SustainX

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ACTION PLAN – BULGARIA

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Bulgaria

EXECUTIVE SUMMARY

The SustainX Regional Action Plan for Bulgaria presents a practical, targeted strategy to strengthen the national innovation ecosystem, address structural bottlenecks, and unlock local potential in line with the SustainX project objectives and Bulgaria's Smart Specialisation Strategy (RIS3 2021–2027). Positioned at the intersection of Southeast Europe and the wider EU market, Bulgaria aims to foster a more resilient, inclusive, and internationally connected innovation environment that supports the twin green and digital transitions.

Identified Challenges

Based on stakeholder consultations, competence mapping, and strategic analysis, several persistent and interlinked challenges were identified:

- **Economic dependence on traditional sectors**: Manufacturing, agriculture, and services dominate, with limited diversification into high-value innovation sectors.
- **Low private-sector R&D&I investment**: Business participation in research and innovation activities remains well below the EU average, hampering commercialization and scalability.
- **Fragmented innovation governance**: Limited coordination between universities, SMEs, clusters, and public bodies constrains systemic implementation of RIS3.
- **Brain drain and skills mismatches**: High levels of youth emigration and skills gaps in digital, green, and entrepreneurial fields weaken innovation absorption.
- **Urban–rural innovation divide**: Concentration of innovation activities in Sofia and major cities leaves peripheral and rural areas underserved.
- **Limited RIS3 awareness and uptake**: SMEs and intermediaries often lack practical tools and guidance to align innovation activities with RIS3 domains.

Strengths of the Bulgarian Innovation Ecosystem

Despite these challenges, Bulgaria possesses significant assets that create a strong foundation for transformation:

- **Clear sectoral focus**: RIS3 identifies priority areas including mechatronics, ICT, biotechnology, clean energy, creative industries, and circular economy.

- **Emerging digital and sustainable innovation capacity**: Growing networks of digital innovation hubs (DIHs), clusters, and public research organizations.
- **Strategic EU integration**: Strong participation in Horizon Europe, Interreg, Digital Europe, and EEN networks, enabling access to knowledge, funding, and partnerships.
- **Dynamic startup and entrepreneurial ecosystem**: Particularly in ICT, fintech, and clean technologies.
- **Policy commitment to twin transitions**: Bulgaria's Recovery and Resilience Plan and National Innovation Strategy both prioritize digitalization and sustainability goals.

Strategic Focus Areas

The Action Plan articulates the following targeted interventions:

- **Supporting SME commercialization pathways** in green and digital sectors through light innovation scaling services, mentoring, and EU project readiness support.
- **Enhancing cross-sector collaboration** through the establishment of practical cooperation services rather than heavy administrative platforms.
- **Scaling digital capacity** by promoting adoption of AI, cybersecurity practices, and digital innovation management among SMEs and intermediaries.
- **Promoting inclusive innovation** through modular training programmes, non-formal recognition (e.g., project-level digital badges), and targeted support for rural, youth, and women innovators.
- **Fostering eco-innovation and circular economy approaches** in sectors such as agri-food, energy, and manufacturing.
- **Expanding interregional learning and integration** by deepening participation in EU innovation ecosystems and SustainX-facilitated peer exchanges.

Alignment with RIS3 Priorities

The SustainX Action Plan directly supports Bulgaria's RIS3 domains:

- **Mechatronics and Clean Technologies** – advancing automation, robotics, and resource-efficient manufacturing.
- **ICT** – promoting AI, cybersecurity, cloud computing, and digital transformation in SMEs.
- **Biotechnology and Healthcare** – supporting bioeconomy, health tech, and pharma innovation.
- **Creative and Cultural Industries** – fostering digital content creation, design, and tourism innovations.

- **Circular Economy and Eco-Innovation** – scaling sustainable business models and resource efficiency.
- **Energy and Resource Efficiency** – promoting clean energy transitions and low-carbon innovation.

Through this Action Plan, Bulgaria is positioned to accelerate systemic innovation, strengthen regional and national ecosystems, and contribute more actively to Europe's green and digital transformation agendas.

The SustainX framework will enable capacity-building, cross-border cooperation, and knowledge-driven resilience, supporting Bulgaria's ambitions for sustainable, inclusive, and forward-looking innovation-led growth.

