BASELINE GOVERNANCE, COORDINATION AND IMPLEMENTATION RECOMMENDATIONS FOR REGIONAL BIOECONOMY DEVELOPMENT

TIER 1

Abstract

The document sets out baseline governance, coordination and implementation recommendations to guide Ireland's transition towards a sustainable, regionally tailored bioeconomy. While Ireland has established national bioeconomy policy ambition, research capacity and examples of circular practice, regional delivery remains underdeveloped and fragmented. This document aims to addresses this implementation gap. Drawing on policy, governance, practitioner and international evidence from Tasks 2 and 3 of the CoBioEcon project, the document develops a Tier 1 implementation framework focused on coordination, participation, advisory support, finance, regulatory navigation, research-to-practice translation, market formation, monitoring and policy learning. The strategy applies this common framework through three differentiated regional models which include: a distributed capacity-building model for the Northern and Western (NW) region; a shared value-chain governance model for the Southern region; and an innovation-to-market model for the Eastern and Midlands (EM) region. The recommendations are presented as baseline propositions to be tested, refined and prioritised through regional co-design.

Jon Paul Faulkner

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Contents

1. Introdduction 2
2. Evidence-to-Strategy Translation 2
3. Baseline Evidence: Ireland's Implementation Problem 4
   3.1 National policy ambition without a regional delivery framework 4
   3.2 Weak regional governance and fragmented coordination 5
   3.3 Practitioner barriers to implementation 5
   3.4 Finance, regulation and market formation as implementation barriers 5
   3.5 Farmer, SME and practitioner inclusion as an implementation condition 6
   3.6 Research-to-practice and commercialisation gap 6
4. National Implementation Framework 7
   4.1 Regional coordination function 7
   4.2 Multi-level governance function 8
   4.3 Practitioner participation function 8
   4.4 Advisory and guidance function 8
   4.5 Finance and implementation support function 8
   4.6 Research-to-practice function 9
   4.7 Market-formation function 9
   4.8 Monitoring and policy-learning function 9
   4.9 Delivery approach 10
   4.10 Implementation phasing 11
5. Northern and Western (NW) Region: Distributed Capacity-Building Model 13
   5.1 Regional implementation approach 13
   5.2 Strategic aim 13
   5.3 Design principles for the NW model 13
   5.4 Priority delivery arrangements 14
   5.5 Monitoring indicators for the NW region 18
6. Southern Region: Shared Value-Chain Governance Model 20
   6.1 Regional implementation approach 20
   6.2 Strategic aim 21
   6.3 Design principles for the Southern model 21
   6.4 Priority delivery arrangements 21
   6.5 Monitoring indicators for the Southern region 26
7. Eastern and Midlands (EM) Region: Innovation-to-Market Model 28
   7.1 Regional implementation approach 28
   7.2 Strategic aim 28
   7.3 Design principles for the EM model 29
   7.4 Priority delivery arrangements 29
   7.5 Monitoring indicators for the EM region 33
8. Cross-Regional Coordination: National Learning, Escalation and Transfer 35
   8.1 National–regional coordination as an implementation feedback system 36
   8.2 Escalation of common implementation barriers 36
   8.3 Inter-regional learning 37
   8.4 Mechanism transfer protocol 37
   8.5 Shared evidence and monitoring system 38
   8.6 International linkages as selective learning 39
   9. Conclusion 39

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1. Introduction

This document sets out a Tier 1 Regional Bioeconomy Strategy for Ireland. Its purpose is to define the governance, coordination and implementation conditions required to translate national bioeconomy policy, research capacity and circular-practice evidence into practical regional delivery. Ireland has national bioeconomy ambition and research capacity, but regional delivery remains underdeveloped across agriculture, food, forestry, marine, waste, energy, innovation, enterprise and regional development. The strategy responds to this implementation gap. In doing so it draws on evidence from Tasks 2 and 3 of the CoBioEcon project. D2.1 provides the Irish policy and governance evidence; D2.2 identifies practitioner barriers; D3.1 and D3.1.1 provide international regional-policy and governance evidence; and D3.2 provides practice-based evidence on circular bioeconomy implementation. The strategy applies a common national Tier 1 framework through three regional models which include a distributed capacity-building model for the Northern and Western (NW) region, a shared value-chain governance model for the Southern region, and an innovation-to-market model for the Eastern and Midlands (EM) region.

This is a Tier 1 implementation strategy. It does not allocate land uses, identify preferred sites, classify land suitability or prescribe farm-level transition measures. Those issues are addressed through the Tier 2 land-use strategy and the Tier 3 farmer/practice transition strategy. Tier 1 instead provides the regional implementation framework through which bioeconomy development can be coordinated, supported, financed, monitored and adapted. Its role is to define how actors are brought together, how practitioners access advice, how finance and regulation are navigated, how research is translated into adoption, how markets are formed, and how implementation evidence feeds back into national policy. It is important to note that proposed recommendations in this document are not final. They are baseline propositions to be tested, revised and prioritised through regional co-design.

2. Evidence-to-Strategy Translation

The Tier 1 Regional Bioeconomy Strategy is developed through an evidence-to-strategy translation approach. It identifies the implementation problems emerging from Tasks 2 and 3, converts them into Tier 1 functions, and adapts those functions to the implementation profile of the NW, Southern and EM regions. The National Policy Statement on the Bioeconomy identifies the need for stronger policy coherence, market development, investment and collaboration between public bodies, industry and research institutions. The Bioeconomy Action Plan 2023–2025 organises national action around governance and awareness, research and innovation, sustainability, agriculture/food/forestry/marine, communities/regions/cities, industry and enterprise, and knowledge and skills. The Tier 1 Regional Bioeconomy Strategy adds to this by translating these national priorities into differentiated regional delivery models. It also aligns with the EU emphasis on competitiveness, circular production, investment gaps, market uptake, rural and coastal resilience, and sustainable biomass use.

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D2.1 provides the Irish policy and governance evidence base. It shows that Ireland has developed a national bioeconomy policy framework, but that regional implementation remains weak, fragmented and only briefly expressed across wider national and regional policy documents. It also identifies the bioeconomy as a cross-sectoral field spanning agriculture, food, forestry, marine, chemicals, materials, energy, waste and regional development (D2.1, 2–5). The implication is that regional bioeconomy implementation requires institutional structures that can coordinate actors, align policy with funding, and connect national ambition to regional delivery. D2.1 also points to the need for stronger primary-producer inclusion, public consultation, national examples, national benchmarks and national expertise (D2.1, 7, 18, 21). D2.2 provides the Irish practice and implementation evidence base. Its qualitative interview findings show that circular bioeconomy implementation cannot be achieved through policy ambition alone. Practitioners identify barriers including lack of guidance and expertise, farmer exclusion, financial constraints, weak support mechanisms, planning and regulatory complexity, overregulation, limited support for smaller actors, intellectual-property concerns and the limits of a predominantly research-led approach (D2.2, 38–57, 68–85). The implication is that each region requires a practical implementation approach including: 1) advisory support; 2) funding access; 3) regulatory navigation; 4) partnership facilitation; 5) practitioner participation; 6) SME support; and 7) practical routes for moving from research or demonstration activity into applied practice (D2.2, 87–92).

D3.1 provides the international regional policy evidence. It also shows that regional hubs, clusters, vertical coordination, horizontal collaboration and differentiated regional approaches are used internationally to translate national and European bioeconomy objectives into regional implementation systems (D3.1, 67–80). It is proposed that these findings be used as institutional design options for Ireland. D3.1.1 provides the governance basis for the Tier 1 strategy. It positions the bioeconomy as a cross-sectoral and multi-scalar policy field requiring coordination across institutions, sectors and knowledge systems. Its three governance principles, multi-level coordination, participatory governance and reflexive science–policy interfaces (D3.1.1, 1–4, 8), are used to shape the common Tier 1 functions and the cross-regional learning system. D3.2 provides the international practice-based evidence. It shows that circular practice is shaped by resource looping, upcycling, regenerative sourcing, surplus redistribution, producer–processor relations, market demand, logistics, infrastructure, funding and innovation systems (D3.2, 3–5, 36–48, 58–67).

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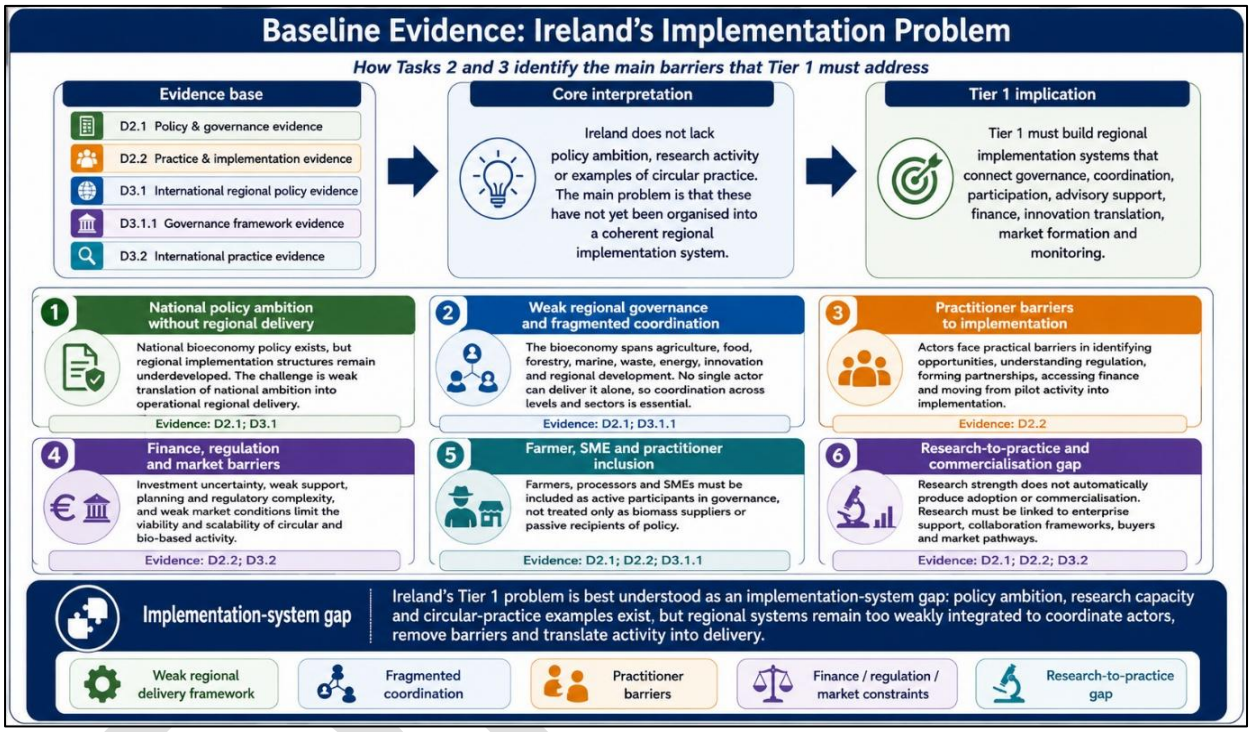
3. Baseline Evidence: Ireland's Implementation Problem

Ireland does not lack bioeconomy policy ambition, research activity or examples of circular practice. The central problem is that these elements are not yet sufficiently integrated into a coherent regional implementation system. This implementation problem is discussed below and illustrated in Figure 1.

Figure 1: Baseline Evidence



3.1 National policy ambition without a regional delivery framework

D2.1 shows that bioeconomy policy is present across national and regional documents, including the National Policy Statement on the Bioeconomy, the Bioeconomy Action Plan, the National Development Plan, the National Planning Framework and the Regional Spatial and Economic Strategies, but that regional implementation structures remain underdeveloped (D2.1, 2–5). The issue is not policy absence, but weak translation into operational regional governance. Regional actors require structures through which priorities can be coordinated, funding can be accessed, responsibilities can be assigned and implementation barriers can be addressed. D3.1 shows that international regional bioeconomy strategies commonly rely on hubs, clusters, partnership arrangements and regional governance structures to translate national and European objectives into implementation systems (D3.1, 46–52, 67–80). Hence, Ireland requires regional delivery systems that connect coordination, participation, advisory support, finance, research-to-practice translation, market formation and monitoring.

3.2 Weak regional governance and fragmented coordination

The bioeconomy cuts across agriculture, food, forestry, marine, waste, energy, innovation, enterprise and regional development (D2.1, 3–5). This means that implementation cannot be organised through a single department, agency or sector. The bioeconomy is inherently cross-sectoral and multi-scalar, involving farmers, processors, public bodies, research institutions, enterprise agencies, advisory organisations, communities and civil society. D3.1.1 identifies this cross-sectoral and multi-level character as a defining governance challenge, requiring coordination across institutions, territorial levels and knowledge systems (D3.1.1, 1–4). The problem is therefore one of institutional alignment. National departments, Regional Assemblies, local authorities, enterprise agencies, research bodies and practitioner groups do not yet operate through a shared regional implementation framework. D3.1.1 argues that effective bioeconomy governance requires multi-level coordination, participatory governance and reflexive science–policy interfaces (D3.1.1, 1–4, 8). Bioeconomy strategy must therefore distinguish between coordination as a general aspiration and coordination as an institutional function. As such, regional bioeconomy strategy must specify who convenes actors, how regional barriers are removed, how local experience feeds into national policy, how public bodies avoid duplication, and how responsibility is allocated between policy, advisory services, finance, research and delivery actors.

