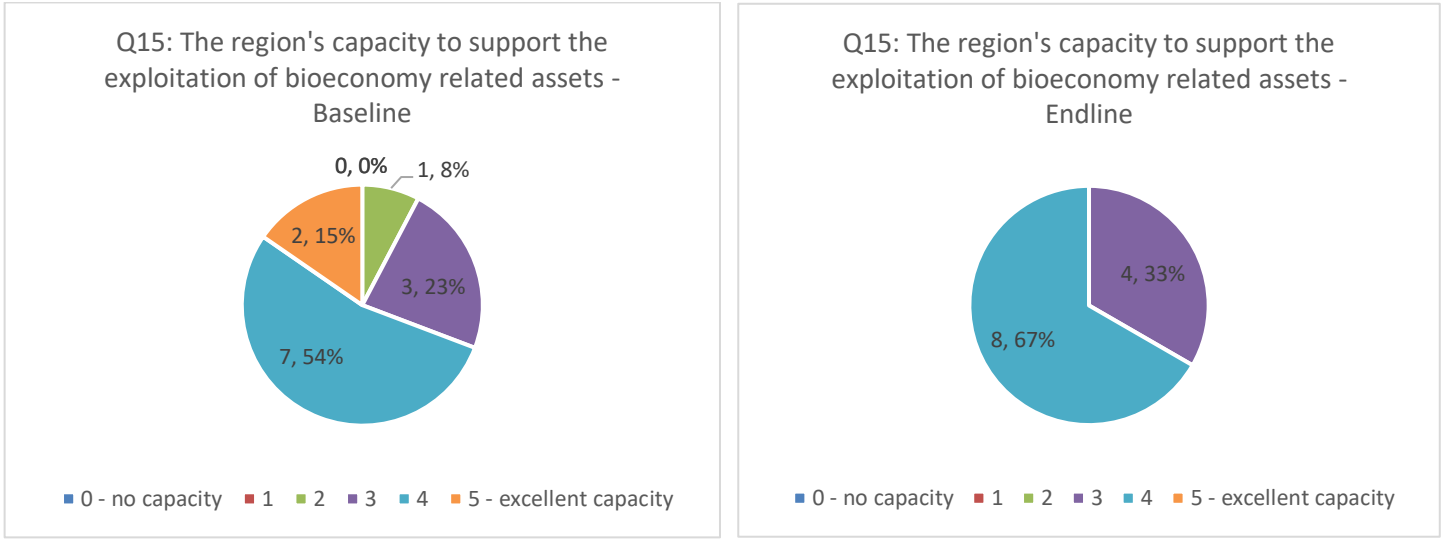


Figure 12: Regional capacity to support the exploitation of bioeconomy-related assets: baseline and endline data, Andalusia

At the beginning of Alpha testing, one respondent reported a capacity level of 2 (limited capacity), three respondents rated the capacity as 3 (moderate capacity), seven respondents rated it as 4 (good capacity), and two respondents rated it as 5 (excellent capacity). This suggests a generally positive perception of regional capacity, with most respondents recognizing some ability of the region to support bioeconomy asset exploitation.

By the end of Alpha testing, no respondents reported capacity levels of 0, 1, or 2. Four respondents rated the capacity as 3, and eight rated it as 4 (good capacity). Notably, no respondent rated the capacity as excellent (5) at the endline.

In Question 16, the respondents were asked to indicate the region's capacity to develop the strategies accelerating the circular bioeconomy transition in your region**. Figure 13** below shows the perceived capacity of regions to develop strategies that accelerate the circular bioeconomy transition, rated on a scale from 0 (no capacity) to 5 (excellent capacity).

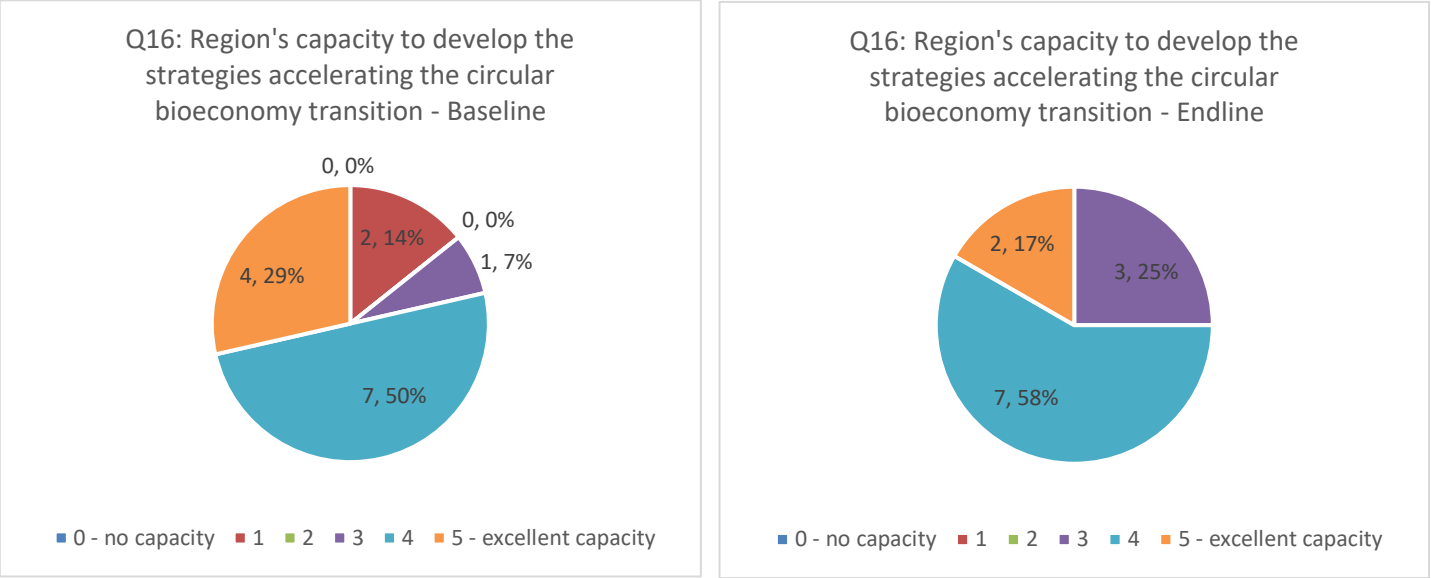


Figure 13: Regional capacity to develop strategies for accelerating circular bioeconomy transition: baseline and endline data, Andalusia

Overall, the results indicate an increase in the number of respondents with moderate capacity (score 3), while the majority of respondents continued to report good capacity (score 4). However, the number of respondents with excellent capacity (score 5) decreased slightly by the endline, suggesting some shifts in perceived capacity over time.

In the baseline data collection, no respondents reported having no capacity (0). Two respondents rated the capacity as 1, indicating very limited capacity. One respondent rated the capacity as 3 (moderate capacity), seven rated it as 4 (good capacity), and four respondents rated the capacity as 5 (excellent capacity). This suggests a strong perception of capacity at the start, with most regions rating themselves as having good or excellent capacity.

In the endline data collection, no respondent reported a capacity rating of 0, 1, or 2, indicating an improvement from the baseline. Three respondents rated their capacity as 3 (moderate capacity), seven indicated a rating of 4 (good capacity), and two respondents reported the capacity as 5 (excellent capacity).

Section V: Opportunities

Figure 14 below presents the level of knowledge reported by respondents about transnational business opportunities, such as entering new markets with circular bioeconomy-related products and services (Question 17).

Based on the data collected, it is possible to say the level of knowledge among respondents regarding transnational business opportunities is stable, with improvements reflected in the absence of limited or no knowledge at the endline.

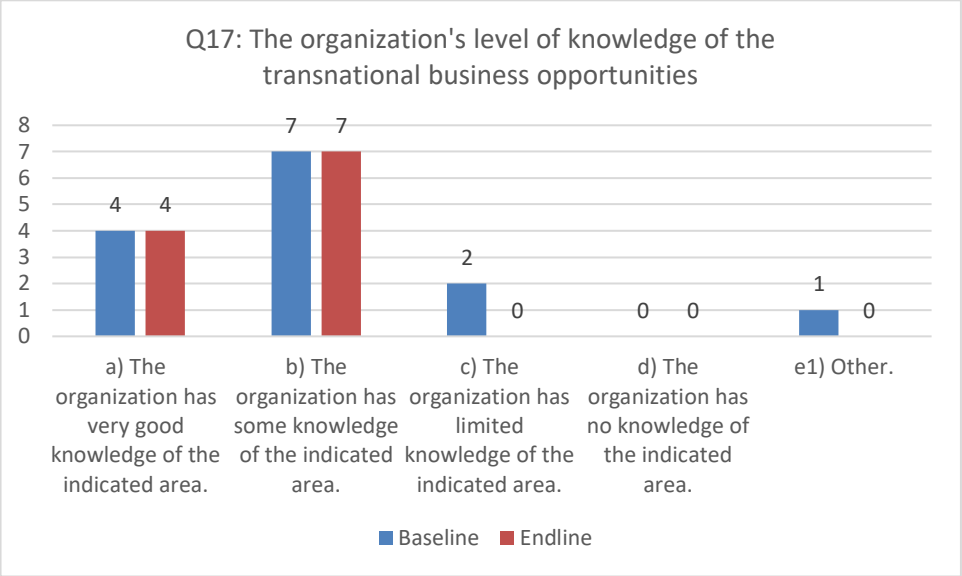


Figure 14: Knowledge of transnational business opportunities in the circular bioeconomy: baseline and endline comparison, Andalusia

In the baseline data collection, four respondents indicated they had very good knowledge of transnational business opportunities. Seven respondents reported having some knowledge, two had limited knowledge, none reported having no knowledge, and one organization selected "Other."

In the endline, the results remained largely consistent, as respondents reported very good and some knowledge – four and seven organizations, respectively.

However, no organizations reported having limited or no knowledge, and the "Other" category was no longer selected.

Figure 15 illustrates how respondents perceived the capacity of their regional or local authorities to identify and promote transnational business opportunities in the circular bioeconomy (Question 18), rated on a scale from 0 (not adequate capacity) to 5 (excellent capacity).

Although there was a slight decrease in the number of respondents perceiving the capacity as excellent, the perceptions of the capacity of regional/local authorities remained stable over time. Most organizations recognize adequate to good capacity for identifying and promoting transnational business opportunities.

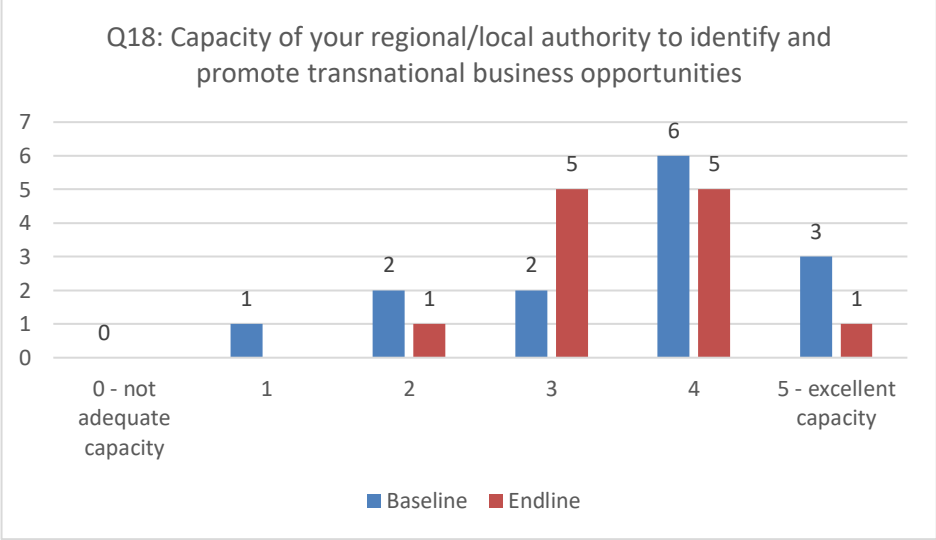


Figure 15: Perceived capacity of regional/local authorities to identify and promote transnational business opportunities: baseline and endline comparison, Andalusia

At the beginning of Alpha testing, one organization rated the authority's capacity as 1 (limited capacity), two organizations rated it as 2, two as 3 (moderate capacity), six as 4 (good capacity), and three as 5 (excellent capacity). This indicates a generally positive perception, with the majority of organizations rating the capacity as either good or excellent.

By the end of Alpha testing, no respondent rated the capacity as 0 or 1. One respondent rated it as 2, five as 3 (moderate capacity), five as 4 (good capacity), and one as 5 (excellent capacity). While the distribution shifted slightly, there was still a strong concentration in the moderate-to-good range, with fewer organizations perceiving excellent capacity.

Question 19 focused on the organization's level of knowledge about collaboration and/ or business opportunities in the field of circular bioeconomy at the regional level. The results of baseline and endline data collection is presented in **Figure 16.**

Overall, the results indicate a slight reduction in the number of respondents with very good and some knowledge of regional collaboration and business opportunities at the end of the Alpha testing. However, the increase in organizations reporting limited knowledge may suggest that some organizations have recognized gaps in their understanding of these opportunities over time.

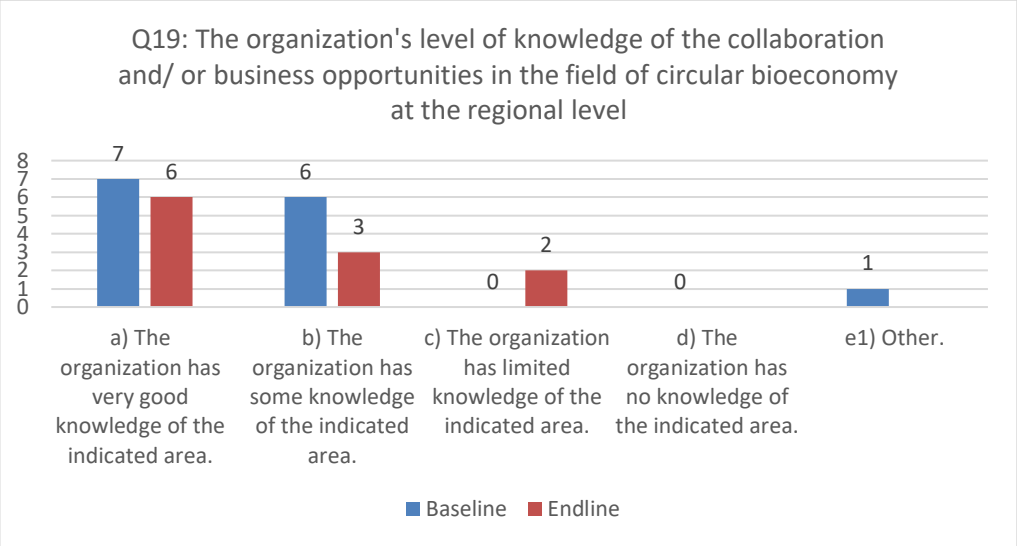


Figure 16: Organizational knowledge of collaboration and business opportunities in the circular bioeconomy at the regional level: baseline and endline results, Andalusia

At the baseline, seven respondents indicated they had very good knowledge of these opportunities, six respondents reported having some knowledge, none indicated limited or no knowledge, and one respondent selected "Other."

In the endline, six respondents reported very good knowledge, while three had some knowledge. Two organizations reported having limited knowledge, and none selected no knowledge or "Other."

Figure 17 illustrates how respondents perceive the level of knowledge regarding collaboration and business opportunities in the circular bioeconomy at the regional level on a scale from 0 (not adequate capacity) to 5 (excellent capacity). These opportunities include collaborations along or across value chains.

Overall, the perception of the regional/local authority capacities to identify and promote collaboration opportunities at the regional level differs among respondents. The data reveals a slight shift from excellent to moderate knowledge by the endline, suggesting that while organizations still maintain a

strong understanding of identifying and promoting regional collaboration and business opportunities, fewer now rate their capacity as excellent.

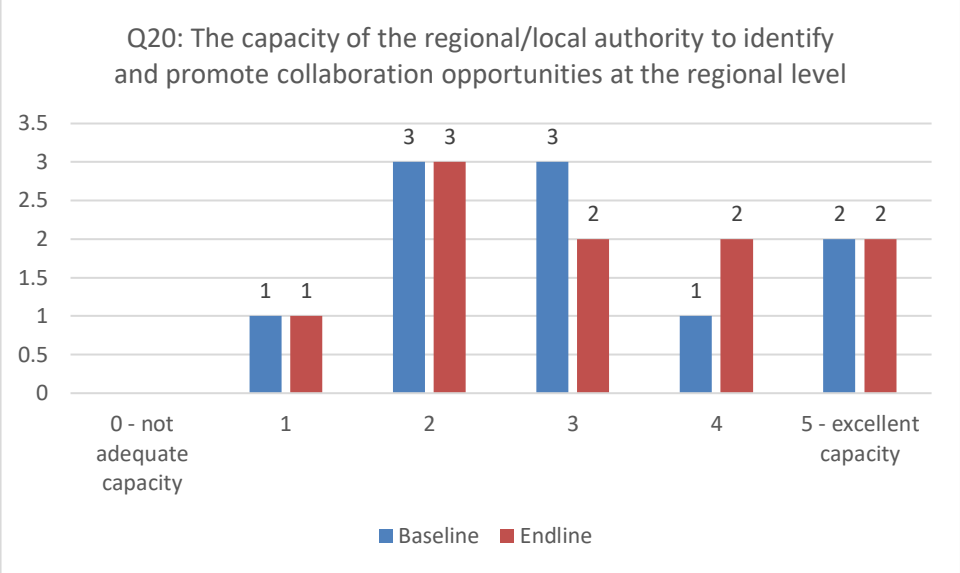


Figure 17: Perceived capacity to identify and promote collaboration opportunities at the regional level: baseline and endline comparison, Andalusia

At the beginning of Alpha testing, no respondents rated the knowledge of regional/local authorities to identify and promote collaboration opportunities at the regional level as 0 (no capacity). One respondent rated it as 1, one as 2, three as 3 (moderate capacity), five as 4 (good capacity), and four as 5 (excellent capacity). This shows that most respondents think good to excellent knowledge of the regional/local authorities in this area.

Similarly, by the end of Alpha testing, no respondents rated the knowledge of the regional/local authorities as 0 or 1. Two respondents rated it as 2, three as 3 (moderate capacity), four as 4 (good capacity), and only one as 5 (excellent capacity). This indicates a slight decline in organizations perceiving excellent capacity, with more organizations rating their knowledge as moderate or good.

Section VI: Policy Areas

Table 5.9 presents data on organizations' self-assessed knowledge of the policy areas that need improvement to facilitate the transition to a circular bioeconomy at the regional level (Question 21). Respondents were asked to categorize their knowledge using a multi-choice form.

Based on the comparison the baseline and endline data, an increase in organizations with very good knowledge of policy areas needing improvement by the endline can be noticed. This reflects growing awareness of the key policy areas that could drive the circular bioeconomy transition at the regional level.

Table 0.9: Knowledge of policy areas needing improvement for circular bioeconomy transition at the regional level: baseline and endline comparison, Andalusia

Q21: The organization's level of knowledge concerning policy areas that need to be improved to promote the transition towards the circular	a) The organization has very good knowledge of the indicated area.	b) The organization has some knowledge of the indicated area.	c) The organization has limited knowledge of the indicated area.	d) The organization has no knowledge of the indicated area.	e) Other.

bioeconomy at the regional level.					
Baseline	1	2	0	0	0
Endline	2	1	0	0	0

At the beginning of Alpha testing, one respondent reported having very good knowledge of these policy areas, two organizations indicated they had some knowledge, and no organizations reported limited or no knowledge.

At the end of Alpha testing, two organizations assessed their knowledge as very good, while one reported having some knowledge. No respondents reported limited or no knowledge.

Table 5.10 presents the baseline and endline data on organizations' capacities to harness opportunities created by the local bio-based economy (Question 22). Respondents classified their capacities into five categories. The comparison shows that the capacity levels to foster bio-based economy opportunities have remained relatively stable between the baseline and endline.

Although there was a slight reduction of respondents reporting "some capacities", the overall distribution reflects that the majority of respondents continue to view their capacities as strong in supporting bio-based economic opportunities.

Table 0.10: Organizational capacities to foster opportunities in the local bio-based economy: baseline and endline comparison, Andalusia

Q22: The organization's capacities to foster the opportunities created by the local bio-based economy*	a) The organization has very good capacities in the indicated area.	b) The organization has some capacities in the indicated area.	c) The organization has limited capacities in the indicated area.	d) The organization has no capacities in the indicated area.	e) Other.
Baseline	2	2	0	0	0
Endline	2	1	0	0	0

(e.g. supported by means of support measures and funding instruments that promote integration within the circular bioeconomy).

At the baseline, two respondents reported having very good capacities to foster local bio-based economy opportunities, while two organizations indicated they had some capacities. No respondent reported limited or no capacities in this area.

At the endline, the number of respondents reporting very good capacities remained unchanged (two respondents). The number of respondents with some capacities decreased to one. No respondents reported limited or no capacities at this stage.

Table 5.11 presents the reported capacity of regional and local governments to evaluate the environmental footprint of their regions (Question 23), based on respondents' ratings on a scale from 0 (not adequate capacity) to 5 (excellent capacity).

The results suggest a slight improvement in the perceived capacity of regional/local governments to assess the environmental footprint, with a shift toward more moderate to adequate capacity ratings at the endline. However, no respondents considered the capacity to be excellent at either point in time.

Table 0.11: Capacity of regional/local government to assess the regional environmental footprint: baseline and endline results, Andalusia

Q23: Capacity of the regional/local government to assess the regional environmental footprint*	0 - not adequate capacity	1	2	3	4	5 - excellent capacity
Baseline	1	0	1	1	1	0
Endline	0	0	1	0	2	0

**e.g., the effect that a person/company/activity has on the environment, e.g. the amount of natural resources they use, etc.*

At the baseline, one respondent rated the regional/local government's capacity as inadequate (score 0), one as having some capacity (score 2), one rated it with moderate capacity (score 3), and one with adequate capacity (score 4). No respondents rated the government's capacity as excellent (score 5).

At the endline, no respondents rated the government's capacity as inadequate (score 0). One respondent rated it as having some capacity (score 2), while two indicated adequate capacity (score 4). No excellent capacity ratings (score 5) were given.

Table 5.12 shows reported levels of experience and capacity of organizations in creating actionable guidelines tailored for local operators and innovation developers (Question 24). Respondents categorized their experience and capacity into five options.

The comparison shows a stable level of very good experience and capacity among organizations to design actionable guidelines, with a slight decline in those who consider their experience and capacity as "some."

Table 0.12: Experience and capacity to design actionable guidelines for local operators and innovation developers: baseline and endline results, Andalusia

Q24: The organization's experience and capacity to design actionable guidelines addressed to the local operators and innovation developers	a) The organization is very experienced and has very good capacity in the indicated area.	b) The organization has some experience and capacity in the indicated area.	c) The organization has limited experience and capacity in the indicated area.	d) The organization has no experience and capacity in the indicated area.	e) Other.
Baseline	2	2	0	0	0
Endline	2	1	0	0	0

At the beginning of Alpha testing, two respondents reported having very good experience and capacity (option a), while two indicated having some experience and capacity (option b). No respondent reported limited or no experience and capacity in this area.

By the end of Alpha testing, two respondents maintained the status of very experienced with good capacity (option a), while the number with some experience and capacity (score b) decreased to one. No respondent reported limited or no experience and capacity at this stage.

Figure 18 illustrates the level of knowledge organizations have regarding the climate-neutrality and low environmental footprint benefits associated with bio-based products and services (Question 25), measured on a scale of 0 to 5.

Although there was a lower number of respondents participating in the endline data collection, this comparison indicates slight increase in the overall knowledge about climate-neutrality and environmental benefits of bio-based products among organizations.

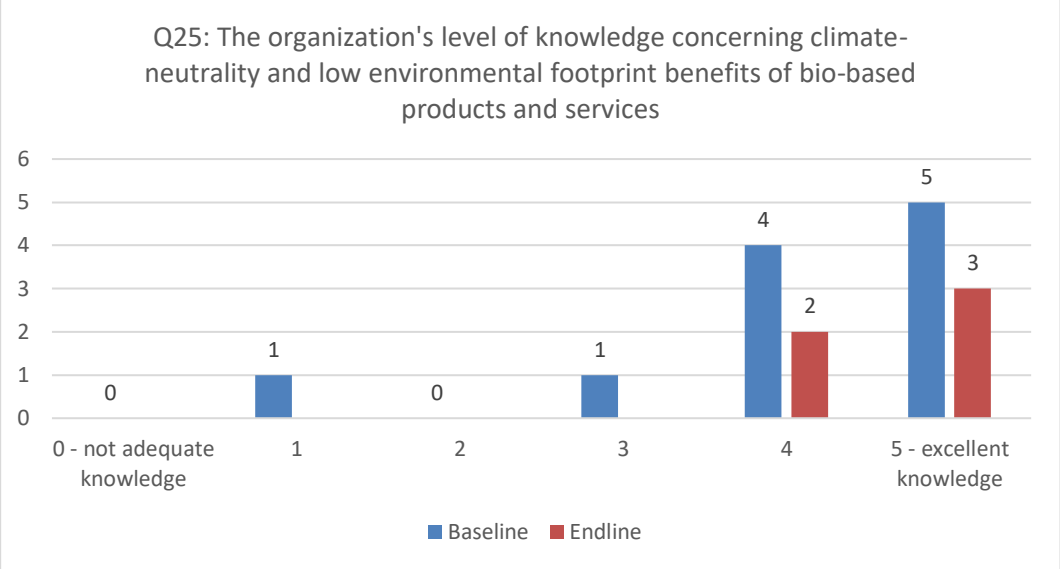


Figure 18: Organization's knowledge of climate-neutrality and low environmental footprint benefits of bio-based products and services: baseline and endline results, Andalusia

At baseline, responses show that no respondent reported a lack of knowledge (score 0). One respondent indicated limited knowledge (score 1), another indicated good knowledge (score 3), while four respondents reported good knowledge (score 4), and five respondents claimed excellent knowledge (score 5).

In the endline data collection, there was a decrease of respondents (5 in total), out of which two reported a very good level of knowledge (score 4) and three respondents reported excellent knowledge (score 5). No respondent indicated any knowledge level below very good (score 4), which suggest improvement in the area.

Figure 19 presents an overview of organizations' capacities to create novel business models and social measures that contribute to the transition toward a circular bioeconomy in the region (Question 26). Respondents categorized their capacities into five options.

The data show a shift in organizational capacities, with a significant increase in organizations identifying as having some capacity while those claiming very good capacities decreased. The findings suggest a growing recognition of existing capabilities, yet also highlight a potential need for strengthening the overall capacity to develop innovative business models and social measures for the circular bioeconomy transition.

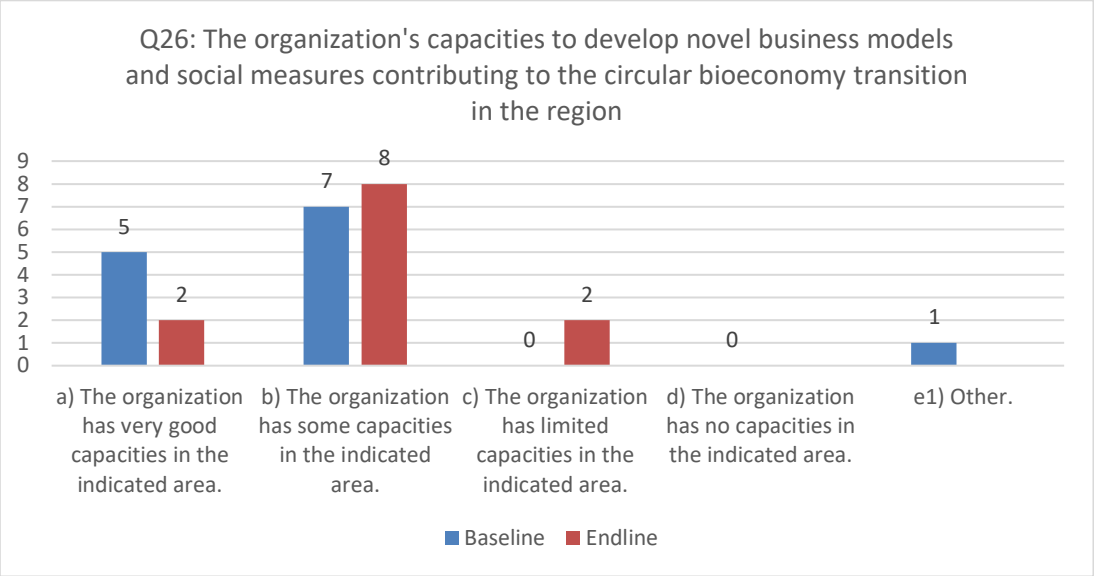


Figure 19: Capacities to develop business models and social measures for circular bioeconomy transition: baseline and endline results, Andalusia

In the baseline data collection, five respondents reported having very good capacities (option a), while seven indicated having some capacities (option b). None reported limited (option c) or no capacities (option d), and one respondent classified the capacity as other (option e).

In the endline data collection, the number of respondents claiming very good capacities (option a) decreased to two, while those with some capacities (option b) increased to eight. Two respondents reported having limited capacities (option c), and none indicated having no capacities (option d) or provided other responses (e).

Figure 20 illustrates the levels of motivation organizations feel towards adopting socially and environmentally responsible behaviours (Question 27), rated on a scale from 0 (very low motivation) to 5 (very high motivation).

This graph shows a stable level of very high motivation among respondents to switch to socially and environmentally responsible behaviours, despite a slight decrease in those reporting high motivation. The data suggests that while motivation remains strong, there may be a need to explore the factors influencing the shift from high to very high motivation in adopting responsible practices.

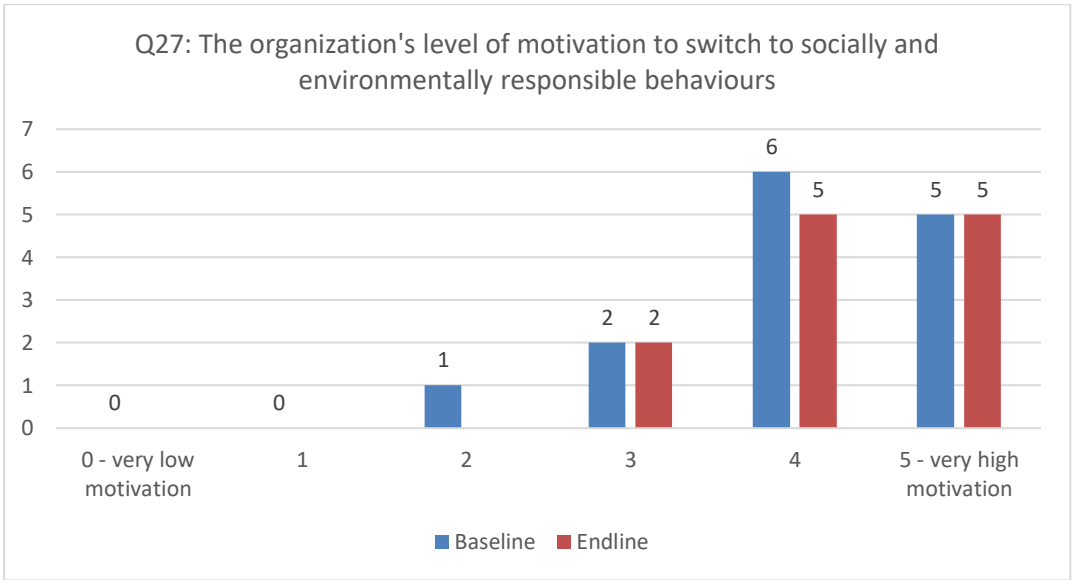


Figure 20: Motivation to transition to socially and environmentally responsible behaviors: baseline and endline comparison, Andalusia

At baseline, no respondent reported very lack of motivation (score 0) or very low motivation (score 1). One respondent indicated a low level of motivation (score 2), two respondents demonstrated a moderate level of motivation (score 3), while six respondents reported high motivation (score 4), and five expressed very high motivation (score 5).

By the endline, the motivation levels reflected some shifts. No respondents reported very lack of motivation (score 0) or very low motivation (score 1). The number of respondents with low motivation (score 2) remained the same at two, while those indicating high motivation (score 4) decreased to five, with the number maintaining very high motivation (score 5) unchanged at five.

The perceived level of inclusion of business and social dimensions in the development of regional governance models and structures (Question 28) is presented in **Figure 21**.

Respondents rated the levels on a scale from 0 (very unsatisfactory level of inclusion) to 5 (very satisfactory level of inclusion).

This comparison indicates a general perception of satisfactory inclusion of business and social dimensions in governance models. However, the data reveals a shift toward a more critical views at the endline, with increased recognition of unsatisfactory inclusion. This trend suggests a need for enhanced efforts to ensure that business and social dimensions are adequately represented in the development of regional governance frameworks.

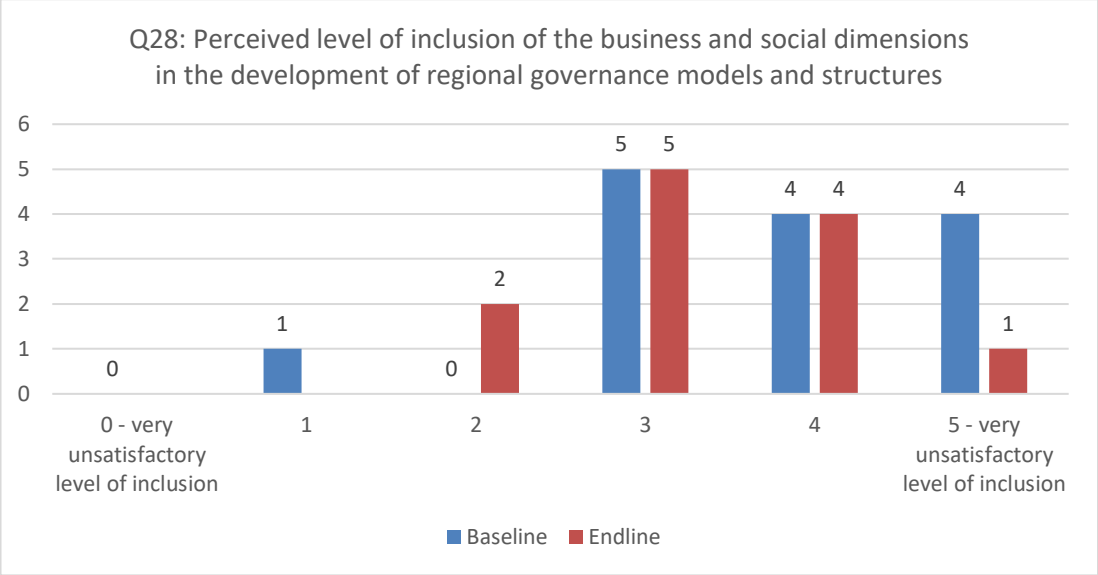


Figure 21: Perceived inclusion of business and social dimensions in regional governance models: baseline and endline data, Andalusia

At the beginning of Alpha testing, no respondents indicated a very unsatisfactory level of inclusion (score 0), while one respondent rated it as unsatisfactory (score 1). Five respondents viewed the inclusion as satisfactory (score 3), and four respondents rated it as good (score 4). The highest level of satisfaction (score 5) was also reported by four respondents.

At the end of Alpha testing, the responses shifted, with two respondents now perceiving the inclusion as somewhat unsatisfactory (score 2). Five respondents rated it as satisfactory (score 3), while four rated it as good (score 4). However, only one respondent indicated a very satisfactory level of inclusion (score 5).

Table 5.13 presents the capacity of organizations to design action plans and specific measures aimed at reducing non-environmentally friendly practices in favour of more responsible business and social models (Question 29).

This comparison shows that the number of respondents claiming very good capacity to design action plans has remained consistent. However, there has been a decline in the acknowledgment of any additional capacity levels. This suggests a potential consolidation of confidence in the ability to implement environmentally responsible practices. As there was also a lower number of respondents answering this question, it also raises questions about the absence of recognized capacity in other areas.

Table 0.13: Capacity to design action plans for promoting environmentally friendly practices: baseline vs. endline results

Q29: The organization's level of capacity to design action plans and specific measures for downsizing non-environmentally friendly practices in favour of more responsible business and social models (e.g., through environmentally friendly practices, as well as opportunity areas).	a) The organization has very good capacity in the indicated area.	b) The organization has some capacity in the indicated area.	c) The organization has limited capacity in the indicated area.	d) The organization has no capacity in the indicated area.	e) Other.
Baseline	3	2	0	0	0
Endline	3	0	0	0	0

At baseline, three respondents reported having very good capacity (option a) in designing action plans. Two respondents indicated some capacity (option b), while none reported limited (option c) or no capacity (option d). There were no responses categorized as other.

In the endline data collection, all three respondents participating in the data collection continued to report very good capacity (option a) to design action plans.

With regard to two **environment-specific questions** (questions 30 and 31) incorporated into the Endline Questionnaire, which were specifically aimed at regional nodes in collaboration with regional authority representatives to provide initial baseline estimations of environmental impact within each territory, Andalusia responded with "not available" and "not estimated" for the respective queries.

Baden-Württemberg, Germany

The Alpha testing in Baden-Württemberg, Germany, involved 10 respondents in the baseline data collection, as well as in the endline data collection.

However, there was a lack of representatives from regional/local authorities. Therefore, many governance-related questions were left unanswered.

The respondents were primarily from businesses and academia with limited direct engagement in regional bioeconomy governance.

Table 0.14: Stakeholder participation in baseline and endline data collection, Baden-Württemberg

Stakeholder group	Regional authority	Local authority	External advisory/ consulting entity	Researcher o affiliated to a higher education institution	Business entity/ entrepreneu r	Business association, cluster or innovation centre	NGO/CSO	Other*
Baseline	0	0	1	3	3	1	1	1

Endline	0	0	1	2	3	1	1	2

** Respondents in the "Other" category were representatives of Ministry*

Key trends identified during the Alpha testing

- **Bioeconomy Governance Capacity**: As there were no stakeholders from the category of regional and local authorities involved in data collection, these questions remained unanswered and the data is missing.
- **Stakeholder engagement**: While respondents noted a moderate perception of opportunities for actors to participate in the circular bioeconomy transition, the data shows improved perception of regional capacities to engage stakeholders in the circular bioeconomy. The engagement of actors in collaborative policymaking appears stable, with a slight increase in the highest rating at the endline, suggesting some improvement in collaboration efforts. The current engagement levels are varied, though. Familiarity with solutions to overcome barriers remains low, indicating a potential gap in knowledge that could hinder effective participation in the bioeconomy. Perceptions of the capacity to improve stakeholder engagement remained consistent, but still show that there is room for improvement, particularly in increasing the benefits of engagement.
- **Local potentials and Innovation Assets**: There was a positive trend in the perceived capacity of regional authorities to support the exploitation of bioeconomy-related assets. More respondents rated the region's capacity as very good or excellent by the endline.
- **Opportunities**: A significant number of respondents report very good knowledge regarding transnational business opportunities, which is crucial for expanding the bioeconomy. This knowledge increased over time. There is a relatively positive perception regarding the capacity of regional/local authorities to identify and promote transnational business opportunities and collaborations.
- **Policy areas**: As there were no stakeholders from the category of regional and local authorities involved in data collection, these questions remained unanswered and the data is missing.
- **Business models and Social Measures**: Respondents expressed strong motivation to adopt environmentally and socially responsible business practices. The number of respondents reporting "very high motivation" increased between the baseline and endline, reflecting a strong commitment to sustainability in the region. The results show enhanced capacity to develop novel business models for the circular bioeconomy. While there is some positive movement when it comes to inclusion of business and social dimensions, there is still a need to enhance the integration of these dimensions into regional governance models.

  Action Plans for Non-Environmentally Friendly Practices: The data does not provide a clear understanding of action plans aimed at reducing non-environmentally friendly practices, indicating a potential gap that needs addressing.

Section II: Capacities in designing, implementing, monitoring and evaluating the bioeconomy governance models

Questions 4-7 should have been answered by regional/local authorities only. As there were no stakeholders from this category involved in data collection, these questions remained unanswered.

Section III: Stakeholders engagement

Figure 22 presents the responses from organizations in the Baden-Württemberg region regarding their perception of opportunities for actors to engage in the circular bioeconomy transition (Question 8). Respondents rated the level of opportunity on a scale from 0 (zero opportunities) to 5 (excellent opportunities).

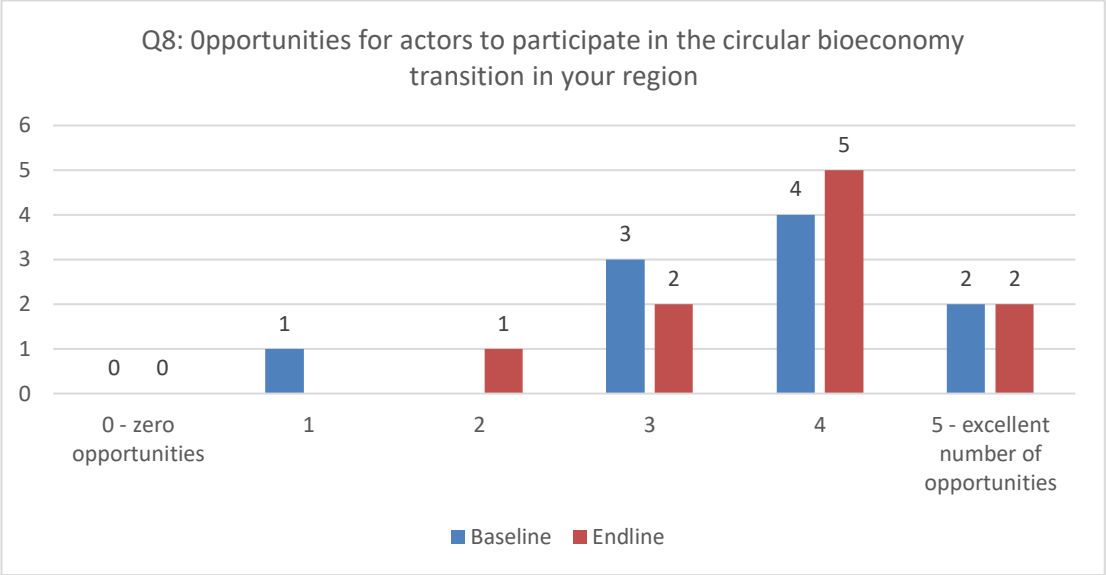


Figure 22: Opportunities for actors to participate in the circular bioeconomy transition: baseline and endline comparison, Baden-Württemberg

At the baseline, most respondents indicated a moderate to high level of opportunity, with 4 participants rating the opportunities as 4, and 2 rating them as 5.

By the endline, there was a slight shift towards higher ratings, with 5 participants selecting 4 and 2 selecting 5, suggesting an improvement in the perception of opportunities over time.

Figure 23 shows the respondents' perceptions of the level of engagement of actors in collaborative policymaking for the circular bioeconomy in Baden-Württemberg (Question 9). Respondents rated the level of engagement on a scale of 0 (no engagement) to 5 (excellent engagement). The data indicates a stable but moderate perception of actor engagement in the policymaking process over time.

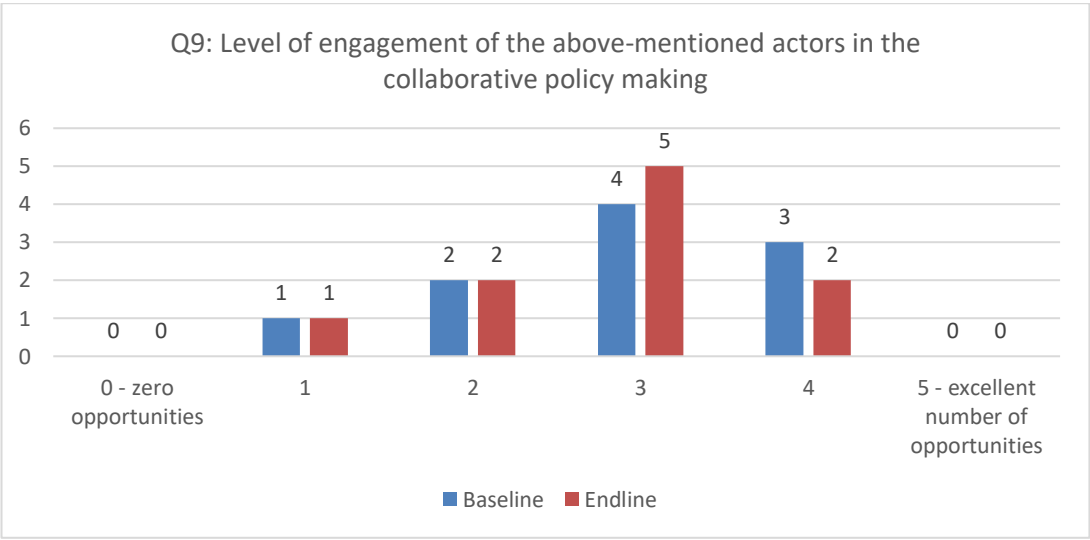


Figure 23: Level of engagement of actors in collaborative policy making: baseline and endline results, Baden-Württemberg

The baseline data reflects a predominantly moderate level of engagement, with 4 respondents rating engagement as 3 and 3 respondents rating it as 4.

The endline data shows a slight shift, with more respondents (5) perceiving a higher engagement level at 3, while ratings for higher engagement (4) decreased. There was no significant change in the perception of very high engagement (5).

Questions 10-12 should have been answered by regional/local authorities only. As there were no stakeholders from this category involved in data collection, these questions remained unanswered.

Table 5.15 illustrates the respondents' perceived capacity to enhance stakeholder engagement and collaboration in circular bioeconomy development in the Baden-Württemberg region.

Table 0.15: Perceived capacity to enhance stakeholder engagement and collaboration in circular bioeconomy development: baseline and endline data, Baden-Württemberg

Q13: Level of capacity to improve the regional stakeholders' engagement and collaboration in the circular bioeconomy development	0 - no capacity	1	2	3	4	5 - excellent capacity
Baseline	0	0	0	0	1	0
Endline	0	0	0	0	1	0

Both the baseline and endline responses indicate a very good capacity (score 4) of the respondents answering the question in the baseline and endline data collection.

No respondent rated their capacity as "excellent" (score 5), suggesting that there might be a need for interventions to strengthen the capacities of actors to foster collaboration and stakeholder involvement in the bioeconomy transition.

Table 5.16 presents the respondents' views on the benefits of stakeholder engagement in the circular bioeconomy transition within the Baden-Württemberg region (Question 14).

Table 0.16: Perceived benefit of stakeholders' engagement and Collaboration in Circular Bioeconomy Development: Baseline and Endline Comparison, Baden-Württemberg

Q14: Perceived benefits of stakeholders' engagement in the circular bioeconomy transition	0 - not beneficial	1	2	3	4	5 - very beneficial
Baseline	0	0	0	0	1	0
Endline	0	0	0	0	1	0

In the baseline and endline data collection, there was only one respondent answering this question. The data shows that the one respondent rated the engagement as beneficial (4). The results suggest that stakeholders may not yet fully recognize or experience the potential advantages of collaboration in the circular bioeconomy transition, indicating an area for further development. However, due to the limited number of responses, it is not possible to assess the status of the analysed area.

Section IV: Local potentials and innovation assets

Figure 24 reflects respondents' assessment of the region's capacity to support the exploitation of bioeconomy-related assets.

The data suggests there was a positive trend in the region's ability to leverage bioeconomy assets, though some areas still remain for improvement.

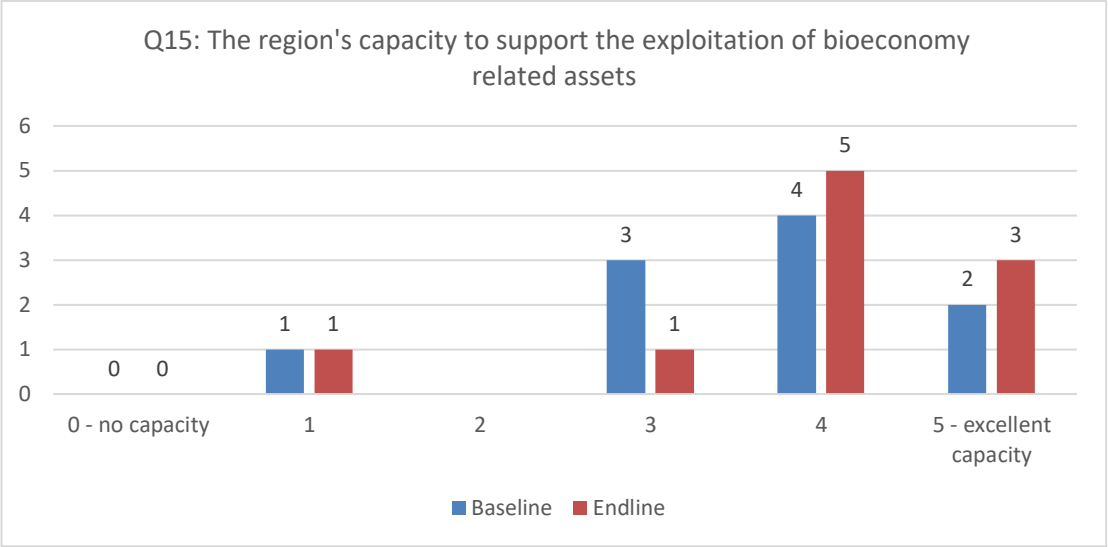


Figure 24: Regional capacity to support the exploitation of bioeconomy-related assets: baseline and endline data, Baden-Württemberg

At the beginning of Alpha testing, the majority of respondents rated the region's capacity as good (score 3) very good (score 4), with two rating it as excellent (score 5).

By the end of Alpha testing, perceptions improved slightly, with five out of ten respondents rating the capacity as very good (score 4), and three rating it as excellent (score 5).

Figure 25 presents the responses of respondents regarding the region's capacity to develop strategies that accelerate the circular bioeconomy transition (Question 16).