USED ABBREVIATIONS

SustainX	**SustainX Project (full project name not expanded in the document)**
S3 / RIS3	Smart Specialisation Strategy / Research and Innovation Smart Specialisation Strategy
SME	Small and Medium-sized Enterprise
NE RDA	North-East Regional Development Agency
MRID	Ministry of Research, Innovation and Digitalization (Romania)
EEN	Enterprise Europe Network
DIH	Digital Innovation Hub
EU	European Union
R&D	Research and Development
AI	Artificial Intelligence
VET	Vocational Education and Training (Centres)
KPI	Key Performance Indicator
NRRP	National Recovery and Resilience Plan (Romania)
NECP	National Energy and Climate Plan

RRF	Recovery and Resilience Facility (EU funding mechanism)
MEL	Monitoring, Evaluation, and Learning
ERDF	European Regional Development Fund
ESG	Environmental, Social, and Governance
ICT	Information and Communication Technology
RDI	Research, Development and Innovation
EIT	European Institute of Innovation and Technology

METHODOLOGY

The development of the Bulgarian National Action Plan (NAP) under the SustainX project adopted a structured, participatory, and evidence-informed approach to ensure alignment with Bulgaria's Smart Specialisation Strategy (RIS3 2021–2027), national innovation priorities, and the twin green and digital transitions at the heart of the SustainX mission. The methodology combined desk research, stakeholder engagement, survey analysis, and strategic alignment exercises to formulate actionable, context-sensitive interventions.

DESK RESEARCH

The first phase involved comprehensive desk research on Bulgaria's national innovation and development frameworks, as well as relevant EU policy documents. Main sources included:

- **Bulgaria's Smart Specialisation Strategy (RIS3 2021–2027)** – outlining priority sectors such as ICT, mechatronics, biotechnology, creative industries, and clean technologies, and identifying systemic challenges and governance structures;
- **National Development Programme: Bulgaria 2030** – defining overarching strategic goals for sustainable and innovation-driven growth;
- **Operational Programme "Competitiveness and Innovation in Enterprises" (OPICIE 2021–2027)** – highlighting national funding mechanisms supporting SMEs, digitalisation, and green economy initiatives;
- **Relevant EU frameworks**, such as the European Green Deal, Horizon Europe, Digital Europe Programme, and the Cohesion Policy framework – ensuring strategic coherence with European innovation and sustainability goals.

This review provided the evidence base for identifying intervention areas such as SME scaling support, skills development, innovation governance, and cross-sector collaboration.

STAKEHOLDER & COMPETENCE MAPPING

A national-level stakeholder mapping was conducted to identify key actors across Bulgaria's innovation ecosystem within the quadruple helix structure (academia, business, public sector, civil society). Key categories included:

- **Universities and R&D institutions** (e.g., Sofia University, Bulgarian Academy of Sciences, Technical University of Sofia);
- **Business clusters and industry associations** (e.g., Automotive Cluster Bulgaria, ICT Cluster Bulgaria, CleanTech Bulgaria);
- **Public authorities and innovation agencies** (e.g., Ministry of Innovation and Growth, Bulgarian SME Promotion Agency);
- **SMEs and startups in ICT, health, energy, green economy, and manufacturing sectors;
- **Enterprise Europe Network (EEN Bulgaria) partners** and regional development agencies.

A structured competence self-assessment was conducted among project partners and broader stakeholders, gathering insights into:

- Experience with innovation strategy design and commercialization;
- Sustainability and digital innovation practices;
- Collaboration capacity across sectors and administrative levels;
- Support needs related to EU project participation and RIS3 operationalisation.

The mapping exercise revealed strong academic and technological assets, but also gaps in SME scaling, commercialization, and public-private coordination, particularly outside the capital region.

SURVEY ANALYSIS AND NEEDS ASSESSMENT

Survey data was analyzed to extract key gaps and support needs for the national innovation ecosystem. Main findings included:

- **Strengths**:
  - Highly skilled human capital, particularly in ICT and engineering;
  - Solid infrastructure for digital transformation and research excellence;
  - Growing participation in EU programmes (e.g., Horizon Europe, Interreg Europe).
- **Challenges**:
  - Insufficient private-sector R&D&I investment and commercialization pathways;
  - Fragmented coordination among innovation actors (academia, business, government);
  - Talent drain, particularly of young innovators and researchers;
  - Administrative complexity and weak SME engagement with RIS3-related instruments.

- **Support Needs**:
  - Practical SME scaling programmes and easier access to innovation support;
  - Strengthened RIS3 communication, guidance, and toolkits;
  - National platforms for intersectoral collaboration and European integration.

Priority domains highlighted through the survey included:

- ICT and digital innovation;
- Circular economy and clean technologies;
- Health and biotechnologies;
- Smart manufacturing (mechatronics);
- Creative and cultural industries.