3.3 Practitioner barriers to implementation

D2.2 shows that practitioners face a series of practical barriers that constrain circular bioeconomy implementation. These include lack of guidance and expertise, farmer exclusion, financial issues, weak support for circular or sustainable practice, concerns regarding EU policy and national governance, AD development needs, planning issues, overregulation, lack of support for smaller sectors, problems with research-led development and intellectual-property issues (D2.2, 38–57; 68–92). This evidence indicates that policy ambition alone is insufficient. Many barriers arise at the point where actors attempt to implement circular practice; for example, in identifying a feasible opportunity, understanding regulatory requirements, forming partnerships, accessing finance, managing risk, resolving ownership or IP concerns, and finding viable markets. These are implementation-system problems as opposed to isolated company-level problems. Therefore, each region requires practical support functions that help actors diagnose opportunities, access technical advice, identify funding, navigate regulation, develop partnerships, and move from interest or pilot activity into implementation. This is especially important for farmers, SMEs, community actors and smaller processors, who are less likely to have the administrative and technical capacity to access complex support systems.

3.4 Finance, regulation and market formation as implementation barriers

The evidence base identifies finance and regulation as major constraints on regional bioeconomy implementation. D2.2 identifies financial barriers, weak government support, high costs and uncertainty around investment viability as key obstacles to circular practice (D2.2, 43–46, 72–74, 87–91). It also identifies planning

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issues, overregulation, concerns about governance direction and the need for accelerated AD and biorefinery development (D2.2, 46–50, 78–83, 89–90). These issues shape whether circular and bio-based activities are viable, scalable and accessible. D3.2 provides an international perspective and shows that circular practice depends on policy mixes, market demand, logistics, infrastructure, funding and innovation systems, rather than on company action alone (D3.2, 3–5, 36–48, 58–67). Its findings show that international exemplars can provide practice-based building blocks that need to be adapted to Irish regional conditions. The strategy must therefore treat finance, regulation and market formation as core implementation functions. Funding access, regulatory navigation, procurement, buyer engagement, certification support, shared investment models and pilot-to-scale finance should be built into the regional implementation approach.

3.5 Farmer, SME and practitioner inclusion as an implementation condition

A recurring finding across the evidence base is that farmers and practitioners must be included in bioeconomy governance, not treated as passive recipients of policy or suppliers of biomass. D2.1 identifies the need for stronger primary-producer inclusion, public consultation, national examples, benchmarks and national expertise (D2.1, 7, 18, 21). D2.2 likewise identifies farmer exclusion as a practical barrier to circular bioeconomy implementation (D2.2, 41–43, 70–72, 89). This is central to the Tier 1 approach because farmers, processors and SMEs hold the practical knowledge needed to assess feasibility, costs, risks, by-product use, supply-chain relations, regulatory constraints and adoption conditions. If these actors are only consulted after strategic decisions are made, the strategy risks becoming administratively coherent but operationally weak. D3.1.1 supports this point by identifying participatory governance as a core condition for legitimate and adaptive bioeconomy governance (D3.1.1, 1–4, 8). Hence, participation must be institutionalised. Regional participation routes should therefore include farmers, processors, SMEs, cooperatives, advisory bodies, community actors and civil-society organisations in identifying barriers, testing measures and generating policy learning.

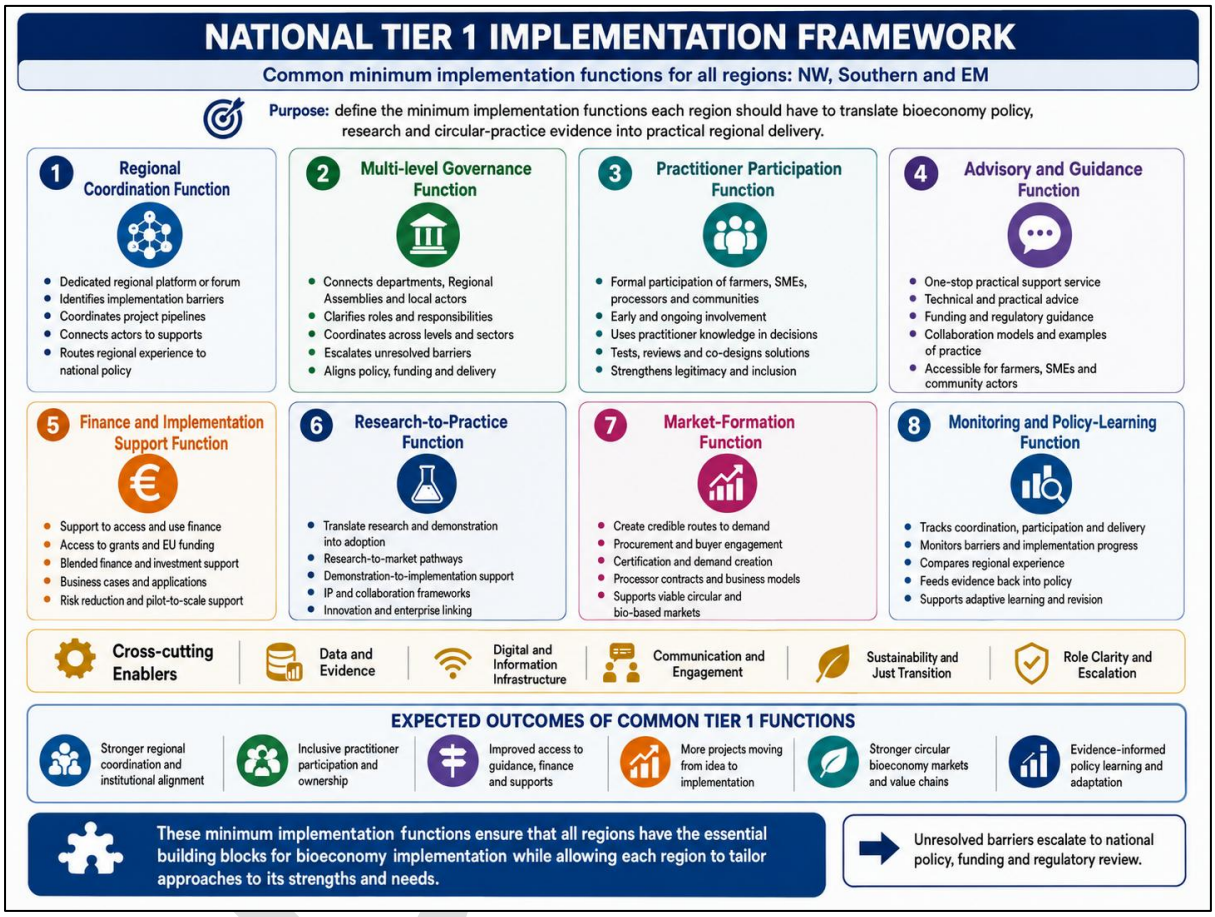
3.6 Research-to-practice and commercialisation gap

Ireland's bioeconomy approach is strongly oriented towards research, development and innovation (D2.1, 5–7, 16). This is important, but the Irish case demonstrates that research capacity does not automatically lead to implementation, adoption or commercialisation. D2.2 identifies problems with an overly research-led approach, including weak alignment with business goals, difficulty translating research into practical outcomes, and concerns around intellectual property, collaboration and confidentiality (D2.2, 54–56, 84–85, 91–92). D3.2 supports this proposition by demonstrating that circular practice is shaped by value-chain position, business models, producer–processor relationships, market demand, logistics and institutional support. It shows that circular practice varies according to organisational role, exposure to market demand and degree of technological novelty. Hence, research and innovation must be connected to adoption systems through research-to-market pathways, demonstration-to-implementation support, IP and collaboration frameworks, enterprise supports, buyer engagement, procurement routes and intermediary brokerage.

4. National Implementation Framework

Building on the implementation problem identified above, the Tier 1 strategy defines eight functions that should be present in each region. These functions provide national coherence while allowing each region to apply them through different implementation models. The common functions that underpin the three regional models are discussed below and illustrated in Figure 2.

Figure 2: National Tier 1 Implementation Framework



4.1 Regional coordination function

Each region should have a dedicated bioeconomy coordination function. This may take the form of a Regional Bioeconomy Hub, Regional Bioeconomy Platform or Regional Bioeconomy Coordination Structure. Its role should be to provide a stable institutional space where public bodies, producers, processors, advisory organisations, enterprise agencies, research institutions, environmental interests and civil-society actors can coordinate implementation. This function responds to the weak regional expression of national bioeconomy policy and the need for stronger coordination between policy, finance and implementation (D2.1, 2–5, 18, 21). Its purpose is to identify implementation barriers, coordinate project pathways, connect actors to supports, and provide a route through which regional experience can inform national policy.

4.2 Multi-level governance function

Each region should have a governance function that connects national departments, Regional Assemblies, local authorities, state agencies, advisory bodies, research institutions and industry organisations. This is required because the bioeconomy cuts across agriculture, food, forestry, marine, waste, energy, innovation, enterprise and regional development (D2.1, 3–5). The minimum function is role clarity. Each regional system should specify who convenes actors, who provides technical support, who links projects to funding, who addresses regulatory barriers, who supports enterprise development, and how unresolved implementation issues are escalated to national level. This reflects the governance principle in D3.1.1 that bioeconomy implementation requires multi-level coordination across territorial and institutional boundaries (D3.1.1, 1–4, 8).

4.3 Practitioner participation function

Each region should include a formal practitioner participation function. Farmers, processors, SMEs, cooperatives, advisory bodies, community actors and civil-society organisations should be involved in identifying barriers, testing measures, reviewing implementation and shaping regional learning. Participation should not be limited to late-stage consultation. This function responds directly to the participation gap identified in D2.1 and to the farmer-exclusion barrier identified in D2.2 (D2.1, 7, 18, 21; D2.2, 41–43, 70–72, 89). Farmers, companies and local actors hold knowledge around costs, risks, supply chains, by-products, regulation, adoption barriers and market feasibility. Bioeconomy governance must treat that knowledge as part of the implementation system.

4.4 Advisory and guidance function

Each region should provide a one-stop advisory and guidance function. This should help actors understand circular bioeconomy opportunities, technical options, funding routes, regulatory requirements, collaboration models and examples of feasible practice. It should be practical and accessible, particularly for farmers, SMEs, smaller processors, local authorities and community actors. This is a minimum national function because lack of guidance and expertise is one of the clearest barriers identified in D2.2 (D2.2, 38–40, 68–70, 87–89). The advisory function should translate national policy and research evidence into usable implementation support.

4.5 Finance and implementation support function

Each region should have a finance and implementation support function. This should help actors access grants, EU funding, blended finance, cooperative investment, capital supports and pilot-to-scale funding. It should also support business-case development, partnership formation, application preparation and risk reduction. This function responds to the financial barriers identified in D2.2, including high costs, weak support mechanisms, uncertainty about investment viability, and the need to make circular practice less expensive (D2.2, 43–46, 72–74, 87–91). It also reflects D3.2, which shows that circular practice depends on funding instruments, policy mixes, market demand, logistics and infrastructure conditions, rather than on individual company action alone (D3.2,

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36–48, 58–67). The minimum strategic requirement is that finance is connected to implementation, not treated as a separate funding problem.

4.6 Research-to-practice function

Each region should have a research-to-practice function for moving research, demonstration projects, innovation activity and enterprise supports towards practical adoption. This should include research-to-market pathways, demonstration-to-implementation support, collaboration agreements, intellectual-property guidance, business-model development and links to procurement or buyer engagement. This function responds to the limits of a predominantly research-led approach identified in D2.2 (D2.2, 54–56, 84–85, 91–92). D2.1 shows that Ireland's bioeconomy approach is strongly research and innovation oriented, but bioeconomy strategy must ensure that research is connected to adoption, commercialisation, practitioner engagement and value-chain formation (D2.1, 5–7, 16).

4.7 Market-formation function

Each region should include a market-formation function. This should support procurement, buyer engagement, certification, demand creation, processor contracts and viable business-model development. D3.2 shows that circular practice is shaped by demand, market relationships, logistics, policy mixes and value-chain coordination (D3.2, 36–48, 58–67). D2.2 also shows that weak financial support and uncertain commercial conditions limit adoption (D2.2, 43–46, 72–74). The minimum Tier 1 function is therefore to create credible routes to demand.

4.8 Monitoring and policy-learning function

Each region should have a monitoring and policy-learning function. This should track coordination, participation, advisory support, finance access, project development, partnership formation, research-to-practice movement, market formation and recurring implementation barriers. It should also provide feedback into national and regional policy. This function reflects the reflexive governance principle in D3.1.1, which identifies learning and adaptation as core requirements for bioeconomy governance (D3.1.1, 1–4, 8). Monitoring should be used to identify implementation failures, compare regional experience, adapt measures and inform future policy design.

4.9 Regional Application

Table 1 describes how the national implementation framework translates into the priority functions of respective regional models.

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Table 1: Regional Application of National Functions

National Tier 1 Functions Across Regional Models

How common national implementation functions are translated into NW, Southern and EM regional delivery arrangements

National function	NW model	Southern model	EM model
Regional coordination	NW Regional Bioeconomy Capacity-Building Platform	Regional Circular Agri-Food Coordination Platform	Bioeconomy Innovation-to-Market Platform
Multi-level governance	Local Authority and Agency Implementation Group; delivery arrangements	Platform and delivery arrangements involving Regional Assembly, local authorities, agencies and national bodies	Platform and delivery arrangements involving EM Assembly, research, enterprise, procurement, local authorities and national bodies
Practitioner participation	Platform, Access Clinic, peer-learning network	Producer–Processor Circularity Framework and platform participation	Platform, SME package, buyer engagement and urban-rural broker
Advisory and guidance	Farmer and SME Bioeconomy Access Clinic	Regulatory and Compliance Guidance Service; technical/advisory support through the platform	Start-up and SME Commercialisation Support Package; research-to-market and IP/collaboration guidance
Finance and implementation support	Cooperative Project-Preparation Fund; Regional Funding and Application Broker	Shared Implementation Finance Pathway	SME commercialisation support; investor readiness; funding access through Enterprise Ireland/LEOs
Research-to-practice	Distributed Demonstration and Peer-Learning Network	Circular Agri-Food Implementation Accelerator	Research-to-Market Pathway
Market formation	Project preparation, demonstration, funding brokerage and implementation movement	Producer–processor circularity, infrastructure brokerage and wider value-chain adoption	Public procurement, market creation, buyer engagement and urban-rural value-chain brokerage
Monitoring and policy learning	Monitoring indicators for NW model	Regional Data and Value-Chain Monitoring System; monitoring indicators for Southern model	Monitoring indicators for EM model and market-intelligence feedback through platform

The NW distributed capacity-building model translates the eight national functions into access, capacity-building, funding brokerage and peer learning; the Southern shared value-chain governance model translates them into value-chain coordination, shared finance, regulatory support and infrastructure brokerage; and the EM innovation-to-market model translates them into research-to-market, procurement, buyer engagement and commercialisation.