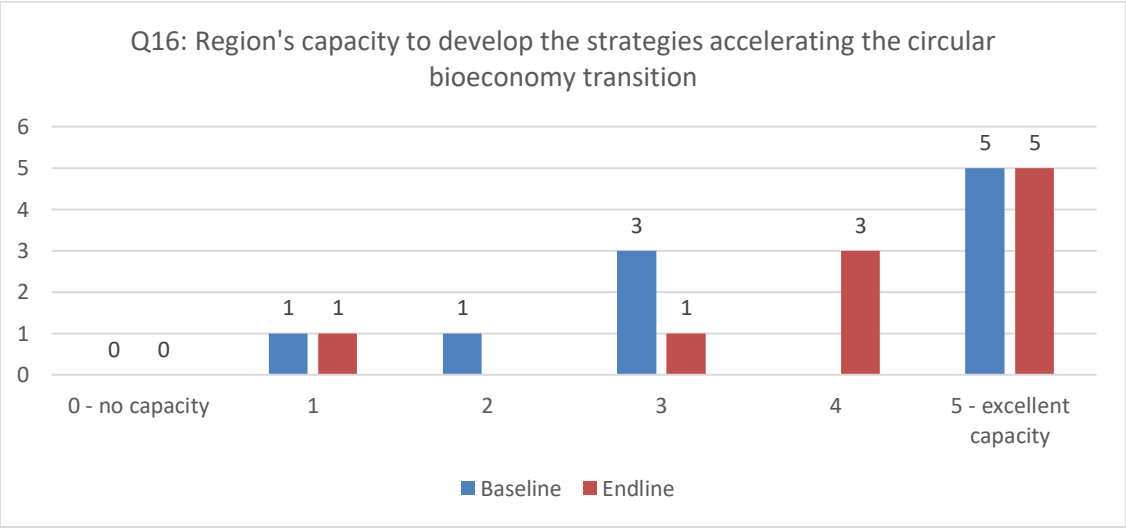


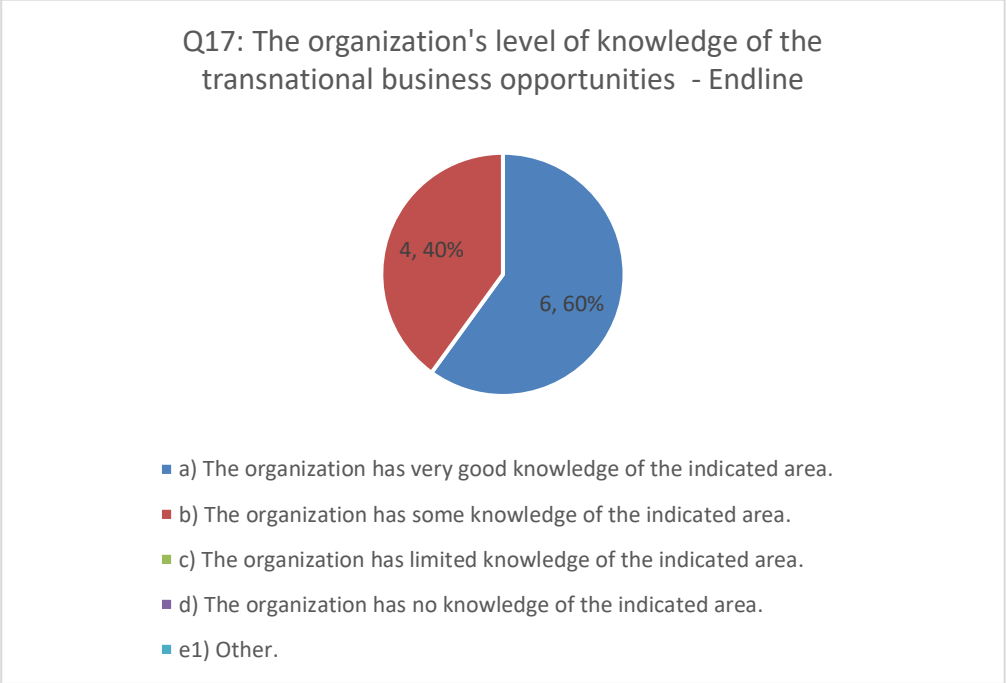
Figure 25: Regional capacity to develop strategies for accelerating circular bioeconomy transition: baseline and endline data, Baden-Württemberg

In the baseline survey, five respondents rated the region as having excellent capacity (score 5), while others gave mixed ratings. One respondent rated the capacity as low (score 1), one respondent as moderate (score 2) and three respondents as good (level 3).

In the endline survey, there was a slight improvement, with three respondents indicating very good capacity (score 4) and five maintaining the perception of excellent capacity (score 5). This suggests increasing recognition of the region's ability to drive circular bioeconomy initiatives.

Section V: Opportunities

Figure 26 illustrates the level of knowledge about transnational business opportunities, such as entering new markets with products and services related to the circular bioeconomy. This shift reflects an increasing awareness and understanding of international business opportunities in the circular bioeconomy.



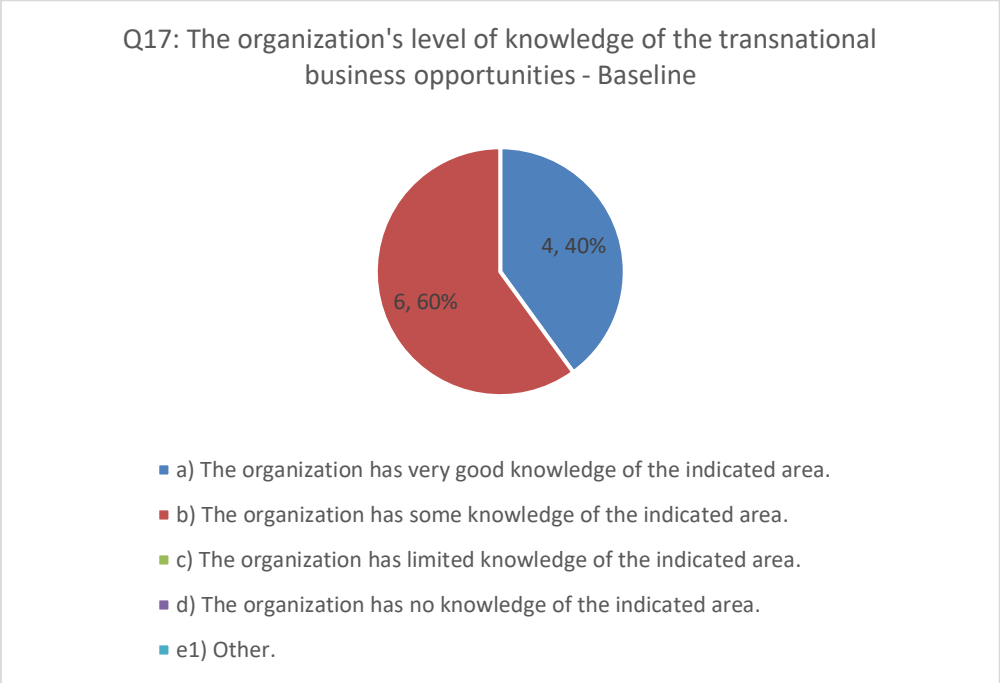


Figure 26: Knowledge of transnational business opportunities in the circular bioeconomy: baseline and endline comparison, Baden-Württemberg

At the beginning of Alpha testing, four out of ten respondents of the survey stated that the organization has a very good level of knowledge in the indicated area and six that the organization has some knowledge in the indicated area.

At the end of Alpha testing, six out of ten respondents indicated the organization has a very good level of knowledge in the indicated area or some knowledge in the indicated area (four respondents).

As **Figure 27** shows, the level of regional and local authority capacities to identify and promote transnational business opportunities varied significantly.

The data also indicate there was a slight shift towards good and excellent level of capacity at the end of Alpha testing.

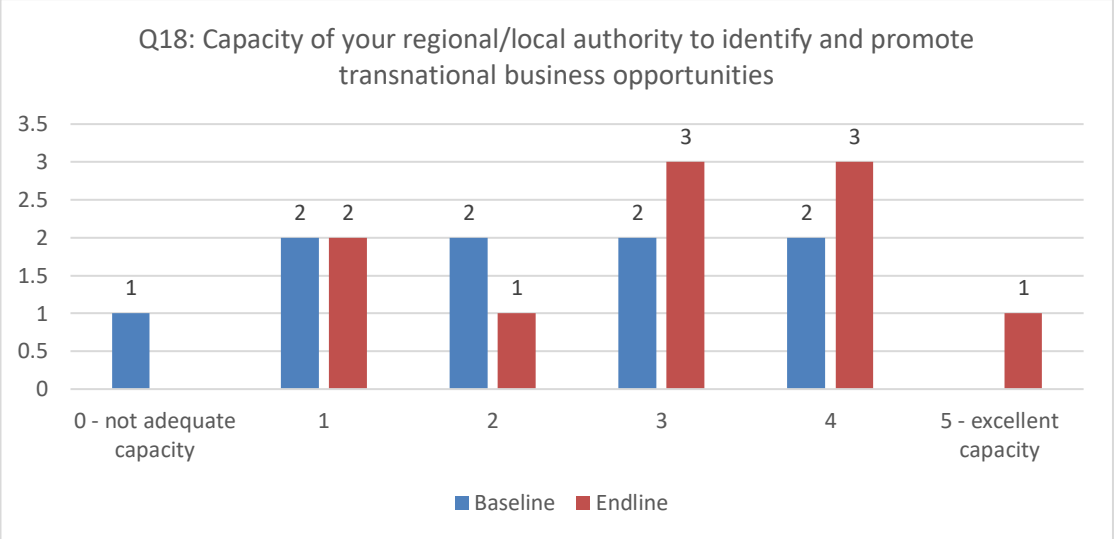


Figure 27: Perceived capacity of regional/local authorities to identify and promote transnational business opportunities: baseline and endline comparison, Baden-Württemberg

In the baseline survey, responses were spread across various levels, with one respondent reporting no adequate capacity (score 0) of the regional or local authorities, two respondents rating the capacity as low (score 1), two as moderate (score 2), two respondents as 3 (good) and two as very good (score 4), indicating a moderate level of capacity.

In the endline survey, there is a notable improvement, with seven out of ten respondents rating the capacity as good (score 3), very good (score 4), or even excellent (score 5). The data shows increased confidence in the authorities' ability to promote cross-border business opportunities.

Figure 28 illustrates the level of knowledge organizations in the Baden-Württemberg region have regarding collaboration and business opportunities within the circular bioeconomy at the regional level (Question 19).

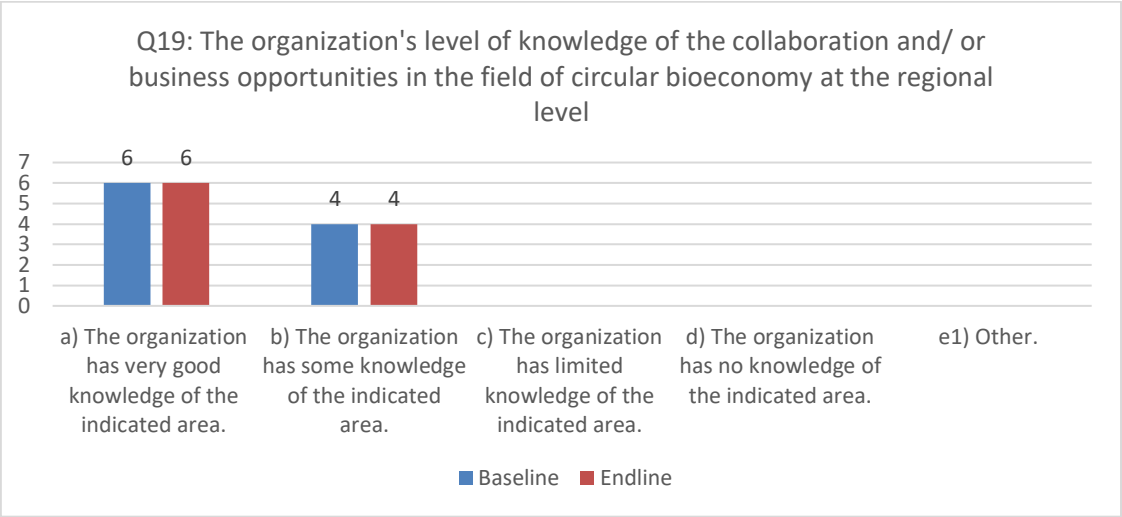


Figure 28: Organizational knowledge of collaboration and business opportunities in the circular bioeconomy at the regional level: baseline and endline results, Baden-Württemberg

The responses indicate that in both the baseline and endline data collection, the majority of organizations reported having either "very good" (option a) or "some knowledge" (option b) of the subject, with consistent results of 6 and 4, respectively.

Notably, there were no organizations that reported limited or no knowledge in this area.
The data suggests a stable understanding of collaboration opportunities among respondents throughout the study period.

Figure 29 presents the perceptions of organizations in the Baden-Württemberg region regarding the capacity of their regional or local authorities to identify and promote collaboration opportunities at the regional level.

The data indicates a slight increase in confidence regarding the authorities' ability to foster collaboration opportunities, though some variability in perceptions remains. Overall, the data suggests an evolving perspective on the effectiveness of regional/local authorities in promoting collaborative initiatives within the circular bioeconomy context.

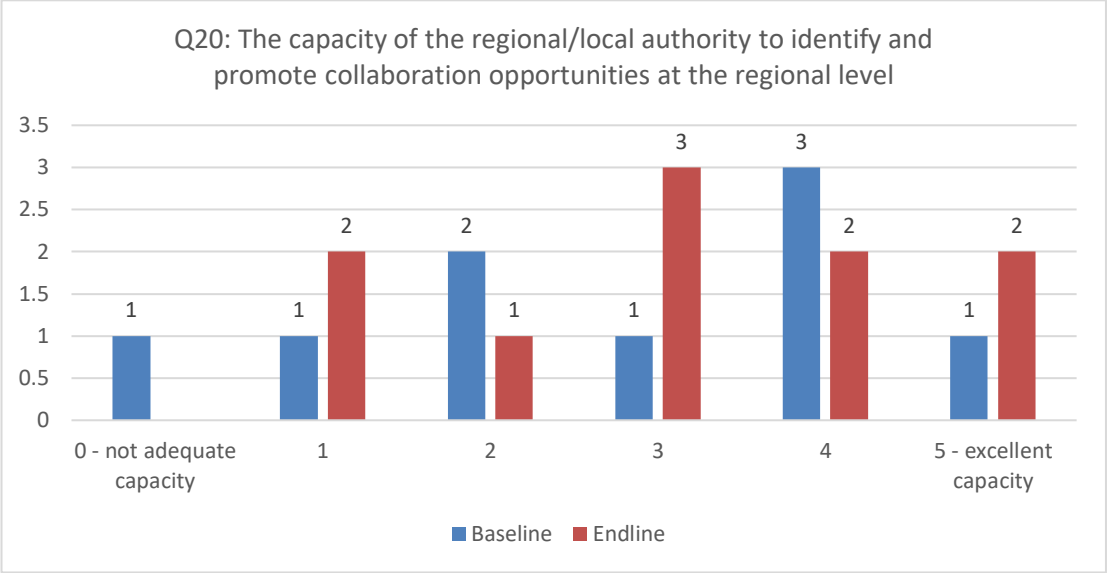


Figure 29: Perceived capacity to identify and promote collaboration opportunities at the regional level: baseline and endline comparison, Baden-Württemberg

Initially, respondents indicated the capacities levels from not adequate to excellent capacities, with 1 respondent indicating not adequate capacities (score 0), one indicating low capacities (score 1), two respondents indicating moderate capacities (score 2), one good capacities (score 3), three very good capacities (score 4) and one excellent capacity (score 5).

By the end of the Alpha testing, there was an increase in respondents rating the capacity as low (score 1) moderate (score 2), good (score 3) and excellent (score 5).

Section VI: Policy Areas

Questions 21-24 and 29 should have been answered by regional/local authorities only. As there were no stakeholders from this category involved in data collection, these questions remained unanswered.

Table 5.17 presents the level of knowledge among organizations in the Baden-Württemberg region regarding the benefits of bio-based products and services in achieving climate-neutrality and maintaining a low environmental footprint.

The responses are measured on a scale from 0 to 5, where 0 signifies "not adequate capacity" and 5 indicates "excellent capacity."

Table 0.17: Organization's knowledge of climate-neutrality and low environmental footprint benefits of bio-based products and services: baseline and endline results, Baden-Württemberg

Q25: Level of knowledge concerning climate-neutrality and low environmental footprint benefits of bio-based products and services	0 - not adequate capacity	1	2	3	4	5 - excellent capacity
Baseline	0	0	1	0	0	3
Endline	0	0	0	0	1	3

At the beginning of Alpha testing, most organizations reported a good understanding of the area in question. Three respondents rated their knowledge as excellent (score 5), while one respondent rated it as moderate (score 2).

At the end of Alpha testing, there was a slight shift in perception, with one respondent indicating an increase in knowledge to level 4, while the majority (three) reported a score of 5.

The decrease in lower scores suggests an overall improvement in the organizations' understanding of the climate-neutral and environmental benefits associated with bio-based products and services. This indicates a growing awareness and expertise in sustainable practices among respondents in the region.

Table presents the capacities of organizations in the Baden-Württemberg region to develop innovative business models and social measures that contribute to the transition toward a circular bioeconomy. The responses are categorized based on a multi-choice format, where options range from having "very good capacities" to "no capacities" in the indicated area.

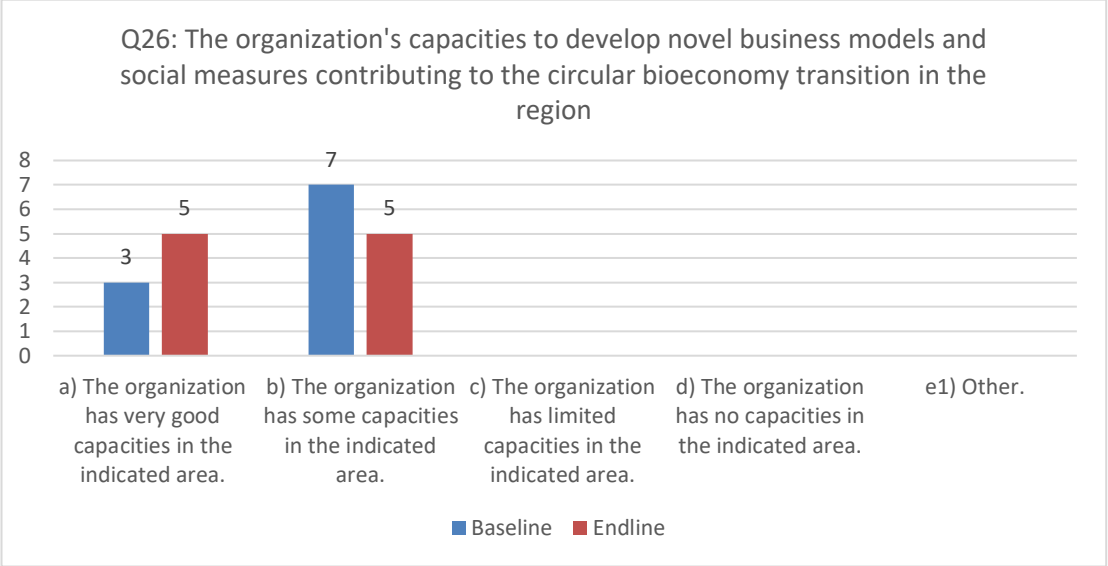


Figure 30: Capacities to develop business models and social measures for circular bioeconomy transition: baseline and endline results, Baden-Württemberg

In the baseline survey, a total of ten respondents reported their capacities, with three indicating "very good capacities" (option a) and seven noting "some capacities" (option b). None reported limited or no capacities.

In the endline survey, there was a notable shift with five respondents reporting "very good capacities" (option a) and five reporting "some capacities" (option b).

This indicates a positive trend in the region's capabilities to foster innovative business approaches and social initiatives aligned with circular bioeconomy principles, highlighting an increase in confidence and competence among respondents in this area.

Figure 31 illustrates the level of motivation among organizations in the Baden-Württemberg region to transition towards socially and environmentally responsible behaviours. Responses were collected on a scale from 0 to 5, where 0 indicates "very low motivation" and 5 denotes "very high motivation."

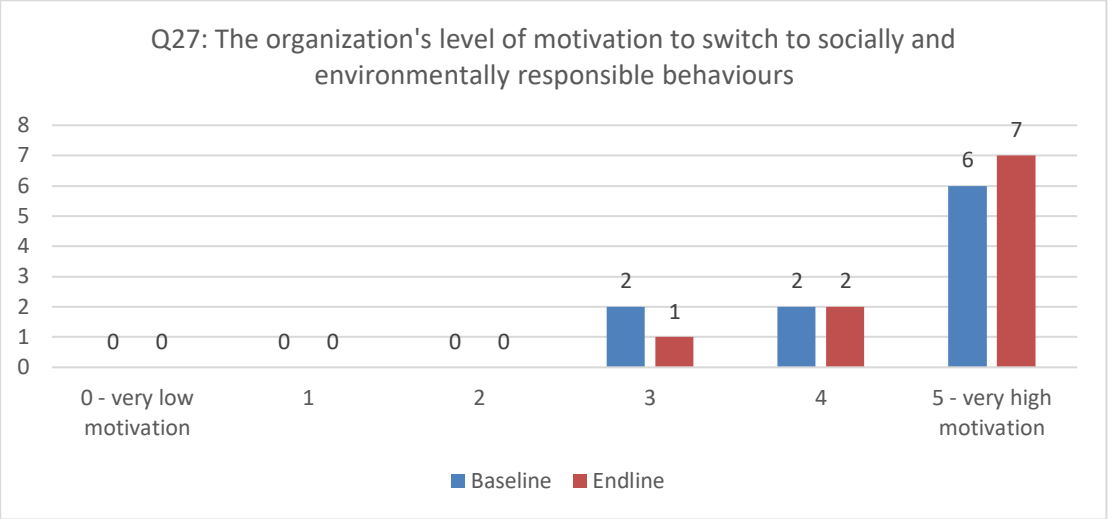


Figure 31: Motivation to transition to socially and environmentally responsible behaviours: baseline and endline comparison, Baden-Württemberg

In the baseline survey, six respondents expressed a "very high motivation" to adopt responsible practices, alongside two indicating "medium motivation" (4) and two at the "low motivation" level (3).

In the endline survey, there was a slight shift, with one respondent indicating a medium level of motivation (score 3), two respondents a high level (score 4) and seven respondents "very high motivation" (score 5).

This suggests a growing commitment among respondents to engage in socially and environmentally responsible practices, reflecting an encouraging trend towards enhanced motivation in pursuing sustainability initiatives within the region.

Figure 32 displays the perceived level of inclusion of business and social dimensions in the development of regional governance models and structures within the Baden-Württemberg region. Respondents rated their perceptions on a scale from 0 to 5, where 0 signifies a "very unsatisfactory level of inclusion" and 5 a "very satisfactory level of inclusion."

The results reflect a slight enhancement in the perception of how well business and social dimensions are integrated into regional governance structures.

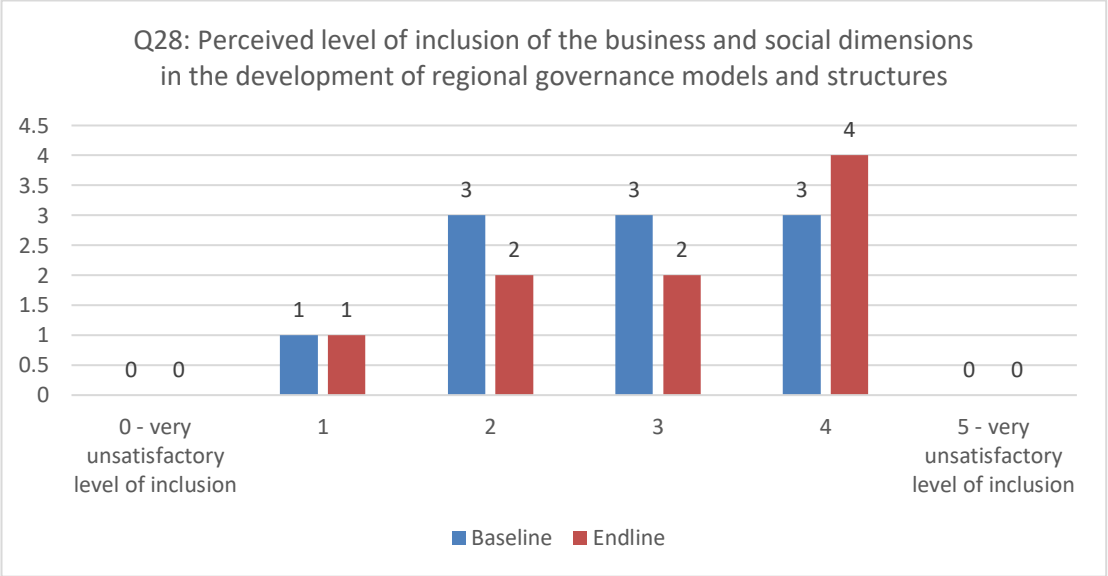


Figure 32: Perceived inclusion of business and social dimensions in regional governance models: baseline and endline data

At the beginning of Alpha testing, responses indicated a varied perception of inclusion: one respondent rated the level of inclusion as 1 (low), three respondents as two (moderate), three as 3 (good), and three others rated as 4 (very good), reflecting a somewhat positive view of the integration of these dimensions into governance. No respondents selected the highest score (5), and the lowest score (0).

At the endline of Alpha testing, the distribution shifted slightly. The number of respondents rating the inclusion at 4 (very satisfactory) increased to four, suggesting a positive trend towards better integration of business and social dimension, while the number of respondents rating the level of inclusion as moderate (score 2) or good (score 3) decreased to two.

In the case of Baden-Württemberg, for the two **environment-specific questions** (questions 30 and 31) included in the Endline Questionnaires, which were directed exclusively at regional nodes in collaboration with regional authority representatives to establish initial baseline estimations of environmental impact in each territory, the responses received were "no information available" and "not applicable" for the respective questions.

Central Macedonia, Greece

In the Central Macedonia region, ten respondents participated in the baseline and also endline data collection.

At the baseline stage, three respondents participating were representatives of the regional authority. External advisory entities and researchers or affiliated higher education institutions each had one representative, while business entities had three representatives and business associations, clusters, or innovation centres had two representatives. There were no contributions recorded for local authorities and NGOs/CSOs.

In the endline phase, the engagement of the regional authorities remained the same, with three respondents. External advisory entities, business entities and business associations, clusters each had one representative. Researchers or affiliated higher education institutions had one representative, while no answers were recorded from local authorities and NGOs/CSOs.

Table 0.18: Stakeholder Participation in baseline and endline data collection, Central Macedonia region

Stakeholder group	Regional authority	Local authority	External advisory/ consulting entity	Researcher or affiliated to a higher education institution.	Business entity/ entrepreneur	Business association, cluster or innovation centre	NGO/CSO	Other
Baseline	3	0	1	1	3	2	0	0
Endline	3	0	2	1	2	2	0	0

Key trends identified during the Alpha testing

The Central Macedonia region shows significant improvements in stakeholder engagement, motivation, and regional capacity to drive circular bioeconomy initiatives. However, gaps remain in

policy familiarity and environmental assessment, highlighting areas where further development is necessary to ensure a fully sustainable transition.

- **Bioeconomy Governance Models**: There is moderate to high experience among regional and local authorities in designing and implementing governance models. There was an improvement in the field of monitoring and evaluation experience, but there is still a spread across different experience levels, indicating room for growth in this area.
- **Stakeholder Engagement**: Opportunities for stakeholders' participation in the circular bioeconomy transition are available, and the level of engagement in collaborative policymaking, shows a positive shift from baseline to endline, with more respondents indicating higher engagement levels. However, the data also suggest that there are significant barriers to engagement that need to be addressed. Although there was an improvement of respondents' familiarity levels of barriers to stakeholders' engagement and potential solutions, respondents show varying levels of familiarity with both, the barriers and potential solutions. There was progress in the level of knowledge of multi-actor business models necessary for the circular bioeconomy, with the majority of respondents indicating good knowledge in the endline
- **Local Potentials and Innovation**: There is an improvement in the region's capacity to support the exploitation of bioeconomy-related assets and to develop strategies for accelerating the circular bioeconomy transition. Similarly, the regional capacity to develop circular bioeconomy strategies showed notable progress, with all respondents moving toward higher levels of capacity. The regional capacity to support bioeconomy-related assets and develop strategies to accelerate the circular bioeconomy is recognized, but it is still developing.
- **Opportunities**: In terms of knowledge of transnational business opportunities, as well as collaboration and/or opportunities at the regional level, the endline results show an improvement. However, respondents reported varied levels of regional/local authorities' capacities to identify and promote transnational business opportunities.
- **Policy Areas**: The data about organizations' knowledge of policy areas that need improvement reflects increased awareness. Despite the improvements, there are still significant gaps, particularly in knowledge of policy areas and the capacity to assess environmental impacts. Addressing these areas through targeted policy initiatives could unlock further progress in the region. The results concerning the regional/local government's capacity to evaluate the regional environmental footprint indicate significant gaps in this field, with respondents indicating limited or no improvement from baseline at the end of Alpha testing.
- **Business Models and Social Measures**: Organizational motivation to switch to socially and environmentally responsible behaviours showed strong improvement. Also, in the case of capacity to design action plans for responsible business models, there was a notable increase, suggesting a growing interest in adopting environmentally friendly practices. The data regarding capacities to develop new business models and social measures shows improvement, with four out of nine respondents indicating very good knowledge and four some knowledge. Some gaps in this field, however, still remain.

Section II: Capacities in designing, implementing, monitoring and evaluating the bioeconomy governance models

Questions 4-7 were answered by regional/local authorities only.

Figure 33 illustrates the levels of experience in designing regional bioeconomy governance models among stakeholders in the Central Macedonia region.

Overall, the data suggests an improvement in the perceived experience of stakeholders regarding the design of regional bioeconomy governance models, particularly at higher experience levels. This shift may indicate enhanced capacity or confidence among stakeholders to engage in bioeconomy governance initiatives in the Central Macedonia region.

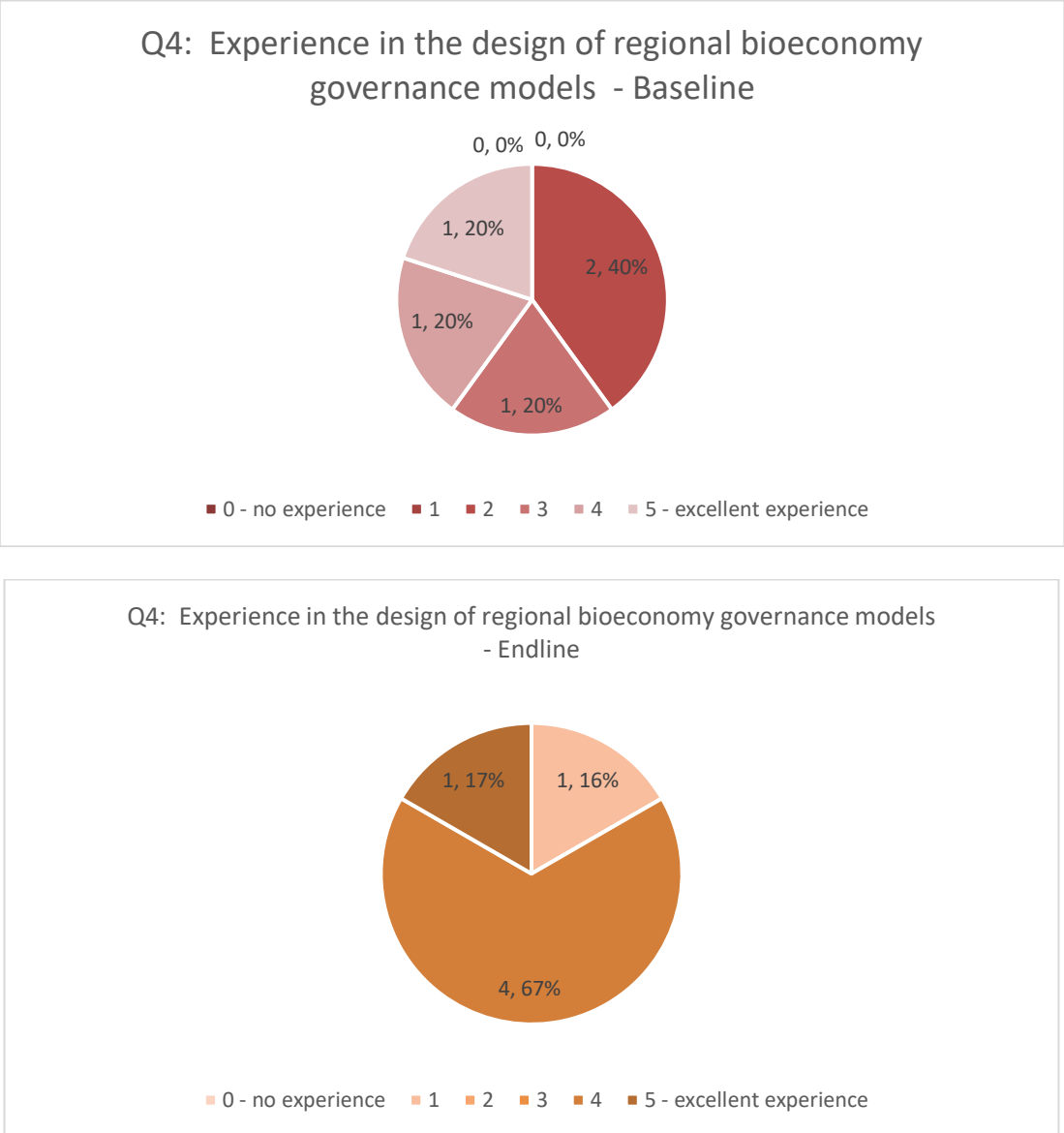


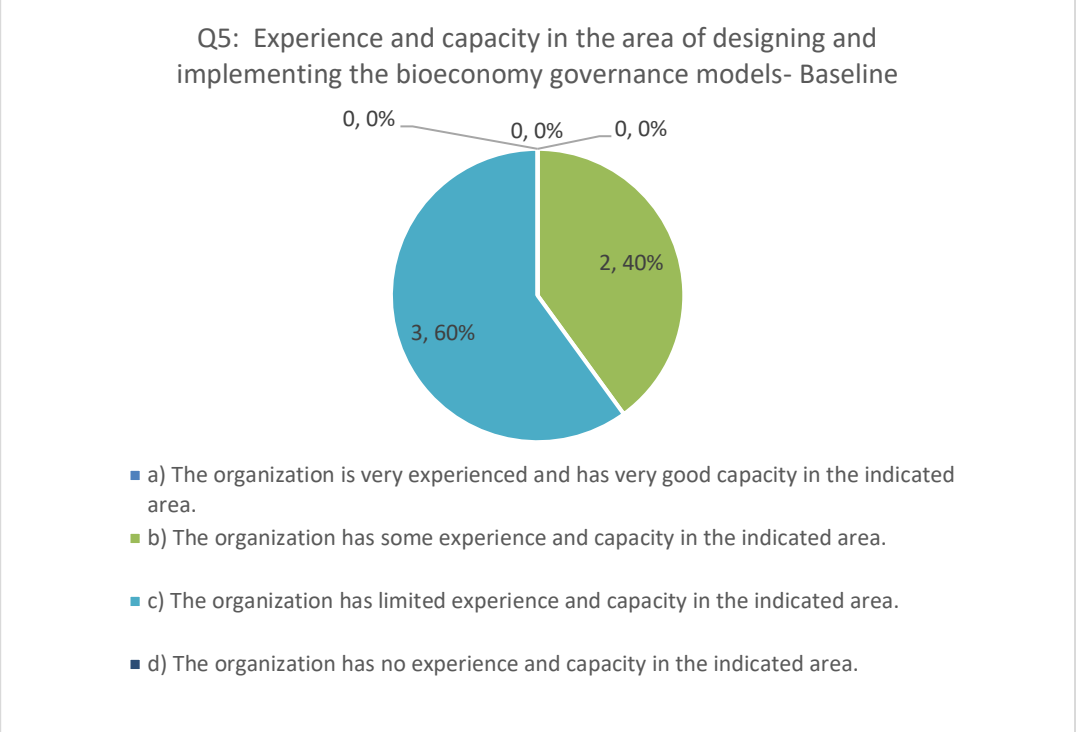
Figure 33: Experience in designing regional bioeconomy governance models: baseline and endline data comparison, Central Macedonia region

At the beginning of the Alpha testing, respondents reported varying levels of experience in governance model design. Specifically, two respondents indicated a moderate experience level (score 2), while one respondent rated their experience as good (score 3). Additionally, there was one respondent each reporting very good or excellent experience levels (score 4 and 5).

By the end of Alpha testing, the responses showed a shift in experience levels. Notably, there was an increase in respondents rating their experience as very good (score 4), with four respondents indicating excellent experience (score 5). One respondent noted a limited experience (score 1), there were no responses indicating experience levels of 0, 2, or 3.

Figure 34 presents the levels of experience and capacity among organizations in the Central Macedonia region regarding the design and implementation of bioeconomy governance models that promote innovation and sustainability-driven strategies.

Overall, the results reflect a significant enhancement in the experience and capacity of organizations in the Central Macedonia region concerning bioeconomy governance models. This progression indicates a growing capability to engage in the development of innovative and sustainability-driven bioeconomy strategies, suggesting a positive trend toward strengthening regional bioeconomic governance.



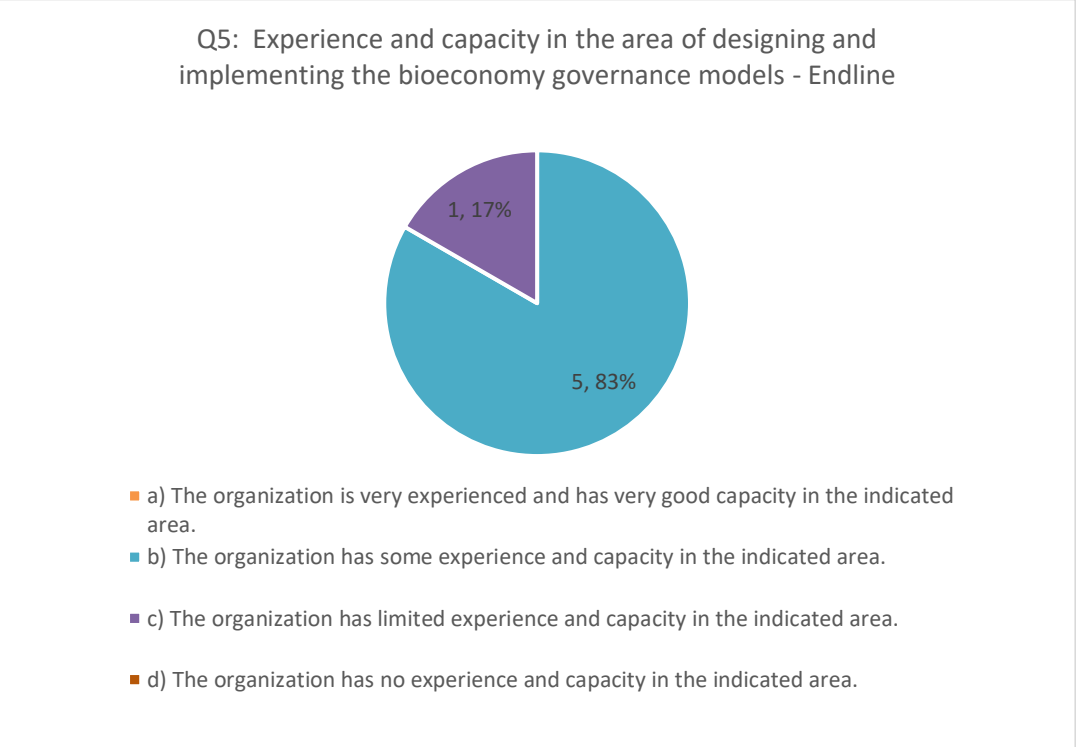


Figure 34: Experience and capacity in designing and implementing bioeconomy governance models: baseline and endline data comparison, Central Macedonia

In the baseline survey, respondents reported a range of experience and capacity levels. Two respondents reported having some experience and capacity (option b), while three indicated limited experience and capacity (option c). There were no respondents reporting very good (option a) or no experience (option d) in this area.

In the endline survey, there was a notable improvement in the experience and capacity reported by respondents. Five of them indicated some experience and capacity (option b), while only one respondent reported limited experience (option c). No respondent stated having very good (option a) or no experience (option d) in this area.

Table 5.19 illustrates the experience levels of organizations in the Central Macedonia region regarding the monitoring and evaluation of bioeconomy strategies.

Overall, the results reveal a positive trend in the experience of organizations in Central Macedonia regarding the monitoring and evaluation of bioeconomy strategies. The increase in organizations reporting good to excellent experience suggests an enhancement in the capability to effectively assess and monitor bioeconomy initiatives, which is essential for ensuring the success and sustainability of regional bioeconomic strategies.

Table 0.19: Experience in monitoring and evaluation of bioeconomy strategies: baseline and endline results, Central Macedonia

Q6: Experience monitoring and evaluation of the bioeconomy strategies.	0 - no experience	1	2	3	4	5 - excellent experience
Baseline	1	2	0	1	1	0
Endline	0	2	0	1	2	1

At the beginning of Alpha testing, respondents displayed varied levels of experience. One respondent reported having no experience (score 0), two respondents had limited experience (score 1), one respondent indicated a good level of experience (score 3), and one reported a very good level of experience (score 4). There were no respondents with excellent experience (score 5) in this area.

In the end of Alpha testing, there were shifts in the experience levels. No respondent reported having no experience (score 0), and two respondents continued to report limited experience (score 1). One respondent indicated a good level of experience (score 3), two reported a very good level of experience (score 4). Importantly, one respondent indicated having excellent experience (score 5) in monitoring and evaluating bioeconomy strategies.

Figure 35 presents the experience and capacity levels of organizations in the Central Macedonia region concerning monitoring and evaluation in the circular bioeconomy.

Overall, the results indicate a positive trend in the experience and capacity of organizations in Central Macedonia related to monitoring and evaluating the circular bioeconomy. The increase in organizations reporting some experience suggests an enhanced understanding and capability within

the sector, which is crucial for the successful implementation and assessment of circular bioeconomy initiatives in the region.

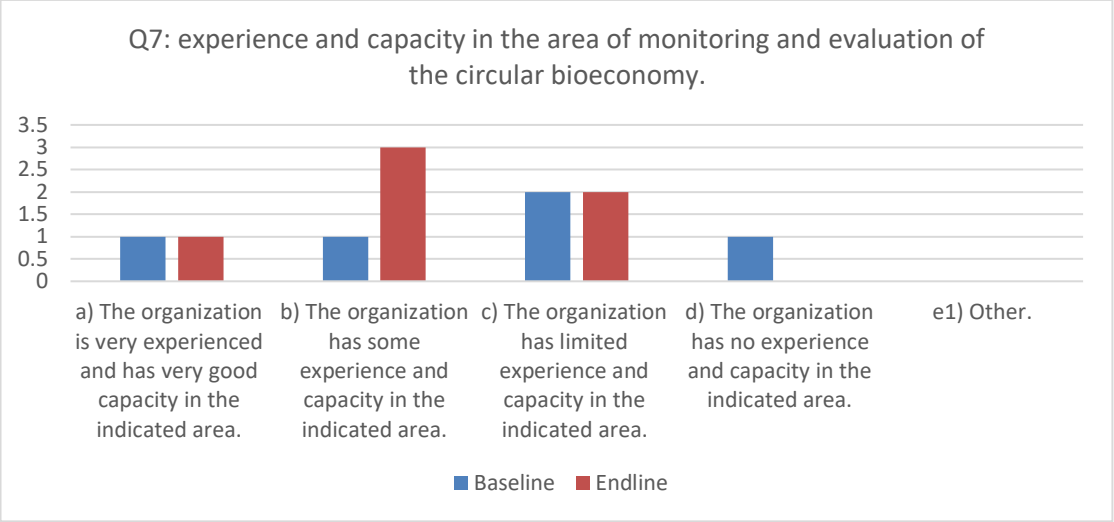


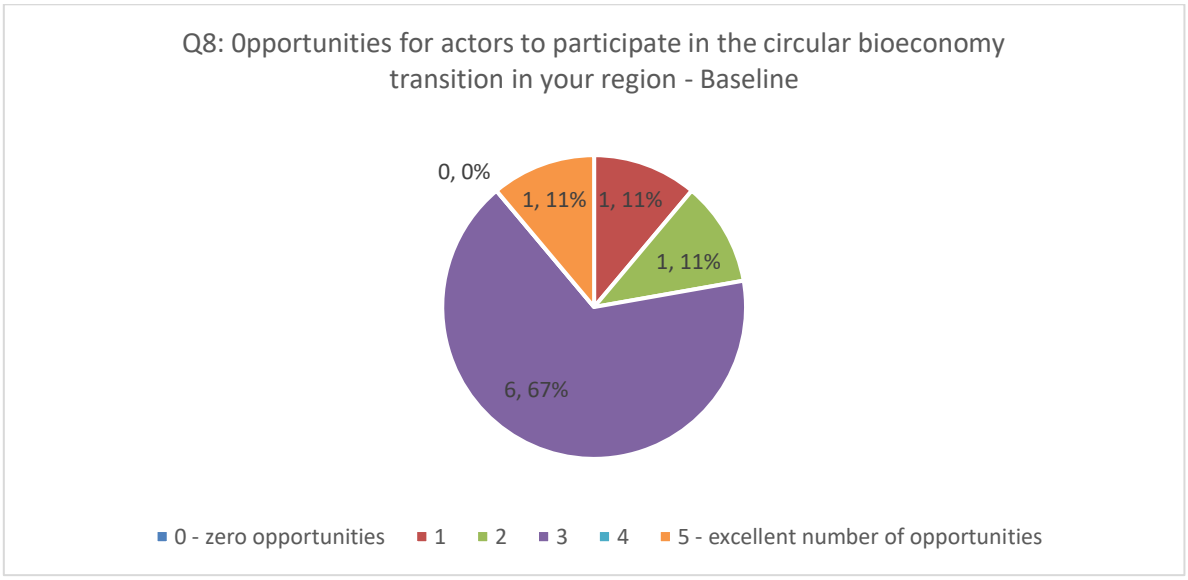
Figure 35: Experience and capacity in monitoring and evaluation of the circular bioeconomy: baseline and endline comparison, Central Macedonia

In the baseline phase, the respondents exhibited a range of experience levels. One respondent rated his or her capacity as very good (option a), while another respondent reported some experience (option b). Two respondents indicated limited experience (option c), and one respondent had no experience in this area (option d). No respondents fell under the "Other" category.

In the endline phase, there were notable improvements in the experience and capacity levels reported by respondents. One respondent rated herself or himself as very experienced and capable (option a), while three respondents reported having some experience (option b). The number of respondents with limited experience (option c) remained the same at two, but no respondents indicated having no experience (option d) in this area. Again, there were no responses under the "Other" category.

Section III: Stakeholders engagement

Figure 36 presents the assessment of opportunities for various actors to engage in the circular bioeconomy transition in the Central Macedonia region, with responses categorized by Baseline and Endline phases. The scale used ranges from 0 (zero opportunities) to 5 (excellent number of opportunities).



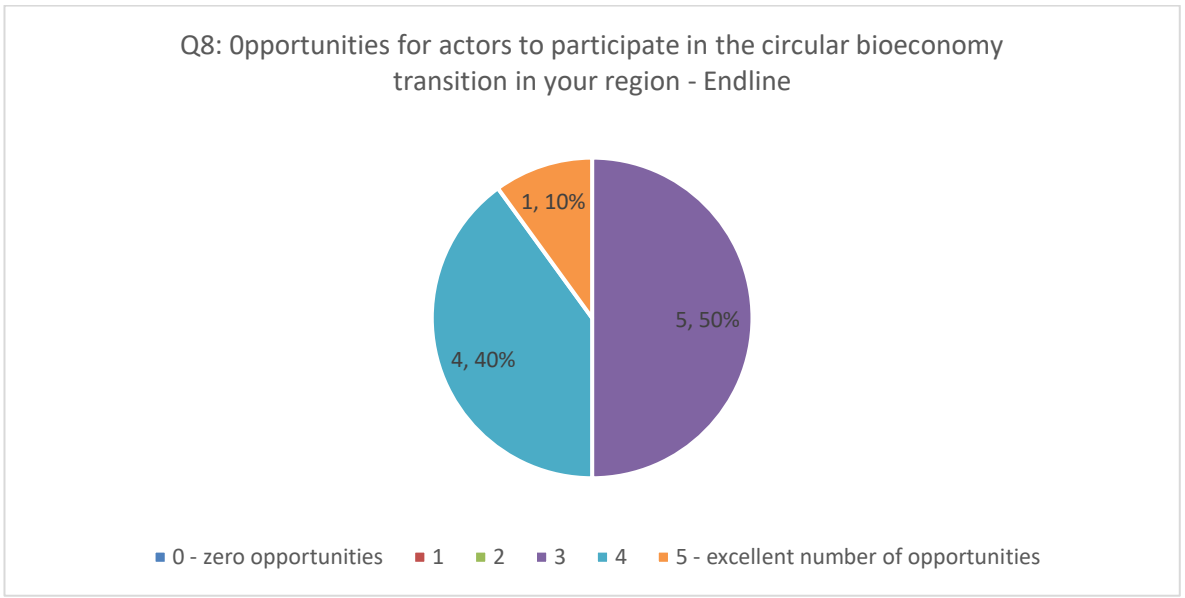


Figure 36: Opportunities for actors to participate in the circular bioeconomy transition: baseline and endline comparison, Central Macedonia

Overall, the results demonstrate an evolving understanding of participation opportunities in the circular bioeconomy, with a shift towards more positive assessments in the endline phase.