ALIGNMENT WITH RIS3 AND SUSTAINX OBJECTIVES

The Bulgarian NAP was developed to ensure full alignment with Bulgaria's national RIS3 strategic framework and the goals of the SustainX project. Each action in the NAP is mapped to strategic priorities such as:

1. ICT and digital transformation;
2. Mechatronics and clean technologies;
3. Biotechnology and health;
4. Creative and cultural industries;
5. Circular and low-carbon economy.

Additionally, the NAP is structured to contribute to SustainX Work Package 1 Key Performance Indicators (KPIs), including:

- Identification of national-level innovation challenges;
- Support for SME innovation capacity and market access;
- Enhancement of skills for green and digital innovation;
- Improved governance and policy learning through cross-regional peer exchange.

Special emphasis was placed on modular, scalable actions that can be integrated within national policies and funding streams and replicated across different regions and sectors.

ITERATIVE REFINEMENT AND PARTNER FEEDBACK

The draft Bulgarian NAP was subject to iterative validation through feedback loops involving project partners such as ARC Fund (Bulgaria), iED (Greece), and Fundación Santa Cruz Sostenible (Spain). This process included:

- Peer reviews and comparison with other national and regional RAPs (Latvia, Romania, Thessaly);
- Integration of SustainX-wide feedback received through project alignment sessions;
- Incorporation of best practices from EU-level innovation and RIS3 implementation experiences.

This collaborative development approach ensured that the NAP is both grounded in Bulgarian realities and strategically positioned within the broader SustainX vision for inclusive, place-sensitive innovation across Europe.

PROBLEM DEFINITION

Bulgaria stands at a pivotal point in its innovation development trajectory. Equipped with a skilled workforce, growing digital infrastructure, and well-defined Smart Specialisation (RIS3) priorities, the country nevertheless faces persistent systemic barriers that limit its ability to fully unlock its innovation potential—particularly in scaling SME innovations, strengthening ecosystem coordination, and enabling inclusive participation in the green and digital transitions. The following synthesis draws on desk research, stakeholder mapping, and survey-based competence assessment conducted under the SustainX project.

Systemic Barriers to Innovation Scaling and Commercialization

A recurring challenge highlighted by both strategic documents and stakeholder feedback is the difficulty Bulgarian SMEs face in scaling innovations beyond early-stage R&D. Despite notable activity in ICT, mechatronics, health technologies, and clean energy, the commercialization pipeline remains underdeveloped. Contributing factors include:

- **Low private investment in R&D&I**, well below the EU average and concentrated mainly in a few sectors;
- **Limited access to testing, validation, and prototyping infrastructure**, especially outside major urban centers;
- **Weak integration of SMEs into European and global value chains**, hindering internationalization and innovation diffusion.

These barriers reduce the return on R&D investments, limit SME competitiveness, and slow down market adoption of innovations in Bulgaria's RIS3 domains.

Fragmented Ecosystem and Weak Cross-Sector Collaboration

While Bulgaria's innovation ecosystem is rich in actors—including universities, clusters, SMEs, and public agencies—systemic fragmentation persists. Insights from surveys and mapping exercises identified:

- **Siloed relationships between academia, industry, and government**, limiting knowledge transfer and joint innovation initiatives;
- **A scarcity of collaborative platforms**, such as living labs or regional innovation hubs, that can bridge research and market application;
- **Imbalances between Sofia and other regions**, with a strong concentration of innovation activities in the capital, and underrepresentation in rural and peripheral areas.

This fragmentation inhibits systemic innovation and creates barriers to RIS3 operationalisation at the national and regional levels.

Skills Gaps and Talent Retention Challenges

Bulgaria has a highly educated population, particularly in STEM fields. However, survey results and stakeholder consultations pointed to critical skills-related gaps:

- **Mismatch between educational outputs and innovation ecosystem needs**, especially in areas such as AI, cybersecurity, circular economy, and deep tech sectors;
- **Limited lifelong learning and upskilling opportunities**, particularly for SME employees and rural populations;
- **Ongoing brain drain**, with young professionals and researchers migrating to Western Europe, reducing Bulgaria's absorptive capacity for new technologies and practices.

These human capital challenges constrain SME growth, digital transformation, and the ability to adapt to green transition opportunities.