4.10 Delivery approach

Functions should be delivered through existing regional and national institutions rather than through a new statutory body. This regional delivery approach should operate under and alongside national bioeconomy policy leadership by the Department of Agriculture, Food and the Marine (DAFM), the Department of the Environment, Climate and Communications (DECC) and other relevant national departments. The relevant Regional Assembly should provide the strategic coordination point, or the strategy should operate through a regional coordination structure formally linked to it. Delivery should be shared across existing organisations according to their mandates; for example, Regional Assemblies for regional coordination; local authorities for local implementation and planning-related coordination; Teagasc and advisory bodies for technical guidance; Enterprise Ireland and Local Enterprise Offices for enterprise and SME support; Local Development Companies and LEADER structures for rural and community access; research institutions for research-to-practice translation; and national

departments and agencies for policy, funding and regulatory response. The strategy distinguishes between coordination structures, embedded functions and delivery services. Most proposed items should operate as sub-functions or services within existing structures, becoming separate entities only where co-design shows that existing institutions cannot host or deliver them effectively. Table 2 sets out the proposed delivery and escalation approach.

Table 2: Regional Bioeconomy Delivery Approach

Tier 1 Delivery and Escalation Matrix

How Tier 1 implementation functions are led, supported, delivered and escalated

	Tier 1 function	Likely regional lead	Supporting actors	Delivery role	Escalation route
1	**Regional coordination**	Regional Assembly-aligned platform	Local authorities; DAFM; DECC; advisory bodies; enterprise agencies; research institutions; producer and processor actors	Convene actors, align priorities, identify barriers and coordinate regional implementation	National bioeconomy governance structure or relevant department
2	**Practitioner participation**	Regional platform or participation route	Farmers; SMEs; processors; cooperatives; community actors; civil society and advisory bodies	Ensure implementation is informed by practical knowledge and not limited to public/research actors	Recurring participation gaps escalated to national-regional coordination
3	**Advisory and guidance support**	Advisory service / access clinic	Teagasc; Local Enterprise Offices; local authorities; research actors and sector bodies	Provide practical guidance, signposting, technical advice and regulatory orientation	Repeated guidance gaps escalated to national advisory and policy bodies
4	**Finance and project preparation**	Funding broker / enterprise support structure	Enterprise Ireland; Local Enterprise Offices; DAFM; EU funding contacts; cooperatives and finance bodies	Support funding navigation, project preparation, business cases and applications	Scheme barriers escalated to funding departments or agencies
5	**Regulatory navigation**	Local authority and agency implementation group	Planning bodies; EPA; DAFM; DECC; DHLGH; advisory bodies and sector actors	Identify planning, waste, by-product, compliance and permitting barriers	Regulatory ambiguity escalated to relevant national authority
6	**Research-to-practice**	Research-enterprise pathway	Universities; research centres; Enterprise Ireland; firms; buyers and practitioners	Move research and demonstration activity towards adoption, validation and implementation	IP, confidentiality or adoption barriers escalated through research/enterprise channels
7	**Market formation**	Procurement and buyer-engagement route	Public bodies; processors; buyers; retailers; certification bodies and logistics actors	Build demand, buyer confidence, procurement routes and viable business models	Demand-side barriers escalated to national procurement or certification policy
8	**Monitoring and policy learning**	Regional monitoring structure	Regional platforms; agencies; practitioners and national departments	Track implementation, compare regional evidence and identify recurring barriers	Annual policy feedback note to national level

Use: This table defines the minimum Tier 1 delivery architecture for regional bioeconomy implementation. It clarifies lead responsibility, supporting actors, delivery roles and escalation routes so that recurring regional barriers can feed into national policy, agency response or governance adjustment.

This delivery approach should be treated as indicative rather than prescriptive. Each region should adapt lead and supporting roles to its institutional capacity, while retaining common Tier 1 functions and escalation routes. Where barriers are escalated, the relevant department, agency or funding body should provide a written response through the national–regional coordination process. Coordination costs include staff time, administration, facilitation, monitoring and reporting, and should be met where possible through existing regional, departmental, agency and programme resources. Project funding refers to feasibility work, capital investment, demonstration, infrastructure, business-case preparation and implementation. Where existing funding routes do not support these activities, the gap should be recorded and escalated through the national–regional coordination process.

4.11 Implementation phasing

Implementation should be sequenced. Phase 1 should confirm coordination structures, lead actors, advisory entry points and participation arrangements. Phase 2 should develop project pipelines, finance support, regulatory navigation and partnership structures. Phase 3 should focus on implementation, procurement, buyer

engagement, investment readiness, demonstration-to-adoption pathways and market formation. Phase 4 should compare evidence, escalate common barriers, adapt useful delivery functions and revise priorities through the cross-regional learning system.

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5. Northern and Western (NW) Region: Distributed Capacity-Building Model

The Tier 1 NW regional strategy is a distributed capacity-building model. Its purpose is to ensure that dispersed farmers, SMEs, community actors, smaller processors and local authorities can access the knowledge, finance, partnerships and institutional support required to participate in circular and bio-based value creation. The model is supported by the Tier 2 land use strategy, whereby the NW region is characterised by small and fragmented farm structures, high levels of wetlands and peatlands, low livestock intensity, limited cropland and dispersed rural settlement patterns. The region requires a model that can widen access, protect ecological sensitivity, support small and dispersed actors, and enable practical circular activity through cooperative, modular and place-based forms of delivery. The model therefore focuses on low-threshold access, advisory support, cooperative project preparation, funding brokerage, peer learning and inter-agency coordination. The model responds to D2.2 evidence on lack of guidance, farmer exclusion, financial barriers, weak support for smaller actors, overregulation and limits of research-led development (D2.2, 38–57, 68–85). It also draws on D3.1, D3.1.1 and D3.2 evidence that regional hubs, partnerships, clusters, decentralised support and SME/cooperative funding instruments can mobilise dispersed actors and avoid over-reliance on capital-intensive flagship projects (D3.1, 46–52, 67–80; D3.1.1, 1–4, 8; D3.2, 58–67).

5.1 Regional implementation approach

The NW region requires a model that lowers entry barriers rather than assuming that actors already have the capacity to participate. Farmers, SMEs, community actors and smaller processors may lack the time, administrative capacity, technical knowledge or financial resources to engage with complex bioeconomy funding, regulatory or innovation systems. The NW model therefore prioritises low-threshold access, intermediary support, cooperative and group-based models, and decentralised demonstration and peer learning.

5.2 Strategic aim

The strategic aim for the NW region is:

To establish a distributed capacity-building bioeconomy governance model that enables farmers, SMEs, community actors, local authorities and smaller processors to access advice, finance, partnerships and demonstration opportunities, and to convert these supports into practical circular and bio-based projects.

5.3 Design principles for the NW model

The NW Tier 1 strategy is built around four design principles: 1) access before scale; 2) intermediation before innovation; 3) cooperative capacity before individual project delivery; and 4) peer learning before abstract guidance. These principles reflect D3.2's caution that flagship projects can exclude smaller actors if funding and support mechanisms are not designed for SMEs, cooperatives and community enterprises. They also respond to

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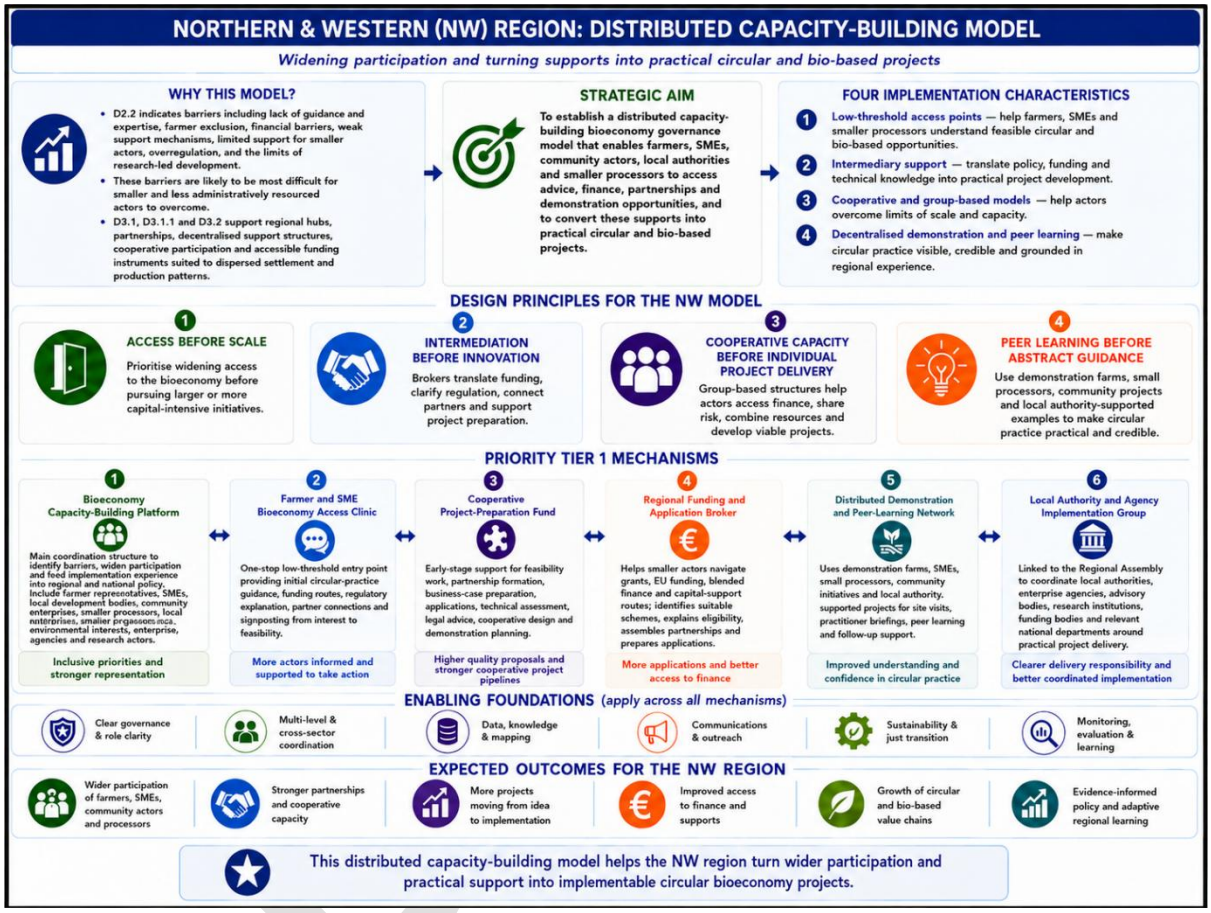
D2.2 evidence that lack of guidance, finance, regulatory burden, weak support, education gaps and limited collaboration constrain circular practice.

5.4 Priority Functions

Priority functions for the NW distributed capacity-building model are outlined below and illustrated in Figure 3.

Figure 3: NW Region Distributed Capacity-Building Model



5.4.1 NW Regional Bioeconomy Capacity-Building Platform

The NW region should operate a NW Regional Bioeconomy Capacity-Building Platform as the main operational coordination arrangement for the regional model. Its purpose should not be to deliver every support directly, but to organise the regional implementation system. The platform should act as the central place where project ideas, support needs, barriers and learning are recorded, triaged and assigned to the relevant delivery actor. It should be linked to the NW Regional Assembly, which should provide strategic oversight and regional coordination. The platform should meet regularly and maintain a live implementation register covering proposed projects, actors involved, support required, funding status, regulatory issues and unresolved barriers. Local authorities, Local Development Companies/LEADER structures, farmer representatives, SMEs, community

enterprises, smaller processors, advisory bodies, enterprise agencies and research actors should participate according to their roles (see Figure 4). The platform should decide whether an actor or project should be referred to the Access Clinic, the Project-Development Fund, the Funding and Application Broker, the Demonstration and Peer-Learning Network, or the Local Authority and Agency Implementation Group. In this sense, the platform is the coordinating structure that prevents fragmented support, duplication and loss of smaller actors between institutions. *(Evidence base: D2.1, 2–5, 7, 18, 21; D3.1.1, 1–4, 8; D3.1, 46–52, 49, 67–80).*

5.4.2 Farmer and SME Bioeconomy Access Clinic

The region should provide a Farmer and SME Bioeconomy Access Clinic as the first-contact advisory route within the Capacity-Building Platform. This function should serve actors who have an interest, problem or potential circular opportunity but do not yet have a developed project. It should be deliberately low-threshold and should not require a business plan, technical design or funding application before support is provided. The clinic should convert general interest into a clearer project pathway. The clinic should offer an initial diagnostic conversation, followed by a short written action note setting out the actor's opportunity, likely technical issues, possible partners, funding relevance, regulatory questions and next step. Typical issues could include by-product use, organic fertiliser, small-scale AD, composting, sustainable packaging, fibre or biomass use, circular logistics, cooperative nutrient management or local demand for circular products. Teagasc and advisory bodies should provide technical input; Local Development Companies/LEADER structures should support rural and community access; Local Enterprise Offices should support SME entry points; and research actors should provide technical assessment where needed (see Figure 4). *(Evidence base: D2.2, 38–50, 66–68, 88).*