In the baseline survey, respondents indicated a varied perception of participation opportunities. There were no responses reported there were no opportunities (score 0), but one respondent rated them as low (score 1), and another as moderate (score 2). A significant number of respondents (6) identified a high level of opportunities (3), while one respondent indicated a very high level of opportunities (option 4). This distribution suggests a moderate awareness of opportunities among stakeholders.

In the endline survey, there was a noticeable shift in the perception of opportunities. No respondents rated the opportunities as non-existing, low or moderate (score 0, 1, or 2). Five respondents perceived a high level of opportunities (score 3), while four respondents rated the opportunities as very high (score 4), indicating an increase in perceived potential for participation in the circular bioeconomy transition. One respondent indicated the highest rating (score 5).

Figure 37 illustrates the perceived level of engagement among various actors in collaborative policy-making processes related to the circular bioeconomy in the Central Macedonia region. Respondents rated the engagement levels using a scale from 0 (zero opportunities) to 5 (excellent number of opportunities).

The results reveal a shift towards a more favourable perception of actor engagement in collaborative policy-making processes from the baseline to the endline phase, highlighting improvements in collaborative efforts in the Central Macedonia region.

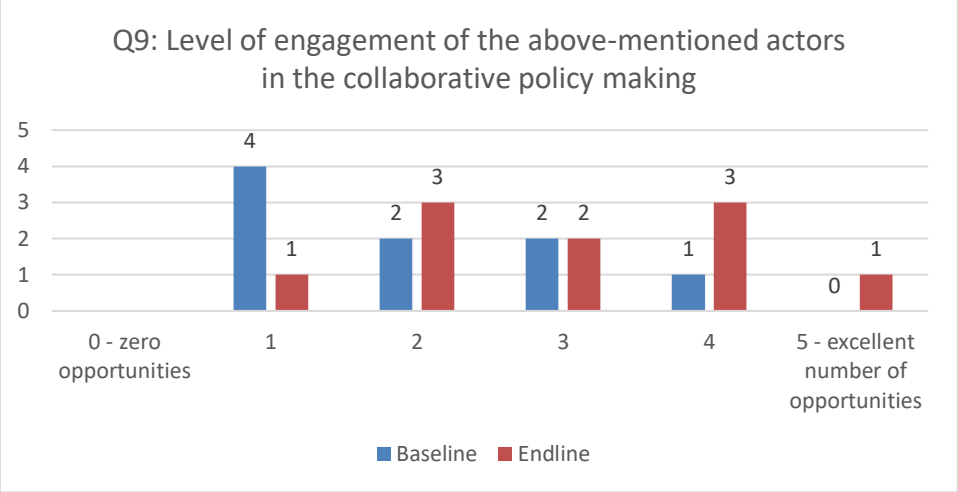


Figure 37: Level of engagement of actors in collaborative policy making: baseline and endline results, Central Macedonia

In the baseline phase, the distribution of responses indicates a diverse perception of engagement levels. No respondents indicated a lack of engagement (score 0). Four respondents rated it limited (score 1). Additionally, 2 respondents rated engagement levels as moderate (score 2), while another 2 rated it as fair (score 3). There was only one response indicating a high level of engagement (score 4).

In the endline phase, there was a noticeable change in the perception of engagement. No respondents rated the engagement as zero (score 0). The number of respondents reporting low level of engagement (score 1) decreased significantly, indicating improved perceptions of engagement. Three respondents rated the level of engagement as moderate (score 2), two respondents reported a good level of engagement (score 3), three respondents as very good (score 4). Additionally, one respondent rated engagement at the highest level (score 5), indicating recognition of excellent engagement opportunities for actors in this context.

Table 5.20 presents the level of familiarity among respondents regarding the barriers that hinder stakeholder engagement in the Central Macedonia region. The respondents rated their familiarity on a scale from 0 (no familiarity) to 5 (excellent familiarity).

The results indicate an improvement in familiarity regarding the barriers to stakeholder engagement from the baseline to the endline phase, suggesting enhanced recognition of the challenges that need to be addressed for more effective engagement in the circular bioeconomy.

Table 0.20: Familiarity with barriers preventing stakeholders' engagement: baseline and endline results, Central Macedonia

Q10: Level of familiarity with the barriers preventing stakeholders' engagement in your region	0 - no familiarity	1	2	3	4	5 - excellent familiarity
Baseline	0	0	2	1	2	0
Endline	0	0	1	1	6	0

In the baseline data collection, responses indicated a limited familiarity with barriers to engagement. No respondents reported a complete lack of familiarity (score 0), and only two respondents rated their familiarity as moderate (score 2). Additionally, there was one response at a good level (score 3), while two respondents indicated a very good level of familiarity (score 4). This suggests that while some stakeholders had a reasonable understanding of the barriers, there was still a notable gap in comprehensive familiarity among the majority.

The endline results show a significant increase in familiarity with the barriers. Similar to the baseline, no respondents indicated no familiarity (score 0). However, only one respondent rated their familiarity as moderate (score 2), and one respondent reported a good level of familiarity (score 3). There was a substantial increase in the number of respondents rating their familiarity as very good (score 4), with 6 individuals indicating an excellent familiarity (score 5). This shift reflects a growing awareness and understanding of the barriers preventing stakeholder engagement in the region.

Table 5.21 outlines the level of familiarity among respondents regarding potential solutions to overcome barriers hindering stakeholder engagement in the Central Macedonia region. The respondents rated their familiarity on a scale from 0 (no familiarity) to 5 (excellent familiarity).

The results indicate a positive trend in familiarity with solutions to overcome engagement barriers from the baseline to the endline phase, reflecting an increased understanding among stakeholders about potential strategies and actions that can be taken to foster more effective engagement in the circular bioeconomy.

Table 0.21: Familiarity with solutions to overcome barriers: baseline and endline comparison, Central Macedonia

Q11: Level of familiarity with the solutions to overcome the above-mentioned barriers	0 - no familiarity	1	2	3	4	5 - excellent familiarity
Baseline	0	1	2	2	1	0
Endline	0	1	0	6	1	0

According to the baseline data, respondents demonstrated a limited familiarity with solutions. None of the respondents indicated a complete lack of familiarity (score 0). Only one respondent rated their familiarity as low (score 1), while two respondents indicated a moderate level of familiarity (score 2). Two individuals rated their familiarity at a good level (3), and one respondent rated it as very good (4). The fact, that none of the respondents indicated the highest familiarity level (5) suggests a significant gap in knowledge regarding available solutions.

The endline results reveals a shift in familiarity levels. Similar to the baseline, no respondents indicated no familiarity (score 0). However, only one respondent rated their familiarity as low (score 1), and none indicated moderate familiarity level (score 2). A majority of respondents (six) rated their familiarity as good (score 3), signifying an increase in awareness of the solutions. One respondent maintained a high level of familiarity (score 4), while no respondents rated their familiarity as excellent (score 5).

Table 5.22 presents the level of knowledge among organizations regarding multi-actor business models and social measures necessary for the effective implementation of the circular bioeconomy in the Central Macedonia region.

Overall, the results illustrate a positive development in the knowledge regarding multi-actor business models and social measures from the baseline to the endline phase, highlighting the growing capacity of organizations in Central Macedonia to engage effectively in the circular bioeconomy transition.

Table 0.22: Knowledge of multi-actor business models and social measures for circular bioeconomy implementation: baseline and endline comparison, Central Macedonia

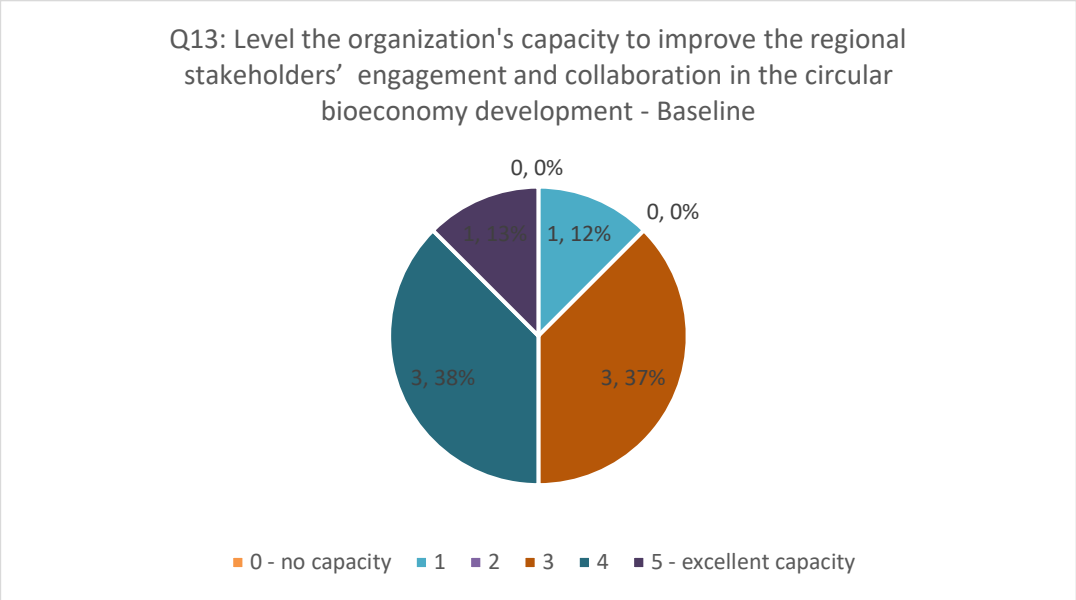
Q12: Level of knowledge of the multi-actor business models and social measures necessary for the implementation of the circular bioeconomy	a) The organization has very good knowledge of the indicated area	b) The organization has some knowledge of the indicated area	c) The organization has limited knowledge of the indicated area	d) The organization has no knowledge of the indicated area	e) Other
Baseline	0	1	2	0	0
Endline	1	6	0	0	0

In the baseline survey, the knowledge distribution was limited. Only one respondent reported having some knowledge of the indicated area (option b). Two respondents indicated they had limited knowledge (option c). No respondents reported very good knowledge (option a) or no knowledge at all (option d). This suggests that the initial understanding of the necessary business models and social measures was relatively low among the respondents.

The endline data shows a significant improvement in the level of knowledge. One respondent reported very good knowledge (option a), indicating some enhancement in understanding. Additionally, six respondents indicated having some knowledge (option b), reflecting a shift towards greater awareness and comprehension of multi-actor business models and social measures. No respondents reported limited knowledge (option c) or no knowledge (option d).

Figure 38 outlines the perceived capacity of organizations in the Central Macedonia region to enhance stakeholder engagement and collaboration in the development of the circular bioeconomy. Respondents rated their capacity on a scale from 0 to 5, where 0 indicates no capacity and 5 indicates excellent capacity.

Overall, the data indicates a positive trend in the perceived capacity to improve stakeholder engagement in the circular bioeconomy development. This suggests a growing confidence among organizations in their ability to foster collaboration and drive initiatives in the circular bioeconomy within the Central Macedonia region.



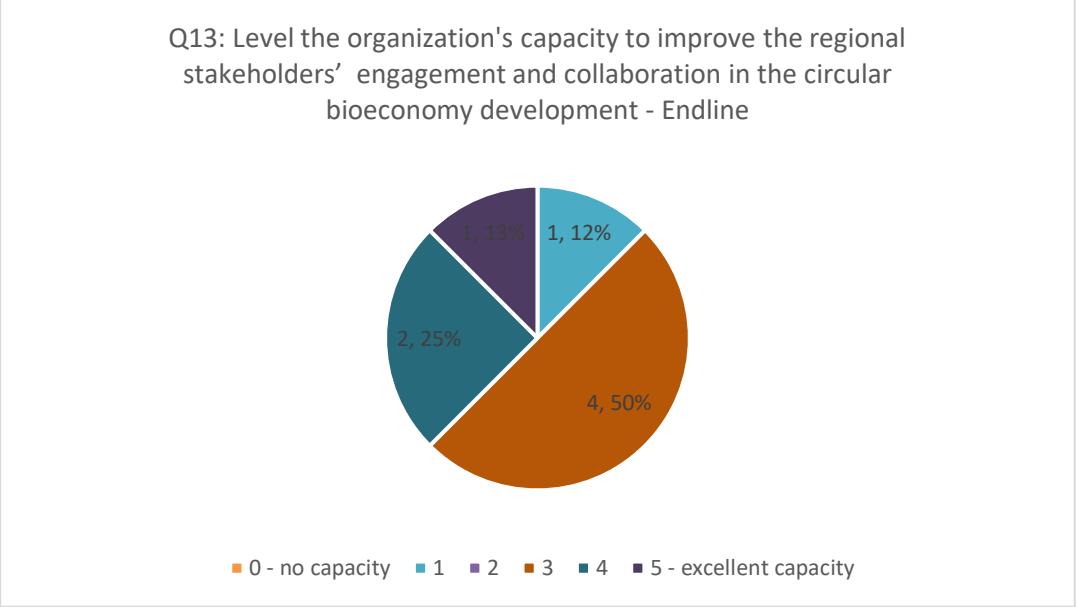


Figure 38: Perceived capacity to enhance stakeholder engagement and collaboration in circular bioeconomy development: baseline and endline data, Central Macedonia

At the beginning of Alpha testing, the distribution of responses reveals a varied perception of capacity among respondents. One respondent reported low capacity (score 1), three respondents reported a good capacity (score 3). Additionally, three respondents reported very good capacity (score 4), and one indicated excellent capacity (score 5). No respondents reported having no capacity (score 0) or moderate capacity (score 2).

At the end of Alpha testing, data shows a slight shift in perceptions. Similar to the baseline, one respondent still reported low capacity (score 1), but the number of respondents indicating good capacity (score 3) has increased to four. However, the number of respondent reporting very good capacity (score 4) decreased to two. One respondent maintained the rating of excellent capacity (score 5). Notably, no respondents reported having no capacity (score 0) or moderate capacity (score 2).

Figure 39 presents the perception of organizations in the Central Macedonia regarding engagement of regional stakeholders in the context of circular bioeconomy development. Respondents rated these perceived benefits on a scale from 0 to 5, where 0 indicates not beneficial, 5 indicates very beneficial.

The results suggest a sustained positive view of the potential benefits of stakeholder engagement and collaboration in the circular bioeconomy.

The results indicate a continued recognition of the benefits associated with stakeholder engagement in the circular bioeconomy transition.

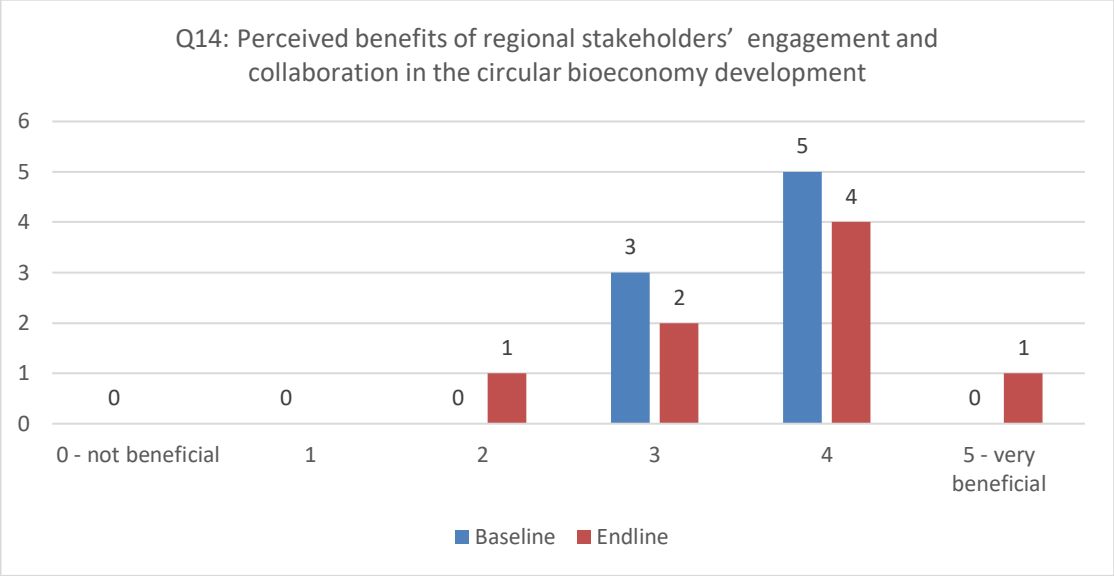


Figure 39: Perceived benefit of stakeholders' engagement and collaboration in circular bioeconomy development: baseline and endline comparison, Central Macedonia

As the baseline data shows, respondents predominantly viewed stakeholder engagement as beneficial for the circular bioeconomy transition. Three respondents rated the benefits as moderate (score 3), and five rated them as good (score 4). Importantly, no respondents indicated that stakeholder engagement was not beneficial (score 0) or minimal benefit (score 1), reflecting a strong consensus on the positive impact of stakeholder involvement.

The endline data reveals some shifts in perceptions regarding the benefits of stakeholder engagement. While no respondents rated the engagement as not beneficial (score 0) or minimal benefit (score 1), one respondent indicates a limited benefit (score 2). The number of respondents perceiving moderate benefit (score 3) decreased to two, while four respondents maintained a view of good benefit (score 4). Notably, one respondent rated the benefits as very beneficial (score 5), reflecting an increased recognition of the positive impacts of stakeholder engagement.

Section IV: Local potentials and innovation assets

Figure 40 presents the assessed capacity of the Central Macedonia region to support the exploitation of bioeconomy-related assets, rated on a scale from 0 to 5, where 0 indicates no capacity, 5 indicates excellent capacity.

Overall, the results indicate a positive trend in perceptions of the region's capacity to support the exploitation of bioeconomy-related assets. There is an increase in the number of organizations

recognizing good to excellent capacity. This suggests an improvement in the region's ability to facilitate and promote bioeconomy initiatives and highlights the potential for further development in this area.

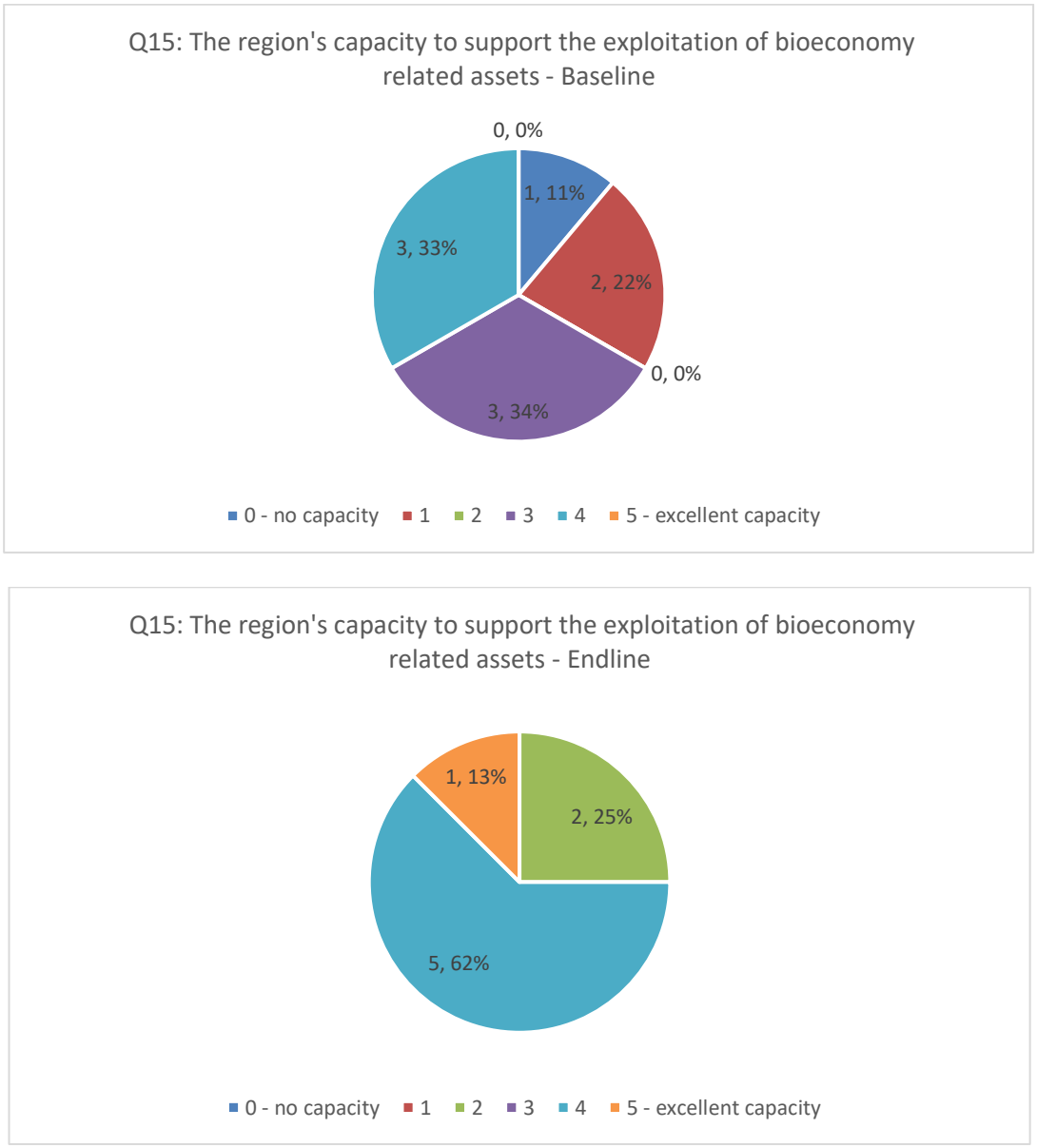


Figure 40: Regional capacity to support the exploitation of bioeconomy-related assets: baseline and endline data, Central Macedonia

The baseline data shows the capacity of the region to support bioeconomy-related assets was viewed as moderate to good. Three respondents rated the region's capacity as good (score 3), while three others rated it as very good (score 4). Additionally, two respondents indicated minimal capacity (score 1), and one respondent rated the capacity as no capacity (score 0). No respondents reported an excellent capacity (score 5).

The endline data reveals notable changes in perceptions regarding the region's capacity to support bioeconomy-related assets. Notably, the number of respondents rating the capacity as excellent (score 5) increased to one, reflecting an improved recognition of the region's support capabilities. Additionally, five respondents rated the capacity as very good (score 4), while two rated it as limited (score 2). The ratings of no capacity (score 0) and minimal capacity (score 1) were no longer present.

Figure 41 presents the capacity of the Central Macedonia region to develop strategies that accelerate the transition to a circular bioeconomy, rated on a scale from 0 to 5, where 0 indicates no capacity, 5 indicates excellent capacity.

These results demonstrate a significant positive change in the perception of the region's capacity to develop strategies that accelerate the circular bioeconomy transition, with a marked increase in organizations recognizing excellent capacity.

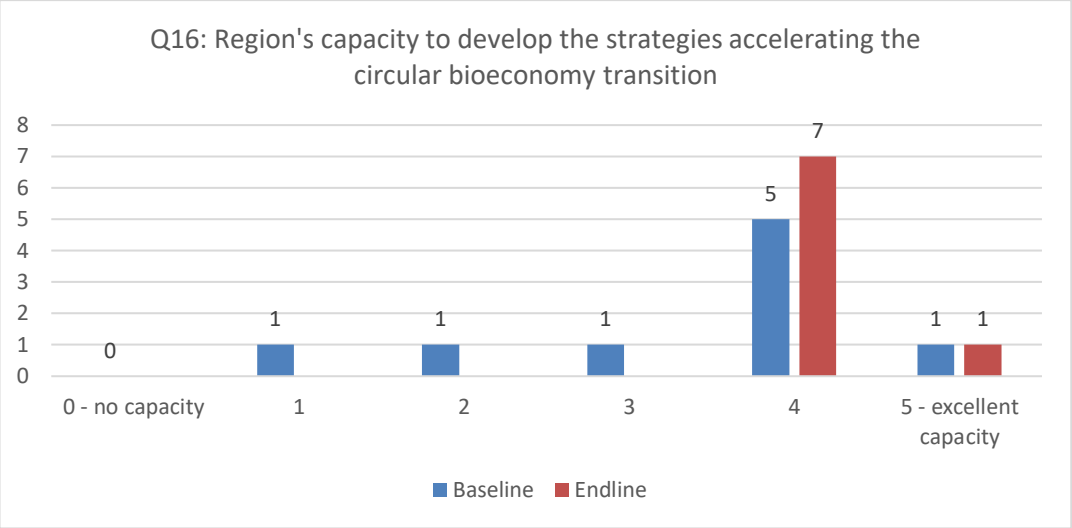


Figure 41: Regional capacity to develop strategies for accelerating circular bioeconomy transition: baseline and endline data, Central Macedonia

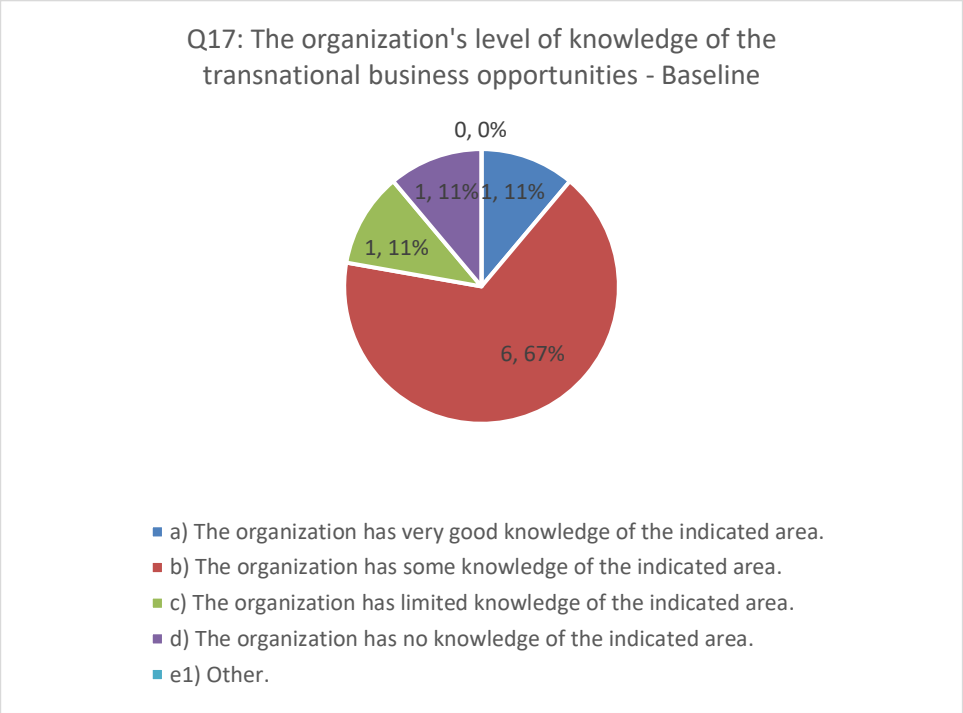
In the baseline survey, the capacity to develop strategies for accelerating the circular bioeconomy transition was perceived as varied among respondents. Specifically, five respondents rated the region's capacity as very good (score 4), one respondent rated the capacity as good (score 3), and there were also ratings of moderate capacity (score 2) and limited capacity (score 1). Notably, no respondents indicated no capacity (score 0) or excellent capacity (score 5).

The endline data reveals a substantial shift in perceptions regarding the region's capacity to develop strategies for accelerating the circular bioeconomy transition. The number of respondents rating the capacity as excellent (score 5) increased to seven, indicating a strong consensus on the region's enhanced capability in this area. No respondents indicated no capacity (score 0), limited capacity (score 1), moderate capacity (score 2), and good capacity (score 3). Only one respondent maintained a rating of very good capacity (score 4).

Section V: Opportunities

Figure 42 presents the organization's level of knowledge regarding transnational business opportunities, such as entering new markets with products and services related to the circular bioeconomy, in the Central Macedonia region.

The data shows an increase in organizations reporting very good knowledge of transnational opportunities from the baseline to the endline.



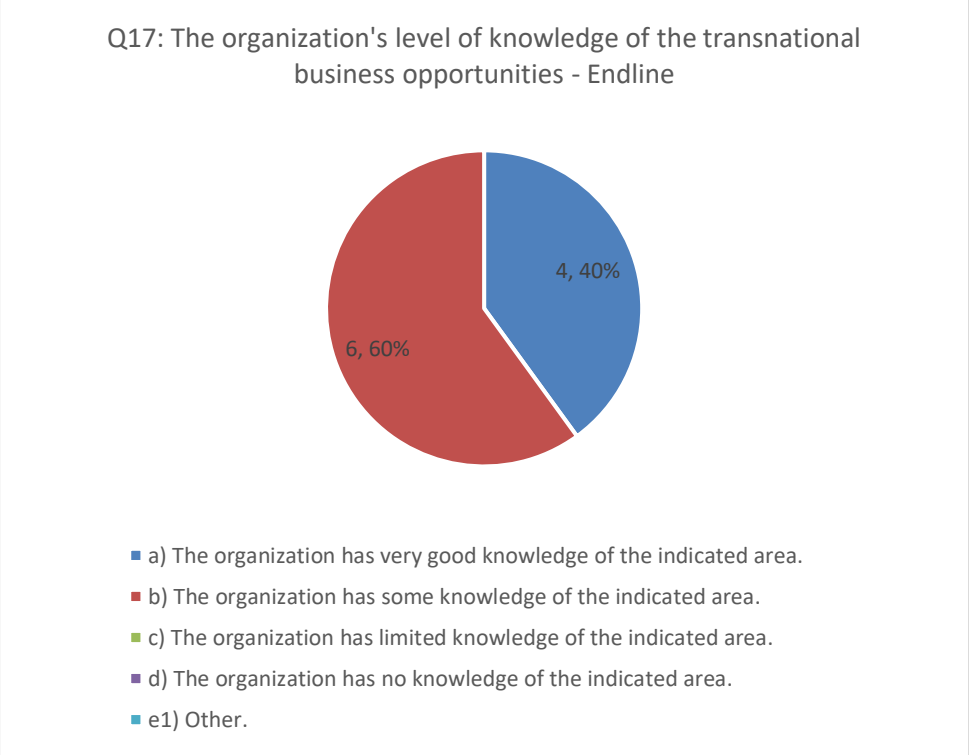


Figure 42: Knowledge of transnational business opportunities in the circular bioeconomy: baseline and endline comparison, Central Macedonia

At the beginning of Alpha testing, one respondent reported having very good knowledge of transnational business opportunities (option a) and six respondents stated they had some knowledge in this area (option b). One respondent indicated limited knowledge (option c) and one had no knowledge (option d). No respondent selected "Other."

At the end of Alpha testing, four respondents reported very good knowledge (option a) and six respondents had some knowledge (option b). No respondent reported limited or no knowledge, "Other."

Figure 43 reflects how organizations in the Central Macedonia region perceive the capacity of their regional/local authority to identify and promote transnational business opportunities.

The results show a shift towards a stronger perception of the regional/local authority's capacity to promote transnational business opportunities, with more organizations rating the capacity at higher levels (score 4 and 5) in the endline phase.

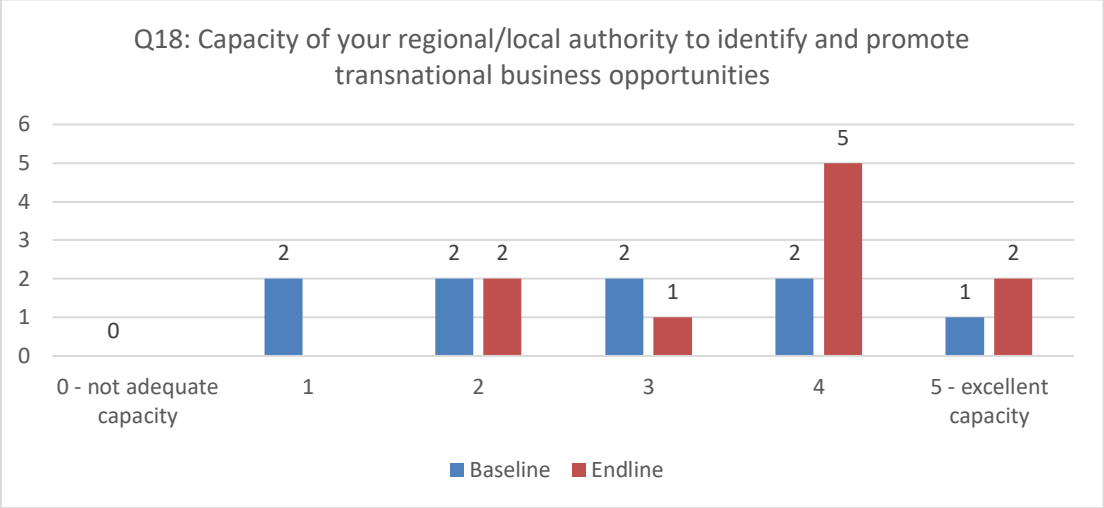


Figure 43: Perceived capacity of regional/local authorities to identify and promote transnational business opportunities: baseline and endline comparison, Central Macedonia

In the baseline survey, two respondents rated the authority's capacity as low (score 1), two respondents rated it as moderate (score 2), two respondents rated it as good (score 3), two respondents as very good (score 4) and one respondent rated it as excellent (score 5).

In the endline survey, no respondents rated the capacity as not adequate or low (score 0 or 1). Two respondents rated it as moderate (score 2), one respondent rated it as good (score 3). Notably, five respondents rated it as very good (score 4) and two respondents rated it as excellent (score 5).

Figure 44 provides insights into the level of knowledge organizations in Central Macedonia have regarding collaboration and business opportunities in the circular bioeconomy at the regional level, including potential new collaborations across value chains.

These results show an improvement in knowledge, with a notable increase in the number of respondents reporting very good knowledge of regional collaboration and business opportunities related to the circular bioeconomy by the endline.

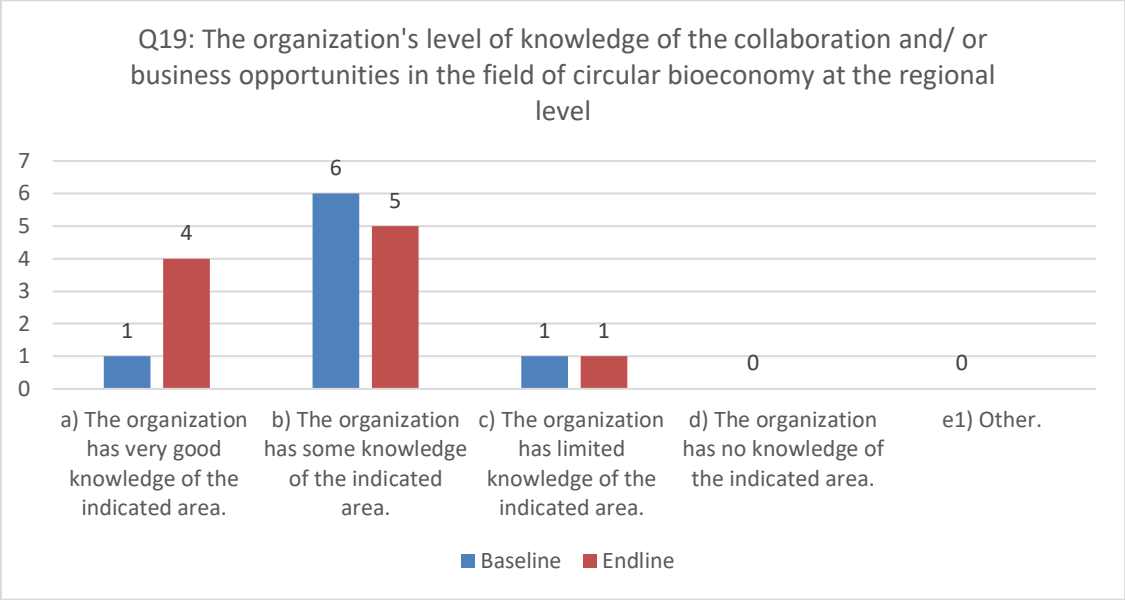


Figure 44: Organizational knowledge of collaboration and business opportunities in the circular bioeconomy at the regional level: baseline and endline results, Central Macedonia

As the baseline data shows, the majority of respondents (six) reported having some knowledge (option b). One respondent indicated having very good knowledge (option a) and one respondent indicated limited knowledge (option c).

The endline data reveals a shift towards a higher level of knowledge regarding collaboration and business opportunities in the circular bioeconomy at the regional level. Four respondents indicated having very good knowledge (option a), five respondents indicated having some knowledge (option b), one organization indicated limited knowledge (option c).

Figure 45 shows how organizations in Central Macedonia perceive the capacity of their regional or local authorities to identify and promote collaboration opportunities at the regional level, rated on a scale from 0 (not adequate capacity) to 5 (excellent capacity).

These results show a positive shift in perceptions, with a higher number of respondents indicating that the regional/local authority has better capacity (score of 4 and 5) to identify and promote collaboration opportunities at the regional level by the endline.

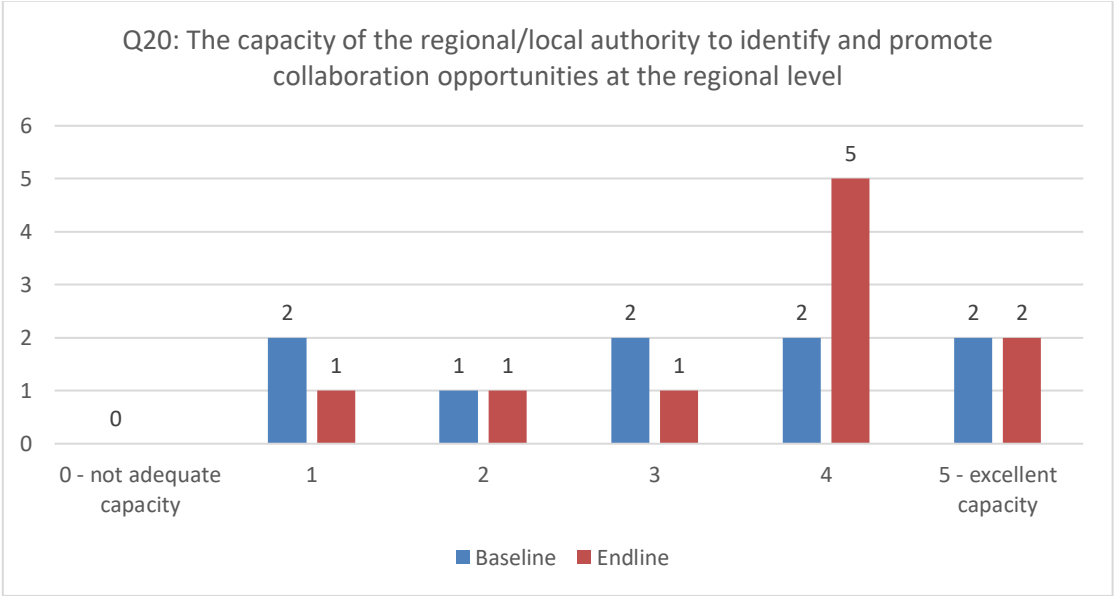


Figure 45: Perceived capacity to identify and promote collaboration opportunities at the regional level: baseline and endline comparison, Central Macedonia

At the beginning of Alpha testing, respondents reported varied capacities of regional or local authorities to identify and promote collaboration opportunities at the regional level. Two respondents rated the capacity as low (score 1), one respondent rated it as moderate (score 2), two respondents rated it as good (score 3), two respondents rated it as very good (score 4), and two respondents rated it as excellent (score 5).

At the end of Alpha testing, one respondent rated the capacity as low (score 1), one respondent reported moderate capacity (score 2), one respondent indicated good capacity (score 3). Notably, five respondents reported very good capacities (score 4) and two excellent capacities (score 5).

Section VI: Policy Areas

The table for Q21 presents the organization's level of knowledge concerning policy areas that need improvement to promote the circular bioeconomy transition at the regional level. Responses are categorized from having "very good knowledge" to "no knowledge."

The results indicate a positive shift, with more respondents reporting a higher level of knowledge about the policy areas requiring improvement by the endline.

Table 0.23: Knowledge of policy areas needing improvement for circular bioeconomy transition at the regional level: baseline and endline comparison, Central Macedonia

Q21: The organization's level of knowledge concerning policy areas that need to be improved to promote the transition towards the circular bioeconomy at the regional level.	a) The organization has very good knowledge of the indicated area.	b) The organization has some knowledge of the indicated area.	c) The organization has limited knowledge of the indicated area.	d) The organization has no knowledge of the indicated area.	e) Other
Baseline	0	2	2	0	0
Endline	2	1	1	0	0

In the baseline phase, no respondents reported having very good knowledge (option a). Two respondents stated they had some knowledge (option b), and two respondents indicated limited knowledge (option c). No organizations reported no knowledge. This suggests limited understanding among the respondents regarding the necessary policy improvements.

In the endline phase there was a shift towards higher levels of knowledge, suggesting increased organizations‘ knowledge concerning policy areas that need to be improved in the Central Macedonia region. Two respondents indicated they have "very good knowledge" (option a), which is an increase from the baseline. One respondent indicated "some knowledge" (option b), and one respondent indicated "limited knowledge" (option c), showing a reduction compared to the baseline.

Table 5.24 reflects the organization's capacities to foster opportunities created by the local bio-based economy, categorized from having "very good capacities" to "no capacities."

The results show indicate there is room for further capacity building to foster the opportunities created by the local bio-based economy. While some organizations maintained or improved their

capacity to foster bio-based economy opportunities, no organization reported having "very good capacities in the endline phase.

Table 0.24: Organizational capacities to foster opportunities in the local bio-based economy: baseline and endline comparison, Central Macedonia

Q22: The organization's capacities to foster the opportunities created by the local bio-based economy*	a) The organization has very good capacities in the indicated area.	b) The organization has some capacities in the indicated area.	c) The organization has limited capacities in the indicated area.	d) The organization has no capacities in the indicated area.	e) Other
Baseline	1	1	2	0	0
Endline	0	2	2	0	0

(e.g. supported by means of support measures and funding instruments that promote integration within the circular bioeconomy).

At the beginning of Alpha testing, one respondent rated her or his capacity as very good (option a), one respondent indicated some capacities (option b) and two limited capacities (option c). No respondents reported having no capacity or other responses. This suggests a moderate level of confidence in the ability to exploit local bio-based economy opportunities.

At the end of Alpha testing, there was a shift in perceptions with no respondents reported having very good capacities (option a), two respondents reporting limited capacities (option b), showing a slight increase. Two respondents still reported "limited capacities" (option c), unchanged from the baseline. No respondents reported no capacities (option d).

Table 5.25 shows the perceived capacity of the regional/local government in Central Macedonia to assess the regional environmental footprint, rated from "not adequate capacity" to "excellent capacity."

Overall, the results indicate a stable to slightly improved perception of the regional/local government's capacity to assess the regional environmental footprint, with no significant change at the highest or lowest ends of the scale.

Table 0.25: Capacity of regional/local government to assess the regional environmental footprint: baseline and endline results, Central Macedonia

Q23: Capacity of the regional/local government to assess the regional environmental footprint*	0 - not adequate capacity	1	2	3	4	5 - excellent capacity
Baseline	0	1	0	2	1	0
Endline	0	0	0	3	1	0

**e.g., the effect that a person/company/activity has on the environment, e.g. the amount of natural resources they use, etc.*

The baseline data indicated a limited perception of capacity, as one respondent rated the capacity as low (score 1), two respondents rated it as good (score 3) and only one respondent as very good. No respondents rated the capacity as "0" (not adequate) or "5" (excellent).

The endline data indicate a slight shift in the perceived capacity to assess the environmental footprint. No respondents rated the capacity as "0" or "1," showing a slight improvement in perceived

capacity. Three respondents rated the capacity as good (score 3), one respondent rated it as very good (score 4), consistent with the baseline. This indicates an increase in moderate perceptions.

Table 5.26 presents the organizations' experience and capacity to design actionable guidelines addressed to local operators and innovation developers in the Central Macedonia region. Respondents rated their experience and capacity using the options provided.

Overall, there is a slight increase in organizations perceiving they have some experience and capacity to design actionable guidelines, with no significant change at the higher or lower ends of the scale.

Table 0.26: Experience and capacity to design actionable guidelines for local operators and innovation developers: baseline and endline results, Central Macedonia

Q24: The organization's experience and capacity to design actionable guidelines addressed to the local operators and innovation developers.	a) The organization is very experienced and has very good capacity in the indicated area.	b) The organization has some experience and capacity in the indicated area.	c) The organization has limited experience and capacity in the indicated area.	d) The organization has no experience and capacity in the indicated area.	e) Other
Baseline	0	2	2	0	0
Endline	0	3	1	0	0

At the beginning of Alpha testing, two respondents indicated that their organization had some experience and capacity (option b) in designing actionable guidelines and two respondents reported having limited experience and capacity (option b). No respondents indicated having very good capacity (option a), no capacity (option d) or selected the "Other" category.

At the end of Alpha testing, three respondents indicated some experience and capacity (option b) showing a slight improvement from the baseline. One respondent reported limited experience and capacity (option c) reflecting a decrease in this category. No respondents indicated very good capacity (option a), no capacity (option d) or selected "Other."

Table 5.27 presents the capacity of the regional/local government in Central Macedonia to assess the regional environmental footprint. Respondents rated this capacity on a scale from 0 to 5, with 0 indicating "not adequate capacity" and 5 representing "excellent capacity."

Overall, while there was stability in the perception of good capacity (rating of 4), the absence of respondents rating the capacity as excellent (5) in the endline suggests a potential decline in confidence in the regional/local government's ability to assess environmental footprints.

Table 0.27: Organization's knowledge of climate-neutrality and low environmental footprint benefits of bio-based products and services: baseline and endline results, Central Macedonia

Q25: Capacity of the regional/local government to assess the regional environmental footprint*	0 - not adequate capacity	1	2	3	4	5 - excellent capacity
Baseline	0	0	0	0	1	1
Endline	0	0	0	0	1	0

In the baseline phase, one respondent rated the capacity as very good (score 4), and one respondent rated it as excellent (score 5). No respondents indicated ratings of 0, 1, 2, or 3.

In the endline phase, only one respondent participated in the data collection, rating the capacity level as very good (score 4). No respondents rated the capacity as excellent. And, as in the baseline phase, no respondents selected ratings of 0, 1, 2, or 3.

Figure 46 presents the capacities of organizations in the Central Macedonia region to develop novel business models and social measures that contribute to the circular bioeconomy transition. Respondents indicated their organization's capacities using a multi-choice format, with options ranging from "very good capacities" (option a) to "no capacities (option d)."

The results indicate an overall positive trend in the perceived capacities of organizations in Central Macedonia to develop novel business models and social measures for the circular bioeconomy. The increase in organizations reporting "very good capacities" (option a) suggests growing confidence in this area, while the decrease in those indicating "limited capacities" (option c) reflects an improvement in capacity perception among respondents. The stability in the "some capacities" category further emphasizes a solid foundation for capacity building in the region.

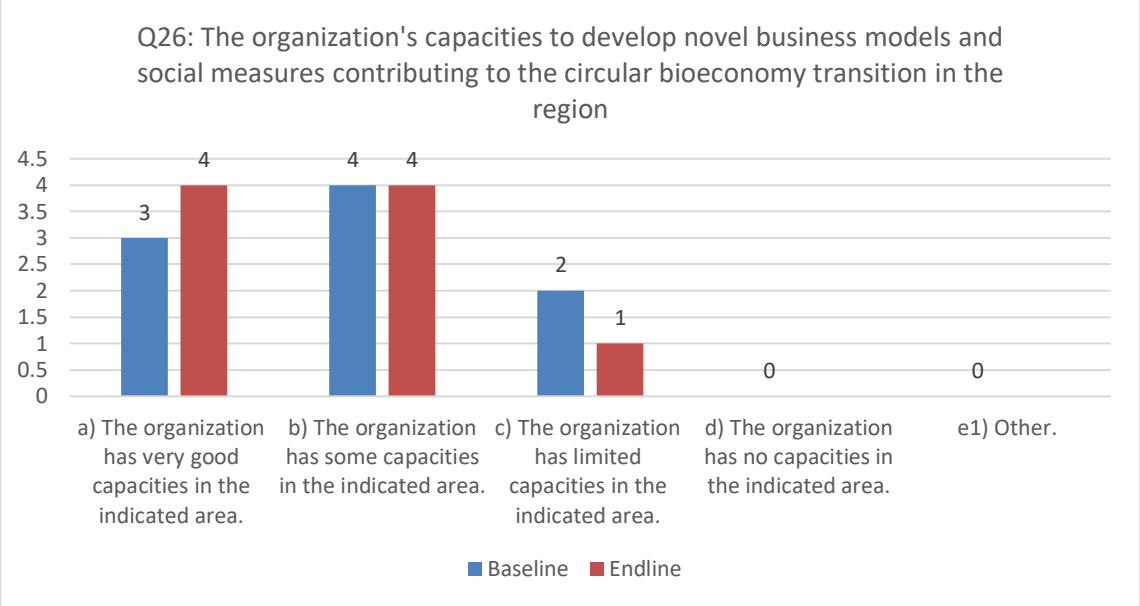


Figure 46: Capacities to develop business models and social measures for circular bioeconomy transition: baseline and endline results, Central Macedonia

The baseline data indicate that respondents reported a good level of capacities in this area, with three respondents reporting very good capacities (option a), four indicating some capacities (option b), and two limited capacities (option c). There were no organizations that claimed to have no capacities (d) or selected "Other."

In the endline survey, four respondents maintained that their organization has very good capacities (option a), indicating an increase in confidence compared to the baseline. The number of respondents reporting some capacities (option b) remained stable at 4. Only one respondent indicated having limited capacities (option c), showing a decrease in this category. Again, there were no responses for no capacities (option d) or other options (option e).

Figure 47 illustrates the level of motivation among organizations in the Central Macedonia region to transition towards socially and environmentally responsible behaviours. Respondents rated their motivation on a scale from 0 to 5, where 0 indicates very low motivation and 5 indicates very high motivation.