Underutilization of European Innovation Networks

Despite increasing participation in EU programmes (e.g., Horizon Europe, Digital Europe, Interreg Europe), Bulgaria still struggles to convert project involvement into long-term strategic partnerships and innovation scaling. Key barriers include:

- **Limited project management and internationalisation capacity**, especially among SMEs and smaller research teams;
- **Weak integration into pan-European innovation platforms**, such as EIT communities, S3 Thematic Platforms, and Enterprise Europe Network specialisation areas;
- **Insufficient capitalization on project outcomes**, hindering policy learning and systemic change.

This results in lost opportunities to position Bulgaria as a stronger node within European innovation ecosystems.

Regulatory and Policy Coordination Bottlenecks

Stakeholders consistently raised concerns about regulatory and administrative hurdles impeding innovation:

- **Complex, slow, and fragmented innovation funding procedures**, discouraging SME participation;
- **Delayed deployment of RIS3-aligned funding instruments**, including innovation vouchers, pilot project support, and cluster development schemes;

- **Lack of agile regulatory frameworks**, particularly in fast-evolving sectors like digital health, AI, and sustainable energy.

These governance gaps undermine trust, reduce uptake of innovation incentives, and weaken systemic resilience.

Cross-Cutting Observations and SustainX Relevance

The interconnectivity of these challenges is clear: low private investment fuels commercialization gaps, skills shortages reduce innovation absorption, and regulatory complexity discourages SME engagement. Within this complex landscape, the SustainX project presents a strategic opportunity to:

- **Align national and regional priorities with EU strategic frameworks**, including the European Green Deal and Digital Europe Programme;
- **Empower SMEs, clusters, and intermediaries** through capacity-building, peer learning, and tools for innovation scaling;
- **Strengthen Bulgaria's participation in European innovation corridors** through cross-border cooperation and knowledge sharing;
- **Embed a monitoring and evaluation logic** that tracks outcomes and continuously adapts interventions to real ecosystem needs.

The upcoming Strategy and Actions sections will present how the Bulgarian National Action Plan leverages this opportunity to foster a more resilient, dynamic, and future-ready innovation ecosystem at national and regional levels.

STRATEGIC ALIGNMENT

The **SustainX National Action Plan for Bulgaria** is firmly embedded in the country's ambition to foster **innovation-led, digitally-enabled, and sustainability-driven transformation**. It supports the **implementation and operationalisation of Bulgaria's Smart Specialisation Strategy (RIS3 2021–2027)**, while reinforcing key priorities in the **European Green Deal**, **Digital Decade**, and **New European Innovation Agenda**. The Action Plan functions both as a national roadmap for systemic innovation and as a platform for transnational cooperation under the SustainX framework.

Alignment with Bulgaria's Smart Specialisation Strategy (RIS3)

Bulgaria's updated RIS3 identifies **seven thematic areas of national and regional importance**, based on the Entrepreneurial Discovery Process (EDP), and addressing territorial needs for sustainable growth and competitiveness. The SustainX Action Plan is designed to accelerate implementation of RIS3 by closing capability gaps identified through stakeholder mapping, survey analysis, and partner engagement. The actions are aligned with the following key priority domains:

1. Mechatronics and Clean Technologies

SustainX actions contribute to:

- Supporting SME-driven product innovation, process automation, and low-carbon production;
- Facilitating access to prototyping, testing, and IP services;
- Encouraging public-private partnerships for circular manufacturing and industrial decarbonisation.

2. Information and Communication Technologies (ICT)

The Action Plan supports:

- Training SMEs in AI, cybersecurity, and cloud computing;
- Promoting digital transition pathways for traditional sectors;
- Strengthening Bulgaria's participation in pan-European digital innovation networks (e.g., Digital Europe Programme, EDIHs).

3. Health and Life Sciences

RAP interventions align with this domain by:

- Enhancing capacity for digital health innovation and silver economy solutions;
- Supporting SME collaboration with research institutions and university hospitals;
- Fostering knowledge transfer from biomedical research into commercial health technologies.

4. Bioeconomy and Sustainable Agriculture

The RAP reinforces this priority by:

- Supporting innovation in agri-food tech, circular bioeconomy, and smart farming;
- Facilitating access to Living Labs, testbeds, and agri-food clusters;
- Promoting green innovation uptake among SMEs and cooperatives in rural areas.

5. Creative and Cultural Industries (CCI)

Though emerging, SustainX actions offer support through:

- Capacity-building in digital design and creative entrepreneurship;
- Promoting inclusive innovation and youth engagement in CCI sectors;
- Supporting cross-sector innovation combining tech and creativity.

6. Transport and Logistics

SustainX supports innovation in this area through:

- Improved SME engagement in sustainable mobility, digital logistics, and smart transport services;
- Enhancing ecosystem readiness for EU mobility partnerships and funding.