5.4.3 Cooperative Project-Preparation Fund

The NW region should establish a Cooperative Project-Development Fund to resource the early development work that smaller actors cannot normally finance themselves. The purpose of the fund is not to identify grant schemes or prepare final applications; its purpose is to make weak or early-stage ideas fundable by supporting the preparatory work needed before a larger funding application can be made. The fund should support feasibility studies, technical assessments, cooperative design, legal advice, business-case preparation, environmental screening, partnership formation, cost estimation, site or logistics assessment, and demonstration planning. It should prioritise group-based proposals involving farmers, SMEs, community enterprises, smaller processors or local authority-supported initiatives. Examples could include cooperative composting, shared nutrient recovery, small-footprint AD, by-product aggregation, community biomass processing, paludiculture-linked processing, or local circular food and organic-waste initiatives. The expected output should be a defined project concept with partners, costs, risks, delivery requirements and a recommended funding route. Where repeated project-development needs cannot be met through existing programmes, this should be recorded as a regional funding-design gap. Local Development Companies/LEADER structures, Local Enterprise Offices, Enterprise Ireland, cooperative finance actors and relevant DAFM/EU funding

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contact points (see Figure 4) should help identify suitable funding routes. *(Evidence base: D2.2, 43–46, 52–54, 72–74, 83–84, 87–91; D3.2, 45, 47, 71–73, 83).*

5.4.4 Regional Funding and Application Broker

The region should provide a Regional Funding and Application Broker to work with projects that have moved beyond initial diagnosis and early feasibility. This function should not duplicate the Project-Development Fund. Its role should begin once a project has a sufficiently clear proposal, partnership structure, cost estimate or business case. The broker should then match the project to appropriate funding routes and support the application process. The broker should identify relevant national, EU, rural development, enterprise, cooperative, blended-finance and capital-support schemes; explain eligibility; assemble application materials; coordinate partner inputs; align projects with scheme criteria; identify match-funding needs; and track applications through to decision. Local Enterprise Offices and Enterprise Ireland should support enterprise and SME funding readiness; Local Development Companies/LEADER structures should support rural and community routes; DAFM and EU funding contacts should advise on programme fit; and cooperative or community-finance actors should support group-based proposals (see Figure 4). The broker should also maintain a record of applications that fail because existing schemes are too large, too complex, too capital-focused or poorly suited to cooperative and small-scale bioeconomy projects. These recurring issues should be escalated to the relevant national department or agency. *(Evidence base: D2.1, 43–46, 52–54, 72–74, 83–84, 87–91; D3.2, 11).*

5.4.5 Distributed Demonstration and Peer-Learning Network

The region should provide a Distributed Demonstration and Peer-Learning Network to show what feasible circular and bio-based activity looks like in the NW context. This function should not operate as general awareness-raising. Its purpose should be to provide practical, locally credible evidence on costs, risks, regulatory requirements, funding routes, collaboration models, environmental safeguards and implementation lessons. The network should use demonstration farms, SMEs, smaller processors, community enterprises and local authority-supported projects as learning sites. Activities should include site visits, short practitioner briefings, peer-to-peer learning events, practical case notes, online guidance and follow-up referrals to the Access Clinic or Project-Development Fund. Demonstrations should be selected because they answer practical implementation questions, not because they are promotional examples. Teagasc and advisory bodies should support technical demonstration; local authorities and Local Development Companies/LEADER structures should support outreach; research institutions should translate evidence; and participating farms, SMEs, processors and community actors should explain operational realities (see Figure 4). The network should help actors judge whether a circular practice is feasible before committing time or money to a project. *(Evidence base: D2.2, 34–35, 66–68, 87–89; D3.1, 4–5, 46–52, 49).*

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5.4.6 Local Authority and Agency Implementation Group

The region should operate a Local Authority and Agency Implementation Group as the delivery coordination and escalation arm of the Capacity-Building Platform. This group should deal with issues that cannot be solved through advice, feasibility support or funding brokerage alone. Its function should be to clarify institutional roles, coordinate local authority involvement, address planning-related issues, connect projects to infrastructure or serviced sites, reduce duplication between agencies, and escalate unresolved regulatory, funding or policy barriers. Local authorities should support planning-related coordination, serviced-site identification and local implementation; Local Development Companies/LEADER structures should support rural outreach and community-enterprise participation; Teagasc and advisory bodies should support practitioner guidance; Local Enterprise Offices and Enterprise Ireland should support SME and enterprise development; research institutions should support technical evidence and demonstration; and relevant national departments or agencies (see Figure 4) should respond to recurring issues that cannot be resolved regionally. The group should maintain an escalation log identifying the barrier, affected project type, responsible body, action required and response received. It should therefore operate as a practical delivery support group rather than a general stakeholder forum. *(Evidence base: D3.1.1, 4, 8-9).*

5.4.7 Delivery arrangements

NW delivery arrangements should operate as linked services, roles, funding instruments and coordination arrangements within a NW Regional Bioeconomy Capacity-Building Platform linked to the NW Regional Assembly. The NW Regional Assembly should provide strategic oversight and regional coordination, while the platform should provide the operational coordination space through which local authorities, Local Development Companies/LEADER structures, Teagasc and other advisory bodies, Local Enterprise Offices, Enterprise Ireland, research institutions, community actors, SMEs, farmers and smaller processors contribute according to their relevant roles (see Figure 4).

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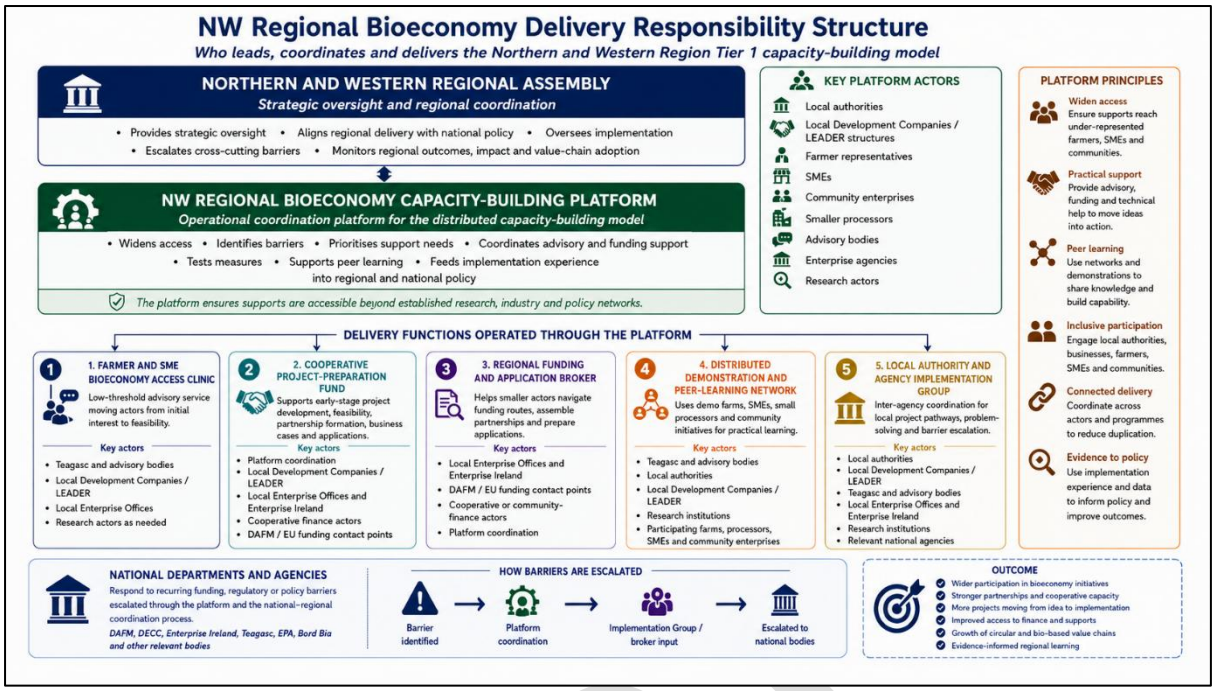
Figure 4: NW Delivery Responsibility



5.5 Monitoring indicators for the NW region

The NW region should be assessed against implementation-capacity indicators used to test whether the model is widening participation, building implementation capacity and enabling smaller or more dispersed actors to move from initial interest towards practical circular bioeconomy projects. Potential monitoring indicators are outlined in Table 3:

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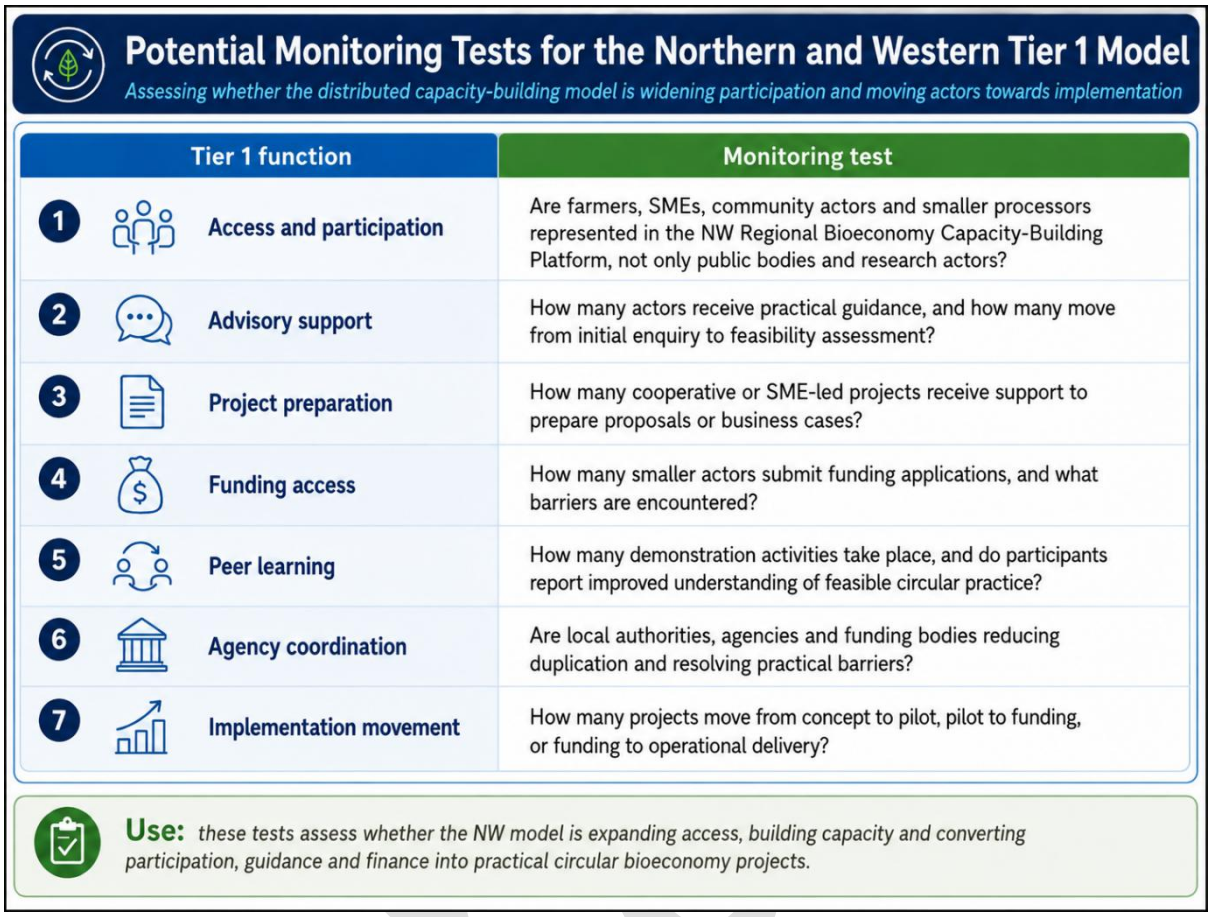
Table 3: Potential Monitoring Tests for the NW region



Potential Monitoring Tests for the Northern and Western Tier 1 Model

Assessing whether the distributed capacity-building model is widening participation and moving actors towards implementation

Tier 1 function	Monitoring test
1 Access and participation	Are farmers, SMEs, community actors and smaller processors represented in the NW Regional Bioeconomy Capacity-Building Platform, not only public bodies and research actors?
2 Advisory support	How many actors receive practical guidance, and how many move from initial enquiry to feasibility assessment?
3 Project preparation	How many cooperative or SME-led projects receive support to prepare proposals or business cases?
4 Funding access	How many smaller actors submit funding applications, and what barriers are encountered?
5 Peer learning	How many demonstration activities take place, and do participants report improved understanding of feasible circular practice?
6 Agency coordination	Are local authorities, agencies and funding bodies reducing duplication and resolving practical barriers?
7 Implementation movement	How many projects move from concept to pilot, pilot to funding, or funding to operational delivery?

Use: *these tests assess whether the NW model is expanding access, building capacity and converting participation, guidance and finance into practical circular bioeconomy projects.*

Each monitoring test should be supported by recorded evidence, including actor-category profiles, attendance composition, repeat participation, advisory-service records, project-stage tracking, funding applications, barriers encountered and evidence that smaller actors influenced priorities or support design.

6. Southern Region: Shared Value-Chain Governance Model

The Tier 1 Southern regional strategy is a *shared value-chain governance model*. The purpose is to move circular bioeconomy activity from isolated company-level initiatives towards coordinated implementation across producers, processors, cooperatives, advisory bodies, enterprise agencies, public authorities and infrastructure actors. The model is supported by the Tier 2 land use strategy, whereby the Southern region is characterised by large-scale commercial farming, strong dairy–arable linkages, higher livestock intensity, productive agri-food corridors and significant opportunities for nutrient recovery, clustered resource-recovery infrastructure and producer–processor coordination. The region requires a model that can coordinate producers, processors, cooperatives, advisory bodies, enterprise agencies and infrastructure actors around shared finance, regulation, logistics, by-product use and circular agri-food implementation. The model therefore focuses on value-chain coordination, shared implementation finance, regulatory guidance, infrastructure brokerage and monitoring of wider circular agri-food adoption. D2.1 identifies the bioeconomy as a cross-sectoral policy field requiring stronger coherence between policy, incentives and funding (D2.1, 3–5, 18). D2.2 identifies collaboration, financial support, anaerobic digestion, regulatory complexity, planning, overregulation and weak implementation support as major barriers and development needs for circular practice (D2.2, 33–50, 65–83). D3.2 shows that circular agri-food practice is stronger where producers and processors have embedded, long-term relationships and where farmers are treated as partners or co-innovators rather than raw-material suppliers (D3.2, 35, 39, 50, 58–65, 75).