The results show a significant increase in the motivation of organizations in Central Macedonia to adopt socially and environmentally responsible behaviours from baseline to endline phase. While there were several ratings of lower motivation in the baseline, the endline reflects a complete absence of low ratings and a marked increase in high motivation levels (score 4 and 5). This shift indicates a positive trend towards greater commitment among organizations in the region to embrace socially and environmentally responsible practices.

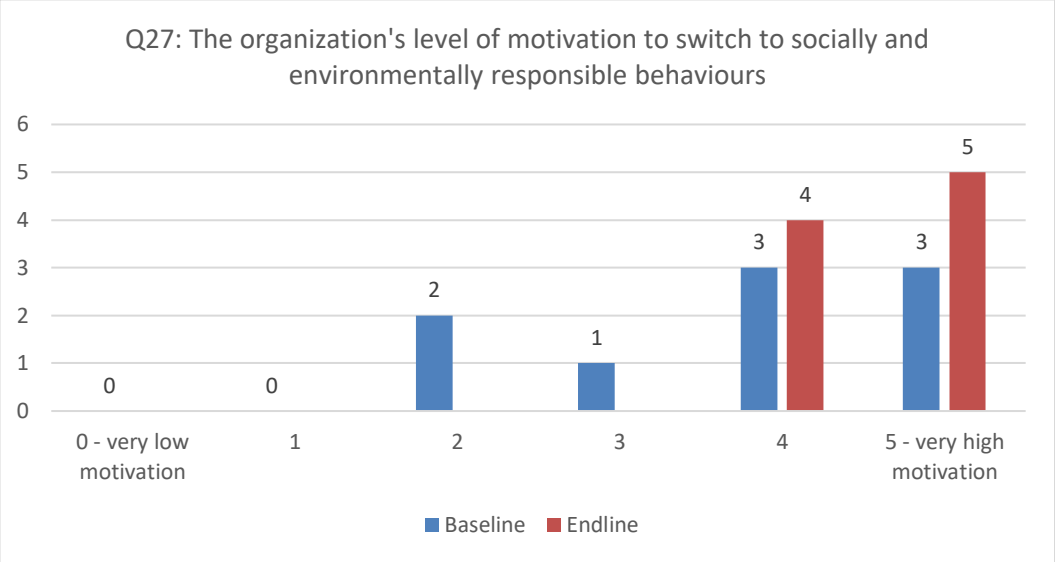


Figure 47: Motivation to transition to socially and environmentally responsible behaviours: baseline and endline comparison, Central Macedonia

The baseline data reveals that respondents reported varied levels of motivation towards responsible behaviours, with two respondents reporting low level of motivation (score 2), one indicating a moderate level of motivation (score 3), three respondents rated their motivation as high (score 4), and three respondents reported very high motivation (score 5).

The endline data shows that the overall motivation levels were significantly improved, with four respondents reporting high motivation (score 4) and five reporting very high motivation (score 5).

Figure 48 illustrates the perceptions of organizations in the Central Macedonia region regarding the inclusion of business and social dimensions in the development of regional governance models and structures.

There is a trend towards greater recognition of business and social dimensions in regional governance. While the perceptions of inclusion remain varied, there appears to be a slight positive movement towards acknowledging these dimensions more significantly in governance structures, indicating an evolving understanding of the importance of stakeholder engagement in the transition to a circular bioeconomy.

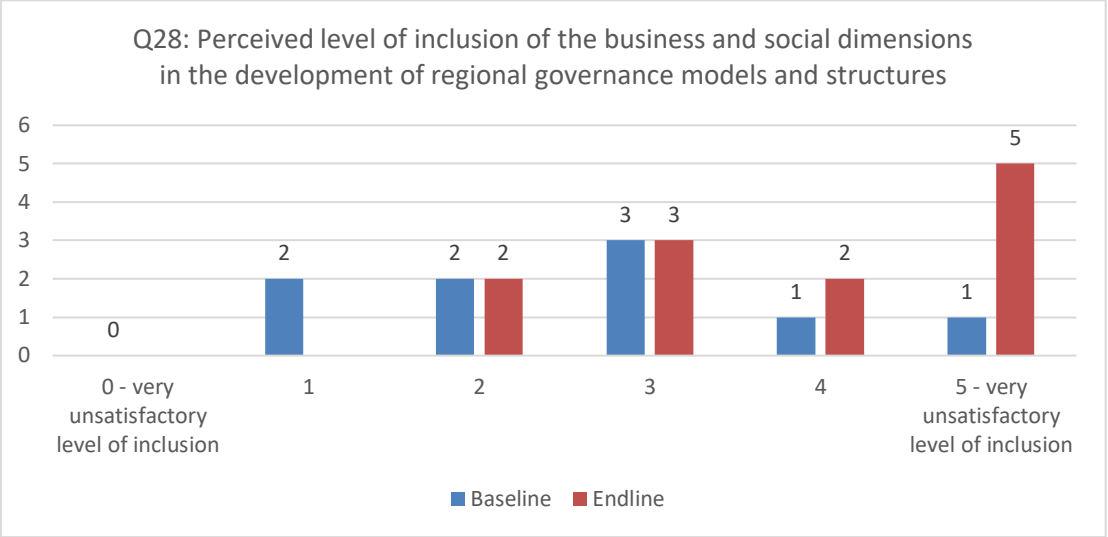


Figure 48: Perceived inclusion of business and social dimensions in regional governance models: baseline and endline data, Central Macedonia

At the beginning of Alpha testing, responses indicated a mixed perception of inclusion with two respondents rated the inclusion level as unsatisfactory (score 1), two respondents as somewhat satisfactory (score 2), three respondents reported a good level of inclusion (score 3), one respondent reported a satisfactory level of inclusion (score 4) and one rated the level of inclusion as very satisfactory. Notably, there was no rating at the extreme of 0 (very unsatisfactory).

The endline data reflects a shift in perceptions. Two respondents rated the inclusion as somewhat satisfactory (score 2), three respondents indicated a good level of inclusion (score 3), two respondents indicated a satisfactory level (score 4) and five respondents reported a very satisfactory level of inclusion. Importantly, there were no ratings at the extremes of 0 or 1, suggesting a general improvement in the perceived inclusivity of the governance process

Table 5.28 shows the capacity of organizations in the Central Macedonia region to design action plans and specific measures aimed at reducing non-environmentally friendly practices in favour of more responsible business and social models. Respondents categorized their organization's capacity using a multi-choice format.

The results demonstrate a significant improvement in the perceived capacity of organizations in Central Macedonia to design actionable plans and measures aimed at reducing environmentally harmful practices. In the baseline survey, the majority of organizations reported limited capacity or some capacity, while the endline shows an increase in those acknowledging some capacity. However, the data suggests the organizations may still see room for improvement in developing comprehensive strategies to enhance their environmental responsibility.

Table 0.28: Capacity to design action plans for promoting environmentally friendly practices: baseline and endline results, Central Macedonia

Q29: The organization's level of capacity to design action plans and specific measures for downsizing non-environmentally friendly practices in favour of more responsible business and social models*	a) The organization has very good capacity in the indicated area.	b) The organization has some capacity in the indicated area.	c) The organization has limited capacity in the indicated area.	d) The organization has no capacity in the indicated area.	e1) Other.
Baseline	0	1	2	0	0

Endline	0	4	5	0	0

e.g., through environmentally friendly practices, as well as opportunity areas).

At the beginning of Alpha testing, one respondent reported having some capacity (option b) and two respondents rated their capacity as limited (option c). No respondents indicated having very good capacity (option a), nor no capacity (option d) in this area. No respondents selected the option e (other).

In the endline survey, again, no respondents rated their capacity as very good (option a), while four respondents reported having some capacity (option b and 5 respondents rated their capacity as limited (option c). No respondents indicated having no capacity (option d) or selected the option "Other".

For Central Macedonia, with regard to the two **environment-specific questions** (questions 30 and 31) included in the Endline Questionnaires, which were aimed specifically at regional nodes in collaboration with regional authority representatives to provide initial baseline estimations of environmental impact within each territory, the responses were "0%" and "not applicable" for the respective questions.

Southern Region, Ireland

The Southern Region of Ireland has significant strengths in the circular bioeconomy which present an area of opportunity and growth for the region as well as providing a pathway to achieving Ireland's climate action targets. Due to extensive natural and infrastructure resources, the Southern Region has huge potential to inform and lead the way in the bioeconomy in Ireland. There is no specific regional bioeconomy strategy for the Southern Region of Ireland, however there are a number of national and regional strategies that inform regional bioeconomy development.

Southern region is classified amongst the most advanced ROBIN regions, when it comes to bioeconomy development.

10 respondents participated in the baseline and endline data collection (same respondents for the Baseline and Endline Questionnaires). The categorisation of respondents according to their stakeholder affiliation is presented in **Table 5.29**.

Table 0.29: Stakeholder Participation in baseline and endline data collection, Southern Region

Stakeholder group	Regional authority	Local authority	External advisory/ consulting entity	Researcher or affiliated to a higher education institution.	Business entity/ entrepreneur	Business association, cluster or innovation centre	NGO/CSO	Other
Baseline	2	0	1	6	1	1	0	0
Endline	2	0		5	1	2		0

Key trends and changes identified during the Alpha testing

The Alpha testing in Ireland's Southern Region revealed a need for stronger capacities in designing, implementing and monitoring bioeconomy governance models. While awareness of stakeholders'

engagement barriers has improved, there remains a gap in knowledge and strategies to promote collaborative opportunities and transnational business growth. The testing underscored the importance of enhancing policy frameworks and developing innovative, responsible business models to accelerate the transition towards the sustainable circular bioeconomy. Overall, the findings highlight both, the progresses made and the areas requiring further development and action.

- **Governance Models**: The respondents, primarily from regional and local authorities, showed limited experience in designing, implementing, and monitoring the bioeconomy governance models. Despite slight improvements, many organizations still report limited or no experience in this area. The results regarding monitoring and evaluation of bioeconomy strategies indicate significant gaps in this area, with respondents indicating little to no experience in these processes. This may suggest the need for capacity-building initiatives to enhance monitoring efforts.
- **Stakeholder Engagement**: The data suggest that opportunities for actors to engage in the circular bioeconomy are recognized, but there is still room for improvement. Collaboration in policymaking is perceived as moderate, with some improvement in engagement over the evaluation period. There is a lack of familiarity with overcoming barriers to stakeholders' engagement in the circular bioeconomy; however, the opportunities for engagement exist, with some knowledge of collaborative policymaking.
- **Local Potentials and Innovation Assets**: Respondents reported varied levels of capacity to support bioeconomy assets. A slight decline was observed by the end of Alpha testing.
- **Opportunities**: The respondents demonstrated a limited awareness of transnational business opportunities and collaboration potential in the circular bioeconomy. The results shows that there is a room for improvement of the regional/local authorities' capacities to identify and promote opportunities at the transnational, as well as regional level.
- **Policy Areas:** Respondents reported limited knowledge of the policy areas that need improvement to facilitate the circular bioeconomy transition, indicating a gap in understanding the regulatory landscape. The data shows a decline in perceived experience and capacity to design actionable guidelines for local operators and innovation developers.
- **Business Models and Social Measures**: There is a perceived need to enhance policies promoting the circular bioeconomy and develop socially and environmentally responsible business models. Respondents in the Southern Region maintain high motivation to switch to socially and environmentally responsible behaviours. There was a positive shift in the perception of the inclusion of business and social dimensions in regional governance models.

  The results suggest increasing awareness of the climate-neutrality and low environmental footprint benefits of bio-based products and services. This suggests an evolving understanding of the environmental and business advantages of the circular bioeconomy.

Section II: Capacities in designing, implementing, monitoring and evaluating the bioeconomy governance models

Questions 4-7 were answered by regional/local authorities only.

Table 5.30 displays the reported experience in the Southern region of Ireland regarding the design of regional bioeconomy governance models, assessed on a scale from 0 to 5.

The comparison underscores the limited experience among organizations in the Southern region, suggesting a potential need for targeted capacity-building initiatives to enhance familiarity with governance model design in the context of the bioeconomy.

Table 0.30: Experience in designing regional bioeconomy governance models: baseline and endline data comparison, Southern Region

Q4: Experience in the design of regional bioeconomy governance models	0 - no experience	1	2	3	4	5 - excellent experience
Baseline	0	1	1	0	0	0
Endline	1	0	1	0	0	0

At the beginning of Alpha testing, the responses indicate that one respondent reported a very limited level of experience (score 1), while another respondent acknowledged some experience (score 2).

At the end of Alpha testing, responses show a shift, with one respondent reporting very limited experience (score 1) again, while another organization maintained a similar response.

Notably, there were no respondents reporting any level of experience beyond 2, indicating a persistent gap in experience in designing regional bioeconomy governance models.

Table 5.31 presents data on the experience and capacity of organizations in the Southern region of Ireland in designing and implementing bioeconomy governance models that promote innovation- and sustainability-driven bioeconomy strategies (Question 5). The table uses multiple categories to assess organizational capacity, ranging from "very experienced" (a) to "no experience" (d), with an additional "Other" (e) category.

The data suggests a need for enhanced support in building the capacity of organizations in the Southern region to design and implement governance models that effectively drive bioeconomy strategies.

Table 0.31: Experience and capacity in designing and implementing bioeconomy governance models that drive the development of innovation- and sustainability-driven bioeconomy strategies: baseline and endline data comparison, Southern Region

Q5: Experience and capacity in the area of designing and implementing the bioeconomy governance models that drive the development of innovation- and sustainability-driven bioeconomy strategies.	a) The organization is very experienced and has very good capacity in the indicated area.	b) The organization has some experience and capacity in the indicated area.	c) The organization has limited experience and capacity in the indicated area.	d) The organization has no experience and capacity in the indicated area.	e) Other
Baseline	0	0	2	0	0
Endline	0	0	1	1	0

At the beginning, none of the respondents reported being highly experienced or having good capacity in this area (option a and b). Two respondents indicated limited experience and capacity (option c), while none reported no experience or capacity (option d).

At the end of Alpha testing, one respondent reported limited experience and capacity (option c), while another indicated no experience or capacity (option d). This shift shows a slight decline in the perceived capacity to design and implement bioeconomy governance models, potentially indicating that organizations may have encountered challenges in strengthening their capabilities in this field during the evaluation period.

Table 5.32 highlights the experience of organizations in the Southern region of Ireland regarding the monitoring and evaluation of bioeconomy strategies (Question 6), measured on a scale from 0 to 5, where 0 indicates no experience and 5 indicates excellent experience.

The results indicate a persisting gap in experience with monitoring and evaluation activities related to bioeconomy strategies in the Southern region. This points to a need for targeted training or capacity-building initiatives to enhance the ability of organizations to effectively monitor and evaluate bioeconomy initiatives.

Table 0.32: Experience in monitoring and evaluation of bioeconomy strategies: baseline and endline results, Southern Region

Q6: Experience monitoring and evaluation of the bioeconomy strategies.	0 - no experience	1	2	3	4	5 - excellent experience
Baseline	1	1	0	0	0	0
Endline	2	0	0	0	0	0

At baseline, one respondent reported no experience (score 0), while another respondent indicated very limited experience (score 1). No respondents rated their experience higher than 1, suggesting limited familiarity with monitoring and evaluation processes for bioeconomy strategies.

In the endline data collection, both respondents reported lack of experience (score 0) in monitoring and evaluation. This suggests a potential decline in perceived capability or engagement with these processes over time.

Table 5.33 presents data on the experience and capacity of organizations in the Southern region of Ireland in monitoring and evaluating circular bioeconomy initiatives (Question 7). The categories range from "very experienced" (a) to "no experience" (d), with an "Other" (e) option.

The findings highlight a persistent lack of advanced experience or capacity in monitoring and evaluating circular bioeconomy strategies within the Southern Region. This points to the need for enhanced support and capacity-building in this area to strengthen the region's bioeconomy monitoring efforts.

Table 0.33: Experience and capacity in monitoring and evaluation of the circular bioeconomy: baseline and endline comparison, Southern Region

Q7: Experience and capacity in the area of monitoring and evaluation of the circular bioeconomy	a) The organization is very experienced and has very good capacity in the indicated area	b) The organization has some experience and capacity in the indicated area	c) The organization has limited experience and capacity in the indicated area	d) The organization has no experience and capacity in the indicated area	e) Other
Baseline	0	0	2	0	0

Endline	0	0	1	1	0

Initially, both respondents indicated limited experience and capacity (option c) in the area of circular bioeconomy monitoring and evaluation. No respondent reported higher levels of experience or capacity (option a or b).

At the endline, one respondent still reported limited experience and capacity (option c), while another indicated having no experience and capacity (option d). This suggests a slight decline in overall capacity, with a shift to a state of no or limited experience or capacity in this domain.

Section III: Stakeholders engagement

Figure 49 presents respondents' perceptions of the opportunities for actors to engage in the circular bioeconomy transition in their region (Question 8), rated on a scale from 0 (zero opportunities) to 5 (excellent number of opportunities).

The data shows there is a consistent perception of the opportunities for actors to participate in the circular bioeconomy transition, with the majority of respondents indicating there is a moderate, good or excellent number of opportunities. However, while there is no perception of a complete lack of opportunities, the majority of organizations see room for improvement in terms of increasing the level of engagement and participation.

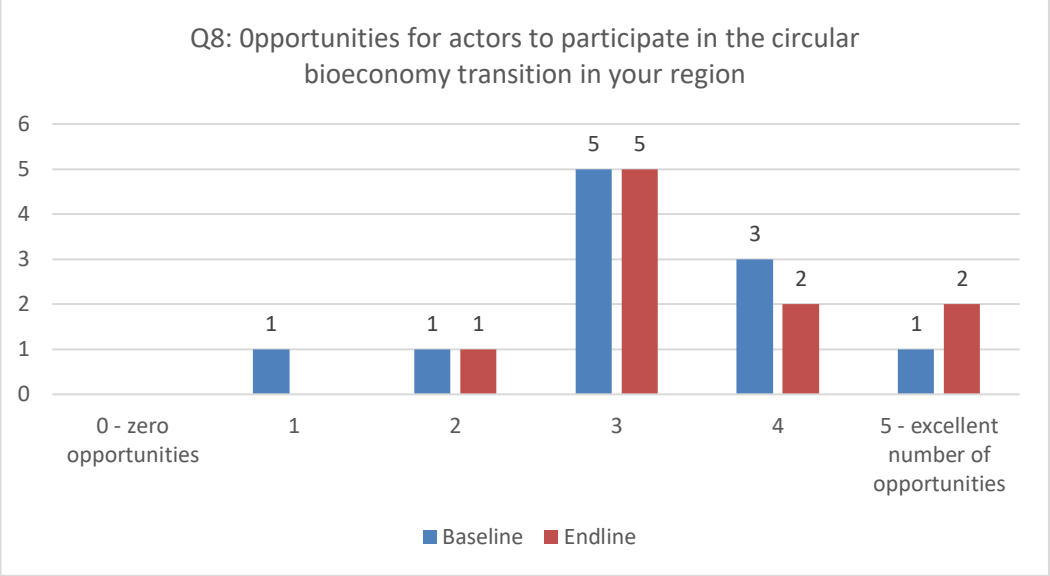


Figure 49: Opportunities for actors to participate in the circular bioeconomy transition: baseline and endline comparison, Southern Region

At the beginning of Alpha testing, the majority of respondents indicated moderate opportunities for participation, with five respondents rating opportunities at level 3, three at level 4, and one at level 5 (excellent opportunities). Only two respondents perceived low or limited opportunities (rated 1 or 2).

By the end of Alpha testing, the distribution remained fairly consistent, with the majority still indicating moderate opportunities (five responses at level 3). Two respondents rated opportunities as high (level 4), and two perceived an excellent level of opportunities (level 5). No respondents rated opportunities below level 2.

Figure 50 shows the perceived level of engagement of various actors in the collaborative policymaking process for the circular bioeconomy in the Southern region of Ireland (Question 9). Responses are rated on a scale from 0 (zero opportunities) to 5 (excellent engagement).

The data shows that while moderate levels of engagement are perceived, there is little indication of very high engagement among actors. This highlights an opportunity for regional authorities to enhance the inclusiveness and effectiveness of collaborative policymaking processes.

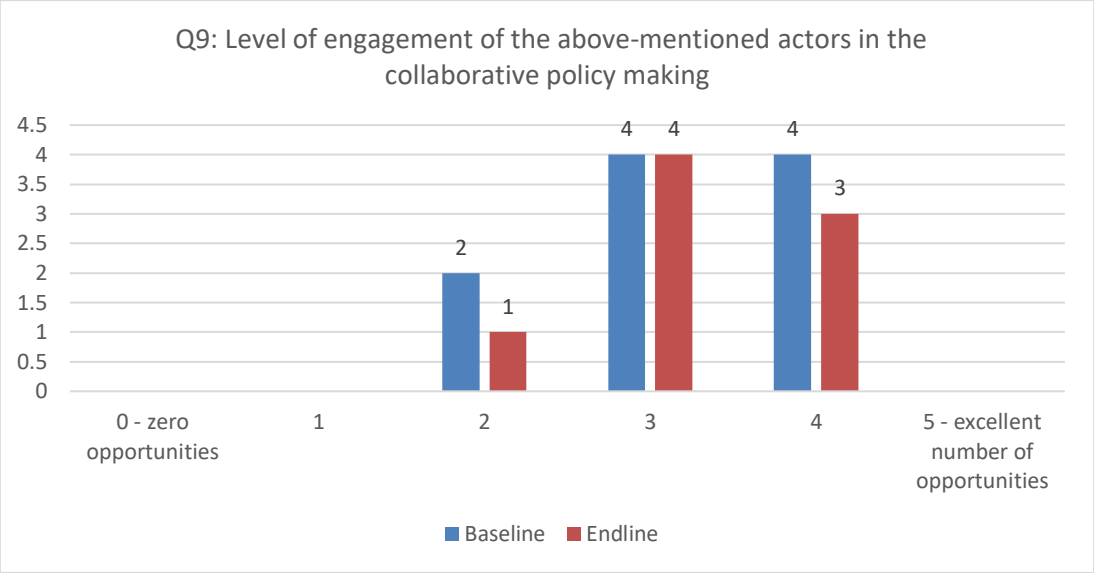


Figure 50: Level of engagement of actors in collaborative policy making: baseline and endline results, Southern Region

At the baseline, most respondents rated engagement at moderate or good levels, with four respondents assigning a level 3, and four others rating it at level 4. Two respondents perceived lower engagement, rating it at level 2. No organizations rated engagement as excellent (5) or very low (0 or 1).

At the endline, the pattern of engagement remained largely the same. Four respondents continued to rate engagement at level 3, while three perceived it at level 4. One respondent indicated level 2, indicating slightly lower engagement. Again, no responses indicated excellent engagement (level 5), nor complete absence (level 0 or 1).

The level of familiarity of the representatives of regional and local authorities with the barriers preventing stakeholders' engagement in the region (Question 10) is presented in **Figure 51**. As the graph illustrates, both respondents taking part in the survey reported a very good or excellent level of familiarity with the barriers.

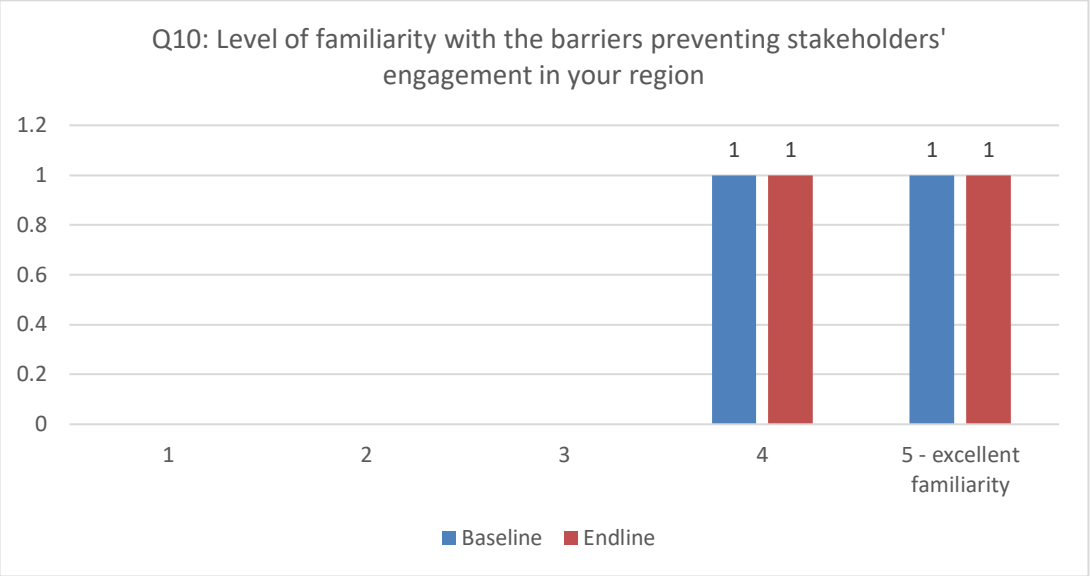


Figure 51: Familiarity with barriers preventing stakeholders' engagement: baseline and endline results, Southern Region

In addition to that, as **Figure 52** illustrates the level of familiarity with solutions to overcome the barriers reported at the end of the Alpha testing was at a very high level at the end of the Alpha testing period.

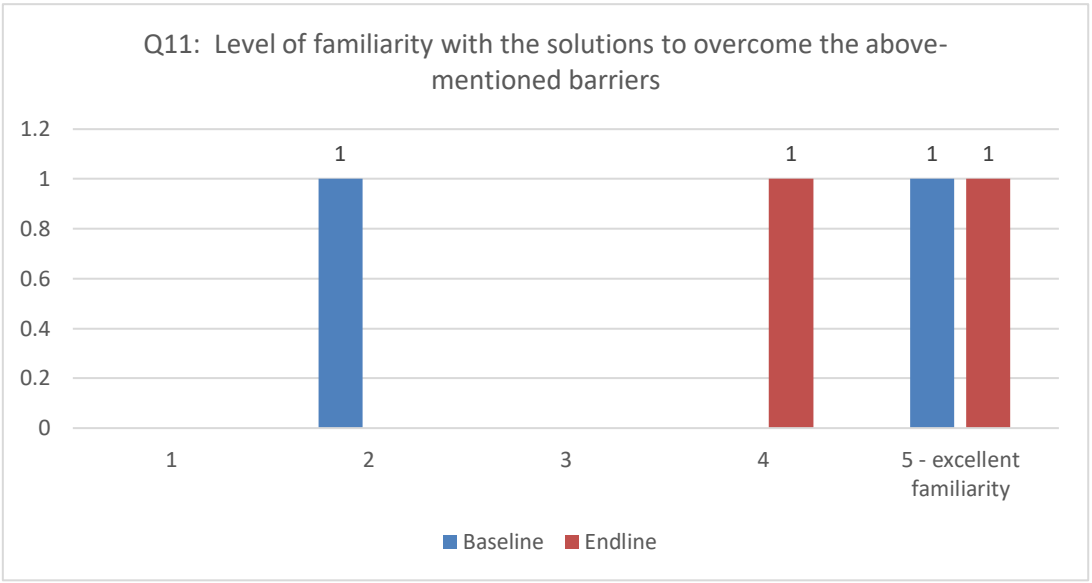


Figure 52: Familiarity with solutions to overcome barriers: baseline and endline comparison, Southern Region

At the beginning of Alpha testing, one respondent rated the familiarity at a low level (score 2) and one reported excellent familiarity (score 5).

At the end of Alpha testing, both respondents rated the familiarity at higher levels, with one rating it at level 4 (good familiarity) and another at level 5 (excellent familiarity). This indicates a slight increase in the overall familiarity with solutions in the participating respondents' organizations.

On the other hand, as **Table 5.34** shows, the level of knowledge of the multi-actor business models and social measures necessary for the implementation of the circular bioeconomy reported by the representatives of local and regional authorities (Question 12) is relatively low.

The results suggest that the level of knowledge in this domain remains limited, highlighting an opportunity to improve organizational capacity in understanding multi-actor business models and social measures crucial for advancing the circular bioeconomy.

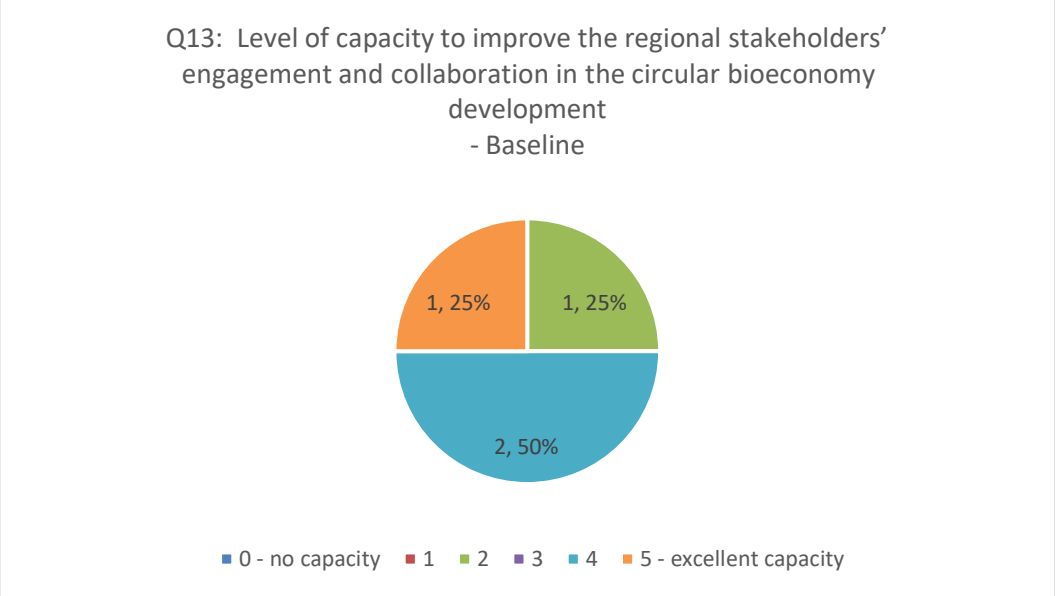
Table 0.34: Knowledge of multi-actor business models and social measures for circular bioeconomy implementation: baseline and endline comparison, Southern Region

Q12: Level of knowledge of the multi-actor business models and social measures necessary for the implementation of the circular bioeconomy	a) The organization has very good knowledge of the indicated area	b) The organization has some knowledge of the indicated area	c) The organization has limited knowledge of the indicated area	d) The organization has no knowledge of the indicated area	e) Other
Baseline	0	2	0	0	0
Endline	0	1	0	1	0

While both respondents representing the regional or local authority participating in the survey at the beginning of Alpha testing reported they had some knowledge of the indicated area, one of the respondents indicated no knowledge of the indicated area at the end of Alpha testing.

Figure 53 shows the perceptions of organizations in the Southern region regarding their capacity to enhance stakeholders' engagement and collaboration in developing the circular bioeconomy. Respondents rated their capacity on a scale from 0 (no capacity) to 5 (excellent capacity).

Overall, the results show a slight improvement in the perceived capacity to foster stakeholder engagement and collaboration in the region's circular bioeconomy development among representing regional/local authorities, business associations, clusters and innovations centres, with a stronger shift toward mid-level capacity by the endline.



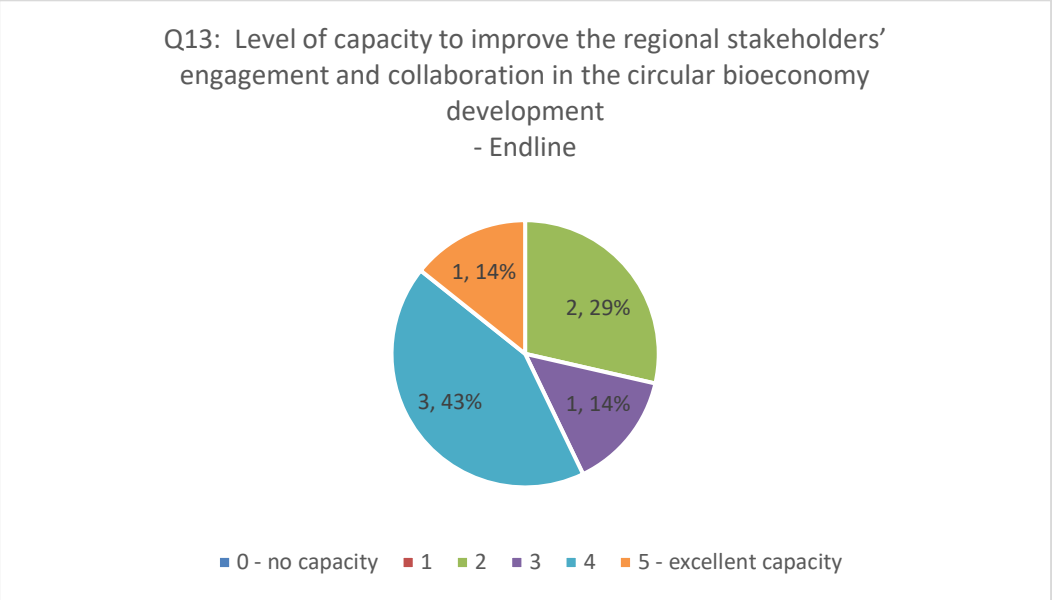


Figure 53: Perceived capacity to enhance stakeholder engagement and collaboration in circular bioeconomy development: baseline and endline data, Southern Region

At the baseline, one respondent rated the capacity as limited (score 3), while two respondents indicated a score of 4, two organizations scoring 4, and one indicating the highest score of 5 (excellent capacity).

At the endline, the number of respondents increased to 7 and perceptions improved slightly, with two organizations reporting limited capacities (score 2), but five respondents indicating score 3 (1 respondent), 4 (3 respondents) and 5 (1 respondent).

Table 5.35 captures how organizations in the Southern region perceive the benefits of stakeholders' engagement in the circular bioeconomy transition (Question 14). Respondents evaluated the perceived benefit on a scale from 0 (not beneficial) to 5 (very beneficial).

The data indicates a growing recognition of the significant benefits of stakeholder engagement in the circular bioeconomy transition, with more organizations assigning top scores over time.

Table 0.35: Perceived benefit of stakeholders' engagement and collaboration in circular bioeconomy development: baseline and endline comparison, Southern Region

Q14: Perceived benefit of stakeholders' engagement in the circular bioeconomy transition	0 - not beneficial	1	2	3	4	5 - very beneficial
Baseline	0	0	0	0	2	2
Endline	0	0	0	2	2	3

At the baseline, the majority of respondents viewed stakeholder engagement as highly beneficial, with two respondents rating it as 4 and two others giving the highest score of 5 (very beneficial). No respondents rated stakeholder engagement as having little or no benefit (scores 0-3).

At the endline, perceptions further shifted toward the highest ratings, with three respondents indicating a score of 5 (very beneficial), two a score of 4, and two a score of 3. No respondents viewed engagement as having low or no benefit.

Section IV: Local potentials and innovation assets

Figure 54 illustrates the perceived capacity of the Southern region to support the exploitation of bioeconomy-related assets, as rated by respondents on a scale from 0 (no capacity) to 5 (excellent capacity).

Overall, the Southern region's perceived capacity to support the exploitation of bioeconomy-related assets shows some stability, and the region's capacity is at a good level. In addition to that, there is a slight indication of increased recognition of capacity among respondents.

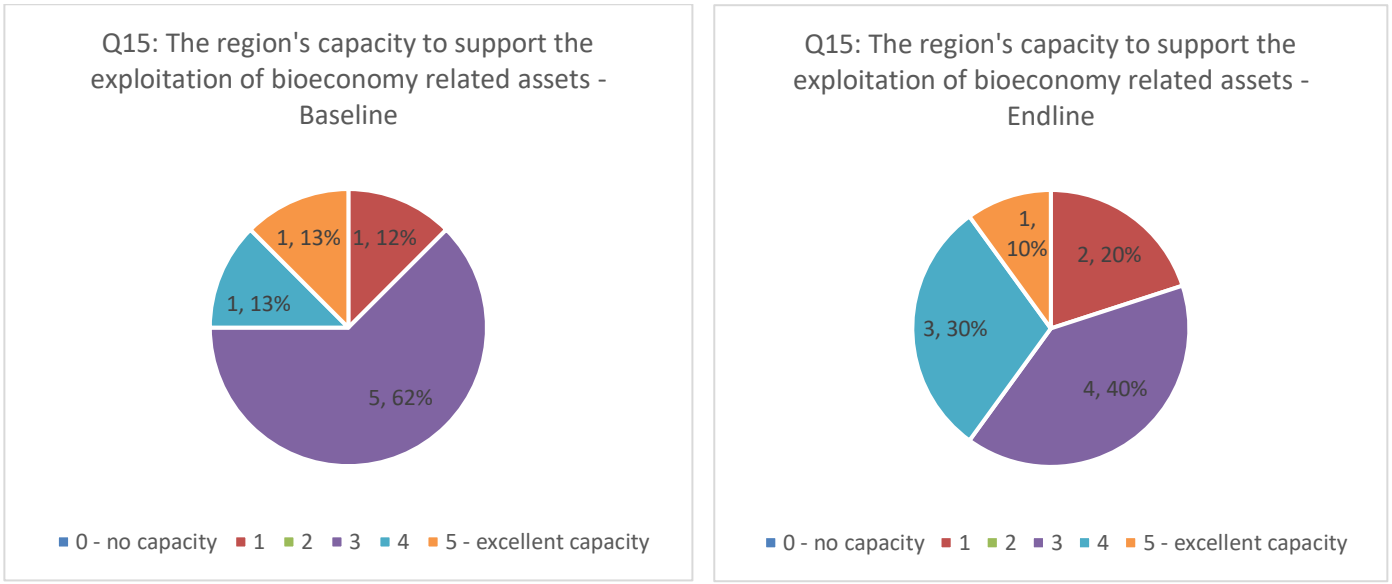


Figure 54: Regional capacity to support the exploitation of bioeconomy-related assets: baseline and endline data, Southern Region

In the baseline data collection, responses indicated a mixed perception of capacity. One respondent rated the region's capacity as 1 (very low capacity), while the majority (five respondents) rated it as 3, indicating a moderate capacity. Additionally, one organization assessed the capacity as 4.

At the end of Alpha testing, out of a total of 10 respondents, only 2 rated the capacity as 2 (on a scale of 0 – 5, where 5 is the highest level of knowledge), four respondents rated the capacity as 3, three respondents indicated a score of 4 and one respondent rating the capacities as excellent (score 5).

Figure 55 displays the baseline and endline data about the region's capacity to develop the strategies accelerating the circular bioeconomy transition in your region (Question 15).

Respondents rated this capacity on a scale from 0 (no capacity) to 5 (excellent capacity). Overall, the perceptions about the capacity to develop strategies for the circular bioeconomy transition in the Southern region vary, the data indicate a nuanced shift in confidence levels from baseline to endline.

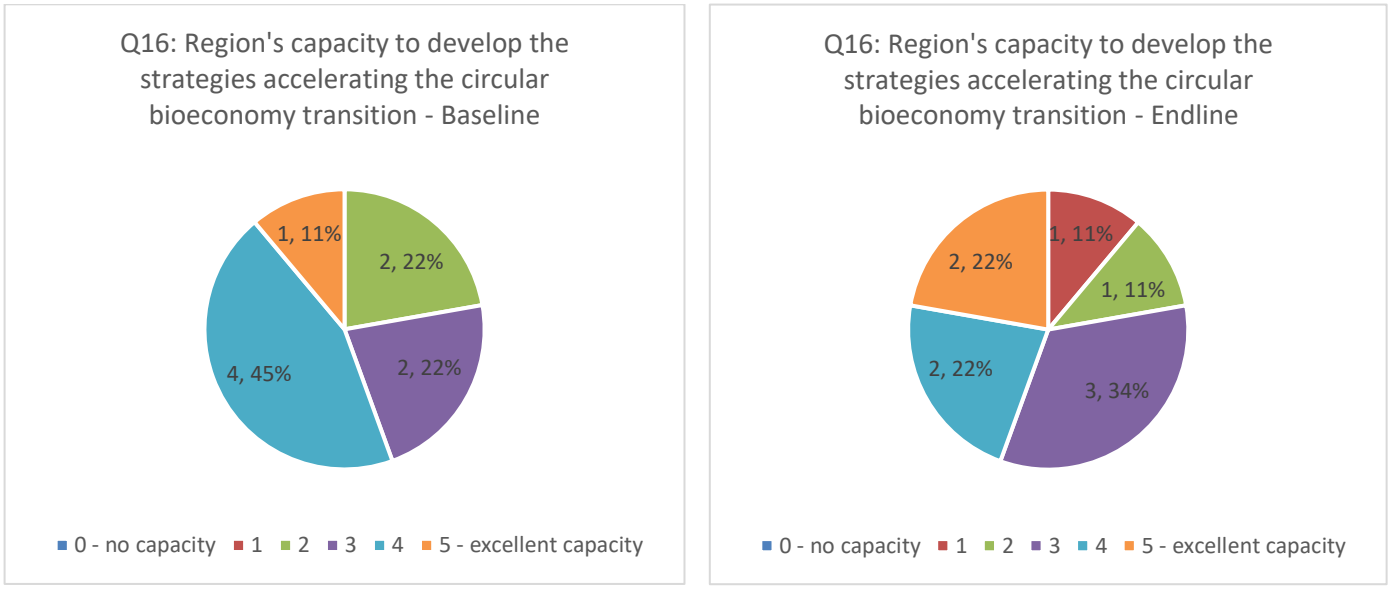


Figure 55: Regional capacity to develop strategies for accelerating circular bioeconomy transition: baseline and endline data, Southern Region

At the beginning of Alpha testing, respondents expressed a diverse range of perceptions regarding capacity. Notably, four respondents rated the region's capacity as 4, indicating a strong belief in the region's ability to develop effective strategies. Additionally, two respondents indicated a score of 3 and one respondent a score of 1, showing some variability in confidence levels among respondents.

At the end of Alpha testing, the perceptions of capacity demonstrated some shifts. The number of respondents rating the capacity as 1 increased to one. However, the ratings of 3 and 4 showed a decrease, with three respondents reporting a score of 3 and two respondents reporting a score of 4. This may suggest a slight decline in confidence regarding the region's strategic development capabilities.

Section V: Opportunities

Figure 56 illustrates the level of knowledge among organizations in the Southern region regarding transnational business opportunities related to the circular bioeconomy, particularly in accessing new markets for products and services. Respondents categorized their knowledge into four distinct levels: very good, some, limited, and none.

Overall, while the Southern region displays a solid understanding of transnational business opportunities related to the circular bioeconomy, the endline data reveal a slight decrease in the confidence of organizations regarding their knowledge, highlighting potential areas for further capacity building and education.

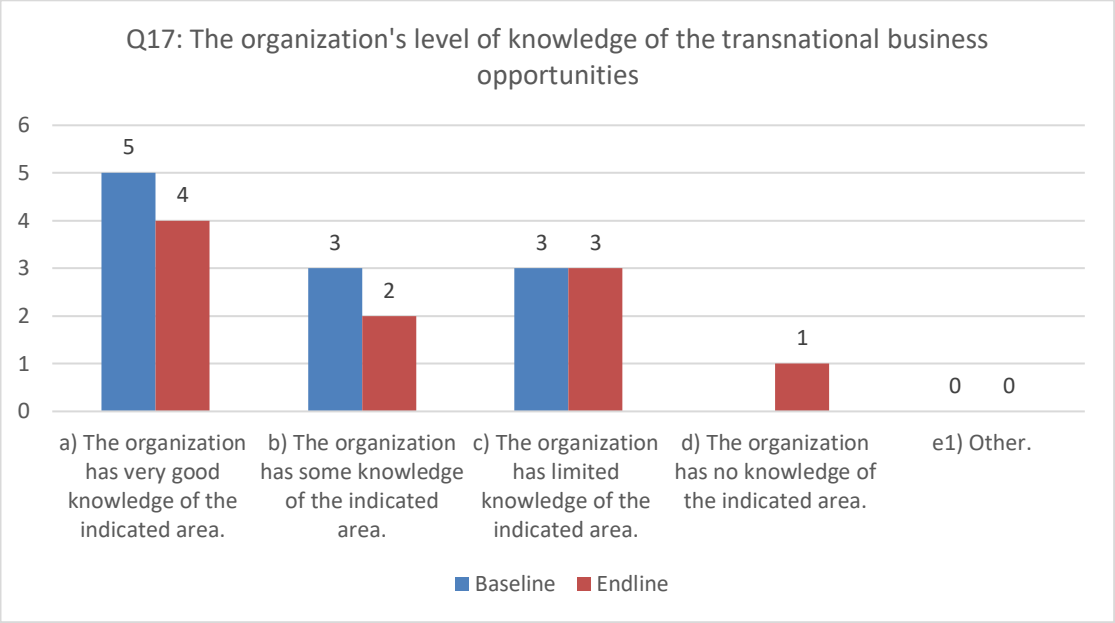


Figure 56: Knowledge of transnational business opportunities in the circular bioeconomy: baseline and endline comparison, Southern Region

At the beginning of Alpha testing, 11 respondents of the answered the question, with 5 reporting that the organization has a very good level of knowledge in the indicated area and 3 that the organization has some knowledge in the indicated area.

However, at the end of Alpha testing, only 6 out of 10 respondents indicated the organization has a very good level of knowledge in the indicated area (4 respondents) or some knowledge in the indicated area (2 respondents). The number of respondents indicating the organization has limited knowledge in the indicated area remained the same (3 at the beginning and at the end of Alpha testing). At the end of Alpha testing, one respondent indicated the organization has no knowledge.

As the data presented in **Figure 57** suggest, similar answers were collected in question 18, asking about the regional/local authority to identify and promote transnational business opportunities.

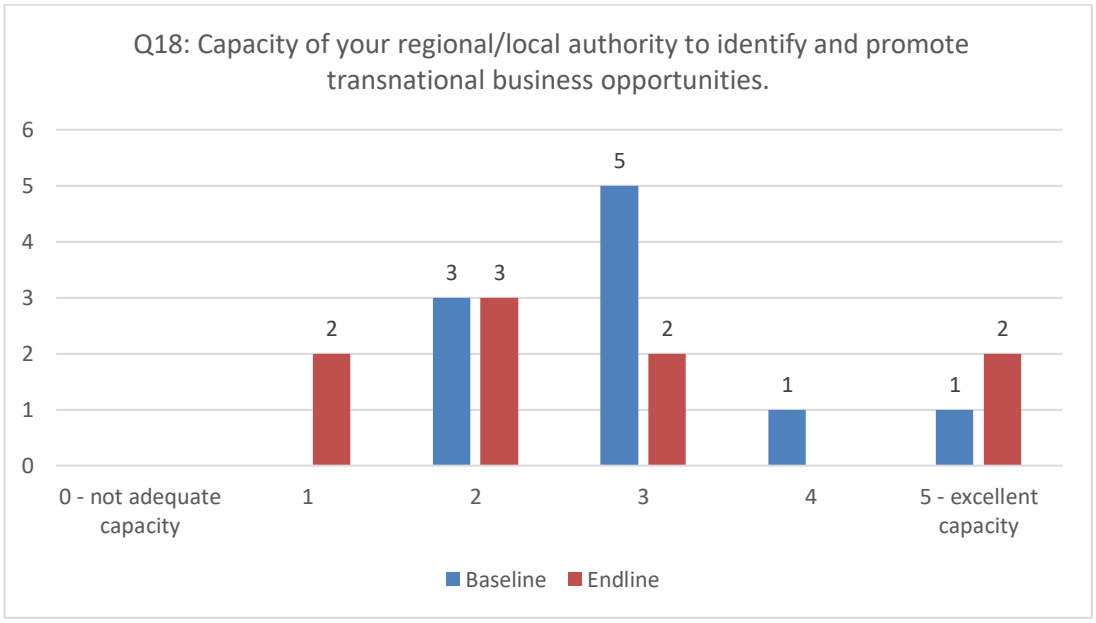


Figure 57: Perceived capacity of regional/local authorities to identify and promote transnational business opportunities: baseline and endline comparison, Southern Region

In the baseline data collection, respondents reported a varied perception of the regional and local authorities' capacity. The responses included three respondents rating the capacity at a level of 2, while five respondents rated it at a level of 3. Additionally, one respondent perceived the capacity to be at level 1 and another rated it at level 5. This distribution suggests a general perception of moderate to good capacity among regional and local authorities.

In the endline data collection, there was a notable shift in perception. There was an increase in the number of respondents rating the capacity at level 1 (2 respondents) and a decrease in those rating it at levels 3 (two respondents) and 4 (no respondents). Two respondents still recognized the capacity as excellent (level 5).

Figure 58 illustrates the level of knowledge among organizations in the Southern region regarding collaboration and business opportunities in the field of circular bioeconomy at the regional level (Question 19). Respondents indicated their knowledge levels using a multi-choice format, categorizing their responses into five options.

As the data suggest, while organizations in the Southern region maintain a relatively strong grasp of collaboration and business opportunities in the circular bioeconomy, the endline data indicates a slight decline in confidence in their knowledge levels, signalling a potential area for further improvement.