6.1 Regional implementation approach

The Southern region requires an approach capable of coordinating high-output agri-food systems, producer–processor relationships, cooperative structures, shared infrastructure, finance and regulation. The issue is that existing activity risks remaining fragmented unless producers, processors, cooperatives, public bodies and support agencies are organised around common value-chain delivery arrangements. The regional approach should therefore be defined by four implementation characteristics. First, circular practice in the Southern region requires *producer–processor coordination*, because many opportunities will involve by-products, nutrient flows, feedstocks, residues, contracts, logistics and quality standards. Second, it requires *shared value-chain governance*, because circularity will inevitably involve costs, risks and benefits distributed unevenly between farmers, processors, cooperatives and downstream users. Third, it requires *regulatory and compliance support*, because circular loops are constrained by waste classification, food safety, environmental regulation, planning and administrative procedures. Fourth, it requires *implementation finance*, because many circular solutions require collective investment, infrastructure, business-case preparation and pilot-to-scale funding.

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6.2 Strategic aim

The strategic aim for the Southern region is:

To operate a shared value-chain governance framework that enables producers, processors, cooperatives, advisory bodies, enterprise agencies and public authorities to coordinate finance, regulation, infrastructure and implementation for viable circular agri-food practices.

6.3 Design principles for the Southern model

The Southern Tier 1 strategy should be built around four design principles: 1) value-chain governance before individual company action; 2) producer–processor agreements before informal collaboration; 3) implementation finance before project aspiration; and 4) regulatory navigation before infrastructure expansion. These principles reflect D3.2 evidence that circular practice depends on producer relationships, material flows, infrastructure, market relationships and governance conditions. They also respond to D2.2 evidence that farmer exclusion, weak collaboration, finance, planning, overregulation and implementation support gaps constrain circular practice (D2.2, 35, 41–43, 46–50, 67–72, 78–83, 88–90).

6.4 Priority Functions

Priority functions for the Southern region's shared value-chain governance model are outlined below and illustrated in Figure 5.

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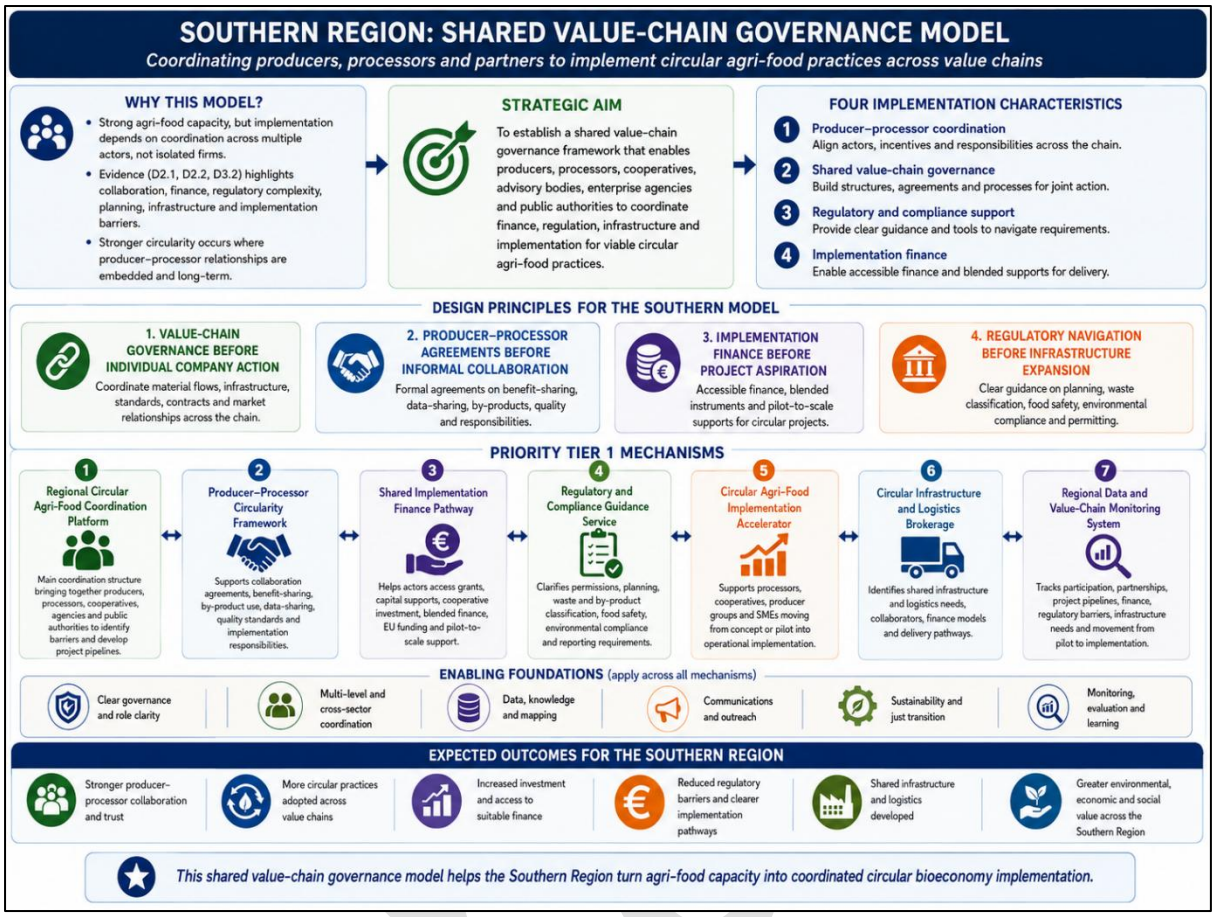
Figure 5: Southern Region: Shared Value-Chain Governance Model



6.4.1 Regional Circular Agri-Food Coordination Platform

The Southern Region should operate a Regional Circular Agri-Food Coordination Platform as the main operational coordination arrangement for the shared value-chain governance model. Its purpose should not be to act as a general stakeholder forum, but to organise circular agri-food implementation across producers, processors, cooperatives, public bodies, advisory services, enterprise agencies, infrastructure providers and relevant national bodies. The platform should be linked to the Southern Regional Assembly, which should provide strategic oversight and regional coordination, with producers, processors and cooperatives setting value-chain priorities; local authorities supporting local coordination, planning-related issues and infrastructure alignment; Teagasc and advisory bodies supporting producer engagement and technical guidance; Enterprise Ireland and Local Enterprise Offices supporting enterprise development and investment readiness; research institutions supporting technical validation and demonstration; and national agencies or departments responding to recurring finance, regulatory or infrastructure barriers (see Figure 6). The platform should maintain a regional value-chain implementation register covering proposed circular agri-food projects, participating actors, feedstock or by-product flows, infrastructure needs, funding status, regulatory issues, buyer or processor commitments and unresolved barriers. It should assign issues to the correct delivery route: the Producer–Processor Circularity Framework where collaboration rules are needed; the Shared Implementation Finance

Pathway where finance or investment structures are required; the Regulatory and Compliance Guidance Service where planning, waste, by-product or compliance issues arise; the Implementation Accelerator where a project needs support to move from pilot to wider adoption; the Infrastructure and Logistics Brokerage where shared facilities, aggregation or transport are needed; and the monitoring system where evidence must be recorded. The platform should therefore provide the coordination structure through which fragmented circular initiatives become organised value-chain implementation. *(Evidence base: D2.1, 2–5; D3.1, 46–52, 49, 67–80).*

6.4.2 Producer–Processor Circularity Framework

The region should develop a Producer–Processor Circularity Framework through the Regional Circular Agri-Food Coordination Platform. This function should deal specifically with the rules, agreements and working arrangements needed for circular practice between producers, processors, cooperatives and downstream users. It should not be a general partnership statement. Its purpose should be to clarify how actors share responsibilities, costs, risks, benefits, data and quality obligations when circular resources move across the agri-food chain. The framework should provide templates and guidance for collaboration agreements, by-product use, residue handling, digestate return, organic fertiliser use, feedstock supply, supply-chain commitments, data-sharing, benefit-sharing, quality standards and dispute-resolution arrangements. Producers, processors and cooperatives should define the practical problems that require agreement; advisory bodies and research institutions should support technical content; and enterprise agencies should assess business and investment implications (see Figure 6). The framework should prioritise circular activities where producer–processor coordination is essential, including nutrient recirculation, side-stream valorisation, feed use, residue logistics, packaging reduction, organic fertiliser, shared infrastructure and quality requirements for circular inputs. Its purpose is to ensure that farmers and producers are treated as implementation partners rather than passive suppliers of biomass or recipients of downstream processor decisions. *(Evidence base: D3.2, 48, 75).*

6.4.3 Shared Implementation Finance Pathway

The region should establish a Shared Implementation Finance Pathway through the Regional Circular Agri-Food Coordination Platform. This function should deal specifically with how circular agri-food projects are financed, costed, risk-shared and moved towards investment. It should be distinct from the Implementation Accelerator. The finance pathway should not provide general business mentoring; its purpose should be to identify the appropriate financial structure for projects that require collective investment or pilot-to-scale support. The pathway should distinguish between early-stage feasibility finance, cooperative project preparation, capital investment, infrastructure funding, blended finance, enterprise supports, EU funding, risk-sharing instruments and market-development support. It should help project groups prepare investment cases, identify match-funding needs, allocate costs between producers and processors, assess whether cooperative investment is feasible, and determine whether public funding is needed to reduce implementation risk. Enterprise Ireland, Local Enterprise Offices, cooperatives, processors, funding bodies and relevant DAFM or EU funding contacts

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(see Figure 6) should support funding identification, investment readiness and scheme alignment. The pathway should also record where existing funding instruments are unsuitable for circular agri-food implementation, for example where they are too company-focused, too capital-heavy, too short-term or poorly suited to shared value-chain projects. These gaps should be escalated to the relevant national funding body or department. *(Evidence base: D2.2, 43–46, 72–74, 87–91; D3.2, 45, 94)*

6.4.4 Regulatory and Compliance Guidance Service

The region should provide a Regulatory and Compliance Guidance Service through the Regional Circular Agri-Food Coordination Platform. This function should deal specifically with regulatory uncertainty, compliance requirements and recurring administrative barriers affecting circular agri-food projects. It should not replace statutory regulators, planning authorities or environmental enforcement bodies. Its role should be to help actors understand requirements early enough to design viable projects and avoid unnecessary delay. The service should provide pre-application guidance on planning, permitting, waste classification, by-product status, food safety, environmental compliance, nutrient management, AD-related requirements, composting rules, digestate use, reporting obligations and relevant documentation. Local authorities, planning bodies, relevant national agencies, advisory bodies and affected producers or processors (see Figure 6) should identify recurring regulatory and compliance issues. The service should maintain a regulatory barrier log showing the type of issue, affected project, responsible authority, clarification required and response received. Where issues cannot be resolved regionally, they should be escalated to the relevant national agency or department. The purpose is to make regulatory pathways clearer and more predictable without weakening environmental, planning or food-safety protections. *(Evidence base: D2.2, 46–50, 78–83, 89–90; D3.2, 46)*

6.4.5 Circular Agri-Food Implementation Accelerator

The region should operate a Circular Agri-Food Implementation Accelerator through the Regional Circular Agri-Food Coordination Platform. This function should deal specifically with helping selected projects move from pilot, company-level initiative or early collaboration into wider value-chain implementation. It should be distinct from the finance pathway and the infrastructure brokerage function. The accelerator should not simply identify funding or infrastructure needs; it should provide structured implementation support to projects that are already sufficiently developed to move towards adoption. The accelerator should operate through time-bound project cohorts or selected implementation cases. It should provide technical mentoring, business-model development, partnership brokering, validation support, market testing, certification advice, implementation planning and links to enterprise or research supports. Priority should be given to projects that require coordination across the agri-food chain, including side-stream valorisation, nutrient cycling, organic fertiliser, producer–processor collaboration, reusable or recyclable packaging, residue management, shared logistics and recovery infrastructure. Enterprise Ireland, Local Enterprise Offices, Teagasc and advisory bodies, research institutions, processors, cooperatives and funding bodies (see Figure 6) should support technical validation, business-case

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refinement, partnership formation and investment readiness. The accelerator's output should be a project that has moved beyond isolated experimentation towards a defined implementation route, with partners, finance needs, regulatory issues, infrastructure requirements and market routes identified. *(Evidence base: D2.2, 54–56, 84–85, 91; D3.2, 36–48, 54–67).*

6.4.6 Regional Circular Infrastructure and Logistics Brokerage

The region should provide a Regional Circular Infrastructure and Logistics Brokerage function through the Regional Circular Agri-Food Coordination Platform. This function should deal specifically with the physical and spatial requirements of circular agri-food implementation. It should not duplicate the finance pathway or the accelerator. Its purpose should be to identify what shared facilities, aggregation points, transport arrangements, storage, processing capacity or serviced locations are required to make circular value chains practical. The brokerage function should map infrastructure and logistics needs for AD, composting, nutrient recovery, organic fertiliser distribution, by-product aggregation, residue handling, digestate return, shared equipment, pre-processing, storage and transport coordination. It should identify whether a circular opportunity can be delivered through existing facilities, upgraded infrastructure, shared service models, cooperative arrangements or new investment. Local authorities should support serviced-site and planning-related coordination; processors and cooperatives should identify volumes, quality requirements and logistics needs; infrastructure providers and logistics actors should assess operational feasibility; and funding bodies or national departments should advise on investment routes (see Figure 6). The brokerage function should convert general circular opportunities into specific delivery models showing where material comes from, where it goes, who handles it, what infrastructure is needed, and what planning or funding barriers must be resolved. *(Evidence base: D2.2, 33–37, 43–50, 65–68, 78–83; D3.2, 58–67).*

6.4.7 Regional Data and Value-Chain Monitoring System

The region should operate a Regional Data and Value-Chain Monitoring System through the Regional Circular Agri-Food Coordination Platform. This function should be operational rather than evaluative. Its role should be to collect, organise and report the evidence needed to understand whether the Southern model is moving from coordination into value-chain implementation. The monitoring indicators described in section 6.5 should then use this evidence to assess whether the model is working. The monitoring system should track participation, producer–processor partnerships, collaboration agreements, project-stage movement, funding applications, finance accessed, regulatory barriers, advisory support, companies assisted, infrastructure needs, buyer engagement, market-development activity and movement from pilot to wider adoption. It should also record unresolved barriers requiring national response. Producers and processors should report value-chain progress; local authorities and agencies should identify delivery barriers; the Southern Regional Assembly should support regional comparison; and relevant national bodies should respond to issues requiring policy, funding or regulatory clarification (see Figure 6). The system should produce regular implementation updates for the

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platform, showing which projects are progressing, which are stalled, why they are stalled, and what action is required. The purpose is to ensure that the Southern model is judged by evidence of practical circular agri-food implementation, not by the existence of meetings, platforms or strategies alone. *(Evidence base: D3.1, 67–80; D3.1.1, 1–4, 8; D3.2, 36–48, 58–67).*

6.4.8 Delivery arrangements

Southern delivery arrangements should operate as linked functions within a Regional Circular Agri-Food Coordination Platform connected to the Southern Regional Assembly. The Southern Regional Assembly should provide strategic oversight and regional coordination, while the platform should provide the operational coordination space through which producers, processors, cooperatives, local authorities, Teagasc and advisory bodies, Enterprise Ireland, Local Enterprise Offices, research institutions, infrastructure providers and relevant national agencies deliver specific elements according to their mandates (see Figure 6).