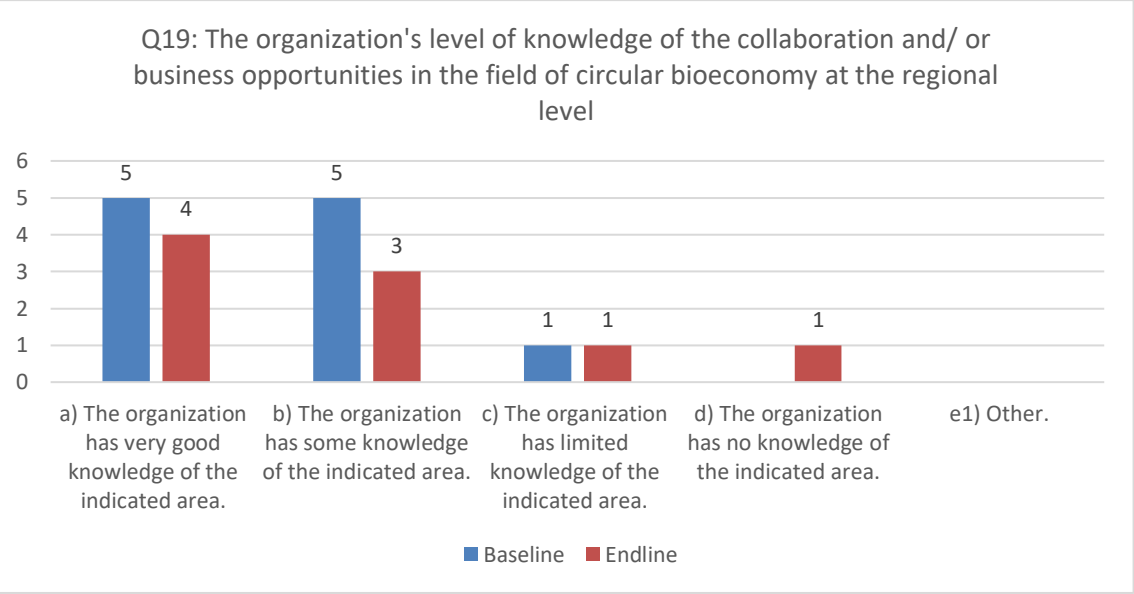


Figure 58: Organizational knowledge of collaboration and business opportunities in the circular bioeconomy at the regional level: baseline and endline results, Southern Region

In the baseline data collection, the data show a strong understanding of collaboration and business opportunities, with 5 respondents reporting "very good knowledge" and another 5 indicating "some knowledge." Only 1 respondent stated having "limited knowledge," while none reported "no knowledge."

The endline results show a slight decrease in the perceived knowledge levels. While the number of respondents reporting "very good knowledge" decreased to 4, those with "some knowledge" declined to 3. The number of respondents stating "limited knowledge" remained at 1, and one respondent indicated "no knowledge".

Figure 59 presents the perceived capacity of the regional/local authority in the Southern region to identify and promote collaboration opportunities at the regional level, measured on a scale of 0 to 5. The scale is defined as follows: 0 indicates "not adequate capacity," while 5 signifies "excellent capacity." Overall, the data reflect a stable perception of capacity, with a slight improvement in the higher capacity ratings from baseline to endline.

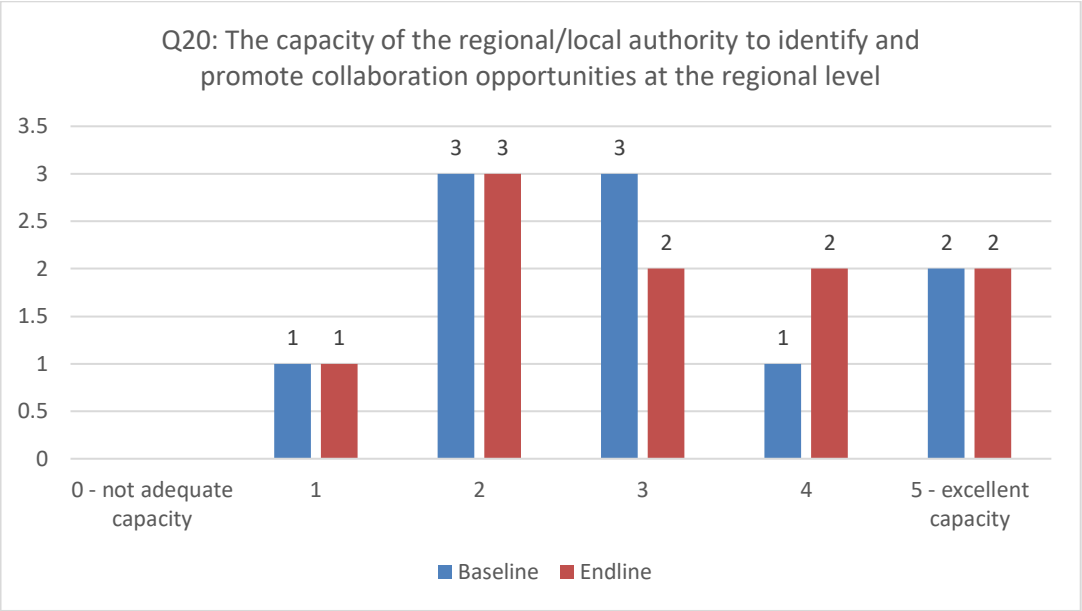


Figure 59: Perceived capacity to identify and promote collaboration opportunities at the regional level: baseline and endline comparison, Southern Region

Baseline data indicates a distribution of responses where the majority of respondents perceived the capacity to be moderate, particularly at levels 2 and 3. The respondents rated the capacity as follows: 1 respondent rated the capacity at level 1, three respondents at level 2, three respondents at level 3, one respondent at level 4, and two respondents at level 5.

Endline data, show that the ratings shifted slightly, with one respondent rating the capacities at level 1, three respondents at level 2, two respondents at level 3, two respondents at level 4, and tow respondents at level 5. This change suggests that while there is still a perception of moderate capacity, there is an increase in ratings at levels 4 and 5, indicating a more positive view of the authority's ability to foster collaboration opportunities compared to the baseline.

Section VI: Policy Areas

Table 5.36 illustrates the level of knowledge within organizations in the Southern region concerning policy areas that require improvement to facilitate the transition toward a circular bioeconomy at the regional level. Respondents rated their knowledge using a multi-choice format. The data indicate a slight decline in the perceived knowledge regarding policy areas essential for promoting the transition to a circular bioeconomy, emphasizing the need for targeted capacity-building efforts in this area.

Table 0.36: Knowledge of policy areas needing improvement for circular bioeconomy transition at the regional level: baseline and endline comparison, Southern Region

Q21: The organization's level of knowledge concerning policy areas that need to be improved to promote the transition towards the circular bioeconomy at the regional level.	a) The organization has very good knowledge of the indicated area.	b) The organization has some knowledge of the indicated area.	c) The organization has limited knowledge of the indicated area.	d) The organization has no knowledge of the indicated area.	e) Other
Baseline	1	1	1	0	0
Endline	0	1	0	1	0

The baseline data show the distribution of responses was as follows: one respondent reported having very good knowledge (option a), one respondent stated they had some knowledge (option b), and one respondent indicated limited knowledge (option c), with no organizations reporting no knowledge. This suggests a relatively varied understanding among the respondents regarding the necessary policy improvements.

The endline data show some shift in responses, with no respondents reported having very good knowledge (option a), one respondent continued reported some knowledge (option b), one respondent indicated limited knowledge (option c), and one respondent reported no knowledge (option d) of the relevant policy areas. This change may reflect a decrease in confidence regarding very good knowledge and an increase in organizations recognizing limited knowledge or lack of knowledge.

Table 5.37 presents baseline and endline data on the capacities of organizations in the Southern region to leverage opportunities created by the local bio-based economy. Respondents evaluated their organization's capacity using a multi-choice format. The data indicate a decrease in perceived capacities to capitalize on opportunities within the local bio-based economy. This shift suggests the need for enhanced support and resources to build organizational capabilities in this area.

Table 0.37: Organizational capacities to foster opportunities in the local bio-based economy: baseline and endline comparison, Southern Region

Q22: The organization's capacities to foster the opportunities created by the local bio-based economy*	a) The organization has very good capacities in the indicated area.	b) The organization has some capacities in the indicated area.	c) The organization has limited capacities in the indicated area.	d) The organization has no capacities in the indicated area.	e1) Other.
Baseline	1	0	2	0	0
Endline	0	0	1	1	0

(e.g. supported by means of support measures and funding instruments that promote integration within the circular bioeconomy).

At the beginning of Alpha testing, one respondent rated his or her capacity as very good (option a), while two respondents indicated limited capacities (option c), and no respondents reported having no capacity or other responses. This suggests a moderate level of confidence in the ability to exploit local bio-based economy opportunities.

At the end of Alpha testing, there was a shift in perceptions with no respondents reported having very good capacities (option a), one respondent reporting limited capacities (option b), and one no capacities (option c).

Table 5.38 outlines the perceived capacity of regional and local governments in the Southern region to assess the regional environmental footprint (Question 23). Respondents rated this capacity on a scale from 0 to 5, with 0 meaning not adequate capacity and 5 excellent capacities.

These data suggest a slight decrease in perceptions of the local government's capacity to assess the regional environmental footprint, indicating a potential area for further development of capabilities in environmental assessment.

Table 0.38: Capacity of regional/local government to assess the regional environmental footprint: baseline and endline results, Southern Region

Q23: Capacity of the regional/local government to assess the regional environmental footprint*	0 - not adequate capacity	1	2	3	4	5 - excellent capacity
Baseline	0	0	1	2	0	0
Endline	0	0	2	0	0	0

**e.g., the effect that a person/company/activity has on the environment, e.g. the number of natural resources they use, etc.*

The baseline data indicated a limited perception of capacity: only one respondent rated the capacity as moderate (score 2), while two respondents assessed it as low (score 1). No respondents reported having either very good (score 4) or excellent capacity (score 5), suggesting a general recognition of inadequate capabilities in this area.

The endline data indicate a slight decrease in the perceived capacity to assess the environmental footprint. Both respondents rated the capacity as moderate (score 2).

Table 5.39 presents the responses regarding the experience and capacity of organizations in the Southern region to design actionable guidelines aimed at local operators and innovation developers (Question 24). Respondents categorized their experience and capacity into five options.

These data suggest a decline in perceived experience and capacity among respondents in the Southern region to design actionable guidelines for local operators and innovation developers. This may highlight an area that requires further support and development to enhance organizational capabilities in this aspect.

Table 0.39: Experience and capacity to design actionable guidelines for local operators and innovation developers: baseline and endline results, Southern Region

Q24: The organization's experience and capacity to design actionable guidelines addressed to the local operators and innovation developers.	a) The organization is very experienced and has very good capacity in the indicated area.	b) The organization has some experience and capacity in the indicated area.	c) The organization has limited experience and capacity in the indicated area.	d) The organization has no experience and capacity in the indicated area.	e) Other.
Baseline	0	1	0	0	1

Endline	0	0	1	1	0

The baseline data reveals that only one respondent reported having some experience and capacity (option b), while another organization indicated "Other." Notably, there were no respondents that rated themselves as having very good experience (option a), limited experience (option c), or no experience (option d), which reflects a relatively low level of confidence in the ability to design actionable guidelines.

The endline data indicate a shift in perception with one respondent reporting having limited experience and capacity (option c), and another having no experience and capacity (option d).

Figure 60 illustrates the level of knowledge organizations have regarding the climate-neutrality and low environmental footprint benefits associated with bio-based products and services (Question 25), measured on a scale of 0 to 5.

This comparison indicates slight increase in the overall knowledge about climate-neutrality and environmental benefits of bio-based products among organizations.

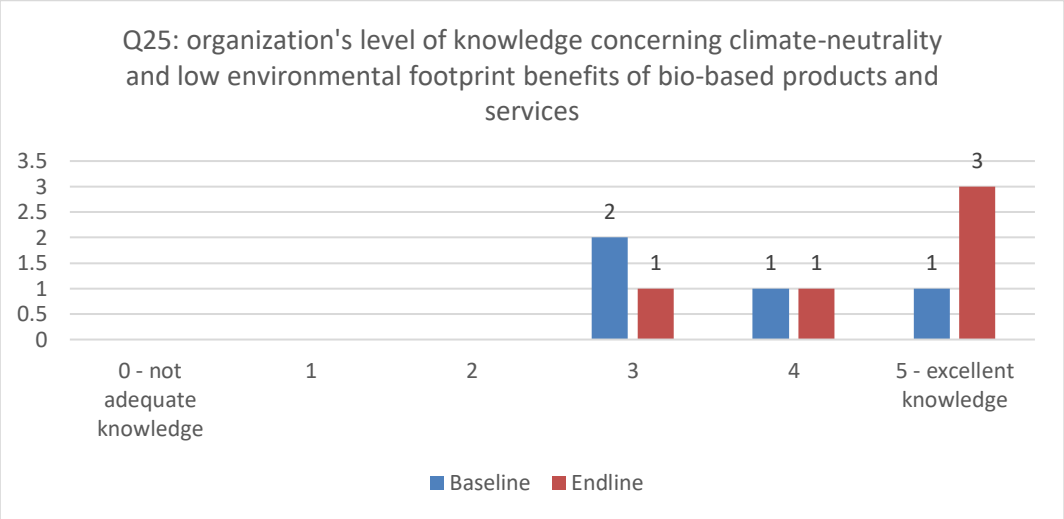


Figure 60: Organization's knowledge of climate-neutrality and low environmental footprint benefits of bio-based products and services: baseline and endline results, Southern Region

At baseline, responses show that no respondent reported a lack of knowledge (score 0), limited knowledge (score 1), or moderate knowledge (score 2). Two respondents indicated good knowledge (score 3), while one respondent reported very good knowledge (score 4), and one respondent claimed excellent knowledge (score 5).

In the endline data collection, there was an increase of respondents (5 in total), out of which one reported a good level of knowledge (score 3), one reported a very good level of knowledge (score 4) and three respondents reported excellent knowledge (score 5). No respondent indicated any knowledge level below 3, which suggest improvement in the area.

Figure 61 illustrates the responses from respondents in the Southern region regarding their capacities to develop novel business models and social measures that contribute to the circular bioeconomy transition.

Overall, the data suggests that while there is a solid foundation of capacity among organizations in the Southern region to develop innovative business models and social measures for the circular bioeconomy, there is also an emerging recognition of limitations. The presence of an organization

reporting no capacity suggests potential challenges that could hinder the transition towards a circular economy in the region.

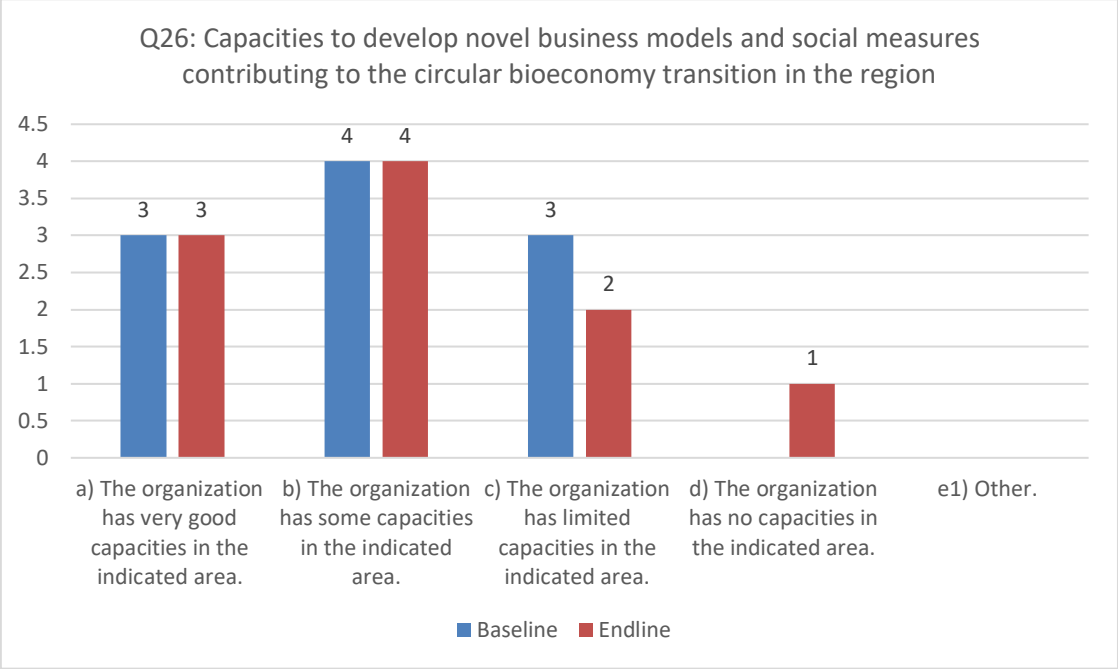


Figure 61: Capacities to develop business models and social measures for circular bioeconomy transition: baseline and endline results, Southern Region

The baseline data indicate that respondents reported a good level of capacities in this area, with three respondents reporting very good capacities (option a), four indicating some capacities (option b), and three noting limited capacities (option c). There were no organizations that claimed to have no capacities (d) or selected "Other."

As the endline data show, the responses showed a slight shift in perception. The number of respondents reporting limited capacities decreased to two (option c) and one respondent reported having no capacities (option d), which was a new response category that emerged. The numbers of respondents indicating very good capacities (option a) and some capacities (option b) remained stable at three and four, respectively.

Figure 62 resents the responses from organizations in the Southern region regarding their motivation to switch to socially and environmentally responsible behaviours.

The data indicate that organizations in the Southern region maintain a high and stable motivation to transition towards socially and environmentally responsible behaviours.

The baseline data reveals that respondents reported a strong inclination towards responsible behaviours, with six respondents reporting a motivation level of 5 (excellent motivation) and four indicating a level of 4 (very high motivation). Additionally, one respondent rated their motivation at 2 (moderate motivation), while no respondents reported low or very low motivation (0 or 1).

The endline data shows that the overall motivation levels remained consistent, as there were still six respondents reporting excellent motivation (5) and four reporting very high motivation (4). Notably, there were no respondents rating their motivation at any level below 4.

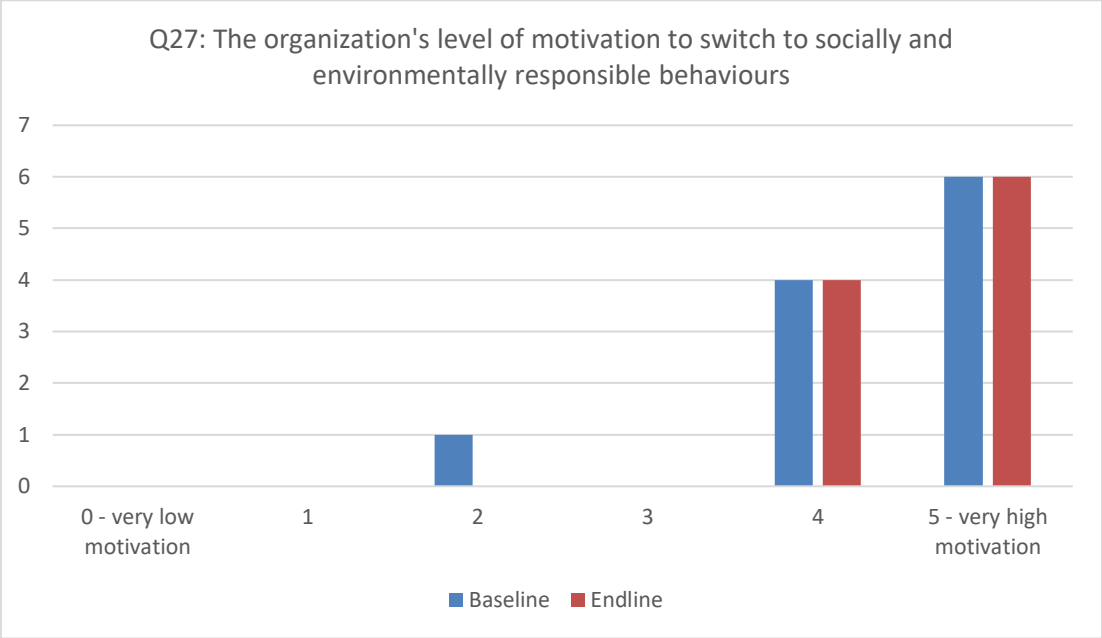


Figure 62: Motivation to transition to socially and environmentally responsible behaviours: baseline and endline comparison, Southern Region

Figure 63 illustrates the perceptions of organizations in the Southern Region regarding the inclusion of business and social dimensions in the development of regional governance models and structures.

There is a trend towards greater recognition of business and social dimensions in regional governance. While the perceptions of inclusion remain varied, there appears to be a slight positive movement towards acknowledging these dimensions more significantly in governance structures, indicating an evolving understanding of the importance of stakeholder engagement in the transition to a circular bioeconomy.

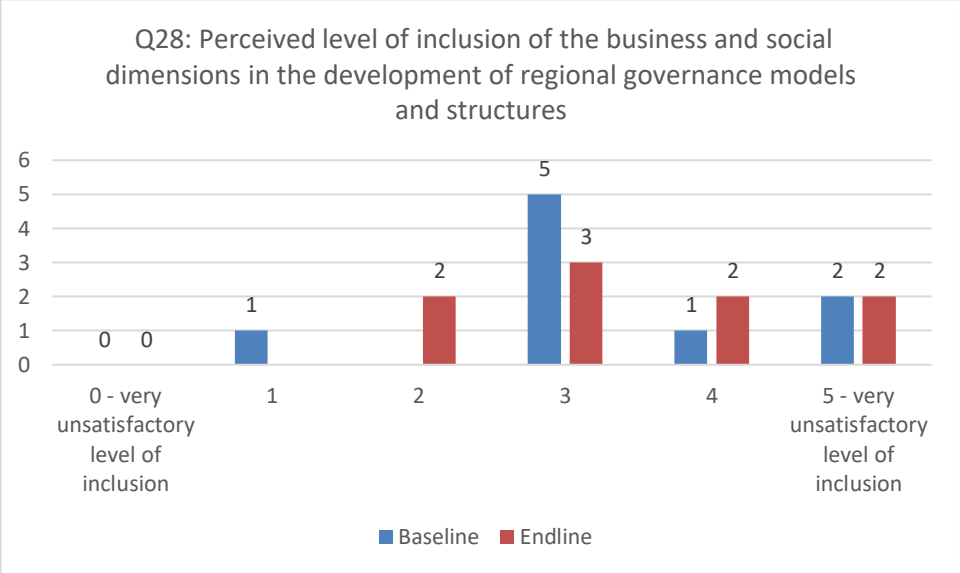


Figure 63: Perceived inclusion of business and social dimensions in regional governance models: baseline and endline data, Southern Region

At the beginning of Alpha testing, responses indicated a mixed perception of inclusion. Specifically, two respondents rated the inclusion level at 5 (very satisfactory), one respondent reported a satisfactory level of inclusion (score 4) and five respondents a good level of inclusion (score 3).

Additionally, one organization rated it as unsatisfactory (score 1). Notably, there was no rating at the extreme of 0 (very unsatisfactory).

The endline data reflects a shift in perceptions. Two respondents rated the inclusion at 2 (moderate level of inclusion), three respondents indicated a satisfactory level of inclusion (score 3), two respondents indicated a very good level (score 4) and two respondents reported a very satisfactory level of inclusion. Importantly, there were no ratings at the extremes of 0 or 1, suggesting a general improvement in the perceived inclusivity of the governance process.

Table 5.40 presents the assessment of organizations in the Southern region regarding their capacity to design action plans and specific measures aimed at downsizing non-environmentally friendly practices in favour of more responsible business and social models.

Challenges remain in the capacities of organizations within the Southern region to formulate actionable plans aimed at promoting more responsible business and social practices. However, the emergence of organizations indicating limited or some capacities suggests potential for growth and increased engagement in the transition toward sustainable practices in the future.

Table 0.40: Capacity to design action plans for promoting environmentally friendly practices: baseline and endline results, Southern Region

Q29: The organization's level of capacity to design action plans and specific measures for downsizing non-environmentally friendly practices in favour of more responsible business and social models*	a) The organization has very good capacity in the indicated area.	b) The organization has some capacity in the indicated area.	c) The organization has limited capacity in the indicated area.	d) The organization has no capacity in the indicated area.	e1) Other.
Baseline	0	1	0	0	0
Endline	0	1	1	0	0

**e.g., through environmentally friendly practices, as well as opportunity areas).*

For the Southern Region, in relation to the two **environment-specific questions** (questions 30 and 31) included in the Endline Questionnaires, which were targeted exclusively at regional nodes in collaboration with regional authority representatives to provide initial estimations of environmental impact in each territory, there were no estimations for the questions.

Žilina, Slovakia

The table presents the distribution of stakeholder groups participating in the survey from the the Zilina region, Slovakia. In both phases, 10 respondents (same 10 respondents planned) were involved.

In the baseline survey, the most represented groups were NGOs/CSOs with three respondents, followed by business entities/entrepreneurs and business associations or clusters with two respondents each, as well as external advisory/consulting entities, local authorities, and regional authorities one respondent each.

In the endline survey, there were slight shifts: local authorities increased their representation from one to two representatives, while in the case of business associations or clusters there was a decrease from two to one respondent. NGOs/CSOs, external advisory entities, and regional authorities maintained the numbers of respondents.

No representatives from researchers, higher education affiliates, or "Other" stakeholders participated in either round.

Table 0.41: Stakeholder Participation in baseline and endline data collection, Zilina region

Stakeholder group	Regional authority	Local authority	External advisory/ consulting entity	Researcher or affiliated to a higher education institution	Business entity/ entrepreneur	Business association, cluster or innovation centre	NGO/CSO	Other.
Baseline	1	1	1	0	2	2	3	0
Endline	1	2	1	0	2	1	3	0

Key trends and changes identified during the Alpha testing

The data from the Zilina region's stakeholders reveals important trends and shifts in perceptions regarding their capabilities and motivations to engage with the circular bioeconomy. The data collected from various stakeholders highlight significant areas of improvement and ongoing challenges in the region's transition towards sustainability and responsible practices.

Key trends identified during the Alpha testing:

- **Bioeconomy Governance Capacity**: Respondents showed varying levels of experience in designing, implementing, monitoring, and evaluating bioeconomy governance models. Yet, there has been an increase in stakeholders' reported capacities and knowledge concerning the design and implementation of bioeconomy governance models and strategies. Notably, the number of organizations claiming "very good" capacity has risen, indicating a growing competence in navigating the complexities of the circular bioeconomy. However, while regional and local authorities demonstrated some expertise, significant gaps were noted in their capacity to drive innovation and sustainability, as well as in the field of monitoring and evaluation.
- **Stakeholder Engagement**: Opportunities for stakeholders' participation in the circular bioeconomy transition were identified, but engagement levels varied. The data indicates a shift towards increased engagement in collaborative policy-making. The endline results show that more stakeholders perceive opportunities for participation in the circular bioeconomy transition, which may lead to improved cooperative efforts in addressing regional sustainability challenges. Despite this, a gap remains in the recognition of actual engagement opportunities, suggesting that while stakeholders may feel there are opportunities, the reality of their involvement may not yet reflect this positive perception. There is a growing awareness of both the barriers that prevent engagement and the solutions needed to overcome them. However, the familiarity with these barriers remains relatively low, indicating a need for further education and support.
- **Local Potential and Innovation**: The capacity to develop regional strategies for accelerating the circular bioeconomy transition remains a gap, despite the data shows a positive trend in the area. The responses show mixed perceptions of the authorities' ability to lead effectively in this area.
- **Opportunities**: The data suggest increased knowledge of transnational business opportunities, as well as opportunities field of circular bioeconomy at the regional level. However, stakeholders perceived their regional/local authorities' capacity to identify and

promote transnational business opportunities as lacking. While there was improvement in the endline, many still rated the authorities' capacity as inadequate (below 3), suggesting that the government's role in supporting the bioeconomy transition needs to be strengthened.

- **Business Models and Social Measures**: Organizations reported moderate levels of familiarity with the policy areas that need improvement to promote circular bioeconomy transition. While some improvement was noted, the results suggest gaps in stakeholders' knowledge about policy areas that need to be improved to promote the circular bioeconomy transition. Stakeholders' capacities in leveraging local bioeconomy resources increased, particularly regarding novel business models and social measures contributing to the circular bioeconomy. Data suggests the knowledge of circular bioeconomy principles was increased, especially regarding climate-neutrality benefits of bio-based products. By the endline, respondents reported higher levels of knowledge, reflecting growth in their understanding of the circular bioeconomy's potential. Respondents highlighted the importance of developing novel business models and social measures. A gap remains in the perceived inclusion of business and social dimensions in regional governance models. More capacity building is required to downsize non-environmentally friendly practices.
- **Environmental Awareness and Action**: There was a moderate level of familiarity with climate-neutrality benefits and low environmental footprint products, with respondents motivated to adopt more sustainable and socially responsible practices. The motivation levels among organizations to switch to environmentally responsible behaviours have significantly improved, with a greater number of stakeholders expressing high motivation at the endline assessment. Organizations have also shown an increasing capacity to assess the regional environmental footprint and design action plans that promote responsible practices. This indicates a shift towards prioritizing environmental considerations in decision-making processes.

Section II: Capacities in designing, implementing, monitoring and evaluating the bioeconomy governance models

Questions 4-7 were answered by regional/local authorities only.

Table 5.42 displays the reported experience in the Zilina region regarding the design of regional bioeconomy governance models, assessed on a scale from 0 to 5. The regional and local authorities demonstrated limited expertise in design and implementing the bioeconomy governance models. Although the data indicate an improvement in this area, significant gaps still persist in the area of design of regional bioeconomy governance models.

Table 0.42: Experience in designing regional bioeconomy governance models: baseline and endline data comparison, Zilina region

Q4: Experience in the design of regional bioeconomy governance models	0 - no experience	1	2	3	4	5 - excellent experience
Baseline	1	1	0	0	0	1
Endline	0	0	1	1	1	

Figure 64 presents data on the experience and capacity of organizations in the Zilina region in designing and implementing bioeconomy governance models that promote innovation and sustainability-driven bioeconomy strategies (Question 5). The table uses multiple categories to

assess organizational capacity, ranging from “very experienced” (a) to “no experience” (d), with an additional “Other” € category.

Also, in this case the data suggests a need for enhanced support in building the capacity of organizations in the Zilina region to design and implement governance models that effectively drive innovation- and sustainability-driven bioeconomy strategies bioeconomy strategies.

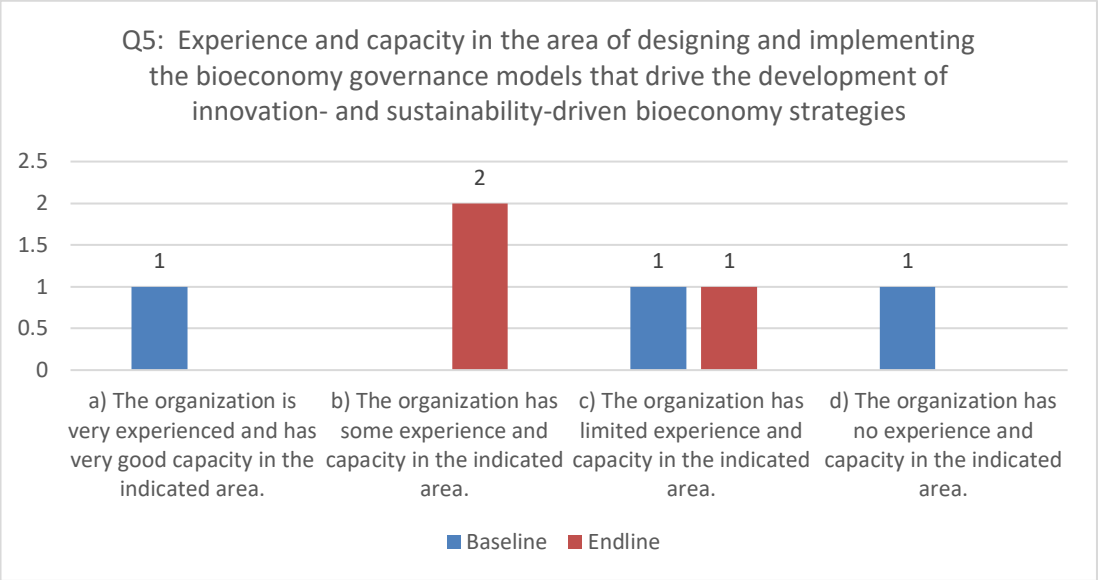


Figure 64: Experience and capacity in designing and implementing bioeconomy governance models that drive the development of innovation- and sustainability-driven bioeconomy strategies: baseline and endline data comparison, Zilina region

In the baseline survey, one respondent reported having very good experience and capacity (option a), while one respondent had no experience or capacity (option d).

In the endline survey, no respondents indicated having very good experience (option a), but there was a shift towards moderate experience: two respondents reported some experience and capacity (option b), and one respondent reported limited experience and capacity (option c).

No respondents selected “Other” in either the baseline or endline survey.

Table 5.43 summarizes the experience of organizations in the Zilina region with monitoring and evaluating bioeconomy strategies.

The data suggests some progress in developing monitoring and evaluation expertise in the Zilina region.

Table 0.43: Experience in monitoring and evaluation of bioeconomy strategies: baseline and endline results, Zilina region

Q6: Experience monitoring and evaluation of the bioeconomy strategies.	0 - no experience	1	2	3	4	5 - excellent experience
Baseline	1	1	0	0	1	0
Endline	0	0	1	1	0	1

At the beginning of Alpha testing, responses varied among respondents. One respondent reported no experience (score 0), one respondent had minimal experience (score 1), and one respondent rated the experience as very good (score 4).

By the endline, there was a shift in experience distribution. No respondents indicated having no or minimal experience (scores 0 and 1), while one respondent rated her or his experience as moderate (score 2), one reported good experience (score 3), and one reported excellent experience (score 5).

Table 5.44 illustrates the experience and capacity of organizations in the Zilina region regarding the monitoring and evaluation of the circular bioeconomy. The results reflect an overall enhancement in capacity within the region, while significant gaps still exist in the region in this area.

Table 0.44: Experience and capacity in monitoring and evaluation of the circular bioeconomy: baseline and endline comparison, Zilina region

Q7: Experience and capacity in the area of monitoring and evaluation of the circular bioeconomy.	a) The organization is very experienced and has very good capacity in the indicated area	b) The organization has some experience and capacity in the indicated area	c) The organization has limited experience and capacity in the indicated area	d) The organization has no experience and capacity in the indicated area	e) Other
Baseline	0	0	1	2	0
Endline	0	2	1	0	0

The baseline data shows that most organizations reported low levels of experience and capacity, with two respondents indicating no experience or capacity (option d) and one respondent reporting limited capacity (option c).

According to the endline data, there was a noticeable improvement, with two respondents indicated having some experience and capacity (option b), while one respondent reported limited capacity (option c).

Section III: Stakeholders engagement

Figure 65 presents the perception of opportunities for actors to participate in the circular bioeconomy transition in the Zilina region.

The data suggest a shift towards an increasing recognition of opportunities for participation in the circular bioeconomy transition within the region.

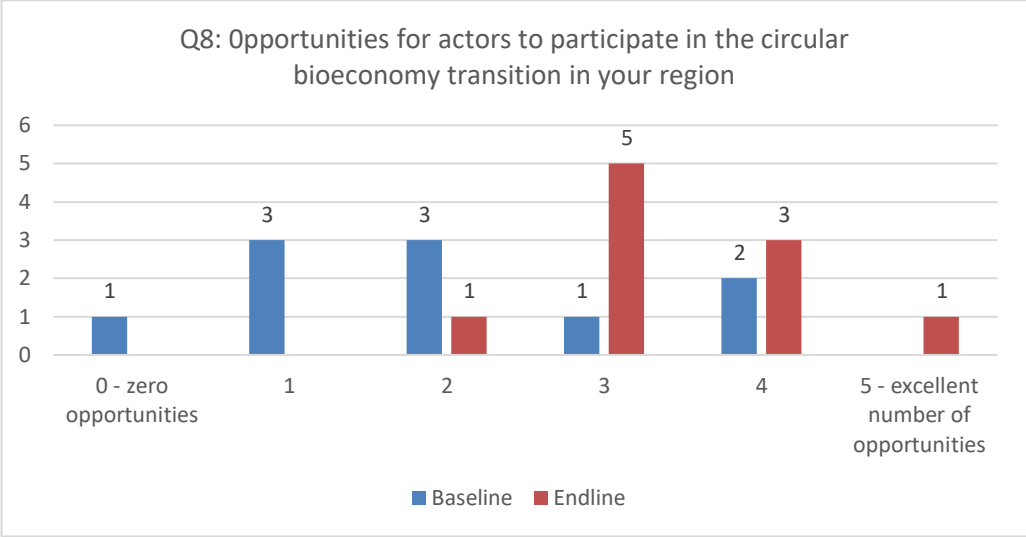


Figure 65: Opportunities for actors to participate in the circular bioeconomy transition: baseline and endline comparison, Zilina region

The baseline data shows that the responses were varied, with most respondents reporting lower levels of opportunity. Three respondents reported both low or moderate opportunity levels (score 1 and 2), while only two indicated very good levels of opportunity (score 4). No respondent rated the opportunities as excellent (score 5).

The endline data indicates the situation improved significantly. Five respondents rated the opportunity level as good (score 3), and three respondents rated the opportunity levels as very good (score 4) and one respondent rated the number of opportunities as excellent (score 5).

Figure 66 illustrates the perceived level of engagement of various actors in collaborative policymaking related to the circular bioeconomy in the Zilina region.

This progression reflects a growing involvement of actors in the collaborative policymaking process for the circular bioeconomy transition.

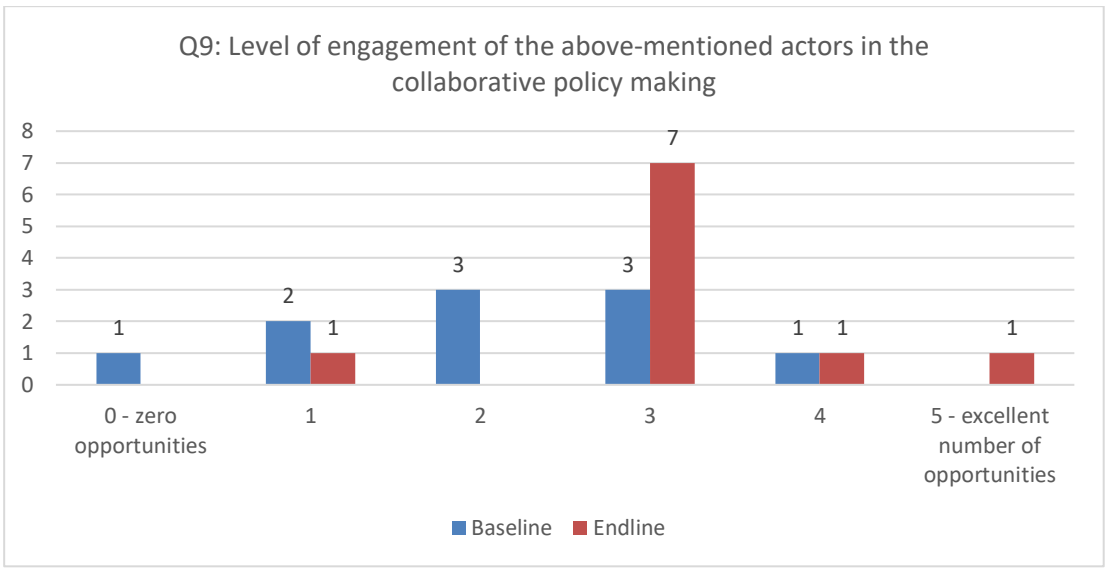


Figure 66: Level of engagement of actors in collaborative policy making: baseline and endline results, Zilina region

In the baseline survey, the responses were spread across multiple engagement levels. Two respondents rated engagement as very low (score 1), and three selected moderate engagement levels (score 2 and 3). Only one respondent perceived a higher level of engagement (score 4), and none rated the engagement as excellent (score 5).

In the endline survey, the responses show a significant increase in perceived engagement. The majority of respondents (seven) rated the engagement level as good (score 3), indicating a solid improvement. Additionally, one respondent rated the engagement as excellent (score 5), which was absent at the baseline.

Table 5.45 presents the level of familiarity among respondents regarding the barriers preventing stakeholder engagement in the circular bioeconomy within the Zilina region.

This change suggests an improvement in awareness and understanding of the barriers that hinder stakeholder engagement in the region's circular bioeconomy initiatives.

Table 0.45: Familiarity with barriers preventing stakeholders' engagement: baseline and endline results, Zilina region

Q10: Level of familiarity with the barriers preventing stakeholders' engagement in your region	0 - no familiarity	1	2	3	4	5 - excellent familiarity
Baseline	1	1	0	1	0	0
Endline	0	0	1	0	1	1

At the baseline phase, respondents exhibited a limited understanding of these barriers, with one participant rating familiarity as low (score 1), one as moderate (score 2), one as good (score 3). No participants expressed familiarity levels as very good or excellent (score 4 or 5).

In the endline, there was a noticeable shift in familiarity levels. No respondents rated their familiarity at levels as non-existing, low or moderate (scores 0, 1, or 2). Instead, one respondent indicated moderate familiarity as good (score 3), while two respondents reported higher familiarity, rating it as very good or excellent (score 4 and 5).

Table 5.46 displays the level of familiarity among respondents regarding solutions to overcome barriers to stakeholder engagement in the circular bioeconomy in the Zilina region.

Overall, the data suggests a slight improvement in awareness of solutions to address the identified barriers, although there remains a notable lack of high familiarity among respondents.

Table 0.46: Familiarity with solutions to overcome barriers: baseline and endline comparison, Zilina region

Q11: Level of familiarity with the solutions to overcome the above-mentioned barriers	0 - no familiarity	1	2	3	4	5 - excellent familiarity
Baseline	1	1	0	1	1	0
Endline	0	0	1	1	0	0

At the baseline, respondents demonstrated a varied understanding of potential solutions, with one respondent rating their familiarity at level 0 (no familiarity), one at level 1 (low familiarity), none at level 2, one at level 3 (good familiarity), one at level 4 (high familiarity), and none at level 5 (excellent familiarity).

At the endline, the familiarity levels reported shifted significantly. No respondents rated their familiarity at levels 0, 1, or 2 (no familiarity, low familiarity and moderate familiarity), indicating a general improvement of familiarity. Instead, one respondent expressed moderate familiarity (score 3), while no respondents rated familiarity as very good or excellent (score 4 or 5).

Table 5.47 summarizes the level of knowledge among respondents in the Zilina region regarding multi-actor business models and social measures necessary for implementing the circular bioeconomy.

The data show a shift towards higher levels of knowledge. This change suggests an overall improvement in the understanding of multi-actor business models and social measures relevant to the circular bioeconomy among the organizations in the Zilina region.

Table 0.47: Knowledge of multi-actor business models and social measures for circular bioeconomy implementation: baseline and endline comparison, Zilina region

Q12: Level of knowledge of the multi-actor business models and social measures necessary for the implementation of the circular bioeconomy	a) The organization has very good knowledge of the indicated area	b) The organization has some knowledge of the indicated area	c) The organization has limited knowledge of the indicated area	d) The organization has no knowledge of the indicated area	e) Other
Baseline	0	1	0	2	0
Endline	1	2	0	0	0

At the beginning of Alpha testing, the responses indicated limited knowledge in this area, with no respondents reporting very good knowledge (option a), one respondent indicating some knowledge (option b), none indicating limited knowledge (option c) and two respondents stating they had no knowledge (option d). No respondent selected the option e) other.

At the end of Alpha testing, there was a notable shift in respondents' knowledge levels. One respondent reported very good knowledge (option a), and two respondents indicated some knowledge (option b). No respondents reported limited (option c) or no knowledge (option d) or selected option „Other“.

Figure 67 presents the perceptions of organizations in the Zilina region regarding their capacity to enhance stakeholder engagement and collaboration in developing the circular bioeconomy.

The results indicate a potential positive trend in the confidence of organizations in their ability to engage stakeholders effectively in the circular bioeconomy development. Overall, while the perceived capacity remains similar, there is a slight increase in the number of respondents perceiving higher levels of capacity.

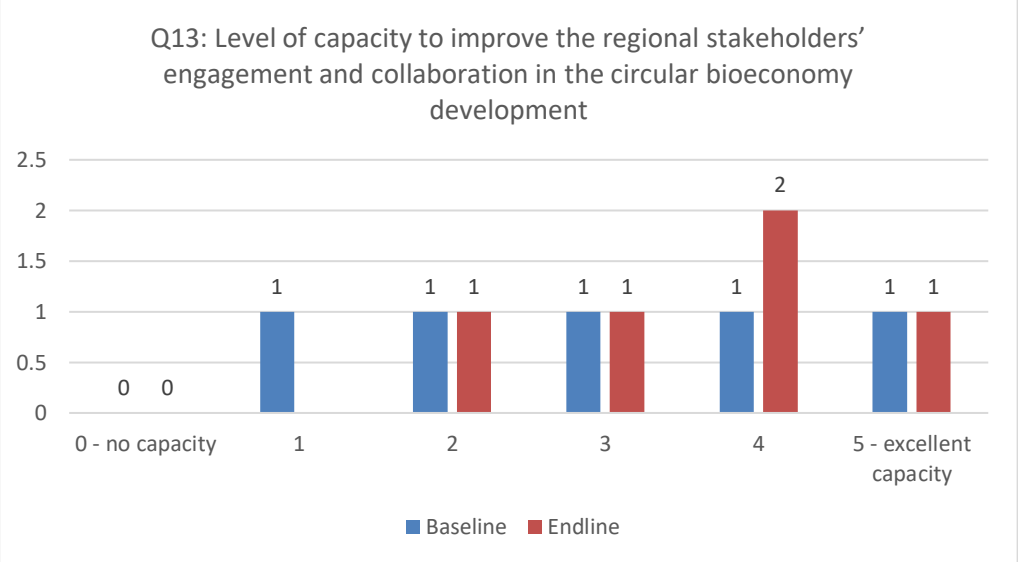


Figure 67: Perceived capacity to enhance stakeholder engagement and collaboration in circular bioeconomy development: baseline and endline data, Zilina region

In the baseline survey, responses were distributed across various capacity levels, with no respondents indicating a lack of capacity (score 0). One respondent reported low capacity (score 1), while another indicated a moderate level of capacity (score 2). Additionally, one respondent rated their capacity as good (score 3), one as very good (score 4), and one respondent rated their capacity as excellent (score 5). This distribution suggests a moderate perception of capacity among the organizations in the region.

In the endline survey, there were some changes in the perceptions of capacity. Again, no respondents indicated a lack of capacity (score 0). One respondent indicated the capacity level as moderate (score 2) and one as good (score 3). Two respondents indicated the capacity level as very good (score 4), while one respondent still rated their capacity as excellent (score 5).

Table 5.48 displays the perceived benefits of stakeholder engagement in the circular bioeconomy transition within the Zilina region.

Overall, the data suggests a slight shift in perceptions, with an increase in the number of organizations recognizing higher levels of benefit (score 4) from stakeholder engagement in the circular bioeconomy transition. This could indicate growing awareness of the importance of stakeholder involvement in achieving successful outcomes in this area.

Table 0.48: Perceived benefit of stakeholders' engagement and collaboration in circular bioeconomy development: baseline and endline comparison, Zilina region

Q14: Perceived benefit of stakeholders' engagement in the circular bioeconomy transition	0 - not beneficial	1	2	3	4	5 - very beneficial
Baseline	0	1	1	1	1	1
Endline	0	0	1	1	2	1

In the baseline survey, respondents expressed varying levels of perceived benefits, with no respondents indicating that engagement is not beneficial (score 0). The distribution shows one respondent each rated the perceived benefit at levels 1 (very low benefit), 2 (low benefit), 3 (moderate benefit), 4 (high benefit), and 5 (very high benefit). This indicates a diverse perspective among respondents regarding the benefits of stakeholder engagement, with at least one recognizing significant potential benefit (score 5).

In the endline survey, the responses indicate a shift in perceptions. There were still no respondents indicating that engagement is not beneficial and with very low benefit (score 0 and 1). The distribution changed slightly, with one respondent reporting perceived benefit as level low (score 2), while one respondent continued to perceive the benefit as moderate (score 2). Two respondents recognized the benefits as high (score 4), while one respondent maintained a perception of the stakeholders' engagement as very high (score 5).

Section IV: Local potentials and innovation assets

Figure 68 presents the Žilina region's capacity to support the exploitation of bioeconomy-related assets, assessed on a scale from 0 to 5. The responses indicate a shift in perception regarding the region's capacity from the baseline to the endline phase.

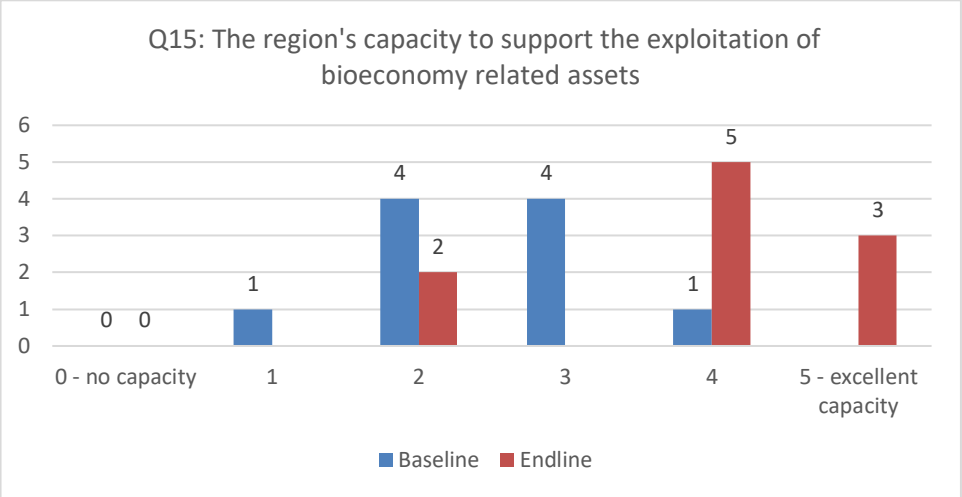


Figure 68: Regional capacity to support the exploitation of bioeconomy-related assets: baseline and endline data, Zilina Region

The baseline data shows a distribution of responses predominantly in the lower capacity levels with one respondent rating the capacity as low (score 1), four respondents rating the capacity as moderate (score 2), four as good (score 3). Only rated the capacity as very good (score 4) and none of the respondents selected the highest score 5, indicating excellent capacity.

The endline data reveals a positive trend, with a notable increase in higher capacity ratings, as only two respondents now rated the capacity level as moderate (score 2), while five respondents rated it as very good (score 4) and three as excellent (score 5). No respondents reported the lowest ratings (score 0 and 1). This suggests a significant enhancement of its capacity to support the bioeconomy.

Figure 69 illustrates the perceived capacity of the Zilina region to develop strategies that facilitate the transition to a circular bioeconomy, rated on a scale from 0 to 5.

In summary, the results demonstrate a positive trend in the Zilina region's capacity to develop strategies aimed at accelerating the transition to a circular bioeconomy, reflecting enhancements in both awareness and capability.

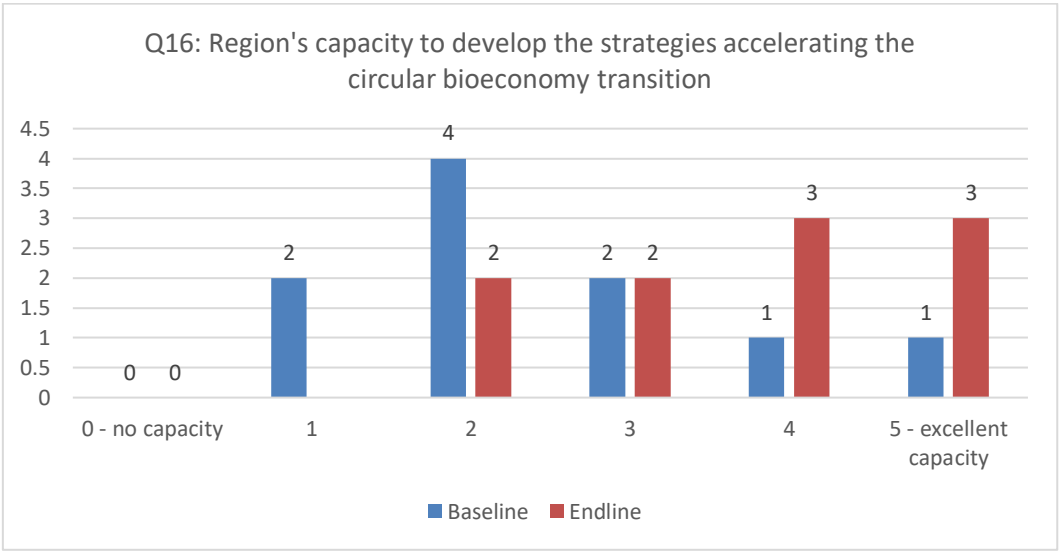


Figure 69: Regional capacity to develop strategies for accelerating circular bioeconomy transition: baseline and endline data, Zilina Region

In the baseline survey, responses indicated a mix of ratings with two respondents reporting low capacity (score 1), four respondents moderate capacity (score 2) and two respondents high capacity (score 3). The highest ratings (very high, score 4 and excellent, score 5) were indicated by one respondent each. This suggests some existing ability to develop strategies, though overall capacity was unevenly distributed.

In the endline survey, the results show a shift towards increased capacity, with three respondents rating the region's capacity as excellent (score 5) and three as very high (score 4). The lower ratings (moderate, score 2 and high, score 3) were indicated by one respondent each. The absence of lower ratings (score 0 and 1) suggests an overall improvement in the region's ability to develop strategies for accelerating circular bioeconomy transition.

Section V: Opportunities

Figure 70 presents the level of knowledge organizations in the Zilina region have regarding transnational business opportunities related to the circular bioeconomy, particularly in terms of entering new markets with relevant products and services. Responses are categorized based on the degree of knowledge, ranging from very good knowledge to no knowledge.

Overall, the results highlight an improvement in the Zilina region's understanding of transnational business opportunities related to the circular bioeconomy, reflecting a growing awareness and capacity to engage with new market opportunities.

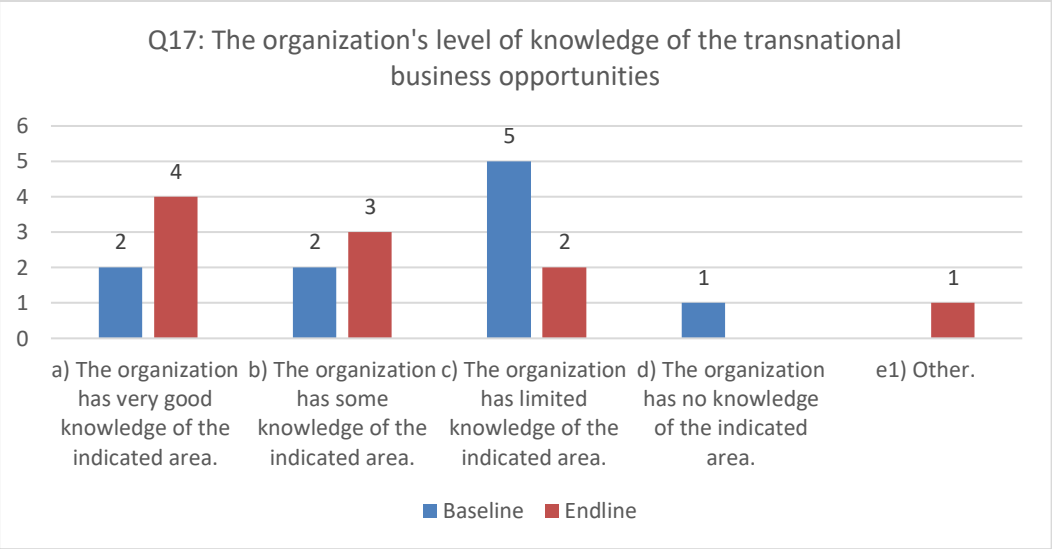


Figure 70: Knowledge of transnational business opportunities in the circular bioeconomy: baseline and endline comparison, Zilina Region

At the beginning of Alpha testing, most (five out of ten) respondents reported limited knowledge (option c), two respondents reported some knowledge of transnational business opportunities (option b), and two indicated very good knowledge (option a). Only one respondent reported having no knowledge.

At the end of Alpha testing, there was a noticeable shift, with four respondents reporting very good knowledge (option a), three respondents reporting some knowledge (option b) and two respondents limited knowledge (option c). The number of individuals reporting no knowledge has dropped to zero,

while one organization indicated knowledge that fits in the "Other" category, which was, however, not specified.

Figure 71 presents the responses from organizations in the Zilina region regarding their perception of the capacity of regional and local authorities to identify and promote transnational business opportunities, particularly related to the circular bioeconomy. The respondents rated this capacity on a scale from 0 to 5, where 0 indicates not adequate capacity and 5 indicates excellent capacity.

Overall, the data suggests a growing confidence in the regional/local authority's ability to support the identification and promotion of transnational business opportunities, which is crucial for advancing the circular bioeconomy.

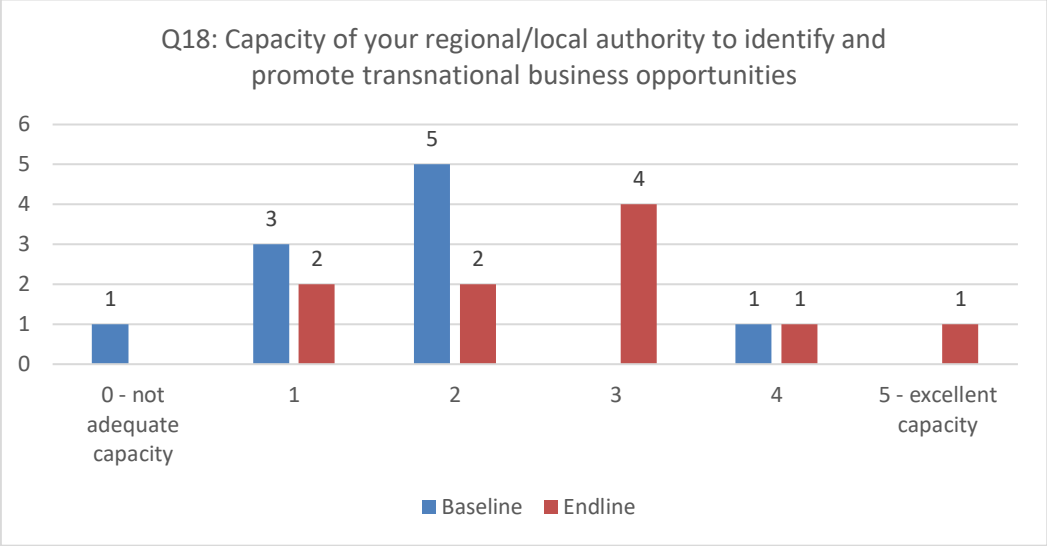


Figure 71: Perceived capacity of regional/local authorities to identify and promote transnational business opportunities: baseline and endline comparison, Zilina Region

The baseline data show a diverse perception of the authority's capacity, with the majority rating it as low to moderate and some acknowledging a very low capacity. The responses included one respondent rating the capacity as not adequate (score 0), three respondents as low (score 1) five respondents rated it as moderate (score 2). Additionally, one respondent perceived the capacity to be very high, but no respondents rated the capacity as excellent. This distribution suggests a general perception of low to moderate capacity among regional and local authorities.

The endline data shows a shift towards a more positive perception, with increased ratings in the higher categories. Two respondents rated the capacity as low (score 1), two as moderate (score 2). Three respondents indicated high level of capacity (score 3). The highest ratings – very high (score 4) and excellent (score 5) were indicated by one respondent each. The number of responses reflecting a lack of capacity (0 and 1) has decreased, indicating some improvement in perceived capacity over time.

Figure 72 illustrates the level of knowledge among organizations in the Zilina region regarding collaboration and business opportunities in the field of circular bioeconomy at the regional level (Question 19). Respondents indicated their knowledge levels using a multi-choice format, categorizing their responses into five options.

The results suggest an overall improvement in organizations' knowledge of collaboration and business opportunities within the circular bioeconomy in the Zilina region. The increase in organizations reporting very good knowledge indicates growing awareness and understanding of potential collaborations, which is essential for fostering a successful circular bioeconomy.

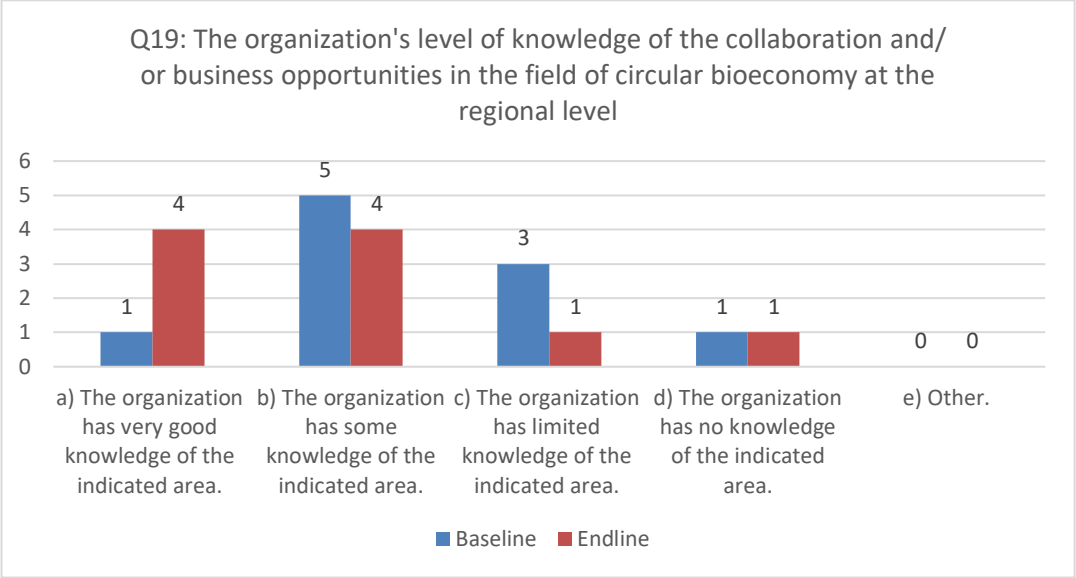


Figure 72: Organizational knowledge of collaboration and business opportunities in the circular bioeconomy at the regional level: baseline and endline results, Zilina Region

At the baseline phase, respondents reported a varied level of knowledge, with the majority (5 respondents) indicating they had some knowledge (option b) and three reporting limited knowledge (option c). One respondent indicated very good knowledge (option a), while one reported no knowledge at all (option d).

The endline results show a significant shift, with an increase in the number of respondents (4 respondents) claiming very good knowledge (option a). Four respondents reported some knowledge (option b), one respondent limited knowledge (option c), and again one respondent indicated no knowledge.

Figure 73 presents the responses from respondents in the Zilina region regarding their perception of the capacity of regional and local authorities to identify and promote collaboration opportunities at the regional level. Respondents were asked to rate the perceived capacity using a scale from 0 to 5, where 0 indicates not adequate capacity and 5 excellent capacity.

The results indicate a positive trend in perceptions of the capacity of regional and local authorities to identify and promote collaboration opportunities in the Zilina region, which is crucial for fostering a collaborative environment within the circular bioeconomy.

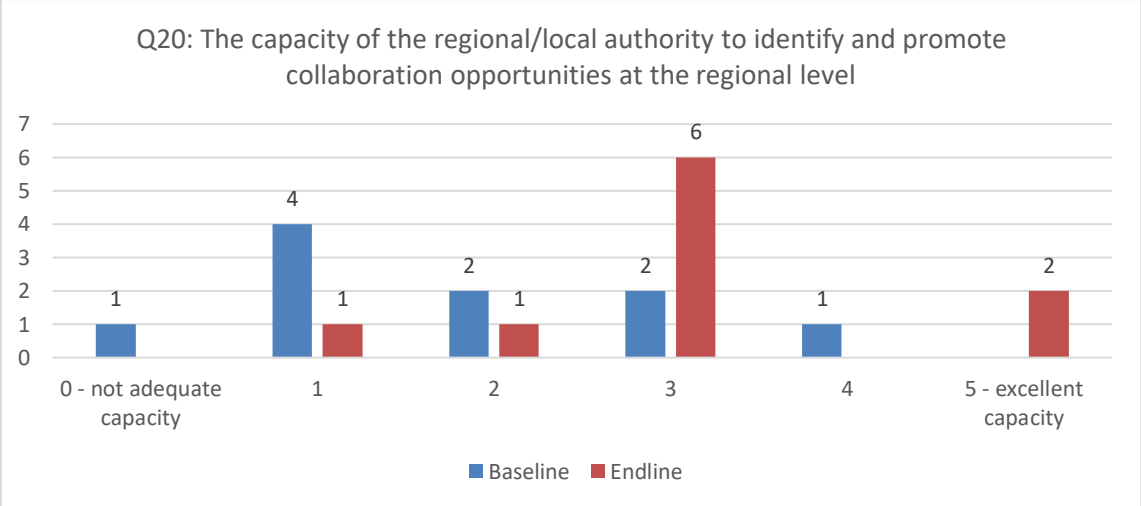


Figure 73: Perceived capacity to identify and promote collaboration opportunities at the regional level: baseline and endline comparison, Southern Region

At the beginning of Alpha testing, the responses were relatively dispersed, with one respondent indicating not adequate capacity (score 0), four low capacity (score 1), two respondents rating it as moderate (score two) and two as good (score 3). Only one respondent perceived the capacity as high (score 4), and none rated it as excellent.

The endline results reveal a notable shift in perception. There is a marked increase in the number of respondents rating the capacity as good (six responses). Still, one respondent rated it as low (score 1) one as moderate (score 2). Two respondents rated the capacity as excellent (score 5).

Section VI: Policy Areas

Table 5.49 summarizes the responses from organizations in the Zilina region regarding their knowledge of the policy areas that require improvement to effectively promote the transition towards a circular bioeconomy at the regional level. Respondents rated their level of knowledge using the options from option a) Very good knowledge to option d) No knowledge. They also could select option “Other”, if for responses that do not fit the other categories.

The results suggest a positive shift in the organizations' awareness and understanding of the policy areas that need improvement to facilitate the transition to a circular bioeconomy in the Zilina region. This increase in knowledge indicates a growing recognition of the policies supporting this transition, which is essential for advancing the regional bioeconomy initiatives.

Table 0.49: Knowledge of policy areas needing improvement for circular bioeconomy transition at the regional level: baseline and endline comparison, Zilina Region

Q21: The organization's level of knowledge concerning policy areas that need to be improved to promote the transition towards the circular bioeconomy at the regional level.	a) The organization has very good knowledge of the indicated area	b) The organization has some knowledge of the indicated area	c) The organization has limited knowledge of the indicated area	d) The organization has no knowledge of the indicated area	e) Other
Baseline	0	1	0	1	0
Endline	1	2	0	0	0

The baseline data shows that responses indicated limited awareness among respondents, with only one respondent reporting some knowledge (option b) and another indicating no knowledge (option c). There were no respondents reporting having very good knowledge.

The endline results reflect a notable increase in awareness. One respondent reported having very good knowledge (option a), while two respondents reported having some knowledge (option b). Notably, there are no respondents indicating limited (option c) or no knowledge (option d).

Table 5.50 presents the responses from organizations in the Zilina region regarding their capacities to foster the opportunities arising from the local bio-based economy. Respondents rated their level

of knowledge using the options from option a) Very good knowledge to option d) No knowledge. They also could select option “Other”, for responses that do not fit the other categories.

The results suggest that while one organization maintains its strong capabilities to foster opportunities from the local bio-based economy, the presence of two organizations with limited capacities at the endline indicates an area for improvement. This change highlights the need for further support and resources to enhance the overall capacity of organizations in the Zilina region to effectively engage with and maximize the opportunities presented by the local bio-based economy.

Table 0.50: Organizational capacities to foster opportunities in the local bio-based economy: baseline and endline comparison, Zilina Region

Q22: The organization's capacities to foster the opportunities created by the local bio-based economy*	a) The organization has very good capacities in the indicated area.	b) The organization has some capacities in the indicated area.	c) The organization has limited capacities in the indicated area.	d) The organization has no capacities in the indicated area.	e) Other
Baseline	1	0	0	2	0
Endline	1	0	2	0	0

(e.g. supported by means of support measures and funding instruments that promote integration within the circular bioeconomy).

In the baseline survey, one respondent reported having very good capacities (option a), while two indicated that they had no capacities (option d). No respondents reported having some or limited capacities in this area.

In the endline survey there was a shift in the reported capacities. One respondent reported having very good capacities (option a), while two respondents indicated limited capacities (option c). There were no respondents reporting no capacities (option d) or some capacities (option b) in this area.

Table 5.51 illustrates the capacity of the regional or local government in the Zilina region to evaluate the regional environmental footprint. Participants rated the government's capacity on a scale from 0 to 5, where: 0 indicates not adequate capacity and 5 Excellent capacity.

The results suggest a mixed perception of the regional/local government's capacity to assess the environmental footprint at both the baseline and endline stages. While there is a slight improvement in perceived capacity by the endline stage, the lack of ratings at the higher capacity levels indicates room for enhancement. This highlights the importance of strengthening the tools, resources, and expertise within the regional/local government to effectively assess and respond to environmental challenges in the Zilina region.

Table 0.51: Capacity of regional/local government to assess the regional environmental footprint: baseline and endline results, Zilina Region

Q23: Capacity of the regional/local government to assess the regional environmental footprint*	0 - not adequate capacity	1	2	3	4	5 - excellent capacity
Baseline	1	0	1	0	0	1
Endline	0	0	1	0	2	0

**e.g., the effect that a person/company/activity has on the environment, e.g. the amount of natural resources they use, etc.*

The baseline data shows that responses indicate a varied perception of the government's capacity, with one respondent rating it as not having adequate capacity at all (score 0), one rating it as moderate (score 2), and one recognizing excellent capacity (score 5).

The endline results demonstrate a shift in perceptions with one respondent reporting moderate capacity (score 2), two respondents a very good capacity (score 4). Notably, no respondents rated the capacity as not adequate (score 0) very low (score 1) or excellent (score 5).

Table 5.52 presents the experience and capacity of the organizations in the Zilina region to develop actionable guidelines tailored for local operators and innovation developers. Respondents rated their organization's capabilities using a multi-choice format, where option a) indicates very good knowledge and option d) no knowledge. They also could select option “Other”, for responses that do not fit the other categories.

The results highlight an improvement in the perceived capacity of organizations in the Zilina region between the baseline and endline assessments. While there remains a recognition of limited capacity within the sector, the increase in organizations reporting some experience indicates progress in building expertise and capability in this area.

Table 0.52: Experience and capacity to design actionable guidelines for local operators and innovation developers: baseline and endline results, Zilina region

Q24: The organization's experience and capacity to design actionable guidelines addressed to the local operators and innovation developers.	a) The organization is very experienced and has very good capacity in the indicated area	b) The organization has some experience and capacity in the indicated area	c) The organization has limited experience and capacity in the indicated area.	d) The organization has no experience and capacity in the indicated area.	e) Other
Baseline	0	0	1	2	0
Endline	0	2	1	0	0

In the baseline survey, responses indicate that only one respondent reported having limited experience and capacity (option c), while two respondents reported having no experience and capacity (option d). Notably, no respondents indicated they are very experienced (option a) or have some capacity (option b), suggesting a generally low capacity for designing actionable guidelines.

The endline results reveal a notable shift in perception. Two respondents indicated having some experience and capacity (option b), while one reported a limited capacity (option c). Importantly, there were no organizations rating their capacity as non-existing (option d).

Figure 74 presents the responses from organizations in the Zilina region regarding their knowledge of the climate-neutrality and low environmental footprint benefits associated with bio-based products and services. Respondents rated their knowledge on a scale from 0 to 5, where 0 indicates not adequate knowledge and 5 Excellent knowledge.

The comparison between baseline and endline results illustrates significant difference in the knowledge of climate-neutrality and the environmental benefits of bio-based products among organizations in the Zilina region. This kind of knowledge is crucial for supporting the transition to a circular bioeconomy, as organizations recognize the importance of adopting sustainable practices and suggest a need for further capacity building in this field.

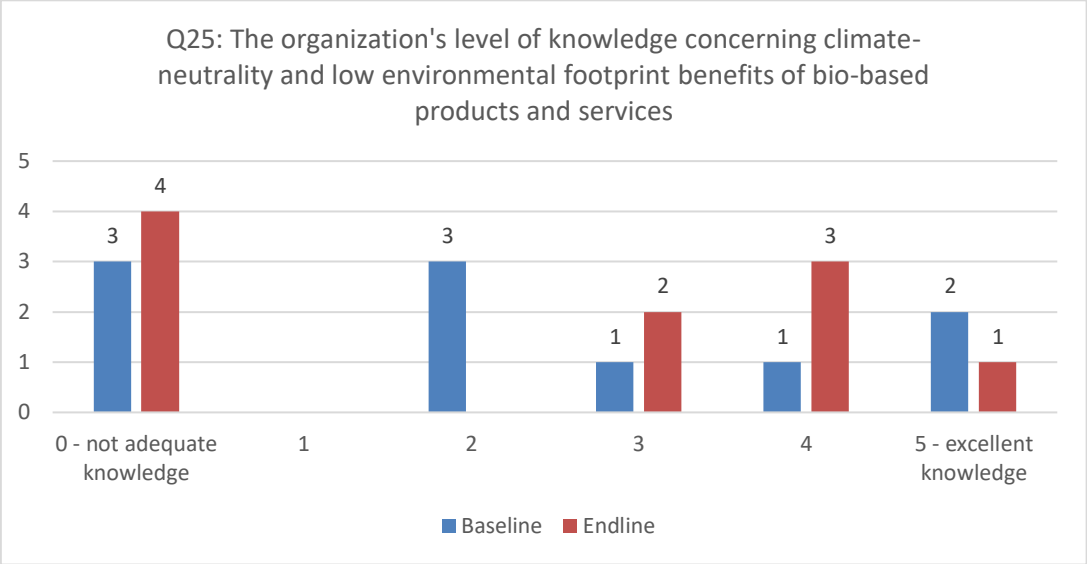


Figure 74: Organization's knowledge of climate-neutrality and low environmental footprint benefits of bio-based products and services: baseline and endline results, Zilina Region

In the baseline survey, the distribution of responses indicates that three respondents rated their knowledge as inadequate (score 0), three reported moderate knowledge (score 2), one rated their knowledge as good (score 3), one as very good (score 4), and two reported having excellent knowledge (score 5). This suggests that while some organizations had a basic understanding, there were notable gaps in knowledge regarding the benefits of bio-based products related to climate neutrality and low environmental impact.

The endline survey results show that four respondents reported having inadequate knowledge (score 4), while two respondents reported good knowledge (score 3), three indicated very good (score 4) and only one excellent knowledge. The data suggest considerable gaps in the awareness and understanding among participating organizations regarding the climate-neutral and low environmental benefits of bio-based solutions.

Figure 75 presents the responses from organizations in the Zilina region regarding their capacities to develop innovative business models and social measures that contribute to the transition towards a circular bioeconomy. Respondents selected from the following options to indicate their organization's capacity in this area using several options, where a) indicates that the organization has very good capacities in the indicated area, option d) that the organization has no capacities in the indicated area. Option e) could have been used for responses not fitting into the other options.

The results suggest a slightly positive trend in the capacities of organizations in the Zilina region to develop novel business models and social measures contributing to the circular bioeconomy transition. The increase in the number of organizations rating their capacities as very good indicates a slightly growing confidence and capability in addressing the challenges and opportunities presented by the circular bioeconomy.

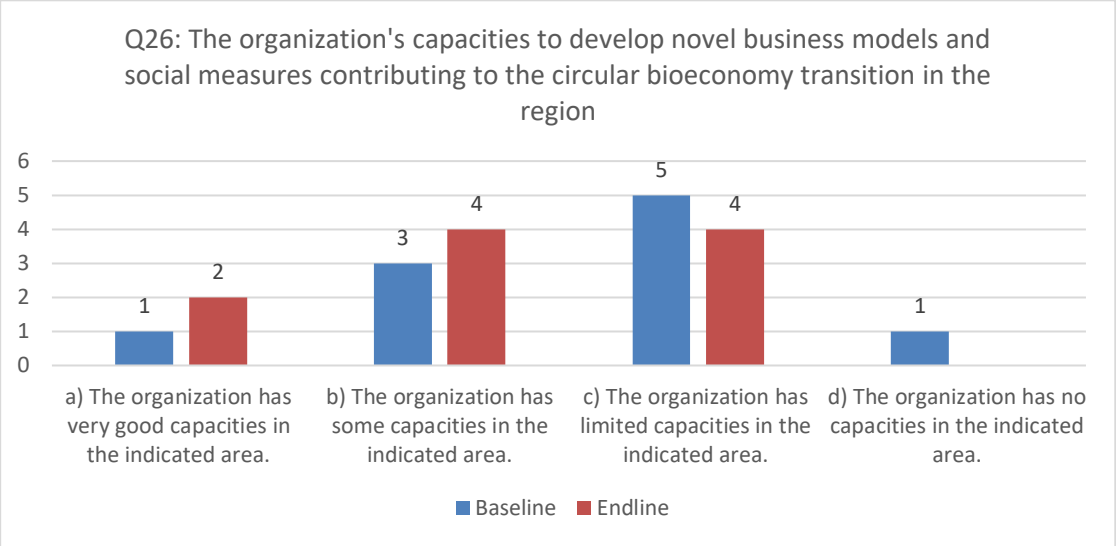


Figure 75: Capacities to develop business models and social measures for circular bioeconomy transition: baseline and endline results, Zilina Region

At the beginning of Alpha testing, one respondent rated the capacities as very good (option a), three reported some capacities (option b), five stated they had limited capacities (option c), and one respondent claimed to have no capacities (option d). This suggests a varied level of capability among organizations regarding the development of business models and social measures for the circular bioeconomy.

By the end of Alpha testing, there was a slight improvement in the capacities. Two respondents indicated very good capacities (option a), four reported some capacities (option b), and four limited capacities (option c). There were no respondents reporting having no capacities (d) or selecting the "Other" option. This shift reflects a slightly enhanced capability among the participating individuals to engage in developing innovative solutions that support the circular bioeconomy.

Figure 76 displays the responses from organizations in the Zilina region regarding their motivation to adopt socially and environmentally responsible behaviours. Respondents were asked to rate their motivation on a scale from 0 to 5, where 0 indicates very low motivation and 5 very high motivation.

The results show a positive trend in the motivation of organizations in the Zilina region to embrace socially and environmentally responsible behaviours. The increase in the number of organizations expressing very high motivation (5) reflects a growing commitment to sustainable practices and a proactive approach towards environmental stewardship.

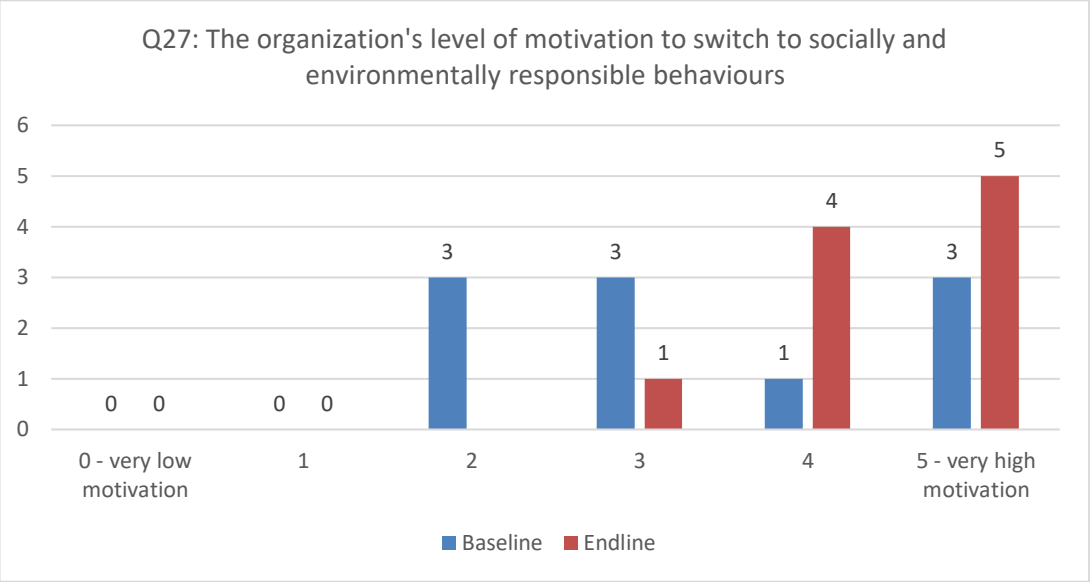


Figure 76: Motivation to transition to socially and environmentally responsible behaviours: baseline and endline comparison, Zilina Region

In the baseline survey, responses indicated a varied level of motivation among respondents. There were no individuals reporting very low motivation (score 0), while three of them rated their motivation as moderate (score 2) and three rated as good (score 3). One individual expressed a high level of motivation (score 4), and three reported a very high motivation of 5. This suggests a moderate level of motivation towards adopting responsible behaviours among the participating organizations.

The endline results show a notable shift in motivation levels. Again, no respondents reported very low motivation (score 0). One respondent rated their motivation as good (score 3), four organizations as high motivation (score 4). Importantly, five individuals reported a very high motivation level (score 5), indicating a significant increase in their willingness to switch to socially and environmentally responsible behaviours.

Figure 77 presents the responses regarding the perceived level of inclusion of business and social dimensions in the development of regional governance models and structures. Respondents rated their perceptions on a scale from 0 to 5, where 0 indicates very unsatisfactory level of inclusion and 5 very satisfactory level of inclusion.

The results indicate a modest increase in the perception of the inclusion of business and social dimensions in regional governance from the baseline to the endline. While the majority of respondents still perceive only slight to moderate inclusion, the growth in positive ratings (from slightly satisfactory to very satisfactory) suggests an encouraging trend towards more effective governance practices. This shift may reflect an increasing awareness of the importance of integrating business and social aspects into governance frameworks.

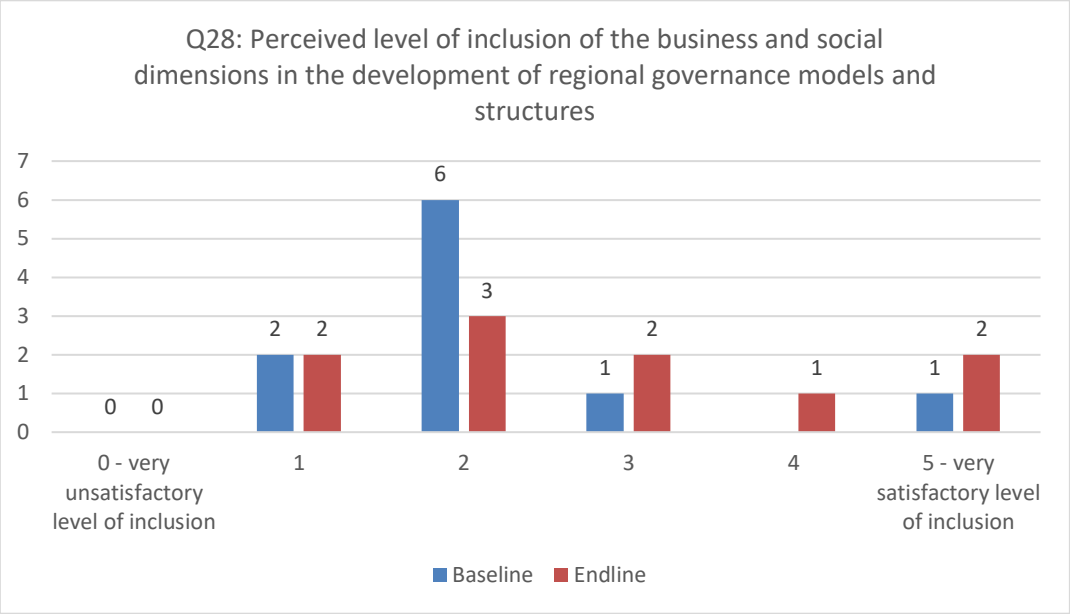


Figure 77: Perceived inclusion of business and social dimensions in regional governance models: baseline and endline data, Zilina Region

At the beginning of Alpha testing, no respondents felt that the inclusion was at a very unsatisfactory level (score 0), two respondents rated it as unsatisfactory (score 1), six as slightly satisfactory (score 2), one as moderately satisfactory (score 3) and one as very satisfactory (score 5).

By the end of Alpha testing, again, no respondents rated it as very unsatisfactory (score 0) and two respondents rated it as unsatisfactory (score 1). Three individuals indicated slightly satisfactory level of inclusion (score 2), two moderately satisfactory level of inclusion (score 3), one satisfactory (score 4) and one very satisfactory (score 5).

Table 5.53 presents the organization's capacity to design action plans and specific measures aimed at downsizing non-environmentally friendly practices in favor of more responsible business and social models in the Zilina region. The responses reflect a shift in perceived capacities between the baseline and endline assessments.

The results indicate a notable improvement in the perceived capacity of organizations to design actionable plans for reducing non-environmentally friendly practices in the Zilina region. The increase in respondents indicating limited capacity also suggests that while challenges remain, there is an emerging recognition of the potential to improve.

Table 0.53: Capacity to design action plans for promoting environmentally friendly practices: baseline and endline results, Zilina region

Q29: The organization's level of capacity to design action plans and specific measures for downsizing non-environmentally friendly practices in favour of more responsible business and social models*	a) The organization has very good capacity in the indicated area.	b) The organization has some capacity in the indicated area.	c) The organization has limited capacity in the indicated area.	d) The organization has no capacity in the indicated area.	e) Other
Baseline	0	1	0	2	0

Endline	1	0	2	0	0

**e.g., through environmentally friendly practices, as well as opportunity areas).*

The baseline data shows that no respondents indicated that their organization had very good capacity in this area (option a) or limited capacity (option c). Only one respondent reported having some capacity to design action plans and measures (option b), while two individuals reported no capacity (option d). This highlights a significant gap in ability to implement environmentally friendly practices. No responses were recorded under the 'Other' category.

According to the endline data, one respondent indicated having very good capacity to design relevant action plans and measures (option a) and two respondents indicated having limited capacity (option c), which is an increase from the baseline. No respondents reported having some capacity (option b), neither no capacity (option d). No responses were recorded under the 'Other' category. This indicates a shift towards greater recognition of capability in the region.

For the Žilina region, with regard to the two **environment-specific questions** (questions 30 and 31) included in the Endline Questionnaires, which were directed specifically at regional nodes in collaboration with regional authority representatives to provide initial estimations of environmental impact in each territory, the response received was "0%" for both questions.

Annex II: Beta Testing Phase (Method 2)

Andalusia, Spain

The table presents the distribution of stakeholder groups participating in the survey from Andalusia, Spain. In total, **3 respondents from 3 external regions** were involved.

The survey respondents were primarily from **regional authorities** and **research or higher education institutions** (**1 respondent**). There were **no respondents** from local authorities, external advisory/consulting entities, business associations/clusters/innovation centers, or NGOs/civil society organizations.

Table 0.54: Stakeholder Participation in the Beta testing data collection, Andalusia, Spain

Stakeholder group	Regional authority	Local authority	External advisory/ consulting entity	Researcher or affiliated to a higher education institution	Business association, cluster or innovation centre	NGO/CSO
No. of Respondents	2	0	0	1	0	0

The **regional authority respondents have a wide range of experience (1 to 10 years)**, leading to an average of **5.5 years**. The **research sector respondent has limited experience (1 year)**, which may influence their perspective on bioeconomy governance and implementation.

Section II: Circular Bioeconomy Governance Models

The responses to the survey question (**Q3**) about the **current level of development of the circular bioeconomy and governance models** in the Andalusia region were as follows:

- **1 respondent** selected "Advanced."
- **2 respondents** selected "Beginning stages"
- No respondents selected "Very advanced.", "Moderately developed", or "Not developed at all."

The survey responses indicate that the **circular bioeconomy governance models in the region are still in the early stages of development**.

Table 0.55: Current level of development of the circular bioeconomy in the region, Beta testing, Andalusia, Spain

Q3: Current level of development of the circular bioeconomy in the region	A. Very advanced	B. Advanced	C. Moderately developed	D. Beginning stage	E. Not developed at all
No. of Respondents	0	1	0	2	0

The results for the next question (**Q4**) about **how the presentation of the ROBIN project's outputs and results has changed the respondents' understanding of the circular bioeconomy** were as follows:

- **2 respondents** selected "To a very great extent."
- **1 respondent** selected "To a great extent."

- No respondents selected "To some extent", "To a small extent" or "Not at all."

The survey results suggest that the **ROBIN project had a strong positive impact** on participants' understanding of the circular bioeconomy and its relevance for European regions:

Table 0.56: Changing understanding of the circular bioeconomy, particularly its usefulness for European regions, Beta testing, Andalusia, Spain

Q4: Changing understanding of the circular bioeconomy, particularly its usefulness for European regions	A. To a very great extent	B. To a great extent	C. To some extent	D. To a small extent	E. Not at all
No. of Respondents	2	1	0	0	0

The responses to the survey question (**Q5**) about the **extent to which examples from the ROBIN regions could inspire changes in governance approaches in the respondents' region** were as follows:

- **2 respondents** selected "To a very great extent."
- **1 respondent** selected "To a great extent."
- No respondents selected "To some extent," "To a small extent," or "Not at all."

This indicates that **most respondents believe the examples from the ROBIN regions could significantly inspire changes in governance approaches** in their region.

Table 0.57: Extent of the examples from the ROBIN regions could inspire changes in the governance approaches in the region, Beta testing, Andalusia, Spain

Q5: Extent of the examples from the ROBIN regions could inspire changes in the governance approaches in the region	A. To a very great extent	B. To a great extent	C. To some extent	D. To a small extent	E. Not at all
No. of Respondents	2	1	0	0	0

The responses to the survey question (**Q6**) about the **most applicable or valuable processes or approaches in the bioeconomy development** in the ROBIN project were as follows:

- **1 respondent** selected "Implementing circular economy principles with a territorial approach."
- **2 respondents** selected "ROBIN Toolbox for decision-making support in bioeconomy initiatives."
- **3 respondents** selected "Cross-regional collaboration and sharing of best practices."
- No respondents selected "Community engagement and social innovation in bioeconomy", "Sustainable management of biomass and waste resources" or "Other – please specify."

The survey results indicate that **cross-regional collaboration** is the most valued approach for bioeconomy development, followed by **practical decision-making tools**, while some interest also exists in **territorial circular economy strategies**.

Table 0.58: Presented processes or approaches in the bioeconomy development most applicable or valuable for the region, Beta testing, Andalusia, Spain

Q6: Presented processes or approaches in the bioeconomy development most applicable or valuable for the region	A. Implementing circular economy principles with a territorial approach.	B. ROBIN Toolbox for decision-making support in bioeconomy initiatives.	C. Community engagement and social innovation in bioeconomy.	D. Cross-regional collaboration and sharing of best practices.	E. Sustainable management of biomass and waste resources.	F. Other – please specify
No. of Responses	1	2	0	3	0	0

The responses to the survey question (**Q7**) about **anticipated challenges in implementing and adopting bioeconomy processes and approaches** were as follows:

- **2 respondents** selected "Insufficient human resources."
- **1 respondent** selected "Limited expertise."
- **1 respondent** selected "Time constraints."
- **1 respondent** selected " Other – please specify" – Raising awareness
- No respondents selected "Inadequate financial resources" or "Insufficient technical resources."

The key challenges identified for implementing bioeconomy approaches in the region include **insufficient human resources**, followed by **limited expertise**, **time constraints**, and the need for **raising awareness**, while financial and technical resource limitations were not seen as major barriers.

Table 0.59: Challenges anticipated in implementing and adopting these processes, approaches, or steps within region's unique bioeconomy landscape, Beta testing, Andalusia, Spain

Q7: Challenges anticipated in implementing and adopting these processes, approaches, or steps within region's unique bioeconomy landscape	A. Insufficient human resources	B. Limited expertise	C. Time constrains	D. Inadequate financial resources.	E. Insufficient technical resources	F. Other – please specify
No. of Responses	2	1	1	0	0	1 Raising awareness

The responses to the survey question (**Q8**) about whether the **ROBIN project provides actionable insights for improving governance models** were as follows:

- **2 respondents** selected "Yes, definitely."
- **1 respondent** selected "Yes, to some extent."
- No respondents selected "Maybe", "Not really" or "Not at all."

This indicates that the majority of respondents **strongly believe** the ROBIN project offers valuable and actionable insights for enhancing governance models in their region.

Table 0.60: Providing actionable insights for improving the governance models in the region, Beta testing, Andalusia, Spain

Q8: Providing actionable insights for improving the governance models in the region	A. Yes, definitely	B. Yes, to some extent	C. Maybe	D. Not really	E. Not at all
No. of Responses	2	1	0	0	0

The responses to the survey question (**Q9**) about **anticipated systemic changes in governance practices as a result of learning from ROBIN's outputs** were as follows:

- **2 respondents** selected "Yes, some changes." – Initiation of interregional collaborations Establishing hubs of industrial-urban symbiosis
- **1 respondent** selected "No changes expected."
- No respondents selected "Yes, significant changes", "Maybe, potential changes." or "Not applicable / Unsure."

The survey results suggest that some **stakeholders anticipate changes in governance practices due to the ROBIN project**, particularly in fostering interregional collaboration and developing new frameworks for industrial-urban symbiosis.

Table 0.61: Anticipating any systemic changes in your governance practices as a result of learning from ROBIN's outputs, Beta testing, Andalusia, Spain

Q9: Anticipating any systemic changes in your governance practices as a result of learning from ROBIN's outputs	A. Yes, significant changes – please describe	B. Yes, some changes – please describe	C. Maybe, potential changes – please describe	D. No changes expected	Not applicable / Unsure
No. of Responses	0	2 Initiation of interregional collaborations Establishing hubs of industrial-urban symbiosis	0	1	0

Section III: Circular Bioeconomy Opportunities

The responses to the survey question (**Q10**) about **awareness of existing opportunities for developing the circular bioeconomy in the region** were as follows:

- **2 respondents** selected "Very aware."
- **1 respondent** selected "Aware."
- No respondents selected "Somewhat aware", "Slightly aware" or "Not aware at all."

The survey indicates that most **respondents are highly aware of the existing opportunities** for developing the circular bioeconomy in the region.

Table 0.62: Awareness of the existing opportunities for developing the circular bioeconomy, Beta testing, Andalusia, Spain

Q10: Awareness of the existing opportunities for developing the circular bioeconomy	A. Very aware	B. Aware	C. Somewhat aware	D. Slightly aware	Not at all aware
No. of Responses	2	1	0	0	0

The responses to the survey question (**Q11**) about **identifying new opportunities as a result of learning about the ROBIN project and its outcomes** were as follows:

- **3 respondents** selected "Yes, to some extent."
- No respondents selected "Yes, definitely", "Maybe", "Not really." or "Not at all."

This indicates that **all respondents identified new opportunities**, seeing them as a bit limited to some extent.

Table 0.63: Experience in designing regional bioeconomy governance models: baseline and endline data comparison, Beta testing, Andalusia, Spain

Q11: Identification of new opportunities as a result of learning about the ROBIN project and its outcomes	A. Yes, definitely	B. Yes, to some extent	C. Maybe	D. Not really	E. Not at all
No. of Responses	0	3	0	0	0

The responses to the survey question (**Q12**) about **which specific information or tools would help more effectively identify and capitalize on opportunities within the circular bioeconomy** were as follows:

- **2 respondents** selected "Tools for assessing environmental impacts."
- **3 respondents** selected "Guide for implementing circular models locally."
- **1 respondent** selected "Data on regional supply chains and resources."
- **1 respondent** selected "Educational materials on sustainable practices."
- No respondents selected "Platform for connecting with stakeholders", "Other – please specify."

This suggests that **practical guidance on local implementation and environmental impact assessment** is seen as key needs for effectively engaging with the circular bioeconomy.

Table 0.64: Specific information or tools helpful more effectively identify and capitalize on opportunities within the circular bioeconomy, Beta testing, Andalusia, Spain

Q12: Specific information or tools helpful more effectively identify and capitalize on opportunities within the circular bioeconomy	A. Tools for assessing environmental impacts	B. Platform for connecting with stakeholders	C. Guide for implementing circular models locally	D. Data on regional supply chains and resources	E. Educational materials on sustainable practices	F. Other – please specify

No. of Responses	2	0	3	1	1	0

Section IV: Circular Bioeconomy Enablers & Partnerships

The responses to the survey question (**Q13**) about **how empowered respondents feel to contribute to the circular bioeconomy transition after familiarizing themselves with the ROBIN project** were as follows:

- **3 respondents** selected "Empowered."
- No respondents selected "Very empowered", "Somewhat empowered", "Slightly empowered" or "Not empowered at all."

This suggests that **all respondents feel empowered** to contribute to the circular bioeconomy transition after familiarizing with the ROBIN project.

Table 0.65: Empowering to contribute to the circular bioeconomy transition after familiarizing with the ROBIN project, Beta testing, Andalusia, Spain

Q13: Empowering to contribute to the circular bioeconomy transition after familiarizing with the ROBIN project	A. Very empowered	B. Empowered	C. Somewhat empowered	D. Slightly empowered	E. Not empowered at all
No. of Responses	0	3	0	0	0

The responses to the survey question (**Q14**) about **motivation to collaborate with other regional actors on circular bioeconomy initiatives after learning about the ROBIN project** were as follows:

- **2 respondents** selected "Strongly agree."
- **1 respondent** selected "Agree."
- No respondents selected "Neutral", "Disagree" or "Strongly disagree."

This indicates that all respondents **feel motivated** to collaborate on circular bioeconomy initiatives, with most expressing either strong or general agreement.

Table 0.66: Motivation to collaborate with other regional actors on circular bioeconomy initiatives, Beta testing, Andalusia, Spain

Q14: Motivation to collaborate with other regional actors on circular bioeconomy initiatives	A. Strongly agree	B. Agree	C. Neutral	D. Disagree	E. Strongly disagree
No. of Responses	2	1	0	0	0

The responses to the survey question (**Q15**) about **anticipating long-term benefits from applying ROBIN's insights and tools** were as follows:

- **1 respondent** selected "Yes, definitely."
- **2 respondents** selected "Yes, to some extent."

- No respondents selected "Neutral," "No, not much," or "No, not at all."

This indicates that all respondents **expect some level of long-term benefits**, with most seeing them as **moderate rather than definite**, suggesting optimism about the potential impact of ROBIN's insights and tools.

Table 0.67: Anticipation of any long-term benefits from applying the presented ROBIN's insights and tools, Beta testing, Andalusia, Spain

Q15: Anticipation of any long-term benefits from applying the presented ROBIN's insights and tools	A. Yes, definitely	B. Yes, to some extent	C. Neutral	D. No, not much	E. No, not at all
No. of Responses	1	2	0	0	0

Baden-Württemberg, Germany

The table presents the distribution of stakeholder groups participating in the survey from the Baden-Württemberg, Germany. In total, **5 respondents from 4 external regions** were involved.

In the survey, the most represented groups were **non-governmental or civil society organizations (NGOs/CSOs) and business associations or clusters**, with two respondents each. This was followed by external advisory/consulting entities, which had one respondent.

No representatives from regional authorities, local authorities, researchers, or business entities participated in this round.

Table 0.68: Stakeholder Participation in the Beta testing data collection, Baden-Württemberg Region

Stakeholder group	Regional authority	Local authority	External advisory/ consulting entity	Researcher or affiliated to a higher education institution	Business association, cluster or innovation centre	NGO/CSO
No. of Respondents	0	0	1	0	2	2

The distribution suggests that external advisory and consulting professionals have the most extensive experience in the field, averaging **11 years**, while business association representatives and NGO/CSO members have **3.75 and 4 years**, respectively. The absence of data for other categories may indicate either missing responses or an insufficient sample size in those groups. Understanding the experience levels of different stakeholders is essential for designing targeted capacity-building initiatives and fostering effective collaboration in the circular bioeconomy sector.

Section II: Circular Bioeconomy Governance Models

The responses to the survey question (**Q3**) about the **current level of development of the circular bioeconomy and governance models** in the region were as follows:

- **1 respondent** selected "Advanced."
- **2 respondents** selected "Moderately developed."
- **2 respondents** selected " Beginning stages."
- No respondents selected " Very advanced " or "Not developed at all."