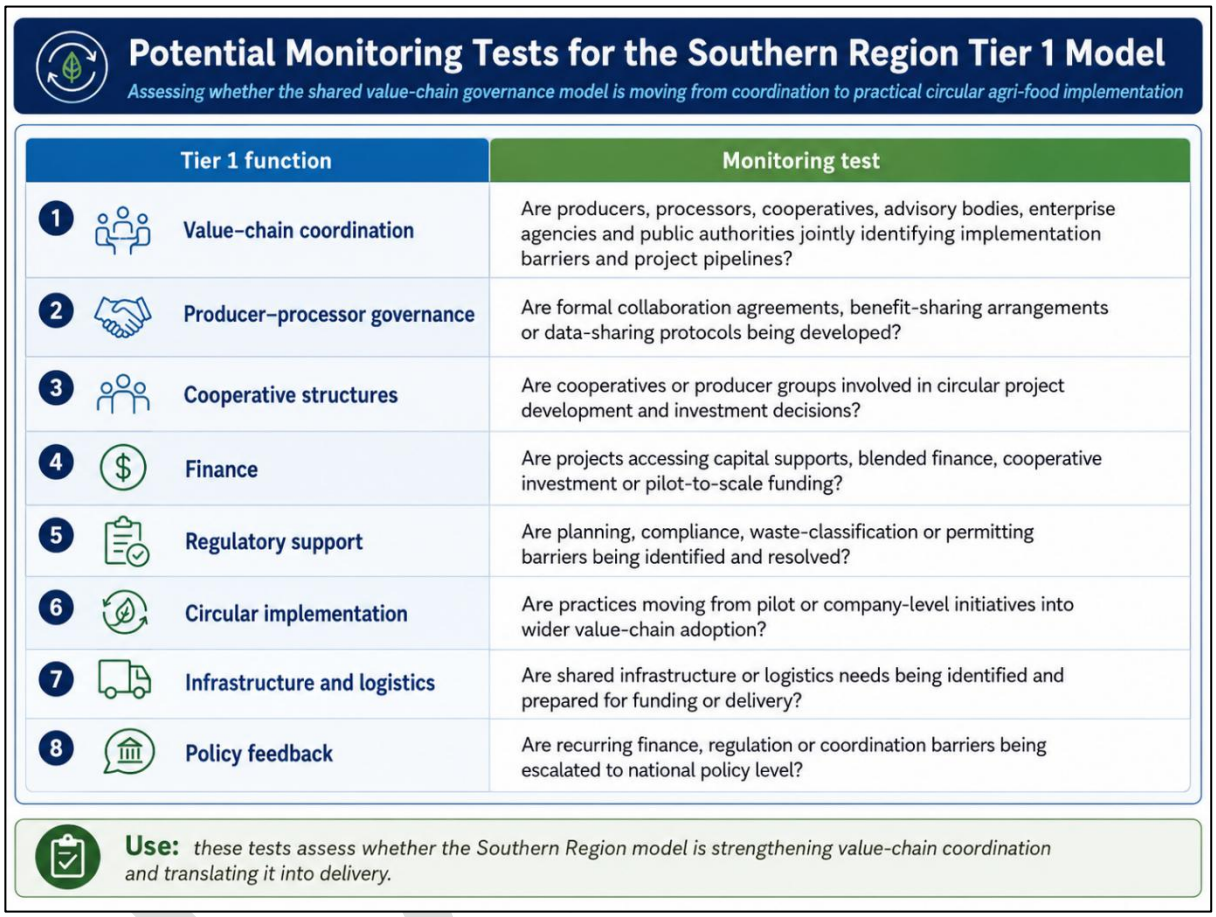
Figure 6: Southern Delivery Responsibility

6.5 Monitoring indicators for the Southern region

While Section 6.4.7 identifies the monitoring system required to collect and organise regional value-chain evidence, this section sets out the indicators through which the performance of the Southern model should be

assessed. The Southern region should be assessed against value-chain implementation indicators used to judge whether the Southern model is working. Its function is evaluative in testing whether the model is producing value-chain implementation. Potential monitoring indicators are outlined in Table 4:

Table 4: Potential Monitoring Tests for the Southern region



Potential Monitoring Tests for the Southern Region Tier 1 Model

Assessing whether the shared value-chain governance model is moving from coordination to practical circular agri-food implementation

Tier 1 function	Monitoring test
1 Value-chain coordination	Are producers, processors, cooperatives, advisory bodies, enterprise agencies and public authorities jointly identifying implementation barriers and project pipelines?
2 Producer–processor governance	Are formal collaboration agreements, benefit-sharing arrangements or data-sharing protocols being developed?
3 Cooperative structures	Are cooperatives or producer groups involved in circular project development and investment decisions?
4 Finance	Are projects accessing capital supports, blended finance, cooperative investment or pilot-to-scale funding?
5 Regulatory support	Are planning, compliance, waste-classification or permitting barriers being identified and resolved?
6 Circular implementation	Are practices moving from pilot or company-level initiatives into wider value-chain adoption?
7 Infrastructure and logistics	Are shared infrastructure or logistics needs being identified and prepared for funding or delivery?
8 Policy feedback	Are recurring finance, regulation or coordination barriers being escalated to national policy level?

Use: *these tests assess whether the Southern Region model is strengthening value-chain coordination and translating it into delivery.*

Each monitoring test should be supported by recorded evidence, including producer–processor participation, cooperative involvement, collaboration agreements, shared finance records, regulatory queries, infrastructure or logistics needs, project-stage movement, and evidence that circular practices are moving beyond isolated company-level activity into wider value-chain adoption. These indicators should be used to test whether the Southern regional bioeconomy strategy converts agri-food capacity into coordinated circular bioeconomy implementation.

7. Eastern and Midlands (EM) Region: Innovation-to-Market Model

The Tier 1 EM regional strategy is an innovation-to-market model. Its purpose is to connect the region's research, enterprise, procurement and value-chain assets to practical circular bioeconomy implementation. The model is supported by the Tier 2 land use strategy, whereby the EM region is characterised by larger farm structures, a resilient arable base, strong urban and peri-urban pressures, proximity to major institutional markets, and significant research, enterprise and procurement capacity. The region requires a model that can connect research and innovation activity to public procurement, buyer demand, SME commercialisation, urban-rural value chains and market uptake. The model therefore focuses on research-to-market translation, procurement and demand creation, SME support, IP and collaboration frameworks, buyer engagement and urban-rural circular value-chain brokerage. D2.2 identifies a gap between research activity and practical business outcomes, including weak alignment with business goals, frustration with research-led development, and concerns around intellectual property, confidentiality and collaboration with universities (D2.2, 54–56, 84–85, 91–92). It also identifies weak support for smaller actors and SMEs, including funding access barriers and support systems designed around larger companies (D2.2, 52–54, 83–84, 91). The EM region's strategic role is to connect research and higher-education institutions, enterprise-support networks, public procurement bodies, institutional buyers, food-service and retail markets, buyer/end-user demand, circular-economy companies, logistics systems, peri-urban processors and rural producers.

7.1 Regional implementation approach

The EM region requires an approach that links innovation supply to identifiable demand systems. The implementation problem relates to whether research and enterprise capacity can move through a credible pathway from research, demonstration and enterprise support into procurement, investment, buyer engagement, commercial adoption and wider value-chain implementation. The model should therefore prioritise research-to-market translation, public-sector demand creation, collaboration and IP governance, and buyer and investor engagement.

7.2 Strategic aim

The strategic aim for the EM region is:

To operate an innovation-to-market bioeconomy framework that connects research and higher-education institutions, enterprise supports, public procurement bodies, institutional buyers, food-service and retail markets, buyer/end-user demand, processors, peri-urban processors, farmers, circular-economy companies, logistics actors and urban-rural value chains, so that circular and bio-based products, services and practices can move from demonstration to adoption and market uptake.

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7.3 Design principles for the EM model

The EM Tier 1 strategy should be built around four design principles: 1) market pull before innovation supply; 2) commercialisation before demonstration expansion; 3) collaboration clarity before research–industry partnership; and 4) demand creation before market expectation. These principles respond to D2.2 evidence that research-led development must produce more tangible business outcomes and that IP, confidentiality and collaboration concerns can weaken trust between industry and research institutions (D2.2, 54–56, 84–85, 91–92). They also reflect D3.2 evidence that circular practice is shaped by market demand, logistics, policy mixes, funding and business models, not technical innovation alone (D3.2, 3–5, 36–48, 58–67).

7.4 Priority Functions

Priority functions for the EM innovation-to-market model are outlined below and illustrated in Figure 7.

Figure 7: EM Region: Innovation-to-Market Model

7.4.1 Bioeconomy Innovation-to-Market Platform

The EM region should operate a Bioeconomy Innovation-to-Market Platform as the main operational coordination arrangement for the innovation-to-market model. Its purpose should not be to duplicate existing

research, enterprise or procurement structures, but to connect them into a regional implementation system focused on adoption, demand creation and commercial uptake. The platform should be linked to the EM Regional Assembly, which should provide strategic oversight and regional coordination. The platform should maintain an innovation-to-market register covering promising circular and bio-based innovations, participating actors, technology readiness, validation needs, procurement or buyer opportunities, funding status, regulatory issues, IP or collaboration barriers, logistics requirements and unresolved implementation constraints. It should bring together universities, research centres, technology-transfer offices, Enterprise Ireland, Local Enterprise Offices, local authorities, public procurement bodies, institutional buyers, retailers, food-service actors, logistics actors, investors, processors, peri-urban processors, farmers, producer groups and circular-economy companies (see Figure 8). The platform should decide whether a project should be referred to the Research-to-Market Pathway, the Public Procurement and Market-Creation Function, the Start-up and SME Commercialisation Support Package, the IP and Collaboration Framework, the Demand and Buyer Engagement Function, or the Urban-Rural Circular Value-Chain Broker. Its core role is therefore to prevent research, enterprise support, buyer demand and circular value-chain opportunities from remaining disconnected. *(Evidence base: D2.1, 4–7, 11; D3.1, 32–67, 67–80; D2.2, 54–56, 84–85, 91–92).*

7.4.2 Research-to-Market Pathway

The region should establish a Research-to-Market Pathway through the Bioeconomy Innovation-to-Market Platform. This function should deal specifically with projects that emerge from research, demonstration, pilot activity or technical innovation but are not yet ready for adoption or commercial use. It should not provide general business support. Its role should be to test whether a research or demonstration output has a credible route towards validation, procurement, buyer engagement, investment and implementation. The pathway should include technical validation, market-use assessment, regulatory orientation, business-model development, procurement-readiness assessment, buyer testing, certification or standards review, and post-demonstration planning. Research institutions and technology-transfer offices should support validation, technical assessment and collaboration; Enterprise Ireland and Local Enterprise Offices should support commercial readiness; and buyers, procurement bodies and investors should test whether the innovation meets real adoption conditions (see Figure 8). The expected output should be a clear decision on whether the project should move towards procurement, private buyer engagement, SME commercialisation support, further technical development, or discontinuation. *(Evidence base: D2.2, 54–56, 84–85, 91–92; D3.2, 36–48, 54–67, 82–83).*

7.4.3 Public Procurement and Market-Creation Function

The EM region should operate a Public Procurement and Market-Creation Function through the Bioeconomy Innovation-to-Market Platform. This function should deal specifically with formal public and institutional purchasing routes. It should be distinct from general buyer engagement. Its purpose is to use public-sector and

institutional demand to create early, credible markets for circular and bio-based products, services and practices where they are technically feasible, environmentally appropriate and capable of meeting procurement requirements. The function should support procurement guidance, framework contracts, sustainability criteria, product specifications, pre-market consultation, supplier engagement, certification or standards alignment, and buyer confidence. Public procurement bodies, local authorities, universities, schools, hospitals, institutional buyers, Enterprise Ireland, Local Enterprise Offices (see Figure 8) and relevant standards or certification bodies should identify where circular and bio-based products or services could be procured. This should include attention to circular food systems, bio-based or recycled packaging, upcycled products, circular services, organics management and other products or services that can realistically enter public or institutional purchasing systems. The output should be a defined procurement. *(Evidence base: D2.2, 43–46, 72–74, 87–91; D3.2, 36–48, 58–67).*