This distribution suggests that the circular bioeconomy governance models in the region are still in progress, with most respondents indicating they are at a **moderate or beginning stage of development**. Only one respondent considers the governance models to be advanced, highlighting the need for further improvements and support to strengthen governance structures in the circular bioeconomy sector.

Table 0.69: Current level of development of the circular bioeconomy in the region, Beta testing, Baden-Württemberg Region

Q3: Current level of development of the circular bioeconomy in the region	A. Very advanced	B. Advanced	C. Moderately developed	D. Beginning stage	E. Not developed at all
No. of Respondents	0	1	2	2	0

The results for the next question (**Q4**) about **how the presentation of the ROBIN project's outputs and results has changed the respondents' understanding of the circular bioeconomy** were as follows:

- **1 respondent** selected "To a great extent."
- **1 respondent** selected "To some extent."
- **1 respondent** selected "To a small extent."
- **2 respondents** selected "Not at all."
- No respondents selected "To a very great extent."

This suggests that while the ROBIN project has had some impact on respondents' understanding of the circular bioeconomy, the extent of its influence varies. A small number found significant value in the presentation, whereas others reported only a minor shift or no change in their understanding.

Table 0.70: Changing understanding of the circular bioeconomy, particularly its usefulness for European regions, Beta testing, Baden-Württemberg Region

Q4: Changing understanding of the circular bioeconomy, particularly its usefulness for European regions	A. To a very great extent	B. To a great extent	C. To some extent	D. To a small extent	E. Not at all
No. of Respondents	0	1	1	1	2

The responses to the survey question (**Q5**) about the **extent to which examples from the ROBIN regions could inspire changes in governance approaches in the respondents' region** were as follows:

- **1 respondent** selected "To a very great extent."
- **1 respondent** selected "To a great extent."
- **2 respondents** selected "To some extent."
- **1 respondent** selected "To a small extent."
- No respondents selected "Not at all."

This suggests that the **examples have some potential to inspire change**, but their **impact may be limited**.

Table 0.71: Extent of the examples from the ROBIN regions could inspire changes in the governance approaches in the region, Beta testing, Baden-Wuerttemberg Region

Q5: Extent of the examples from the ROBIN regions could inspire changes in the governance approaches in the region	A. To a very great extent	B. To a great extent	C. To some extent	D. To a small extent	E. Not at all
No. of Respondents	1	1	2	1	0

The responses to the survey question (**Q6**) about the **most applicable or valuable processes or approaches in the bioeconomy development** in the ROBIN project were as follows:

- **3 respondents** selected "Implementing circular economy principles with a territorial approach."
- **4 respondents** selected "ROBIN Toolbox for decision-making support in bioeconomy initiatives."
- **1 respondent** selected "Community engagement and social innovation in bioeconomy."
- **2 respondents** selected "Sustainable management of biomass and waste resources."
- No respondents selected "Cross-regional collaboration and sharing of best practices," or "Other – please specify."

This indicates that most respondents consider the **ROBIN Toolbox for decision-making support** as the most valuable approach for bioeconomy development in their region.

Table 0.72: Presented processes or approaches in the bioeconomy development most applicable or valuable for the region, Beta testing, Baden-Württemberg Region

Q6: Presented processes or approaches in the bioeconomy development most applicable or valuable for the region	A. Implementing circular economy principles with a territorial approach.	B. ROBIN Toolbox for decision-making support in bioeconomy initiatives.	C. Community engagement and social innovation in bioeconomy.	D. Cross-regional collaboration and sharing of best practices.	E. Sustainable management of biomass and waste resources.	F. Other – please specify
No. of Responses	3	4	1	0	2	0

The responses to the survey question (**Q7**) about **anticipated challenges in implementing and adopting bioeconomy processes and approaches** were as follows:

- **2 respondents** selected "Limited expertise."
- **1 respondent** selected "Time constraints."
- **2 respondents** selected "Inadequate financial resources."
- **1 respondent** selected "Insufficient technical resources."
- No respondents selected "Insufficient human resources," or "Other – please specify."

The results indicate that the most anticipated challenges in implementing bioeconomy approaches are **limited expertise and inadequate financial resources**, both identified by two respondents. **Time constraints and insufficient technical resources** were also noted but by fewer participants. Interestingly, no respondents mentioned **insufficient human resources** as a barrier.

Table 0.73: Challenges anticipated in implementing and adopting these processes, approaches, or steps within region's unique bioeconomy landscape, Beta testing, Baden-Württemberg Region

Q7: Challenges anticipated in implementing and adopting these processes, approaches, or steps within region's unique bioeconomy landscape	A. Insufficient human resources	B. Limited expertise	C. Time constrains	D. Inadequate financial resources.	E. Insufficient technical resources	F. Other – please specify
No. of Responses	0	2	1	2	1	0

The responses to the survey question (**Q8**) about whether the **ROBIN project provides actionable insights for improving governance models** were as follows:

- **2 respondents** selected "Yes, to some extent."
- **1 respondent** selected "Maybe."
- **2 respondents** selected "Not really."
- No respondents selected "Yes, definitely," or "Not at all."

The results indicate **mixed perceptions of the ROBIN project's impact** on governance models.

Table 0.74: Providing actionable insights for improving the governance models in the region, Beta testing, Baden-Württemberg Region

Q8: Providing actionable insights for improving the governance models in the region	A. Yes, definitely	B. Yes, to some extent	C. Maybe	D. Not really	E. Not at all
No. of Responses	0	2	1	2	0

The responses to the survey question (**Q9**) about **anticipated systemic changes in governance practices as a result of learning from ROBIN's outputs** were as follows:

- **1 respondent** selected "Yes, some changes."
- **4 respondents** selected "Maybe, potential changes."
- No respondents selected "Yes, significant changes", "No changes expected," or "Not applicable / Unsure."

The results indicate that most respondents see the **potential** for changes in governance practices based on ROBIN's outputs, but **they are not certain**.

Table 0.75: Anticipating any systemic changes in your governance practices as a result of learning from ROBIN's outputs, Beta testing, Baden-Wuerttemberg Region

Q9: Anticipating any systemic changes in your governance practices as a result of learning from ROBIN's outputs	A. Yes, significant changes – please describe	B. Yes, some changes – please describe	C. Maybe, potential changes – please describe	D. No changes expected	Not applicable / Unsure
No. of Responses	0	1	4	0	0

Section III: Circular Bioeconomy Opportunities

The responses to the survey question (**Q10**) about **awareness of existing opportunities for developing the circular bioeconomy in the region** were as follows:

- **3 respondents** selected "Very aware."
- **2 respondents** selected "Aware."
- No respondents selected "Somewhat aware", "Slightly aware" or "Not aware at all."

The results indicate a **high level of awareness** regarding opportunities for developing the circular bioeconomy in the region. Notably, none of the respondents indicated lower levels of awareness (somewhat, slightly, or not aware at all), suggesting that the topic is well recognized among participants.

Table 0.76: Awareness of the existing opportunities for developing the circular bioeconomy, Beta testing, Baden-Württemberg Region

Q10: Awareness of the existing opportunities for developing the circular bioeconomy	A. Very aware	B. Aware	C. Somewhat aware	D. Slightly aware	Not at all aware
No. of Responses	3	2	0	0	0

The responses to the survey question (**Q11**) about **identifying new opportunities as a result of learning about the ROBIN project and its outcomes** were as follows:

- **1 respondent** selected "Yes, to some extent."
- **2 respondents** selected "Maybe."
- **2 respondents** selected "Not really."
- No respondents selected "Yes, definitely" or "Not at all."

The results suggest a **mixed response regarding the identification of new opportunities from the ROBIN project**. This suggests that while the project has sparked some awareness, its direct impact on uncovering new opportunities remains **limited or uncertain** for many participants.

Table 0.77: Experience in designing regional bioeconomy governance models: baseline and endline data comparison, Beta testing, Baden-Württemberg Region

Q11: Identification of new opportunities as a result of learning about the ROBIN project and its outcomes	A. Yes, definitely	B. Yes, to some extent	C. Maybe	D. Not really	E. Not at all
No. of Responses	0	1	2	2	0

The responses to the survey question (**Q12**) about **which specific information or tools would help more effectively identify and capitalize on opportunities within the circular bioeconomy** were as follows:

- **1 respondent** selected "Tools for assessing environmental impacts."
- **1 respondent** selected "Platform for connecting with stakeholders."
- **3 respondents** selected "Guide for implementing circular models locally."
- **3 respondents** selected "Data on regional supply chains and resources."
- **2 respondents** selected "Educational materials on sustainable practices."
- No respondents selected "Other – please specify."

The most valuable resources for respondents are **guides for implementing circular models locally** and **data on regional supply chains**, followed by **educational materials on sustainable practices**, while additional needs include **value chain insights** and **tools for tracking industry-specific data and transformation progress**.

Table 0.78: Specific information or tools helpful more effectively identify and capitalize on opportunities within the circular bioeconomy, Beta testing, Baden-Wuerttemberg Region

Q12: Specific information or tools helpful more effectively identify and capitalize on opportunities within the circular bioeconomy	A. Tools for assessing environmental impacts	B. Platform for connecting with stakeholders	C. Guide for implementing circular models locally	D. Data on regional supply chains and resources	E. Educational materials on sustainable practices	F. Other – please specify
No. of Responses	1	1	3	3	2	0

Section IV: Circular Bioeconomy Enablers & Partnerships

The responses to the survey question (**Q13**) about **how empowered respondents feel to contribute to the circular bioeconomy transition after familiarizing themselves with the ROBIN project** were as follows:

- **2 respondents** selected "Empowered."
- **2 respondents** selected "Slightly empowered."
- **1 respondent** selected "Not empowered at all."
- No respondents selected "Very empowered" or "Somewhat empowered."

This suggests that most respondents feel either very **empowered** or **somewhat empowered** to contribute to the circular bioeconomy transition after engaging with the ROBIN project, with **very few feeling slightly empowered** and none feeling not empowered at all.

Table 0.79: Empowering to contribute to the circular bioeconomy transition after familiarizing with the ROBIN project, Beta testing, Baden-Württemberg Region

Q13: Empowering to contribute to the circular bioeconomy transition after familiarizing with the ROBIN project	A. Very empowered	B. Empowered	C. Somewhat empowered	D. Slightly empowered	E. Not empowered at all
No. of Responses	0	2	0	2	1

The responses to the survey question (**Q14**) about **motivation to collaborate with other regional actors on circular bioeconomy initiatives after learning about the ROBIN project** were as follows:

- **2 respondents** selected "Agree."
- **2 respondents** selected "Neutral."
- **1 respondent** selected "Disagree."
- No respondents selected "Strongly agree" or "Strongly disagree."

Most respondents **feel motivated to collaborate** on circular bioeconomy initiatives after learning about the ROBIN project, no respondents disagreed or strongly disagreed.

Table 0.80: Motivation to collaborate with other regional actors on circular bioeconomy initiatives, Beta testing, Baden-Württemberg Region

Q14: Motivation to collaborate with other regional actors on circular bioeconomy initiatives	A. Strongly agree	B. Agree	C. Neutral	D. Disagree	E. Strongly disagree
No. of Responses	0	2	2	1	0

The responses to the survey question (**Q15**) about **anticipating long-term benefits from applying ROBIN's insights and tools** were as follows:

- **1 respondent** selected "Yes, definitely."
- **1 respondent** selected "Yes, to some extent."
- **2 respondents** selected "Neutral."
- **1 respondent** selected "No, not much."
- No respondents selected "No, not at all."

The results show a **mixed anticipation of long-term benefits from applying ROBIN's insights** and tools.

Table 0.81: Anticipation of any long-term benefits from applying the presented ROBIN's insights and tools, Beta testing, Baden-Württemberg Region

Q15: Anticipation of any long-term benefits from applying the presented ROBIN's insights and tools	A. Yes, definitely	B. Yes, to some extent	C. Neutral	D. No, not much	E. No, not at all
No. of Responses	1	1	2	1	0

Central Macedonia, Greece

The table presents the distribution of stakeholder groups participating in the survey from the Central Macedonia, Greece. In total, **3 respondents from 3 external regions** were involved.

All respondents in this survey identified as representatives or members of a **regional authority**. No respondents indicated involvement in any other category within the regional bioeconomy sector.

Table 0.82: Stakeholder Participation in the Beta testing data collection, Central Macedonia, Greece

Stakeholder group	Regional authority	Local authority	External advisory/ consulting entity	Researcher or affiliated to a higher education institution	Business association, cluster or innovation centre	NGO/CSO
No. of Respondents	3	0	0	0	0	0

For the **regional authority** sector, the average number of years worked is **20 years** (8 + 36 +16 / 3).

Section II: Circular Bioeconomy Governance Models

The responses to the survey question (**Q3**) about the **current level of development of the circular bioeconomy and governance models** in the region were as follows:

- **1 respondent** selected "Moderately developed."
- **2 respondents** selected " Beginning stage."
- No respondents selected " Very advanced ", "Advanced" or "Not developed at all."

This indicates that the **majority of respondents perceive the circular bioeconomy and governance models in their region to be in a beginning or moderately** stage of development.

Table 0.83: Current level of development of the circular bioeconomy in the region, Beta testing, Central Macedonia, Greece

Q3: Current level of development of the circular bioeconomy in the region	A. Very advanced	B. Advanced	C. Moderately developed	D. Beginning stage	E. Not developed at all
No. of Respondents	0	0	1	2	0

The results for the next question (**Q4**) about **how the presentation of the ROBIN project's outputs and results has changed the respondents' understanding of the circular bioeconomy** were as follows:

- **1 respondent** selected "To a very great extent."
- **1 respondent** selected "To a great extent."
- **1 respondent** selected "To a small extent."
- No respondents selected "To some extent" or "Not at all."

This suggests that while **the ROBIN project has contributed positively to understanding the circular bioeconomy, its impact is seen as varied**, with some respondents reporting significant insights, while others experienced a more modest shift in their perspective.

Table 0.84: Changing understanding of the circular bioeconomy, particularly its usefulness for European regions, Beta testing, Central Macedonia, Greece

Q4: Changing understanding of the circular bioeconomy, particularly its usefulness for European regions	A. To a very great extent	B. To a great extent	C. To some extent	D. To a small extent	E. Not at all
No. of Respondents	1	1	0	1	0

The responses to the survey question (**Q5**) about the **extent to which examples from the ROBIN regions could inspire changes in governance approaches in the respondents' region** were as follows:

- **2 respondents** selected "To a very great extent."
- **1 respondent** selected "To a great extent."
- No respondents selected "To some extent," "To a small extent," or "Not at all."

The majority of respondents believe that the examples from the ROBIN regions could significantly inspire **changes in governance approaches** in their region.

Table 0.85: Extent of the examples from the ROBIN regions could inspire changes in the governance approaches in the region, Beta testing, Central Macedonia, Greece

Q5: Extent of the examples from the ROBIN regions could inspire changes in the governance approaches in the region	A. To a very great extent	B. To a great extent	C. To some extent	D. To a small extent	E. Not at all
No. of Respondents	2	1	0	0	0

The responses to the survey question (**Q6**) about the **most applicable or valuable processes or approaches in the bioeconomy development** in the ROBIN project were as follows:

- **1 respondent** selected "Implementing circular economy principles with a territorial approach."
- **2 respondents** selected "ROBIN Toolbox for decision-making support in bioeconomy initiatives."
- **2 respondents** selected "Community engagement and social innovation in bioeconomy."
- **1 respondent** selected "Cross-regional collaboration and sharing of best practices."
- No respondents selected "Sustainable management of biomass and waste resources" or "Other – please specify."

The most valued processes or approaches from the ROBIN project for respondents are **the ROBIN Toolbox for decision-making support** and **community engagement and social innovation in bioeconomy.**

Table 0.86: Presented processes or approaches in the bioeconomy development most applicable or valuable for the region, Beta testing, Central Macedonia, Greece

Q6: Presented processes or approaches in the bioeconomy development most applicable or valuable for the region	A. Implementing circular economy principles with a territorial approach.	B. ROBIN Toolbox for decision-making support in bioeconomy initiatives.	C. Community engagement and social innovation in bioeconomy.	D. Cross-regional collaboration and sharing of best practices.	E. Sustainable management of biomass and waste resources.	F. Other – please specify
No. of Responses	1	2	2	1	0	0

The responses to the survey question (**Q7**) about **anticipated challenges in implementing and adopting bioeconomy processes and approaches** were as follows:

- **2 respondents** selected "Insufficient human resources."
- **2 respondents** selected "Limited expertise."
- **1 respondent** selected "Time constraints."
- No respondents selected "Inadequate financial resources", "Insufficient technical resources" or "Other – please specify."

The primary challenges anticipated in implementing and adopting bioeconomy processes or approaches in the region are **insufficient human resources** and **limited expertise**.

Table 0.87: Challenges anticipated in implementing and adopting these processes, approaches, or steps within region's unique bioeconomy landscape, Beta testing, Central Macedonia, Greece

Q7: Challenges anticipated in implementing and adopting these processes, approaches, or steps within region's unique bioeconomy landscape	A. Insufficient human resources	B. Limited expertise	C. Time constrains	D. Inadequate financial resources.	E. Insufficient technical resources	F. Other – please specify
No. of Responses	2	2	1	0	0	0

The responses to the survey question (**Q8**) about whether the **ROBIN project provides actionable insights for improving governance models** were as follows:

- **1 respondent** selected "Yes, definitely."
- **2 respondents** selected "Yes, to some extent."
- No respondents selected "Maybe", "Not really" or "Not at all."

The majority of respondents believe that the ROBIN project **provides actionable insights for improving governance models** in their region, and no respondents felt that the project was unhelpful in this regard.

Table 0.88: Providing actionable insights for improving the governance models in the region, Beta testing, Central Macedonia, Greece

Q8: Providing actionable insights for improving the governance models in the region	A. Yes, definitely	B. Yes, to some extent	C. Maybe	D. Not really	E. Not at all
No. of Responses	1	2	0	0	0

The responses to the survey question (**Q9**) about **anticipated systemic changes in governance practices as a result of learning from ROBIN's outputs** were as follows:

- **1 respondent** selected "Yes, some changes."
- **1 respondent** selected "Maybe, potential changes."
- No respondents selected "Yes, significant changes", "No changes expected", "Not applicable / Unsure."

This suggests that respondents consider systemic changes **possible but uncertain**, indicating a wait-and-see approach to implementing ROBIN's insights.

Table 0.89: Anticipating any systemic changes in your governance practices as a result of learning from ROBIN's outputs, Beta testing, Central Macedonia, Greece

Q9: Anticipating any systemic changes in your governance practices as a result of learning from ROBIN's outputs	A. Yes, significant changes – please describe	B. Yes, some changes – please describe	C. Maybe, potential changes – please describe	D. No changes expected	Not applicable / Unsure

No. of Responses	0	1	1	0	0

Section III: Circular Bioeconomy Opportunities

The responses to the survey question (**Q10**) about **awareness of existing opportunities for developing the circular bioeconomy in the region** were as follows:

- **1 respondent** selected "Somewhat aware."
- **1 respondent** selected "Slightly aware."
- **1 respondent** selected "Not aware at all."
- No respondents selected "Very aware" or "Aware."

This suggests that the majority have **moderate to limited awareness**, indicating potential gaps in knowledge or communication regarding bioeconomy opportunities.

Table 0.90: Awareness of the existing opportunities for developing the circular bioeconomy, Beta testing, Central Macedonia, Greece

Q10: Awareness of the existing opportunities for developing the circular bioeconomy	A. Very aware	B. Aware	C. Somewhat aware	D. Slightly aware	Not at all aware
No. of Responses	0	0	1	1	1

The responses to the survey question (**Q11**) about **identifying new opportunities as a result of learning about the ROBIN project and its outcomes** were as follows:

- **2 respondents** selected "Yes, definitely."
- **1 respondent** selected "Yes, to some extent."
- No respondents selected "Maybe", "Not really" or "Not at all."

This indicates that the majority of respondents **identified new opportunities**, with most seeing them as definite.

Table 0.91: Experience in designing regional bioeconomy governance models: baseline and endline data comparison, Beta testing, Central Macedonia, Greece

Q11: Identification of new opportunities as a result of learning about the ROBIN project and its outcomes	A. Yes, definitely	B. Yes, to some extent	C. Maybe	D. Not really	E. Not at all
No. of Responses	2	1	0	0	0

The responses to the survey question (**Q12**) about **which specific information or tools would help more effectively identify and capitalize on opportunities within the circular bioeconomy** were as follows:

- **2 respondents** selected "Tools for assessing environmental impacts."
- **1 respondent** selected "Guide for implementing circular models locally."

- **2 respondents** selected "Educational materials on sustainable practices."
- No respondents selected "Platform for connecting with stakeholders", "Data on regional supply chains and resources" or "Other – please specify."

This indicates that the most valued resources are **tools for assessing environmental impacts and educational materials on sustainable practices**, highlighting the need for tools and knowledge-sharing to advance the circular bioeconomy.

Table 0.92: Specific information or tools helpful more effectively identify and capitalize on opportunities within the circular bioeconomy, Beta testing, Central Macedonia, Greece

Q12: Specific information or tools helpful more effectively identify and capitalize on opportunities within the circular bioeconomy	A. Tools for assessing environmental impacts	B. Platform for connecting with stakeholders	C. Guide for implementing circular models locally	D. Data on regional supply chains and resources	E. Educational materials on sustainable practices	F. Other – please specify
No. of Responses	2	0	1	0	2	0

Section IV: Circular Bioeconomy Enablers & Partnerships

The responses to the survey question (**Q13**) about **how empowered respondents feel to contribute to the circular bioeconomy transition after familiarizing themselves with the ROBIN project** were as follows:

- **1 respondent** selected "Very empowered."
- **2 respondents** selected "Empowered."
- No respondents selected "Somewhat empowered", "Slightly empowered" or "Not empowered at all."

This suggests that most respondents **feel empowered to some degree**, with the majority expressing confidence in their ability to contribute.

Table 0.93: Empowering to contribute to the circular bioeconomy transition after familiarizing with the ROBIN project, Beta testing, Central Macedonia, Greece

Q13: Empowering to contribute to the circular bioeconomy transition after familiarizing with the ROBIN project	A. Very empowered	B. Empowered	C. Somewhat empowered	D. Slightly empowered	E. Not empowered at all
No. of Responses	1	2	0	0	0

The responses to the survey question (**Q14**) about **motivation to collaborate with other regional actors on circular bioeconomy initiatives after learning about the ROBIN project** were as follows:

- **3 respondents** selected "Strongly agree."
- No respondents selected "Agree", "Neutral", "Disagree" or "Strongly disagree."

This indicates that all respondents **feel motivated** to collaborate on circular bioeconomy initiatives.

Table 0.94: Motivation to collaborate with other regional actors on circular bioeconomy initiatives, Beta testing, Central Macedonia, Greece

Q14: Motivation to collaborate with other regional actors on circular bioeconomy initiatives	A. Strongly agree	B. Agree	C. Neutral	D. Disagree	E. Strongly disagree
No. of Responses	3	0	0	0	0

The responses to the survey question (**Q15**) about **anticipating long-term benefits from applying ROBIN's insights and tools** were as follows:

- **2 respondents** selected "Yes, definitely."
- **1 respondent** selected "Yes, to some extent."
- No respondents selected "Neutral," "No, not much," or "No, not at all."

This indicates that all respondents **expect some level of long-term benefits**, with most seeing them as **definite rather than moderate**, suggesting optimism about the potential impact of ROBIN's insights and tools.

Table 0.95: Anticipation of any long-term benefits from applying the presented ROBIN's insights and tools, Beta testing, Central Macedonia, Greece

Q15: Anticipation of any long-term benefits from applying the presented ROBIN's insights and tools	A. Yes, definitely	B. Yes, to some extent	C. Neutral	D. No, not much	E. No, not at all
No. of Responses	2	1	0	0	0

Southern Region, Ireland

The table presents the distribution of stakeholder groups participating in the survey from the Southern Region, Ireland. In total, **4 respondents from 2 external regions** were involved.

In the survey, **3 respondents** represented group of **regional authority** and **1 respondent** represented **local authority**.

Table 0.96: Stakeholder Participation in the Beta testing data collection, Southern Region, Ireland

Stakeholder group	Regional authority	Local authority	External advisory/ consulting entity	Researcher or affiliated to a higher education institution	Business association, cluster or innovation centre	NGO/CSO
No. of Respondents	3	1	0	0	0	0

The respondents who identify as representatives/members of a regional authority have 1.3 years of experience, and one respondent who identifies as representative/member of local authority has 5.5 years of experience in the bioeconomy sector.

Section II: Circular Bioeconomy Governance Models

The responses to the survey question (**Q3**) about the **current level of development of the circular bioeconomy and governance models** in the region were as follows:

- **2 respondents** selected "Beginning stages."
- **2 respondents** selected "Not developed at all."
- No respondents selected "Very advanced", "Advanced" or " Moderately developed."

The majority of respondents view the development of the circular bioeconomy in the region, particularly regarding governance models, as either in the **beginning stages** or **not developed at all**, indicating that the circular bioeconomy is in its early stages or lacks development in the region.

Table 0.97: Current level of development of the circular bioeconomy in the region, Beta testing, Southern Region, Ireland

Q3: Current level of development of the circular bioeconomy in the region	A. Very advanced	B. Advanced	C. Moderately developed	D. Beginning stage	E. Not developed at all
No. of Respondents	0	0	0	2	2

The results for the next question (**Q4**) about **how the presentation of the ROBIN project's outputs and results has changed the respondents' understanding of the circular bioeconomy** were as follows:

- **3 respondents** selected "To a great extent."
- **1 respondent** selected "To some extent."
- No respondents selected "To a very great extent", "To a small extent" or "Not at all."

Respondents believe that the **presentation of the ROBIN project significantly or to a great extent changed their understanding of the circular bioeconomy** and its usefulness for European regions. This suggests that the **project had a positive influence on most respondents' perspectives** regarding the circular bioeconomy in European regions.

Table 0.98: Changing understanding of the circular bioeconomy, particularly its usefulness for European regions, Beta testing, Southern Region, Ireland

Q4: Changing understanding of the circular bioeconomy, particularly its usefulness for European regions	A. To a very great extent	B. To a great extent	C. To some extent	D. To a small extent	E. Not at all
No. of Respondents	0	3	1	0	0

The responses to the survey question (**Q5**) about the **extent to which examples from the ROBIN regions could inspire changes in governance approaches in the respondents' region** were as follows:

- **1 respondent** selected "To a very great extent."
- **3 respondents** selected "To a great extent."
- No respondents selected "To some extent," "To a small extent," or "Not at all."

This indicates that **most respondents believe the examples from the ROBIN regions could significantly inspire changes in governance approaches** in their region.

Table 0.99: Extent of the examples from the ROBIN regions could inspire changes in the governance approaches in the region, Beta testing, Southern Region, Ireland

Q5: Extent of the examples from the ROBIN regions could inspire changes in the governance approaches in the region	A. To a very great extent	B. To a great extent	C. To some extent	D. To a small extent	E. Not at all
No. of Respondents	1	3	0	0	0

The responses to the survey question (**Q6**) about the **most applicable or valuable processes or approaches in the bioeconomy development** in the ROBIN project were as follows:

- **2 respondents** selected "Implementing circular economy principles with a territorial approach."
- **4 respondents** selected "ROBIN Toolbox for decision-making support in bioeconomy initiatives."
- **2 respondents** selected "Community engagement and social innovation in bioeconomy."
- **2 respondents** selected "Cross-regional collaboration and sharing of best practices."
- **2 respondents** selected "Sustainable management of biomass and waste resources."
- No respondents selected "Other – please specify."

The most valued and applicable process in the bioeconomy development from the ROBIN project is the **ROBIN Toolbox for decision-making support** in bioeconomy initiatives. Other notable processes include **implementing circular economy principles with a territorial approach**, **community engagement and social innovation**, **cross-regional collaboration**, and **sustainable management of biomass and waste resources**.

Table 0.100: Presented processes or approaches in the bioeconomy development most applicable or valuable for the region, Beta testing, Southern Region, Ireland

Q6: Presented processes or approaches in the bioeconomy development most applicable or valuable for the region	A. Implementing circular economy principles with a territorial approach.	B. ROBIN Toolbox for decision-making support in bioeconomy initiatives.	C. Community engagement and social innovation in bioeconomy.	D. Cross-regional collaboration and sharing of best practices.	E. Sustainable management of biomass and waste resources.	F. Other – please specify
No. of Responses	2	4	2	2	2	0

The responses to the survey question (**Q7**) about **anticipated challenges in implementing and adopting bioeconomy processes and approaches** were as follows:

- **3 respondents** selected "Insufficient human resources."
- **2 respondents** selected "Limited expertise."
- **1 respondent** selected "Time constraints."
- **4 respondents** selected "Inadequate financial resources."
- **3 respondents** selected "Insufficient technical resources"

- No respondents selected "Other – please specify."

The key challenges anticipated in implementing and adopting the proposed processes in the bioeconomy landscape are primarily related to **insufficient resources**. Specifically, **inadequate financial resources** and **insufficient technical resources and human resources** were highlighted by the most respondents. These responses suggest that addressing resource limitations, both financial and technical, will be needed for successful implementation.

Table 0.101: Challenges anticipated in implementing and adopting these processes, approaches, or steps within region's unique bioeconomy landscape, Beta testing, Southern Region, Ireland

Q7: Challenges anticipated in implementing and adopting these processes, approaches, or steps within region's unique bioeconomy landscape	A. Insufficient human resources	B. Limited expertise	C. Time constrains	D. Inadequate financial resources.	E. Insufficient technical resources	F. Other – please specify
No. of Responses	3	2	1	4	3	0

The responses to the survey question (**Q8**) about whether the **ROBIN project provides actionable insights for improving governance models** were as follows:

- **1 respondent** selected "Yes, definitely."
- **2 respondents** selected "Yes, to some extent."
- **1 respondent** selected "Maybe."
- No respondents selected "Not really" or "Not at all."

The **majority of respondents believe that the ROBIN project provides actionable insights for improving governance models** in their region, either to some extent or definitely. There were no respondents who felt that the project's insights were irrelevant or unhelpful.

Table 0.102: Providing actionable insights for improving the governance models in the region, Beta testing, Southern Region, Ireland

Q8: Providing actionable insights for improving the governance models in the region	A. Yes, definitely	B. Yes, to some extent	C. Maybe	D. Not really	E. Not at all
No. of Responses	1	2	1	0	0

The responses to the survey question (**Q9**) about **anticipated systemic changes in governance practices as a result of learning from ROBIN's outputs** were as follows:

- **4 respondents** selected "Yes, some changes."
- No respondents selected "Yes, significant changes", "Maybe, potential changes", "No changes expected" or "Not applicable / Unsure."

All respondents anticipate **some changes** in their governance practices as a result of learning from the ROBIN project's outputs. There is a strong expectation for moderate improvements, though no respondents foresee significant or potential changes. This suggests that the ROBIN project is viewed as a catalyst for incremental, rather than major, shifts in governance practices.

Table 0.103: Anticipating any systemic changes in your governance practices as a result of learning from ROBIN's outputs, Beta testing, Southern Region, Ireland

Q9: Anticipating any systemic changes in your governance practices as a result of learning from ROBIN's outputs	A. Yes, significant changes – please describe	B. Yes, some changes – please describe	C. Maybe, potential changes – please describe	D. No changes expected	Not applicable / Unsure
No. of Responses	0	4	0	0	0

Section III: Circular Bioeconomy Opportunities

The responses to the survey question (**Q10**) about **awareness of existing opportunities for developing the circular bioeconomy in the region** were as follows:

- **3 respondents** selected "Aware."
- **1 respondent** selected "Somewhat aware."
- No respondents selected "Very aware", "Slightly aware" or "Not aware at all."

The majority of respondents are **aware** of the existing opportunities for developing the circular bioeconomy in their region, with one respondent being **somewhat aware** that indicates there is a general understanding of the opportunities.

Table 0.104: Awareness of the existing opportunities for developing the circular bioeconomy, Beta testing, Southern Region, Ireland

Q10: Awareness of the existing opportunities for developing the circular bioeconomy	A. Very aware	B. Aware	C. Somewhat aware	D. Slightly aware	Not at all aware
No. of Responses	0	3	1	0	0

The responses to the survey question (**Q11**) about **identifying new opportunities as a result of learning about the ROBIN project and its outcomes** were as follows:

- **1 respondent** selected "Yes, definitely."
- **2 respondents** selected "Yes, to some extent."
- **1 respondent** selected "Maybe."
- No respondents selected "Not really" or "Not at all."

All respondents indicated that the ROBIN project has led them to identify new opportunities, with varying levels of certainty.

Table 0.105: Experience in designing regional bioeconomy governance models: baseline and endline data comparison, Beta testing, Southern Region, Ireland

Q11: Identification of new opportunities as a result of learning about the ROBIN project and its outcomes	A. Yes, definitely	B. Yes, to some extent	C. Maybe	D. Not really	E. Not at all
No. of Responses	1	2	1	0	0

The responses to the survey question (**Q12**) about **which specific information or tools would help more effectively identify and capitalize on opportunities within the circular bioeconomy** were as follows:

- **4 respondents** selected "Platform for connecting with stakeholders."
- **3 respondents** selected "Guide for implementing circular models locally."
- **3 respondents** selected "Data on regional supply chains and resources."
- **2 respondents** selected "Educational materials on sustainable practices."
- No respondents selected "Tools for assessing environmental impacts" or "Other"

The most commonly requested tool for identifying and capitalizing on opportunities within the circular bioeconomy is a **platform for connecting with stakeholders**, followed by a demand for resources such as a **guide for implementing circular models locally**, **data on regional supply chains and resources**, and **educational materials on sustainable practices**. This suggests that networking and practical guidance are seen as key enablers for advancing circular bioeconomy initiatives.

Table 0.106: Specific information or tools helpful more effectively identify and capitalize on opportunities within the circular bioeconomy, Beta testing, Southern Region, Ireland

Q12: Specific information or tools helpful more effectively identify and capitalize on opportunities within the circular bioeconomy	A. Tools for assessing environmental impacts	B. Platform for connecting with stakeholders	C. Guide for implementing circular models locally	D. Data on regional supply chains and resources	E. Educational materials on sustainable practices	F. Other – please specify
No. of Responses	0	4	3	3	2	0

Section IV: Circular Bioeconomy Enablers & Partnerships

The responses to the survey question (**Q13**) about **how empowered respondents feel to contribute to the circular bioeconomy transition after familiarizing themselves with the ROBIN project** were as follows:

- **4 respondents** selected "Empowered."
- No respondents selected "Very empowered", "Somewhat empowered", "Slightly empowered" or "Not empowered at all."

All respondents feel **empowered** to contribute to the circular bioeconomy transition after familiarizing themselves with the ROBIN project. This suggests that the **ROBIN project has instilled a moderate sense of empowerment** among the participants.

Table 0.107: Empowering to contribute to the circular bioeconomy transition after familiarizing with the ROBIN project, Beta testing, Southern Region, Ireland

Q13: Empowering to contribute to the circular bioeconomy transition after familiarizing with the ROBIN project	A. Very empowered	B. Empowered	C. Somewhat empowered	D. Slightly empowered	E. Not empowered at all
No. of Responses	0	4	0	0	0

The responses to the survey question (**Q14**) about **motivation to collaborate with other regional actors on circular bioeconomy initiatives after learning about the ROBIN project** were as follows:

- **1 respondent** selected "Strongly agree."
- **2 respondents** selected "Agree."
- **1 respondent** selected "Neutral."
- No respondents selected "Disagree" or "Strongly disagree."

This indicates that the majority of respondents **feel motivated** to collaborate on circular bioeconomy initiatives, with most expressing either general or strong agreement.

Table 0.108: Motivation to collaborate with other regional actors on circular bioeconomy initiatives, Beta testing, Southern Region, Ireland

Q14: Motivation to collaborate with other regional actors on circular bioeconomy initiatives	A. Strongly agree	B. Agree	C. Neutral	D. Disagree	E. Strongly disagree
No. of Responses	1	2	1	0	0

The responses to the survey question (**Q15**) about **anticipating long-term benefits from applying ROBIN's insights and tools** were as follows:

- **2 respondents** selected "Yes, definitely."
- **1 respondent** selected "Yes, to some extent."
- No respondents selected "Neutral," "No, not much," or "No, not at all."

This indicates that all respondents **expect some level of long-term benefits**, suggesting optimism about the potential impact of ROBIN's insights and tools.

Table 0.109: Anticipation of any long-term benefits from applying the presented ROBIN's insights and tools, Beta testing, Southern Region, Ireland

Q15: Anticipation of any long-term benefits from applying the presented ROBIN's insights and tools	A. Yes, definitely	B. Yes, to some extent	C. Neutral	D. No, not much	E. No, not at all
No. of Responses	2	1	0	0	0

Žilina, Slovakia

The table presents the distribution of stakeholder groups participating in the survey from the Zilina region, Slovakia. In total, **8 respondents from 4 external regions** were involved.

In the survey, the most represented groups were **NGOs/CSOs** with three respondents, followed by **business associations or clusters** with two respondents, as well as **external advisory/consulting entities**, **researcher**, and **regional authorities** one respondent each.

No representatives from local authority participated in this round.

Table 0.110: Stakeholder Participation in the Beta testing data collection, Zilina Region

Stakeholder group	Regional authority	Local authority	External advisory/ consulting entity	Researcher or affiliated to a higher education institution	Business association, cluster or innovation centre	NGO/CSO

No. of Respondents	1	0	1	1	2	3

The average number of years of experience in the respective fields indicates that advisory/consulting professionals have the most extensive experience in the field, averaging 17 years, while representatives from regional authorities tend to have significantly less experience (6 years). Researchers and business representatives have moderate experience levels, with 8.5 and 7.3 years, respectively.

Section II: Circular Bioeconomy Governance Models

The responses to the survey question (**Q3**) about the **current level of development of the circular bioeconomy and governance models** in the region were as follows:

- **5 respondents** selected "Moderately developed."
- **2 respondents** selected "Beginning stages."
- **1 respondent** selected "Not developed at all."
- No respondents selected "Very advanced" or "Advanced."

The survey findings indicate that the **current level of development of the circular bioeconomy in the region is mostly between beginning and moderate stage**. This suggests that while some progress has been made, the circular bioeconomy, particularly in terms of governance models, is **still in the early to moderate stages of development in the region**.

Table 0.111: Current level of development of the circular bioeconomy in the region, Beta testing, Zilina Region

Q3: Current level of development of the circular bioeconomy in the region	A. Very advanced	B. Advanced	C. Moderately developed	D. Beginning stage	E. Not developed at all
No. of Respondents	0	0	5	2	1

The results for the next question (**Q4**) about **how the presentation of the ROBIN project's outputs and results has changed the respondents' understanding of the circular bioeconomy** were as follows:

- **4 respondents** selected "To a great extent."
- **3 respondents** selected "To some extent."
- **1 respondent** selected "To a small extent."
- No respondents selected "To a very great extent" or "Not at all."

This suggests that the **majority of respondents believe the presentation significantly enhanced their understanding** of the circular bioeconomy and its usefulness for European regions.

Table 0.112: Changing understanding of the circular bioeconomy, particularly its usefulness for European regions, Beta testing, Zilina Region

Q4: Changing understanding of the circular bioeconomy, particularly its usefulness for European regions	A. To a very great extent	B. To a great extent	C. To some extent	D. To a small extent	E. Not at all

No. of Respondents	0	4	3	1	0

The responses to the survey question (**Q5**) about the **extent to which examples from the ROBIN regions could inspire changes in governance approaches in the respondents' region** were as follows:

- **2 respondents** selected "To a very great extent."
- **6 respondents** selected "To a great extent."
- No respondents selected "To some extent," "To a small extent," or "Not at all."

This indicates that **most respondents believe the examples from the ROBIN regions could significantly inspire changes in governance approaches** in their region.

Table 0.113: Extent of the examples from the ROBIN regions could inspire changes in the governance approaches in the region, Beta testing, Zilina Region

Q5: Extent of the examples from the ROBIN regions could inspire changes in the governance approaches in the region	A. To a very great extent	B. To a great extent	C. To some extent	D. To a small extent	E. Not at all
No. of Respondents	2	6	0	0	0

The responses to the survey question (**Q6**) about the **most applicable or valuable processes or approaches in the bioeconomy development** in the ROBIN project were as follows:

- **2 respondents** selected "Implementing circular economy principles with a territorial approach."
- **3 respondents** selected "ROBIN Toolbox for decision-making support in bioeconomy initiatives."
- **3 respondents** selected "Community engagement and social innovation in bioeconomy."
- **4 respondents** selected "Cross-regional collaboration and sharing of best practices."
- **3 respondents** selected "Sustainable management of biomass and waste resources."
- No respondents selected "Other – please specify."

This shows that **"Cross-regional collaboration and sharing of best practices" was viewed as the most applicable or valuable approach** for the region, followed by the other processes with relatively similar responses.

Table 0.114: Presented processes or approaches in the bioeconomy development most applicable or valuable for the region, Beta testing, Zilina Region

Q6: Presented processes or approaches in the bioeconomy development most applicable or valuable for the region	A. Implementing circular economy principles with a territorial approach.	B. ROBIN Toolbox for decision-making support in bioeconomy initiatives.	C. Community engagement and social innovation in bioeconomy.	D. Cross-regional collaboration and sharing of best practices.	E. Sustainable management of biomass and waste resources.	F. Other – please specify
No. of Responses	2	3	3	4	3	0

The responses to the survey question (**Q7**) about **anticipated challenges in implementing and adopting bioeconomy processes and approaches** were as follows:

- **5 respondents** selected "Insufficient human resources."
- **5 respondents** selected "Limited expertise."
- **1 respondent** selected "Time constraints."
- **6 respondents** selected "Inadequate financial resources."
- No respondents selected "Insufficient technical resources" or "Other – please specify."

This indicates that the most significant challenge is **inadequate financial resources**, followed closely by **insufficient human resources and limited expertise**, suggesting that both funding and skilled personnel are key barriers to bioeconomy implementation.

Table 0.115: Challenges anticipated in implementing and adopting these processes, approaches, or steps within region's unique bioeconomy landscape, Beta testing, Zilina Region

Q7: Challenges anticipated in implementing and adopting these processes, approaches, or steps within region's unique bioeconomy landscape	A. Insufficient human resources	B. Limited expertise	C. Time constrains	D. Inadequate financial resources	E. Insufficient technical resources	F. Other – please specify
No. of Responses	5	5	1	6	0	0

The responses to the survey question (**Q8**) about whether the **ROBIN project provides actionable insights for improving governance models** were as follows:

- **5 respondents** selected "Yes, definitely."
- **2 respondents** selected "Yes, to some extent."
- **1 respondent** selected "Maybe."
- No respondents selected "Not really" or "Not at all."

This indicates that the majority of respondents **strongly believe** the ROBIN project offers valuable and actionable insights for enhancing governance models in their region.

Table 0.116: Providing actionable insights for improving the governance models in the region, Beta testing, Zilina Region

Q8: Providing actionable insights for improving the governance models in the region	A. Yes, definitely	B. Yes, to some extent	C. Maybe	D. Not really	E. Not at all
No. of Responses	5	2	1	0	0

The responses to the survey question (**Q9**) about **anticipated systemic changes in governance practices as a result of learning from ROBIN's outputs** were as follows:

- **1 respondent** selected "Yes, significant changes."
- **2 respondents** selected "Yes, some changes."
- **4 respondents** selected "Maybe, potential changes."
- **1 respondent** selected "No changes expected."
- No respondents selected "Not applicable / Unsure."

This suggests that while a few respondents foresee definite changes, the majority consider systemic changes **possible but uncertain**, indicating a wait-and-see approach to implementing ROBIN's insights.

Table 0.117: Anticipating any systemic changes in your governance practices as a result of learning from ROBIN's outputs, Beta testing, Zilina Region

Q9: Anticipating any systemic changes in your governance practices as a result of learning from ROBIN's outputs	A. Yes, significant changes – please describe	B. Yes, some changes – please describe	C. Maybe, potential changes – please describe	D. No changes expected	Not applicable / Unsure
No. of Responses	1	2	4	1	0

Section III: Circular Bioeconomy Opportunities

The responses to the survey question (**Q10**) about **awareness of existing opportunities for developing the circular bioeconomy in the region** were as follows:

- **2 respondents** selected "Aware."
- **3 respondents** selected "Somewhat aware."
- **3 respondents** selected "Slightly aware."
- No respondents selected "Very aware" or "Not aware at all."

This suggests that while some respondents have some level of awareness, the majority have **moderate to limited awareness**, indicating potential gaps in knowledge or communication regarding bioeconomy opportunities.

Table 0.118: Awareness of the existing opportunities for developing the circular bioeconomy, Beta testing, Zilina Region

Q10: Awareness of the existing opportunities for developing the circular bioeconomy	A. Very aware	B. Aware	C. Somewhat aware	D. Slightly aware	Not at all aware
No. of Responses	0	2	3	3	0

The responses to the survey question (**Q11**) about **identifying new opportunities as a result of learning about the ROBIN project and its outcomes** were as follows:

- **4 respondents** selected "Yes, definitely."
- **2 respondents** selected "Yes, to some extent."
- **1 respondent** selected "Maybe."
- **1 respondent** selected "Not really."
- No respondents selected "Not at all."

This indicates that the majority of respondents **identified new opportunities**, with most seeing them as definite, while a few remain uncertain or see limited potential.

Table 0.119: Experience in designing regional bioeconomy governance models: baseline and endline data comparison, Beta testing, Zilina Region

Q11: Identification of new opportunities as a result of learning about the ROBIN project and its outcomes	A. Yes, definitely	B. Yes, to some extent	C. Maybe	D. Not really	E. Not at all
No. of Responses	4	2	1	1	0

The responses to the survey question (**Q12**) about **which specific information or tools would help more effectively identify and capitalize on opportunities within the circular bioeconomy** were as follows:

- **2 respondents** selected "Tools for assessing environmental impacts."
- **4 respondents** selected "Platform for connecting with stakeholders."
- **2 respondents** selected "Guide for implementing circular models locally."
- **1 respondent** selected "Data on regional supply chains and resources."
- **4 respondents** selected "Educational materials on sustainable practices."
- No respondents selected "Other – please specify."

This indicates that the most valued resources are **a platform for stakeholder connections and educational materials on sustainable practices**, highlighting the need for networking and knowledge-sharing to advance the circular bioeconomy.

Table 0.120: Specific information or tools helpful more effectively identify and capitalize on opportunities within the circular bioeconomy, Beta testing, Zilina Region

Q12: Specific information or tools helpful more effectively identify and capitalize on opportunities within the circular bioeconomy	A. Tools for assessing environmental impacts	B. Platform for connecting with stakeholders	C. Guide for implementing circular models locally	D. Data on regional supply chains and resources	E. Educational materials on sustainable practices	F. Other – please specify
No. of Responses	2	4	2	1	4	0

Section IV: Circular Bioeconomy Enablers & Partnerships

The responses to the survey question (**Q13**) about **how empowered respondents feel to contribute to the circular bioeconomy transition after familiarizing themselves with the ROBIN project** were as follows:

- **1 respondent** selected "Very empowered."
- **4 respondents** selected "Empowered."
- **2 respondents** selected "Somewhat empowered."
- **1 respondent** selected "Slightly empowered."
- No respondents selected "Not empowered at all."

This suggests that most respondents **feel empowered to some degree**, with the majority expressing confidence in their ability to contribute, though some still feel only moderately empowered.

Table 0.121: Empowering to contribute to the circular bioeconomy transition after familiarizing with the ROBIN project, Beta testing, Zilina Region

Q13: Empowering to contribute to the circular bioeconomy transition after familiarizing with the ROBIN project	A. Very empowered	B. Empowered	C. Somewhat empowered	D. Slightly empowered	E. Not empowered at all
No. of Responses	1	4	2	1	0

The responses to the survey question (**Q14**) about **motivation to collaborate with other regional actors on circular bioeconomy initiatives after learning about the ROBIN project** were as follows:

- **3 respondents** selected "Strongly agree."
- **4 respondents** selected "Agree."
- **1 respondent** selected "Neutral."
- No respondents selected "Disagree" or "Strongly disagree."

This indicates that the majority of respondents **feel motivated** to collaborate on circular bioeconomy initiatives, with most expressing either strong or general agreement.

Table 0.122: Motivation to collaborate with other regional actors on circular bioeconomy initiatives, Beta testing, Zilina Region

Q14: Motivation to collaborate with other regional actors on circular bioeconomy initiatives	A. Strongly agree	B. Agree	C. Neutral	D. Disagree	E. Strongly disagree
No. of Responses	3	4	1	0	0

The responses to the survey question (**Q15**) about **anticipating long-term benefits from applying ROBIN's insights and tools** were as follows:

- **2 respondents** selected "Yes, definitely."
- **6 respondents** selected "Yes, to some extent."
- No respondents selected "Neutral," "No, not much," or "No, not at all."

This indicates that all respondents **expect some level of long-term benefits**, with most seeing them as **moderate rather than definite**, suggesting optimism about the potential impact of ROBIN's insights and tools.

Table 0.123: Anticipation of any long-term benefits from applying the presented ROBIN's insights and tools, Beta testing, Zilina Region

Q15: Anticipation of any long-term benefits from applying the presented ROBIN's sights and tools	A. Yes, definitely	B. Yes, to some extent	C. Neutral	D. No, not much	E. No, not at all
No. of Responses	2	6	0	0	0

Annex III: Final Interviews (Method 3)

Andalusia, Spain

Governance Model Development and Stakeholder Engagement

Perception of Governance Model Development

Respondents viewed the governance model development process as a **successful effort to empower regional actors and create valuable networks**. The project allowed for **replication of bioeconomy initiatives, such as waste treatment plants**, and fostered collaboration through workshops and testing events. Participants appreciated **the development of a regional support action plan and the involvement of key stakeholders**, particularly through the quadruple helix approach. The creation of public-private platforms was a key goal, with respondents highlighting the importance of networking, empowerment, and inter-territorial coordination in advancing bioeconomy strategies. **Validation actions, such as the Alpha and Beta Testing Workshops, were instrumental** in shaping the governance model.