7.4.4 Start-up and SME Commercialisation Support Package

The region should provide a Start-up and SME Commercialisation Support Package through the Bioeconomy Innovation-to-Market Platform. This function should deal specifically with enterprise capacity. It should support smaller companies, start-ups, research-based enterprises and SMEs that have a potential circular or bio-based product, service or process but need help to become investment-ready, procurement-ready or market-ready. The package should provide funding navigation, feasibility support, business-model development, market testing, regulatory orientation, procurement-readiness support, investor engagement, pricing assessment, customer discovery and scale-up planning. Enterprise Ireland, Local Enterprise Offices, research institutions, technology-transfer offices, investors, procurement actors and relevant buyers (see Figure 8) should help ensure that enterprise support is linked to validation, demand, finance and adoption. The package should be designed for smaller companies that may lack the administrative capacity, commercial networks or technical resources available to larger companies. Its expected output should be a clearer commercialisation route, including target customers, investment needs, procurement or buyer requirements, regulatory issues and next-stage support. *(Evidence base: D2.2, 52–54, 83–84, 91).*

7.4.5 IP and Collaboration Framework

The region should develop an IP and Collaboration Framework through the Bioeconomy Innovation-to-Market Platform. This function should deal specifically with ownership, confidentiality, data-sharing and collaboration rules. It should not be treated as a general research-industry networking activity. Its purpose is to reduce uncertainty that can prevent researchers, companies, farmers, processors, public bodies and investors from working together. The framework should provide model collaboration agreements, confidentiality templates, data-sharing principles, publication protocols, licensing options, benefit-sharing guidance and ownership rules for research–industry, producer–processor, public–private and multi-actor collaborations. Research institutions and technology-transfer offices should support IP and licensing content; Enterprise Ireland and industry representatives should ensure commercial practicality; producers, processors and SMEs should identify concerns

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around value capture and confidentiality; and public-sector actors should clarify procurement and data requirements (see Figure 8). The output should be a set of usable collaboration tools that make joint projects easier to initiate, govern and move towards adoption. *(Evidence base: D2.1, 7–8, 1–12; D2.2, 71–72, 105–106; D3.1.1, 1–4, 8–9; D3.1, 49–52, 75–76; D3.2, 54; 78).*

7.4.6 Demand and Buyer Engagement Function

The region should operate a Demand and Buyer Engagement Function through the Bioeconomy Innovation-to-Market Platform. This function should deal specifically with understanding real buyer requirements before projects are scaled or commercialised. It should be distinct from the Public Procurement and Market-Creation Function, which focuses on formal public and institutional purchasing routes. The buyer engagement function should include both public and private buyers, but its core task is market intelligence; e.g. identifying what buyers require, what barriers they see, and what suppliers must do to achieve adoption. The function should connect circular and bio-based producers with public buyers, institutional buyers, retailers, food-service actors, processors, logistics companies and potential customers (see Figure 8). It should identify product specifications, volume expectations, quality standards, certification needs, price conditions, delivery requirements, storage constraints and market-entry risks. It should also allow buyers to explain why a circular or bio-based product is not yet adoptable, whether because of price, reliability, regulatory uncertainty, quality, supply volume, certification or logistics. The output should be practical market-entry information that can be fed back to SMEs, research projects, procurement bodies, investors and the wider Innovation-to-Market Platform. *(Evidence base: D2.2, 43–46, 72–74; D3.2, 39–48, 63–67).*

7.4.7 Urban-Rural Circular Value-Chain Broker

The EM region should operate an Urban-Rural Circular Value-Chain Broker through the Bioeconomy Innovation-to-Market Platform. This function should deal specifically with connecting rural production, peri-urban processing, urban demand and logistics. Its role is to turn the EM region's urban-rural structure into an implementation advantage by identifying circular value-chain opportunities that depend on movement between rural, peri-urban and urban actors. The broker should connect farmers, producer groups, processors, peri-urban processors, circular-economy companies, logistics actors, local authorities, public procurement bodies, institutional buyers, retailers and food-service actors (see Figure 8). It should identify viable flows of crop residues, food-system by-products, separated organics, packaging materials, side-streams, recovered nutrients or bio-based products where these can be managed in environmentally appropriate ways. It should assess aggregation points, logistics routes, storage needs, processing capacity, serviced locations, buyer demand and business-case requirements. The expected output should be a defined urban-rural value-chain opportunity showing what material or product is involved, who supplies it, who processes it, who buys or uses it, how logistics operate, what infrastructure is needed, and what funding, regulatory or market barriers must be addressed. *(Evidence base: D2.2, 43–46, 72–74; D3.2, 39–48; 63–67).*

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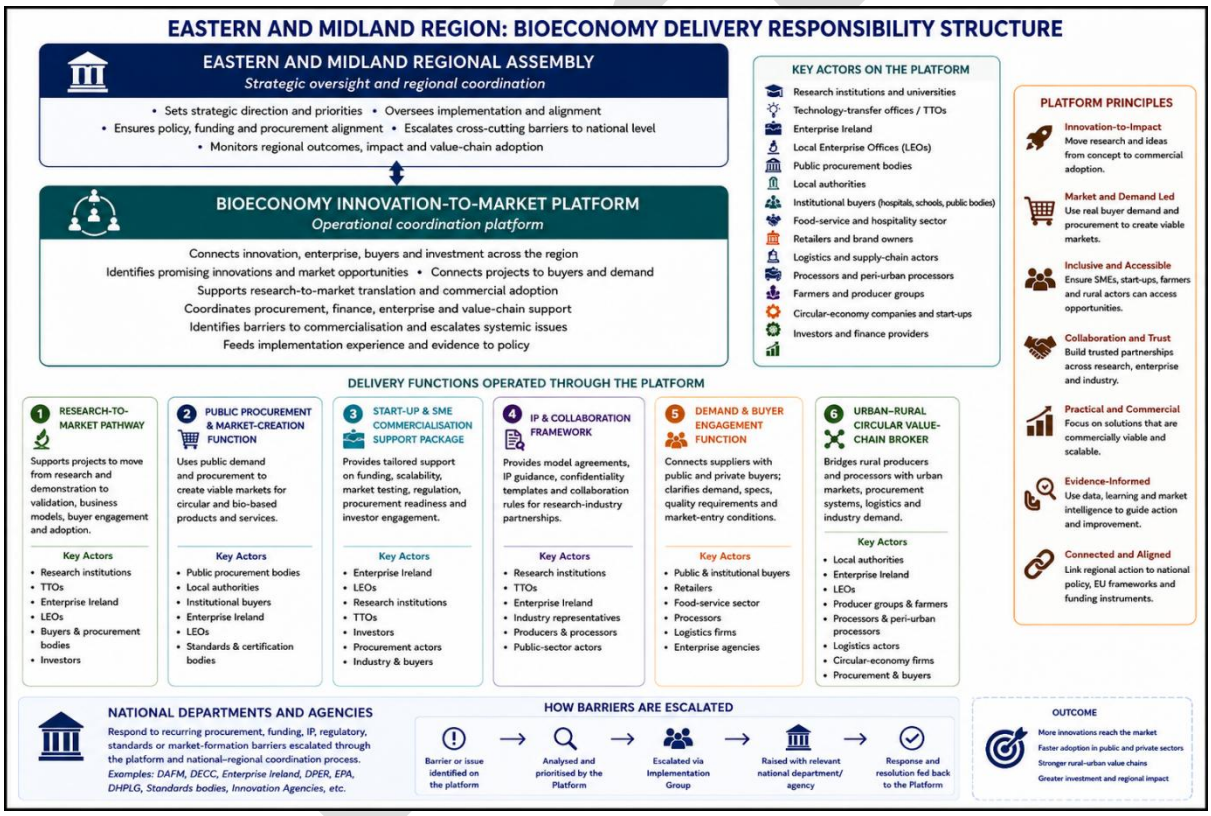
7.4. 8 Delivery arrangements

EM delivery arrangements should operate as connected services, support routes and intermediary roles within a Bioeconomy Innovation-to-Market Platform linked to the EM Regional Assembly. The EM Assembly should provide strategic oversight and regional coordination, while the platform should provide the operational coordination space through which research institutions, technology-transfer offices, Enterprise Ireland, Local Enterprise Offices, public procurement bodies, local authorities, institutional buyers, food-service actors, retailers, logistics actors, circular-economy companies, processors, peri-urban processors, farmers, producer groups and investors support delivery according to their roles (see Figure 8).

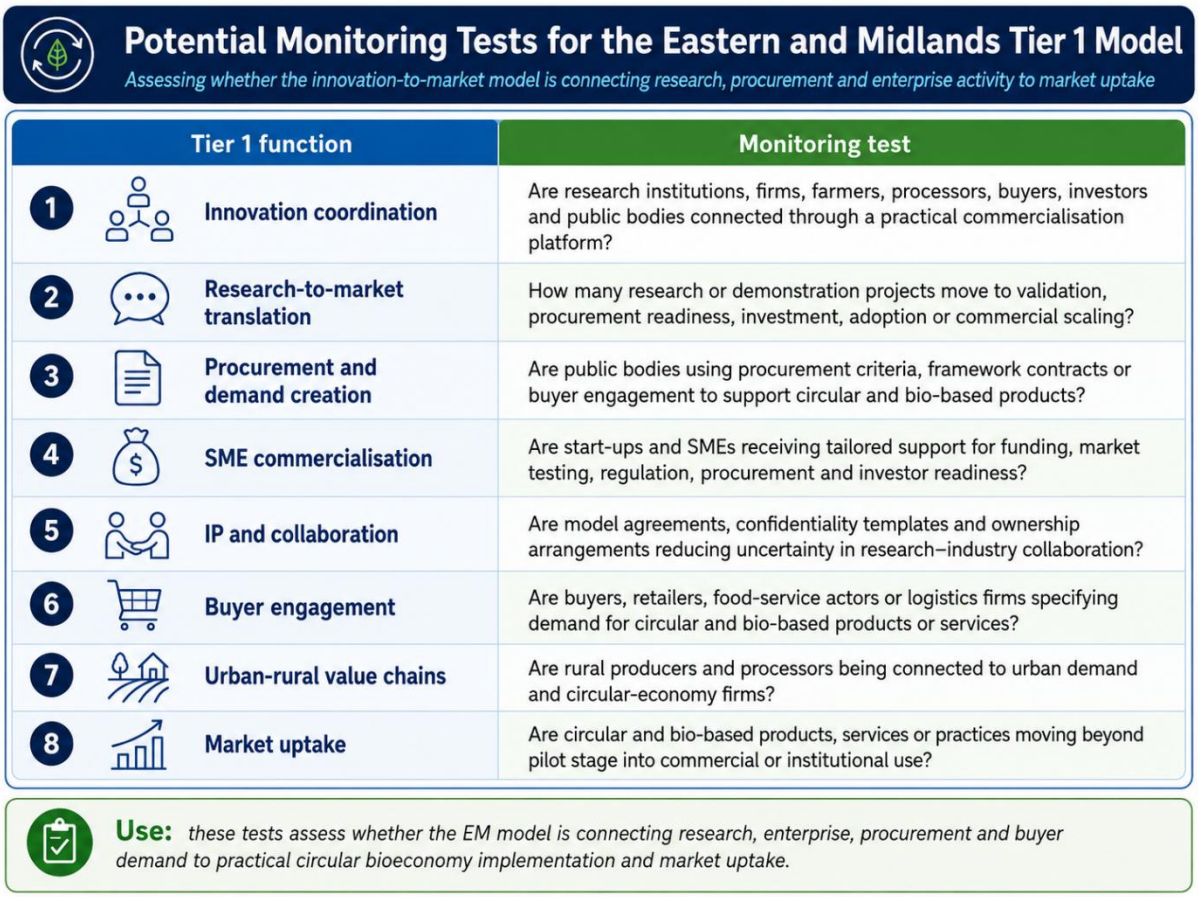
Figure 8: EM Delivery Responsibility



7.5 Monitoring indicators for the EM region

The EM region should be assessed against innovation-to-market indicators used to test whether the model is moving research, innovation and enterprise activity towards market uptake, procurement, buyer engagement and commercial adoption rather than remaining at the level of research, networking or project development. Potential monitoring indicators are outlined in Table 5:

Table 5: Potential Monitoring Tests for the EM region



Each monitoring test should be supported by recorded evidence, including research-to-market project-stage tracking, procurement opportunities, buyer-engagement records, SME support records, IP or collaboration agreements, market-testing activity, investor-readiness evidence, and adoption or commercial-use outcomes.

8. Cross-Regional Coordination: National Learning, Escalation and Transfer

The three regional Tier 1 models should not operate as isolated implementation systems. The NW, Southern, and EM regions require different emphases, but they should be connected through a shared national–regional coordination framework. The purpose of cross-regional coordination is to ensure that regional differentiation produces national learning, that recurring barriers are escalated to the appropriate policy level, and that useful functions can be adapted between regions where relevant. This is necessary because the bioeconomy cuts across agriculture, food, forestry, marine, waste, energy, innovation, enterprise and regional development (D2.1, 3–5). It is also necessary because the evidence base shows that implementation barriers are often systemic rather than regional alone. Guidance gaps, finance constraints, planning and regulatory complexity, farmer exclusion, SME support gaps, market weakness and research-to-practice problems appear across the Irish practice evidence (D2.2, 38–57, 68–92). Cross-regional coordination should therefore be designed as a learning and problem-solving system (see Figure 9).

Figure 9: Cross-Regional Coordination Model

8.1 National–regional coordination as an implementation feedback system

Each regional model should be linked to a national–regional coordination mechanism. This mechanism should connect the three regional platforms with relevant national departments, Regional Assemblies, local authorities, enterprise agencies, advisory bodies, research institutions and practitioner representatives. Its purpose should be to ensure that regional implementation remains aligned with national bioeconomy policy while allowing each region to respond to its own implementation profile. The national–regional mechanism should perform three functions. First, it should align regional activity with national policy objectives, funding schemes and relevant sectoral strategies. Second, it should identify regional implementation barriers that cannot be solved locally and require national policy, finance, regulatory or programme-design responses. Third, it should provide a formal route through which evidence from regional implementation informs future national strategy, funding design, guidance and regulatory reform. This responds to D2.1, which shows that Ireland has national bioeconomy ambition but weak regional expression and fragmented implementation structures (D2.1, 2–5). It also reflects D3.1.1, which identifies multi-level coordination as a core governance requirement for bioeconomy implementation across territorial and institutional boundaries (D3.1.1, 1–4, 8).

8.2 Escalation of common implementation barriers

Cross-regional coordination should include a formal escalation pathway for barriers that repeatedly arise across the three regions. Funding rules, regulatory ambiguity, waste and by-product classification, public procurement constraints, planning delays, intellectual-property uncertainty and national advisory gaps may require action at national level. Each regional platform should therefore maintain an implementation-barriers register. Barriers should be classified according to whether they can be addressed regionally, require agency coordination, require national policy clarification, require funding redesign, or require regulatory review. Where similar barriers are reported by more than one region, they should be escalated to the national–regional coordination mechanism for response. D2.2 identifies practical barriers including finance, planning, overregulation, lack of guidance, weak support for smaller actors, farmer exclusion, research-led limitations and IP issues (D2.2, 38–57, 68–92). These should become the basis of an active escalation system. A simple escalation approach is shown in Table 6:

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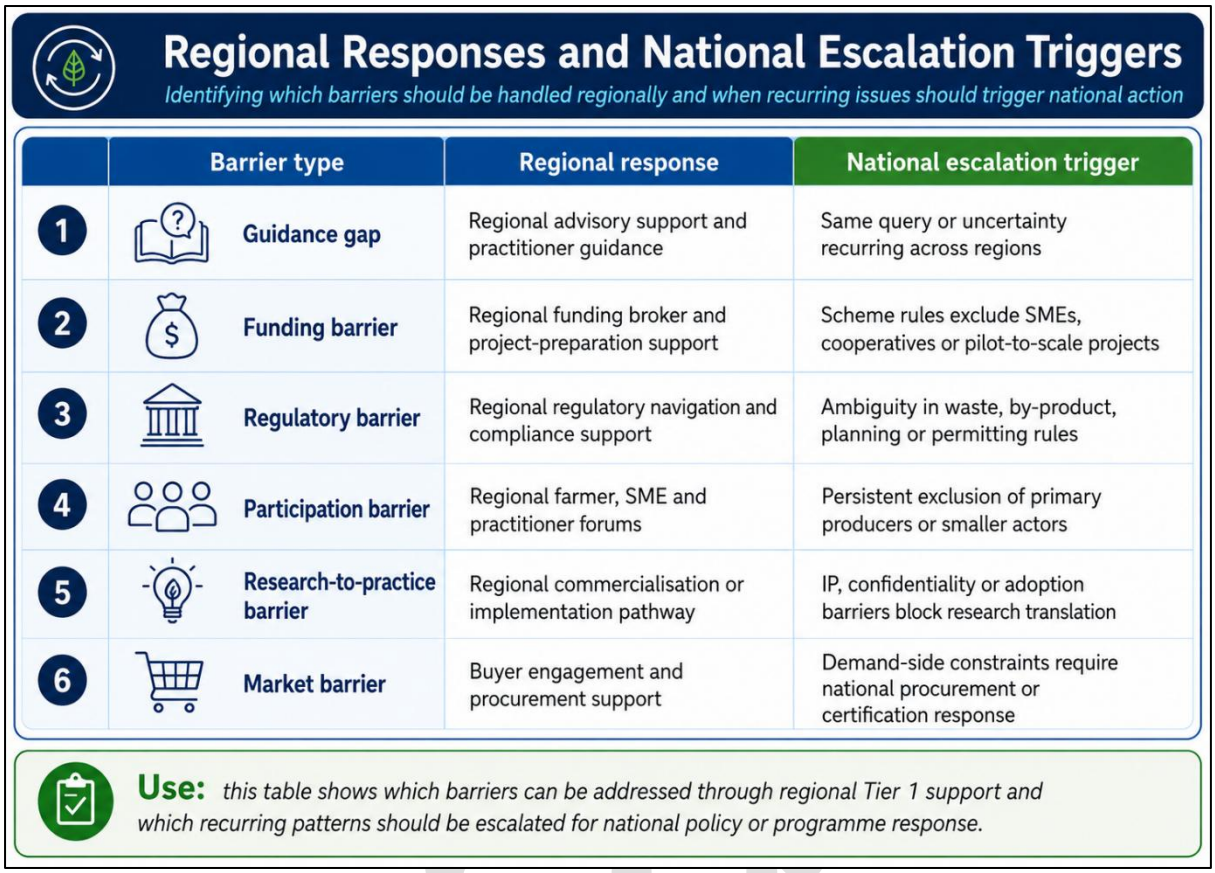
Table 6: Regional Responses and National Escalation Triggers



The purpose of the escalation approach is to distinguish between barriers that regions can solve and barriers that require national adjustment.

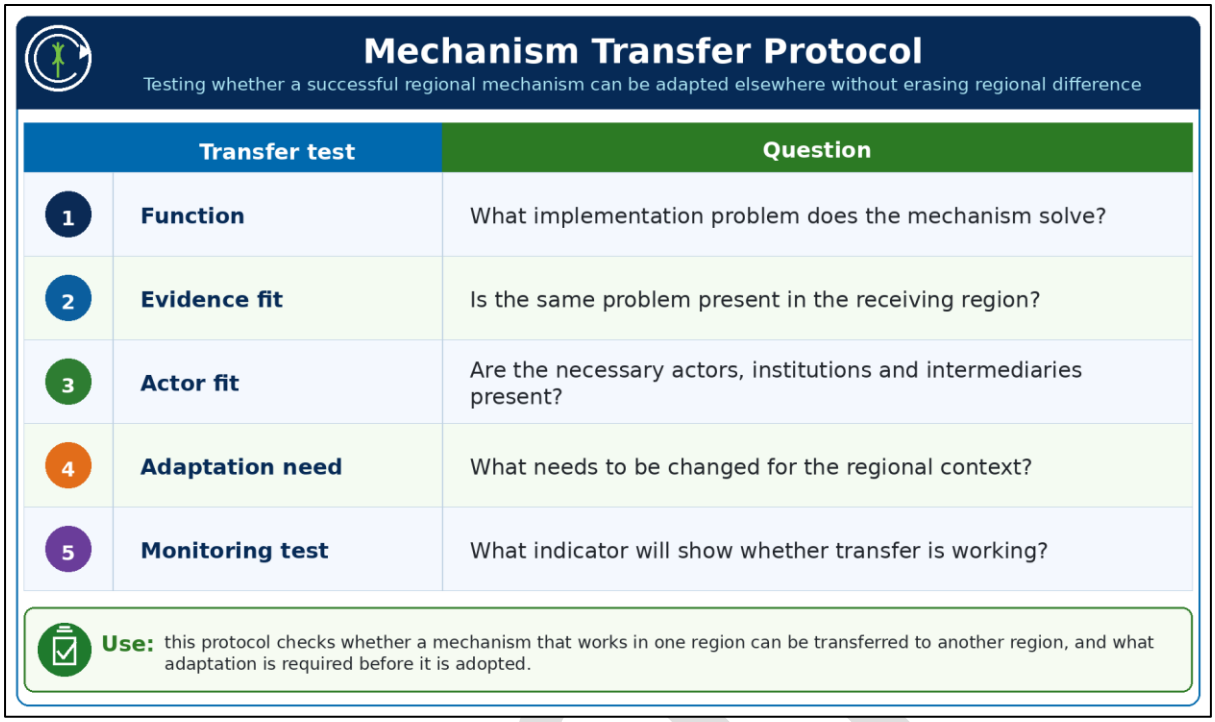
8.3 Inter-regional learning

A formal inter-regional learning process should connect the three regional bioeconomy strategies. Its purpose is to compare progress, identify common barriers, adapt useful delivery functions and avoid unnecessary duplication. Each region has a different implementation model, so inter-regional learning should focus on transferable functions. For example, the Southern producer–processor circularity framework could inform urban-rural value-chain brokerage in the EM region, but with stronger emphasis on buyers, procurement and market formation. D3.1 demonstrates how European regional bioeconomy development is often supported by hubs, clusters, partnerships and knowledge-exchange mechanisms, with lessons adaptable to national and regional institutional conditions (D3.1, 46–52, 67–80).

8.4 Mechanism transfer protocol

To avoid generic replication, the three regions should use the mechanism transfer protocol set out in Table 7. This allows a successful measure from one region to be assessed before being adapted elsewhere.

Table 7: Mechanism Transfer Protocol



Mechanism Transfer Protocol

Testing whether a successful regional mechanism can be adapted elsewhere without erasing regional difference

	Transfer test	Question
1	**Function**	What implementation problem does the mechanism solve?
2	**Evidence fit**	Is the same problem present in the receiving region?
3	**Actor fit**	Are the necessary actors, institutions and intermediaries present?
4	**Adaptation need**	What needs to be changed for the regional context?
5	**Monitoring test**	What indicator will show whether transfer is working?

Use: this protocol checks whether a mechanism that works in one region can be transferred to another region, and what adaptation is required before it is adopted.

8.5 Shared evidence and monitoring system

A shared evidence and monitoring system should be developed across the three regions. It should allow comparison while preserving regional differentiation. The common template should track eight strategic functions: 1) coordination; 2) participation; 3) advisory support; 4) finance; 5) partnership formation; 6) research-to-practice translation; 7) market formation; and 8) policy learning. Each region should also report against its own model-specific indicators: the NW Region on access, participation, advisory reach, cooperative project preparation and small-actor funding access; the Southern Region on producer–processor agreements, shared finance, regulatory barriers, circular agri-food implementation and value-chain coordination; and the EM region on research-to-market movement, procurement uptake, buyer engagement, IP/collaboration frameworks, SME commercialisation and market formation. This approach is consistent with D3.1.1's emphasis on reflexive science–policy interfaces, where governance systems must learn from implementation experience and adapt over time (D3.1.1, 1–4, 8). Monitoring should therefore support accountability, policy learning, barrier escalation and strategy revision. The regional monitoring tests should be answered through a defined evidence protocol, including participation records, actor-category profiles, repeat participation, evidence of influence on decisions, advisory-service records, project-stage tracking, funding applications, regulatory queries, partnership agreements, procurement or buyer-engagement activity, market-development outputs, barrier-escalation records and policy responses (see Table 8).

Table 8: Monitoring Evidence Protocol

Monitoring Evidence Protocol

Evidence to record in support of regional monitoring tests and policy learning

Monitoring area	Evidence to record	Example use
Participation and representation	Attendance composition, actor category, farmer/SME/community/processor representation, repeat participation, role in decisions	Tests whether participation is broad and influential, not just present
Advisory and guidance support	Number and type of enquiries, actors supported, guidance topics, follow-up actions, movement to feasibility or project preparation	Tests whether guidance is moving actors beyond initial interest
Project development	Project register, stage reached, feasibility work, business cases, applications prepared, pilot status, implementation status	Tests whether projects are moving from concept to pilot, funding or delivery
Funding access	Funding applications, success rates, funding source, rejected applications, reasons for exclusion, match-funding gaps	Tests whether finance is accessible to smaller actors and implementation-stage projects
Regulatory navigation	Planning, waste, by-product, permitting and compliance queries; unresolved barriers; clarifications issued	Tests whether regulatory barriers are being identified and resolved
Partnerships and value chains	Collaboration agreements, producer–processor arrangements, cooperative structures, buyer contacts, data-sharing or benefit-sharing arrangements	Tests whether coordination is producing operational relationships
Market formation	Procurement opportunities, buyer engagement, framework contracts, product specifications, institutional demand, market testing	Tests whether demand is being created for circular and bio-based products or services
Policy learning and escalation	Barrier register, issues escalated, national responses, funding-design gaps, regulatory clarifications, mechanisms adapted between regions	Tests whether monitoring is feeding back into policy and strategy revision

8.6 International linkages as selective learning

The regional structures should maintain selective international linkages with European bioeconomy regions, hubs, clusters and governance networks for learning, benchmarking and exchange. D3.1 shows that European regional bioeconomy strategies provide useful mechanisms for research and innovation, partnership, governance, sustainability, cluster development and regional coordination (D3.1, 32–80). D3.2 shows that international practice exemplars provide building blocks for circular practice, but that transfer depends on institutional, market, logistical and cultural conditions (D3.2, 3–5, 65–67). International lessons should therefore be assessed through the mechanism transfer protocol before being incorporated into regional strategy.

9. Conclusion

This Tier 1 Regional Bioeconomy Strategy provides an implementation framework for translating Ireland's national bioeconomy ambition into differentiated regional delivery. Its central argument is that Ireland's main challenge is not the absence of policy, research or circular-practice examples, but the lack of sufficiently integrated regional systems to coordinate actors, support practitioners, mobilise finance, navigate regulation,

form markets and feed implementation evidence back into policy. The strategy addresses this gap through a common national Tier 1 framework and three regional models: a distributed capacity-building model for the NW region; a shared value-chain governance model for the Southern region; and an innovation-to-market model for the EM region. These models allow each region to respond to its own capacities and barriers while remaining connected through shared coordination, monitoring and policy-learning functions. Cross-regional coordination allows common barriers to be identified, useful delivery functions to be adapted, and regional evidence to inform national policy and funding design. The strategy should therefore be used as a practical framework for organising regional bioeconomy implementation, while also providing a basis for co-development, refinement and adaptive learning over time.

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