Local Authorities and Stakeholder Engagement

Local businesses actively participated, particularly in operational groups such as 'Oleovaloriza', a recognized success story in Andalusia. **Civil society organizations were meaningfully engaged**, ensuring community voices were heard in the decision-making process. **Public authorities benefited from knowledge transfer and best practice sharing**, helping refine governance models. **Higher education institutions integrated project outcomes into research and academic programs**, such as the inter-university Masters in Circular Bioeconomy and Sustainability.

Challenges to Engagement

According to respondents, a **limited awareness of circular bioeconomy concepts** among stakeholders necessitates ongoing education and communication efforts. There is an **overemphasis on public sector involvement**, with **insufficient recognition of the role of private entities and civil society**. **Administrative burdens and regulatory complexities** were identified as potential obstacles to project implementation.

ROBIN Toolbox Effectiveness

Usefulness in Addressing Regional Bioeconomy Goals

The ROBIN Toolbox has proven useful across various sectors. For businesses, it has aided in planning, guiding strategies, and identifying indicators for environmental protection. For civil society, it provides a framework for activating initiatives, monitoring actions, and fostering synergies. Public authorities find it valuable for knowledge transfer, governance models, and policy monitoring. Additionally, the Toolbox can be integrated into educational content, supporting research and operational groups in bioeconomy.

Suggestions for Improvements

Respondents suggested several improvements for the ROBIN Toolbox, including **the addition of more cross-sectoral good practices, ongoing monitoring and adaptation of tools** to ensure their effectiveness, and flexibility to address regional differences. They emphasized **the need for integrated funding opportunities** to support businesses and entrepreneurs, as well as reducing administrative burdens and streamlining processes for faster implementation.

Lessons Learned and Recommendations for Future Governance Models

Key Takeaways

Respondents emphasized **the importance of public-private cooperation** in Andalusia, which has been crucial for advancing the circular bioeconomy. Respondents also highlighted **the need for a collaborative, multi-stakeholder approach**, with key actors such as farmers, businesses, and academia working together. Additionally, they noted that the transition to a circular economy is a significant social challenge, requiring **a shift in mindset from linear to circular models**. The project's focus on knowledge exchange, co-creation, and the development of tools has been valuable in supporting this transition.

Opportunities for Future Actions

According to respondents, **the ROBIN project has brought several new opportunities and actions** to their sectors. Businesses applied new ideas to their models, while civil society created networks and identified growth patterns for the circular economy in Andalusia. Public authorities valued the ROBIN Toolbox for supporting regions in developing circular bioeconomy governance, especially for SMEs. Higher education saw opportunities to integrate the project's tools into new training formats for researchers and operational groups.

Conclusion

The Final Interview confirmed that **the ROBIN project has made a significant impact on Andalusia's circular bioeconomy governance landscape**. Stakeholders highly valued the project's contributions in **networking, knowledge-sharing, and governance model development**. However, sustaining momentum will require ongoing stakeholder engagement, regulatory adaptations, and financial support mechanisms. By leveraging these insights, Andalusia can further solidify its position as a pioneering region in circular bioeconomy governance within Europe.

Baden-Württemberg, Germany

Governance Model Development and Stakeholder Engagement

Perception of Governance Model Development

Baden-Württemberg benefits from an already established bioeconomy strategy. **The primary value of the project lay in networking, knowledge exchange, and integrating different EU projects**. While the **Toolbox is useful for making bioeconomy more tangible**, its overwhelming nature and the need for clearer guidelines were also highlighted. The **interdisciplinary approach** and **focus on co-creation** were valued by participants, especially in regions with advanced bioeconomy strategies. The most effective support actions were the stakeholder engagement workshops, which provided an opportunity for different actors to discuss their activities, identify needs, and explore cooperation opportunities.

Local Authorities and Stakeholder Engagement

Respondents noted **significant engagement from business stakeholders**, which was a key improvement. One workshop specifically focused on how funding could be used more efficiently, allowing businesses to directly engage with governance stakeholders and funding agencies. The **opportunities for engagement, including MOOC elements**, were seen as valuable in making discussions more dynamic. The involvement of diverse stakeholders, including businesses and public authorities, improved governance and contributed to concrete policy measures.

Challenges to Engagement

Barriers included the **abstract nature of bioeconomy**, making it **difficult for some stakeholders to connect with the concept**. Agricultural stakeholders were particularly hard to reach, and there was scepticism among businesses regarding governance as a potential bureaucratic burden. A key challenge remains **reaching stakeholders outside the existing bioeconomy community** (the "coalition of the willing"). The respondent emphasized that engagement efforts need to extend beyond those already involved in bioeconomy discussions. **Trust-building and better communication** were seen as essential for overcoming these barriers and improving collaboration across sectors.

ROBIN Toolbox Effectiveness

Usefulness in Addressing Regional Bioeconomy Goals

The Toolbox was seen as **useful for addressing regional bioeconomy goals**, particularly in **education and policy development**. It was helpful in structuring discussions and providing starting points for stakeholders unfamiliar with bioeconomy concepts. However, the Toolbox is perceived as **more beneficial for regions starting to build governance strategies** rather than Baden-Württemberg, which already has an established framework.

Suggestions for Improvement

Respondents suggested several key improvements. First, **translating the Toolbox components into regional languages** would enhance accessibility. Second**, ensuring the long-term availability of the Toolbox** by keeping it accessible and updated even after the project ends would help maintain its relevance. Third, respondents noted that the Toolbox is primarily **targeted at governance stakeholders, providing only a general overview for businesses** rather than direct, actionable benefits. Additionally, **improving website navigation and offering clearer guidelines** for maintaining initiatives would increase usability. Finally, there should be **more structured support for transitioning from conceptual work to practical applications** to help stakeholders implement bioeconomy initiatives more effectively.

Lessons Learned and Recommendations for Future Governance Models

Key Takeaways

Key lessons included **the importance of strengthening communication and cooperation with other projects, setting clear priorities early, and focusing on collaboration in bioeconomy initiatives**. Participants emphasized that **tailoring events to specific stakeholder types** could further improve engagement and encourage more effective collaboration. Additionally, the **importance of personal connections and networks** in spreading ideas and identifying available resources was highlighted. A strong network was seen as crucial in ensuring effective bioeconomy implementation.

Opportunities for Future Actions

The ROBIN project facilitated networking and provided valuable insights into stakeholder engagement. It contributed to **making bioeconomy more mainstream** in regional policy discussions. However, a more centralized approach to collecting and sharing resources from different projects is needed to make them more easily accessible to stakeholders. Future efforts should focus on **clearer communication strategies, better stakeholder outreach, and long-term resource availability**.

Conclusion

Baden-Württemberg's experience with the ROBIN project underscored **the importance of networking, interdisciplinary collaboration, and stakeholder engagement in bioeconomy governance**. While the project successfully brought together key actors, challenges remain in making bioeconomy concepts accessible and actionable to a wider audience. **Enhancing the usability of the Toolbox, ensuring long-term stakeholder commitment, and implementing better engagement strategies will be crucial for the continued success** of bioeconomy initiatives in the region.

Central Macedonia, Greece

Governance Model Development and Stakeholder Engagement

Perception of Governance Model Development

Respondents praised the project for its **educational and creative activities**, as well as the **networking opportunities** it provided. They emphasized the importance of involving businesses in sustainability efforts and showcasing various governance models. The project's **focus on multi-actor collaboration and youth involvement** was also highlighted. **Community engagement efforts were effective, increasing environmental awareness and promoting sustainable practices**, such as recycling initiatives.

Local Authorities and Stakeholder Engagement

ROBIN provided multiple opportunities for local businesses and organizations to engage through mapping, validation, and pilot activities. The project emphasized a territorial approach, addressing local needs and reinforcing the importance of a multi-stakeholder framework. The **engagement of community members, including vulnerable groups, women, and students**, was a significant achievement. **Stakeholder participation was strong**, but ensuring long-term engagement beyond the project's duration remains a challenge.

Challenges to Engagement

In the view of respondents, a **lack of awareness of bioeconomy concepts among stakeholders** was a major barrier. **Over-reliance on public authorities** was observed, with **some stakeholders failing to recognize the importance of private sector and civil society engagement**. **Complex terminology related to the bioeconomy** made it difficult for some actors to fully grasp its relevance. Stakeholder engagement requires continuous effort and improved communication strategies to sustain interest.

ROBIN Toolbox Effectiveness

Usefulness in Addressing Regional Bioeconomy Goals

The Toolbox was recognized as a valuable policy and planning instrument, offering structured guidance for bioeconomy strategies. The Environmental Protection Planning Tool and Policy Monitoring System Tool were particularly useful, as they are easy to replicate and adaptable to other regions. The Circular Bioeconomy Governance Model Canvas Tool was highlighted as a simple yet effective instrument, particularly beneficial for students and researchers. **The Toolbox played a significant role in identifying gaps, bringing stakeholders together, and formulating well-targeted policies**.

Suggestions for Improvements

Suggestions for improvement included making the Toolbox **more concise and time-efficient, offering shorter, topic-specific videos, and making it available in more languages**. There were also recommendations for adding online courses to provide structured learning and for providing better training materials, especially for the Environmental Protection Planning Tool.

Lessons Learned and Recommendations for Future Governance Models

Key Takeaways

Respondents observed that **exploiting regional biomass is complex and requires multi-stakeholder collaboration** and continuous feedback. **Establishing a regional observatory could ensure long-term impact** by maintaining access to project resources and scaling up efforts. The **governance model should remain adaptive to regional needs**, allowing for continuous stakeholder engagement. **More support mechanisms are needed** to help sustain stakeholder collaboration beyond the project's duration.

Opportunities for Future Actions

ROBIN has successfully addressed economic, environmental, and social dimensions of bioeconomy governance, offering a holistic perspective. The engagement strategies developed through the project have created **new collaboration opportunities across sectors**, ensuring continued focus on the bioeconomy transition. There is strong potential for business opportunities in biomass exploitation, provided that long-term sustainability is prioritized. **Expanding cross-sector collaboration** will further enhance regional innovation in circular bioeconomy governance.

Conclusion

The Final Interviews confirmed that the ROBIN project has significantly influenced bioeconomy governance in Central Macedonia. Stakeholders valued its role in **fostering collaboration, policy development, and environmental awareness**. However, **sustaining engagement beyond the project remains a challenge**, requiring clearer communication, ongoing capacity-building, and broader outreach. **The ROBIN Toolbox was recognized as a valuable resource, but refinements** - such as more concise materials, multilingual access, and structured learning - **could enhance its impact**. **Strengthening multi-stakeholder collaboration and cross-sector partnerships** could further support long-term efforts.

Southern Region, Ireland

Governance Model Development and Stakeholder Engagement

Perception of Governance Model Development

According to respondents, **the governance model development process in ROBIN had a strong academic focus**, which, while valuable for building understanding, sometimes made engagement difficult for stakeholders, particularly bio-producers. While the project **successfully contributed to strategy development**, **engaging a broader range of stakeholders remains a challenge**. **A more workshop-based approach with diverse participants, simpler language, and stronger collaboration with other projects could enhance future efforts**.

Local Authorities and Stakeholder Engagement

ROBIN effectively engaged regional and national authorities, particularly in developing a bioeconomy strategy, but local authority involvement was limited. Respondents expressed that while the **project supported research**, its **impact on higher education and curriculum development was minimal**. Engagement events were well-organized and brought together diverse stakeholders, but more targeted efforts could have strengthened participation from research, education, and business sectors. **A key challenge remains raising awareness among local businesses and communities**, as many stakeholders are involved in bioeconomy without recognizing it. Future efforts should focus on integrating local perspectives into governance and strategy development.

Challenges to Engagement

Respondents identified several barriers to stakeholder engagement. **The rigid higher education curriculum limits bioeconomy integration**, while **the lack of tangible initiatives makes it difficult for SMEs, NGOs, and local authorities to grasp its relevance**. **Governance is often seen as bureaucratic rather than opportunity-driven**, creating resistance. Additionally, **the absence of a clear bioeconomy value chain and market transparency** hinders business involvement, underscoring the need for stronger circular economy frameworks.

ROBIN Toolbox Effectiveness

Usefulness in Addressing Regional Bioeconomy Goals

The Toolbox was recognized as a comprehensive resource for research and strategy development. However, **its complexity made it less effective for community engagement and practical application**. There was a consensus on **the need for it to be simplified and updated regularly to remain relevant**. Suggestions included adapting it to include business-specific sections or guidelines for sector-specific stakeholders, such as in energy, to improve accessibility and usability.

Suggestions for Improvements

Stakeholders recommended **simplifying the Toolbox**, maintaining it beyond the project's duration, and introducing sector-specific guidelines. Suggestions also included **improving user-friendliness, adding measurable metrics for certain activities, and establishing a feedback mechanism** to enhance usability and relevance.

Lessons Learned and Recommendations for Future Governance Models

Key Takeaways

Respondents emphasized **the need for greater collaboration between projects** to enhance stakeholder engagement and knowledge exchange. While interest in bioeconomy is growing, clear **value chains and business models are still lacking**, and **national strategies must align with regional needs**. Knowledge-sharing was highly valued, with a call for more workshops and increased awareness of the Toolbox among key stakeholders.

Opportunities for Future Actions

Respondents highlighted that the ROBIN project f**ostered regional collaboration, raised awareness of bioeconomy opportunities, and identified new research and applied initiatives**. It helped the Southern Region explore tailored bioeconomy strategies, brought together diverse stakeholders, and emphasized renewable energy potential. The project also **improved supply chains and business cases for bioeconomy development, opening up new academic opportunities**.

Conclusion

The ROBIN project played a pivotal role in advancing bioeconomy governance models in the Southern Region. While its academic focus provided a strong knowledge base, **improvements are needed in stakeholder engagement, practical applications, and toolbox usability**. Ensuring long-term sustainability, fostering collaboration, and tailoring strategies to regional needs will be essential for continued success in circular bioeconomy development.

Žilina, Slovakia

Governance Model Development and Stakeholder Engagement

Perception of Governance Model Development

The Zilina region had already integrated circular and bioeconomy principles into its economic and social development plans before the ROBIN project. Respondents agreed that **ROBIN reinforced this foundation by providing best practices, validation activities, and structured methodologies for implementation**. Respondents confirmed that the Quadruple Helix (QH) model and the creation of Regional Circular Economy Centres were the most effective approaches for governance. **ROBIN's influence allowed the region to take steps ahead of national strategies**.

Local Authorities and Stakeholder Engagement

The Quadruple Helix model was highlighted as effective in engaging local authorities, businesses, researchers, and civic organizations. **The project fostered strong collaboration between key regional actors**, including local authorities, SMEs, universities, and knowledge institutions. Respondents appreciated **the opportunities for networking, the exchange of experiences, and the inclusive decision-making process** that allowed all sectors to contribute. They noted that this collaborative approach was vital for designing sustainable bioeconomy strategies in the region. The

Stakeholder Engagement Workshop in Zilina was identified as a key milestone, fostering networking and cooperation within and beyond the region.

Challenges to Engagement

The main barrier identified by the respondents was **the lack of time among stakeholders**, limiting participation and awareness-building. **Weak national-level support** resulted in little pressure to advance bioeconomy governance at the regional level. **The need for more efficient meetings and better integration of topics** was also suggested, with an emphasis on **building on existing foundations rather than creating new structures**.

ROBIN Toolbox Effectiveness

Usefulness in Addressing Regional Bioeconomy Goals

Respondents found the ROBIN Toolbox **valuable for addressing regional bioeconomy goals**. Best practice examples, especially those from other EU regions, were particularly useful. The Toolbox helped **facilitate information exchange and networking**, which were considered crucial for fostering cooperation in the region.

Suggestions for Improvements

All respondents agreed that the Toolbox was effective as it was and did not suggest any specific improvements.

Lessons Learned and Recommendations for Future Governance Models

Key Takeaways

Key lessons included **learning from national and international projects**, which opened new opportunities for regional involvement in EU projects. The respondents also highlighted **challenges like competing priorities and a lack of awareness about bioeconomy opportunities** among some stakeholders. **The absence of a clear national strategy for Slovakia's bioeconomy was identified as a major barrier to transformative change**. Without top-down pressure, regional actors lack the motivation to drive transformative change. To enhance engagement, bioeconomy topics should be integrated into existing local governance structures, such as Local Action Groups meetings, rather than creating additional meetings. **Practical implementation steps and cross-border collaboration should be prioritized** over theoretical discussions.

Opportunities for Future Actions

According to respondents, the ROBIN project has created **valuable opportunities for engagement** in Slovak and EU projects and calls, highlighting the strong foundation for circular bioeconomy development in the Zilina region. Respondents expressed that **networking and knowledge exchange**, particularly through case studies like the Green Roofs project and collaborations with Local Action Groups, have been crucial in fostering practical solutions. They emphasized **the need to shift from discussions to implementation** and noted that delegating coordination to INOVIA was a strategic move to connect stakeholders beyond the IT sector. Additionally, respondents

highlighted the motivation and opportunities generated for regional entrepreneurs and stressed **the importance of cross-border collaboration** to gain insights from other regions.

Conclusion

The Final Interviews proved that the ROBIN project has strengthened circular bioeconomy governance in the Zilina region. Stakeholders highly valued **its role in networking, structured methodologies, and regional cooperation**. However, **long-term progress will require stronger national policy support, more efficient stakeholder engagement, and continued international collaboration**. By leveraging its existing momentum and cross-border partnerships, the Zilina region can further establish itself as a leader in Slovakia's bioeconomy transition.

Annex IV: Baseline/Endline Questionnaires

BASELINE / ENDLINE QUESTIONNAIRE

I. Section: Basic information about the respondent

Question No.		
1		Name of the organizations
	Your affiliation /organization.	
	WRITE THE EXACT NAMES OF THE ORGANIZATIONS.	

2		a) I am a representative / member of a regional authority.	b) I am a representative/ member of a local authority.	c) I am a representative of an external advisory/ consulting entity.	d) I am a researcher or affiliated to a higher education institution.	e) I am a representative of a business entity/ entrepreneur.	f) I am a representative/ member of a business as sociation, cluster or	g) I am a representative/ member of a non-governmental or	h1) Other. Please specify

							innovation centre.	civil society organization.	
	Please state your current level of involvement in the regional bioeconomy sector.								
	WRITE THE TOTAL NUMBER OF RESPONDENTS WHO INDICATED THAT THEY BELONG TO A PARTICULAR CATEGORY. FOR h2) PLEASE WRITE EXACT ANSWERS OF ALL RESPONDENTS BELONGING TO THIS CATEGORY.								

3		a) Representative/ members of a regional authority.	b) Representatives/ members of a local authority.	c) Representatives of an external advisory/ consulting entity.	d) Researchers or affiliated to a higher education institution.	e) Representative of a business entity/ entrepreneur.	f) Representatives/ members of a business association, cluster or innovation centre.	g) Representatives/ members of a non-governmental or civil society organization.	h) Other - please specify.

	How long have you been working in your current position? Please indicate the exact number of years. FOR EACH CATEGORY, PLEASE CALCULATE AND WRITE AVERAGE NUMBER.	*e.g. 3 respondents indicated 15 + 10 + 5 years of experience respectively = you will write 10 years*							

II. Section: Capacities in designing, implementing, monitoring and evaluating the bioeconomy governance models								
	QUESTIONS 4-7 FOR REGIONAL/LOCAL AUTHORITIES ONLY							
Question No.								
		0 - no experience	1	2	3	4	5 - excellent experience	Comments on possible deviations
4	*On the scale 0-5, please indicate how experienced is your organization in the design of regional bioeconomy governance models.*							

	WRITE THE TOTAL NUMBER OF RESPONDENTS WHO INDICATED THAT THEY BELONG TO A PARTICULAR CATEGORY.							
5		a) The organization is very experienced and has very good capacity in the indicated area.	b) The organization has some experience and capacity in the indicated area.	c) The organization has limited experience and capacity in the indicated area.	d) The organization has no experience and capacity in the indicated area.	e1) Other.	e2) Other - please specify.	Comments on possible deviations
	On the multi-choice form, please indicate what is your organization's experience and capacity in the area of designing and implementing the bioeconomy governance models that drive the development of innovation- and sustainability-driven bioeconomy strategies.							

	WRITE THE TOTAL NUMBER OF RESPONDENTS WHO INDICATED THAT THEY BELONG TO A PARTICULAR CATEGORY. FOR e2) PLEASE WRITE EXACT ANSWERS OF ALL RESPONDENTS BELONGING TO THIS CATEGORY.							

		0 - no experience	1	2	3	4	5 - excellent experience	Comments on possible deviations
6	*On the scale 0-5, please indicate how experienced is your organization in monitoring and evaluation of the bioeconomy strategies.*							
	WRITE THE TOTAL NUMBER OF RESPONDENTS WHO INDICATED THAT THEY BELONG TO A PARTICULAR CATEGORY.							

		a) The organization is very experienced and has very good capacity in the indicated area.	b) The organization has some experience and capacity in the indicated area.	c) The organization has limited experience and capacity in the indicated area.	d) The organization has no experience and capacity in the indicated area.	e1) Other.	e2) Other - please specify.	Comments on possible deviations
7	*On the multi-choice form, please indicate what is your organization's experience and capacity in the area of monitoring and evaluation of the circular bioeconomy.*							
	WRITE THE TOTAL NUMBER OF RESPONDENTS WHO INDICATED THAT THEY BELONG TO A PARTICULAR CATEGORY. FOR e2) PLEASE WRITE EXACT ANSWERS OF ALL RESPONDENTS BELONGING TO THIS CATEGORY.							

III. Section: Stakeholders engagement

Question No.								
8	*On the scale 0-5, please indicate if there are opportunities for actors to participate in the circular bioeconomy transition in your region.*	0 - zero opportunities	1	2	3	4	5 - excellent number of opportunities	Comments on possible deviations
	WRITE THE TOTAL NUMBER OF RESPONDENTS WHO INDICATED THAT THEY BELONG TO A PARTICULAR CATEGORY.							

9	*On the scale 0-5, please indicate the level of engagement of the above-mentioned actors in the collaborative policy making*	0 - zero opportunities	1	2	3	4	5 - excellent number of opportunities	Comments on possible deviations
	WRITE THE TOTAL NUMBER OF RESPONDENTS WHO INDICATED THAT THEY BELONG TO A							

	PARTICULAR CATEGORY.							

	QUESTIONS 10-12 FOR REGIONAL/LOCAL AUTHORITIES ONLY

		0 - no familiarity	1	2	3	4	5 - excellent familiarity	Comments on possible deviations
10	*On the scale 0-5, please indicate how familiar your organization is with the barriers preventing stakeholders' engagement in your region.*							
	WRITE THE TOTAL NUMBER OF RESPONDENTS WHO INDICATED THAT THEY BELONG TO A PARTICULAR CATEGORY.							

11		0 - no familiarity	1	2	3	4	5 - excellent familiarity	Comments on possible deviations

	On the scale 0-5, please indicate if and in what scale your organization is familiar with the solutions to overcome the above-mentioned barriers.							
	WRITE THE TOTAL NUMBER OF RESPONDENTS WHO INDICATED THAT THEY BELONG TO A PARTICULAR CATEGORY.							

		a) The organization has very good knowledge of the indicated area.	b) The organization has some knowledge of the indicated area.	c) The organization has limited knowledge of the indicated area.	d) The organization has no knowledge of the indicated area.	e1) Other.	e2) Other - please specify.	Comments on possible deviations
12	*On the multi-choice form, please indicate the level of your organization's knowledge of the multi-actor business models and social measures necessary for the implementation of the circular bioeconomy.*							

	WRITE THE TOTAL NUMBER OF RESPONDENTS WHO INDICATED THAT THEY BELONG TO A PARTICULAR CATEGORY. FOR e2) PLEASE WRITE EXACT ANSWERS OF ALL RESPONDENTS BELONGING TO THIS CATEGORY.							

	QUESTIONS 13-14 FOR REGIONAL/LOCAL AUTHORITIES, BUSINESS ASSOCATIONS, CLUSTERS AND INNOVATIONS CENTRES ONLY

		0 - no capacity	1	2	3	4	5 - excellent capacity	Comments on possible deviations
13	*On the scale 0-5, please indicate how you perceive the level of your organization's capacity to improve the regional stakeholders' engagement and collaboration in the circular bioeconomy development in your region*							

	WRITE THE TOTAL NUMBER OF RESPONDENTS WHO INDICATED THAT THEY BELONG TO A PARTICULAR CATEGORY.							

		0 - not beneficial	1	2	3	4	5 - very beneficial	Comments on possible deviations
14	*On the scale 0-5, please indicate how you perceive the benefit of stakeholders' engagement in the circular bioeconomy transition.*							
	WRITE THE TOTAL NUMBER OF RESPONDENTS WHO INDICATED THAT THEY BELONG TO A PARTICULAR CATEGORY.							

IV. Section: Local potentials and innovation assets

Question No.								
15		0 - no capacity	1	2	3	4	5 - excellent capacity	Comments on possible deviations

	On the scale 0-5, please indicate your region's capacity to support the exploitation of bioeconomy related assets.							
	WRITE THE TOTAL NUMBER OF RESPONDENTS WHO INDICATED THAT THEY BELONG TO A PARTICULAR CATEGORY.							

		0 - no capacity	1	2	3	4	5 - excellent capacity	Comments on possible deviations
16	*On the scale 0-5, please indicate your region's capacity to develop the strategies accelerating the circular bioeconomy transition in your region.*							
	WRITE THE TOTAL NUMBER OF RESPONDENTS WHO INDICATED THAT THEY BELONG TO A PARTICULAR CATEGORY.							

V. Section: Opportunities

Question No.								
17		a) The organization has very good knowledge of the indicated area.	b) The organization has some knowledge of the indicated area.	c) The organization has limited knowledge of the indicated area.	d) The organization has no knowledge of the indicated area.	e1) Other.	e2) Other - please specify.	Comments on possible deviations
	On the multi-choice form, please indicate what is your organization's level of knowledge of the transnational business opportunities, e.g. entering new markets with products and services related to the circular bioeconomy.							
	WRITE THE TOTAL NUMBER OF RESPONDENTS WHO INDICATED THAT THEY BELONG TO A PARTICULAR CATEGORY. FOR e2) PLEASE WRITE EXACT ANSWERS OF ALL RESPONDENTS BELONGING TO THIS CATEGORY.							

18		0 - not adequate capacity	1	2	3	4	5 - excellent capacity	Comments on possible deviations

	On the scale 0-5, please indicate how your organization perceives the capacity of your regional/local authority to identify and promote transnational business opportunities.							
	WRITE THE TOTAL NUMBER OF RESPONDENTS WHO INDICATED THAT THEY BELONG TO A PARTICULAR CATEGORY.							

		a) The organization has very good knowledge of the indicated area.	b) The organization has some knowledge of the indicated area.	c) The organization has limited knowledge of the indicated area.	d) The organization has no knowledge of the indicated area.	e1) Other.	e2) Other - please specify.	Comments on possible deviations
19	*On the multi-choice form, please indicate what is your organization's level of knowledge of the collaboration and/ or business opportunities in the field of circular bioeconomy at the regional level. These can include new collaborations along or across value chains.*							

	WRITE THE TOTAL NUMBER OF RESPONDENTS WHO INDICATED THAT THEY BELONG TO A PARTICULAR CATEGORY. FOR e2) PLEASE WRITE EXACT ANSWERS OF ALL RESPONDENTS BELONGING TO THIS CATEGORY.							

		0 - not adequate capacity	1	2	3	4	5 - excellent capacity	Comments on possible deviations
20	*On the scale 0-5, please indicate how your organization perceives the capacity of the regional/local authority to identify and promote collaboration opportunities at the regional level.*							
	WRITE THE TOTAL NUMBER OF RESPONDENTS WHO INDICATED THAT THEY BELONG TO A PARTICULAR CATEGORY.							

VI. Section: Policy Areas	
	QUESTIONS 21-24 FOR REGIONAL/LOCAL AUTHORITIES ONLY
	QUESTION 25 FOR BUINESS ENTITIES, ENTREPRENEURS, BUSINESS ASSOCATIONS, CLUSTERS AND INNOVATION CENTRES ONLY

Question No.								
		a) The organization has very good knowledge of the indicated area.	b) The organization has some knowledge of the indicated area.	c) The organization has limited knowledge of the indicated area.	d) The organization has no knowledge of the indicated area.	e1) Other.	e2) Other - please specify.	Comments on possible deviations
21	*On the multi-choice form, please indicate how you would describe your organization's level of knowledge concerning policy areas that need to be improved to promote the transition towards the circular bioeconomy at the regional level.*							

	WRITE THE TOTAL NUMBER OF RESPONDENTS WHO INDICATED THAT THEY BELONG TO A PARTICULAR CATEGORY. FOR e2) PLEASE WRITE EXACT ANSWERS OF ALL RESPONDENTS BELONGING TO THIS CATEGORY.							

22		a) The organization has very good capacities in the indicated area.	b) The organization has some capacities in the indicated area.	c) The organization has limited capacities in the indicated area.	d) The organization has no capacities in the indicated area.	e1) Other.	e2) Other - please specify.	Comments on possible deviations
	On the multiple-choice form, please indicate what are your organization's capacities to foster the opportunities created by the local bio-based economy (e.g. supported by means of support measures and funding instruments that promote integration within the circular bioeconomy).							

	WRITE THE TOTAL NUMBER OF RESPONDENTS WHO INDICATED THAT THEY BELONG TO A PARTICULAR CATEGORY. FOR e2) PLEASE WRITE EXACT ANSWERS OF ALL RESPONDENTS BELONGING TO THIS CATEGORY.							

		0 - not adequate capacity	1	2	3	4	5 - excellent capacity	Comments on possible deviations
23	*On the scale 0-5, please indicate how would you perceive the capacity of the regional/local government to assess the regional environmental footprint (meaning the effect that a person/company/activity has on the environment, e.g. the amount of natural resources they use, etc.).*							
	WRITE THE TOTAL NUMBER OF RESPONDENTS WHO INDICATED THAT THEY BELONG TO A							

	PARTICULAR CATEGORY.							
		a) The organization is very experienced and has very good capacity in the indicated area.	b) The organization has some experience and capacity in the indicated area.	c) The organization has limited experience and capacity in the indicated area.	d) The organization has no experience and capacity in the indicated area.	e1) Other.	e2) Other - please specify.	Comments on possible deviations
24	*On the multi-choice form, please indicate how you would describe your organization's experience and capacity to design actionable guidelines addressed to the local operators and innovation developers.*							
	WRITE THE TOTAL NUMBER OF RESPONDENTS WHO INDICATED THAT THEY BELONG TO A PARTICULAR CATEGORY. FOR e2) PLEASE WRITE EXACT ANSWERS OF ALL RESPONDENTS							

	BELONGING TO THIS CATEGORY.							

		0 - not adequate knowledge	1	2	3	4	5 - excellent knowledge	Comments on possible deviations
25	*On the scale 0-5, please indicate your organization's level of knowledge concerning climate-neutrality and low environmental footprint benefits of bio-based products and services.*							
	WRITE THE TOTAL NUMBER OF RESPONDENTS WHO INDICATED THAT THEY BELONG TO A PARTICULAR CATEGORY.							

VII. Section: Business Models and Social Measures	
	QUESTION 29 FOR REGIONAL/LOCAL AUTHORITIES ONLY

Question No.								
		a) The organization has very good capacities in the indicated area.	b) The organization has some capacities in the indicated area.	c) The organization has limited capacities in the indicated area.	d) The organization has no capacities in the indicated area.	e1) Other.	e2) Other - please specify.	Comments on possible deviations
26	*On the multi-choice form, please indicate what are your organization's capacities to develop novel business models and social measures contributing to the circular bioeconomy transition in the region.*							
	WRITE THE TOTAL NUMBER OF RESPONDENTS WHO INDICATED THAT THEY BELONG TO A PARTICULAR CATEGORY. FOR e2) PLEASE WRITE EXACT ANSWERS OF ALL RESPONDENTS BELONGING TO THIS CATEGORY.							

27		0 - very low motivation	1	2	3	4	5 - very high motivation	Comments on possible deviations

	On the scale 0-5, please indicate your organization's level of motivation to switch to socially and environmentally responsible behaviours.							
	WRITE THE TOTAL NUMBER OF RESPONDENTS WHO INDICATED THAT THEY BELONG TO A PARTICULAR CATEGORY.							

		0 - very unsatisfactory level of inclusion	1	2	3	4	5 - very unsatisfactory level of inclusion	Comments on possible deviations
28	*On the scale 0-5, please indicate how you perceive the level of inclusion of the business and social dimensions in the development of regional governance models and structures.*							
	WRITE THE TOTAL NUMBER OF RESPONDENTS WHO INDICATED THAT THEY BELONG TO A PARTICULAR CATEGORY.							

		a) The organization has very good capacity in the indicated area.	b) The organization has some capacity in the indicated area.	c) The organization has limited capacity in the indicated area.	d) The organization has no capacity in the indicated area.	e1) Other.	e2) Other - please specify.	Comments on possible deviations
29	*On the multi-choice form, please indicate what is your organization's level of capacity to design action plans and specific measures for downsizing non-environmentally friendly practices in favour of more responsible business and social models (e.g., through environmentally friendly practices, as well as opportunity areas).*							
	WRITE THE TOTAL NUMBER OF RESPONDENTS WHO INDICATED THAT THEY BELONG TO A PARTICULAR CATEGORY. FOR e2) PLEASE WRITE EXACT ANSWERS OF ALL RESPONDENTS BELONGING TO THIS CATEGORY.							

VIII. Section: Environmental Indicators

QUESTIONS 30 AND 31 FOR "REGIONAL NODES" ONLY

Question No.														
		Environmental Footprints in exporting countries (to the EU)			Financial support to bio-based sectors (climate action)			Investments in urban adaptation through nature-based infrastructures for EBA			Production of bio-based materials (Plastics, Textiles, Chemicals)		
30		Establish stricter environmental regulations and standards to ensure sustainable production practices in exporting countries.	Promote capacity building and technology transfer to support exporting countries in implementing cleaner production methods.	Foster international partnerships and cooperation to share best practices and promote sustainable supply chains across borders.	Increase funding for research and development in bio-based technologies and processes.	Provide grants or subsidies for companies investing in the development and production of bio-based materials.	Implement mechanisms such as carbon pricing or green bonds to attract private investment in bio-based sectors.	Allocate funds for the planning and implementation of nature-based infrastructure projects in urban areas.	Develop policies and incentives to promote the integration of nature-based solutions into urban planning and development.	Engage local communities and stakeholders in decision-making processes to ensure nature-based infrastructures meet their needs and preferences.	Encourage research and development to improve the efficiency and scalability of bio-based production processes.	Provide financial incentives or tax breaks for companies adopting bio-based materials, fostering market competitiveness.	Facilitate collaboration between academia, industry, and government to accelerate innovation and knowledge sharing in bio-based industries.
	30. After familiarizing yourselves with the Policy Monitoring Tool, mark which suggestion/s for improvement within 4 indicator categories (can be more than 1) as: *· Not applicable (N/A)* *· Applicable but not initiated* *· In progress (P)* *· Completed (C)* *according to your region's needs and future plans.*												
31	*31. Please try to estimate the current value of the environmental indicator and suggestion for improvement you chose in the question 30 – please use evaluation metric of the Policy Monitoring Tool of the Robin Toolbox (an evaluation metric for each environmental indicator appears after you click on the environmental indicator on the Robin Toolbox website): https://robintoolbox.web.auth.gr/index.php/policy-monitoring-system/* ESTIMATE THE CURRENT VALUE AND WRITE IT INTO THE BOX UNDER THE INDICATOR YOU CHOSE IN THE QUESTION 30												

Annex V: Beta Questionnaire

BETA QUESTIONNAIRE - DATA COLLECTION SHEET

I. Section: Respondet Information

Question No.										
		A. I am a representative/member of a regional authority.	B. I am a representative/member of a local authority.	C. I am a representative of an external advisory/consulting entity.	D. I am a researcher or affiliated to a higher education institution.	E. I am a representative of a business entity/entrepreneur.	F. I am a representative/member of a business association, cluster or innovation centre.	G. I am a representative/member of a non-governmental or civil society organization.	H. Other, please specify.	Comments on possible deviations
1	Please state your current sector of involvement in the regional bioeconomy sector WRITE THE TOTAL NUMBER OF RESPONDENTS WHO INDICATED THAT THEY BELONG TO A PARTICULAR CATEGORY.									

		A. Representatives/members of a regional authority.	B. Representatives/members of a local authority.	C. Representatives of an external advisory/consulting entity.	D. Researchers or affiliated to a higher education institution.	E. Representatives of a business entity/entrepreneur.	F. Representatives/members of a business association, cluster or innovation centre.	G. Representatives/members of a non-governmental or civil society organization.	H. Other, please specify	Comments on possible deviations
2	How long have you been working in the above-mentioned sector? Please indicate the exact number of years. FOR EACH CATEGORY, PLEASE CALCULATE AND WRITE AVERAGE NUMBER.									

II. Section: Circular Bioeconomy Governance Models									
Question No.									
3	What is the current level of development of the circular bioeconomy in your region, particularly regarding the development of governance models functioning in your region? WRITE THE TOTAL NUMBER OF RESPONDENTS WHO CHOSE THE PARTICULAR ANSWER.	A. Very advanced	B. Advanced	C. Moderately developed	D. Beginning stages	E. Not developed at all	Comments on possible deviations		
4	To what extent has the presentation of the ROBIN project's outputs and results changed your understanding of the circular bioeconomy, particularly its usefulness for European regions? WRITE THE TOTAL NUMBER OF RESPONDENTS WHO CHOSE THE PARTICULAR ANSWER.	A. To a very great extent	B. To a great extent	C. To some extent	D. To a small extent	E. Not at all	Comments on possible deviations		
5	To what extent do you think the examples from the ROBIN regions could inspire changes in the governance approaches in your region? WRITE THE TOTAL NUMBER OF RESPONDENTS WHO CHOSE THE PARTICULAR ANSWER.	A. To a very great extent	B. To a great extent	C. To some extent	D. To a small extent	E. Not at all	Comments on possible deviations		

		A. Implementing circular economy principles with a territorial approach.	B. ROBIN Toolbox for decision-making support in bioeconomy initiatives.	C. Community engagement and social innovation in bioeconomy.	D. Cross-regional collaboration and sharing of best practices.	E. Sustainable management of biomass and waste resources.	F. Other - please specify	Comments on possible deviations
6	Which of the presented processes or approaches in the bioeconomy development in the ROBIN project do you find most applicable or valuable for your region? WRITE THE TOTAL NUMBER OF RESPONDENTS WHO CHOSE THE PARTICULAR ANSWER.							

		A. Insufficient human resources	B. Limited expertise	C. Time constraints	D. Inadequate financial resources	E. Insufficient technical resources	F. Other - please specify	Comments on possible deviations
7	What potential challenges do you anticipate in implementing and adopting these processes, approaches, or steps within your region's unique bioeconomy landscape? WRITE THE TOTAL NUMBER OF RESPONDENTS WHO CHOSE THE PARTICULAR ANSWER.							

		A. Yes, definitely	B. Yes, to some extent	C. Maybe	D. Not really	E. Not at all	Comments on possible deviations
8	Does the ROBIN project provide actionable insights for improving the governance models in your region? WRITE THE TOTAL NUMBER OF RESPONDENTS WHO CHOSE THE PARTICULAR ANSWER.						

		A. Yes, significant changes - please describe	B. Yes, some changes - please describe	C. Maybe, potential changes - please describe	D. No changes expected	Not applicable / Unsure	Comments on possible deviations	
9	Do you anticipate any systemic changes in your governance practices as a result of learning from ROBIN's outputs? If so, please shortly describe those changes. WRITE THE TOTAL NUMBER OF RESPONDENTS WHO CHOSE THE PARTICULAR ANSWER.							

III. Section: Circular Bioeconomy Opportunities									
Question No.									
10	How aware are you of the existing opportunities for developing the circular bioeconomy in your region? WRITE THE TOTAL NUMBER OF RESPONDENTS WHO CHOSE THE PARTICULAR ANSWER.	A. Very aware	B. Aware	C. Somewhat aware	D. Slightly aware	E. Not aware at all	Comments on possible deviations		
11	Have you identified any new opportunities as a result of learning about the ROBIN project and its outcomes? WRITE THE TOTAL NUMBER OF RESPONDENTS WHO CHOSE THE PARTICULAR ANSWER.	A. Yes, definitely	B. Yes, to some extent	C. Maybe	D. Not really	E. Not at all	Comments on possible deviations		
12	What specific information or tools would help you more effectively identify and capitalize on opportunities within the circular bioeconomy in your region? WRITE THE TOTAL NUMBER OF RESPONDENTS WHO CHOSE THE PARTICULAR ANSWER.	A. Tools for assessing environmental impacts.	B. Platform for connecting with stakeholders.	C. Guide for implementing circular models locally.	D. Data on regional supply chains and resources.	E. Educational materials on sustainable practices.	F. Other - please specify	Comments on possible deviations	

IV . Section: Circular Bioeconomy Enablers & Partnerships								
Question No.								
13	To what extent do you feel empowered to contribute to the circular bioeconomy transition after familiarizing with the ROBIN project? WRITE THE TOTAL NUMBER OF RESPONDENTS WHO CHOSE THE PARTICULAR ANSWER.	A. Very empowered	B. Empowered	C. Somewhat empowered	D. Slightly empowered	E. Not empowered at all	Comments on possible deviations	
14	Do you feel more motivated to collaborate with other regional actors on circular bioeconomy initiatives after learning about the ROBIN project? WRITE THE TOTAL NUMBER OF RESPONDENTS WHO CHOSE THE PARTICULAR ANSWER.	A. Strongly agree	B. Agree	C. Neutral	D. Disagree	E. Strongly disagree	Comments on possible deviations	
15	Do you anticipate any long-term benefits from applying the presented ROBIN's insights and tools? WRITE THE TOTAL NUMBER OF RESPONDENTS WHO CHOSE THE PARTICULAR ANSWER.	A. Yes, definitely	B. Yes, to some extent	C. Neutral	D. No, not much	E. No, not at all	Comments on possible deviations	

Annex VI: Final Interviews Outline with Questions

Final Interview – Introduction

Basic Information about ROBIN Final Interviews

- **Duration:** 30 – 45 minutes
- **Format:** Microsoft Teams
- **Language:** English language
- **Interviewers:** Adriana Čiefová (ROBIN Project Manager) and Letizia Piras (Project Manager) from PEDAL Consulting
- **Content:** The interviews will commence with a brief presentation outlining the progress made toward achieving our project objectives, followed by the Interview Questions and gathering of the answers from the interviewees.
- **Number of interviewees:** 4 stakeholders per region (5 regions, 20 interviewees in total)
- **Data Use and Confidentiality:** All responses will be anonymized and used exclusively for project assessment and reporting purposes. Please note that the interview will not be recorded; instead, the interviewers will take written notes during the session.
- **Consent Agreement:** In accordance with the ROBIN Privacy Policy, all interviewees need to sign the Consent Agreement (ideally) prior to the interview.

Purpose of ROBIN Final Interviews

The Goals of the Final Interviews are:

- To collect data concerning the activities and results of ROBIN.
- To explore how the different support actions of the project have contributed towards the change of stakeholders' perceptions towards the new governance models.
- To explore the overall progress of the ROBIN regions in the Regional Circular Bioeconomy Governance Models development.
- To analyze the perspectives of the stakeholders on the impact and significance of the activities carried out by their respective regional node, offering insights based on their expectations for the project.
- To capture the primary benefits of the project as perceived by stakeholders across different regions.

The results will be used as a cross-reference to data collected through the previous methods and will complement the quantitative information collected through other methods. The results will be included in the **Deliverable 4.1** of the ROBIN project.

Objectives of ROBIN project

The main objectives of the project are:

- **Empower Regions:** Enable European regions to adapt governance models to accelerate circular bioeconomy targets.
- **Promote Social Innovation:** Encourage innovative social practices within regional bioeconomy initiatives.
- **Account for Territorial Contexts:** Tailor approaches to the specific needs and characteristics of different regions.
- **Understand Governance Practices:** Analyze existing bioeconomy governance models across Europe.
- **Identify Best Practices:** Develop a typology of governance models and highlight effective practices.
- **Enhance Bioeconomy Benefits:** Deepen understanding of the advantages offered by the bioeconomy.

Progress Toward Achieving ROBIN Objectives

The ROBIN project is making significant strides toward achieving its objectives, particularly through the active engagement of regional nodes in developing and operationalizing circular bioeconomy governance models.

A short overview of the progress:

- **Co-Creation Workshops**
  - Identified barriers, opportunities, and governance improvements.
  - Co-developed tailored governance models.
- **Regional Governance Models**
  - Established a Circular Bioeconomy Governance Model Framework (CBGMF).
  - Structured approach to addressing regional challenges and opportunities.

Progress Toward Achieving ROBIN Objectives

- **Regional Action Plans**
  - Developed concrete steps to implement governance models.
  - Ensured alignment with regional and ROBIN objectives.
- **Toolbox Validation Workshops**
  - Conducted validation workshops to validate ROBIN Toolbox components and to further refine governance models.
- **Intra-Regional and Inter-Regional Cooperation**
  - Engaged stakeholders in the region and beyond to enhance policy alignment and collaboration.
  - Enhanced collaboration for knowledge exchange and best practices
- **Awareness Raising**
  - Promoted awareness and education on circular bioeconomy principles.

Final Interview – Questions

Outline of ROBIN Final Interviews

- **Number of Sections:** 3 Sections
  1. Governance Models Development and Stakeholder Engagement
  2. ROBIN Toolbox Effectiveness
  3. Lessons Learned and Recommendations for Future Governance Models
- **Number of Questions:** 7 questions
- Within each Section, the stakeholders will be invited to share their perspectives on the impact and significance of the activities carried out by their respective regional node, offering insights based on their expectations for the project.

I. Section: Governance Model Development and Stakeholder Engagement

I. Section: Governance Model Development and Stakeholder Engagement

2. Question:

How do you evaluate the engagement of local authorities and stakeholders in the process?

a. For Public Authority: **Has the involvement of stakeholders improved governance for bioeconomy in your region?**
b. For Higher Education/Research: **How has collaboration between institutions and stakeholders supported research/teaching efforts?**
c. For Business: **Have local businesses had opportunities to participate and contribute to these governance models?**
d. For Civil Society/NGO: **Have community voices been included in decisions related to bioeconomy governance?**

I. Section: Governance Model Development and Stakeholder Engagement

3. Question:

Are there any significant barriers or challenges that have affected the stakeholder engagement in your region?

II. Section:
ROBIN Toolbox Effectiveness

II. Section: ROBIN Toolbox Effectiveness

4. Question:

To what extent can the ROBIN Toolbox be helpful in addressing your region's unique bioeconomy goals and challenges?

a. For Public Authority: **In your opinion, can the Toolbox be helpful in addressing policy needs for bioeconomy?**
b. For Higher Education/Research: **Does the Toolbox offer new insights or resources for research and education?**
c. For Business: **How can ROBIN be used by business entities to help them grow and find interesting business opportunities for them?**
d. For Civil Society/NGO: **Can the Toolbox be useful for community engagement and awareness in circular bioeconomy?**

II. Section: ROBIN Toolbox Effectiveness

5. Question:

Do you have any concrete ideas for the improvements of the ROBIN Toolbox so it can address your region's needs and goals more effectively?

III. Section:
Lessons Learned and Recommendations for Future Governance Models

III. Section: Lessons Learned and Recommendations for Future Governance Models

6. Question:

What are the most important lessons learned from your participation in the ROBIN project?

III. Section: Lessons Learned and Recommendations for Future Governance Models

7. Question:

Based on your experience in ROBIN, what new opportunities and actions has the project brought to your sector?

a. For Public Authority: **What are the key opportunities which other regions interested in improving their governance models can find in ROBIN?**
b. For Higher Education/Research: **What key research opportunities in the transition towards circular bioeconomy have emerged from the project?**
c. For Business: **Has your experience in the project brought new business ideas and/or opportunities, and what would you improve in ROBIN in this regard?**
d. For Civil Society/NGO: **What actions would you recommend to encourage a bigger community involvement in the circular bioeconomy in your and other regions?**

The End ☺

Thank you very much for your time, your contribution to the project is very much appreciated!

DEPLOYING CIRCULAR BIOECONOMIES AT REGIONAL LEVEL WITH A TERRITORIAL APPROACH

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 (QPL)	www.qplan-intl.gr
FUNDACION CORPORACION TECHNOLOGICA SE ANDALUCIA (CTA)	www.corporaciontecnologica.com
WHITE RESEARCH SRL (WR)	www.white-research.eu
PEDAL CONSULTING SRO (PED)	www.pedal-consulting.eu
STEINBEIS 2I GMBH (S2I)	www.steinbeis-europa.de
ROZVOJOVA AGENTURA ZILINSKEHO SAMOSPRAVNEHO KRAJA NO (ZSK)	www.razsk.sk
MUNSTER TECHNOLOGICAL UNIVERSITY (MTU)	www.circbio.ie
ARISTOTELEIO PANEPISTIMIO THESSALONIKIS (AUTh)	www.auth.gr
REGION OF CENTRAL MACEDONIA (RCM)	www.pkm.gov.gr
CONSEJERÍA DE AGRICULTURA, PESCA, AGUA Y DESARROLLO RURAL (CAG)	www.juntadeandalucia.es
INSTITUTO ANDALUZ DE INVESTIGACION Y FORMACION AGRARIA PESQUERA ALIMENTARIA Y DE LA PRODUCCION ECOLOGICA (IFA)	www.juntadeandalucia.es
SOUTHERN REGIONAL ASSEMBLY (SRA)	www.southernassembly.ie