7. Tourism and Related Services

The Plan targets innovation in:

- Sustainable tourism models;
- Eco-tourism, digital visitor experiences, and resilience-building in tourism value chains;
- Coordination among SMEs, DMOs (destination management organisations), and regional authorities.

Link to National and Regional Strategic Frameworks

The Action Plan supports **horizontal and vertical policy coherence**, closely aligning with:

- **Innovation Strategy for Smart Specialisation (RIS3) 2021–2027**, including both national and regional components;
- **National Recovery and Resilience Plan (NRRP)**: promoting twin transitions and economic resilience;
- **Bulgaria's Digital Transformation Strategy** and **National AI Strategy**: advancing digital maturity and digital innovation ecosystems;
- **National Development Programme: Bulgaria 2030**: contributing to strategic objectives in innovation, education, and sustainable economy;
- **National Research Strategy 2021–2030**: improving knowledge transfer and investment in R&I.

Contribution to EU-Level Policy Objectives

The Bulgarian Action Plan contributes to major EU innovation and cohesion goals:

- **European Green Deal**: Supporting low-carbon innovation, circular economy adoption, and sustainability integration in industrial policy;
- **Digital Decade Strategy**: Empowering SMEs with digital skills, tools, and infrastructures;
- **New European Innovation Agenda**: Strengthening innovation cohesion, scale-up potential, and deep-tech readiness;
- **Horizon Europe Clusters 4, 5, and 6**: Enhancing Bulgaria's preparedness to join consortia in digital, climate, energy, mobility, and food sectors;

- **Smart Specialisation Community of Practice (S3 CoP)**: Ensuring active peer learning, strategy improvement, and evaluation practice sharing.

By aligning with these national and European frameworks, the **SustainX Action Plan for Bulgaria** provides a coherent and high-impact contribution to innovation governance, SME capacity building, and sustainable economic growth. It positions Bulgaria as a dynamic and responsive actor in Europe's innovation landscape, especially among moderate innovators aiming to close development gaps and lead in smart, inclusive transformation.

CONTRIBUTION TO EU-LEVEL POLICY OBJECTIVES

The Bulgarian Action Plan contributes to major EU innovation and cohesion goals:

- **European Green Deal**: Supporting low-carbon innovation, circular economy adoption, and sustainability integration in industrial policy;
- **Digital Decade Strategy**: Empowering SMEs with digital skills, tools, and infrastructures;
- **New European Innovation Agenda**: Strengthening innovation cohesion, scale-up potential, and deep-tech readiness;
- **Horizon Europe Clusters 4, 5, and 6**: Enhancing Bulgaria's preparedness to join consortia in digital, climate, energy, mobility, and food sectors;
- **Smart Specialisation Community of Practice (S3 CoP)**: Ensuring active peer learning, strategy improvement, and evaluation practice sharing.

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SYNERGY WITH SUSTAINX PROJECT OBJECTIVES

The RAP is a practical expression of the *SustainX* mission—transforming regional innovation ecosystems to be more inclusive, green, and digitally ready. It directly contributes to the project's core Key Performance Indicators:

- **KPI1**: Clearly identifies region-specific challenges such as fragmented collaboration, limited SME scaling, and uneven digital access;
- **KPI2**: Co-develops regional strategies addressing RIS3 domains with concrete actions and measurable impacts;
- **KPI3**: Strengthens multi-stakeholder engagement via inclusive design and inter-island coordination structures;

- **KPI4**: Enhances participation in EU programmes by building capacity for cross-border cooperation and proposal development;
- **KPI5**: Facilitates peer learning, benchmarking, and knowledge exchange with other less developed regions, including Atlantic and outermost regions.

Moreover, the Canary Islands RAP integrates *SustainX values* of **place-based innovation, collaboration, and long-term resilience** by empowering local ecosystems, reducing participation barriers for underserved actors, and supporting systemic transformation through agile, replicable solutions.

STAKEHOLDER INVOLVEMENT

The development of the **SustainX National Action Plan (NAP) for Bulgaria** has been grounded in an inclusive, multi-actor engagement process consistent with the **quadruple helix model** and the **co-creation principles** at the core of the SustainX project. The process ensured participation from key innovation actors across policymaking, research, business, and civil society, who contributed strategic insights, operational experience, and feedback on system-level gaps.

METHODOLOGY OF ENGAGEMENT

Stakeholder engagement was carried out in three key phases:

Stakeholder Identification and Mapping
A comprehensive mapping of national and regional innovation actors was conducted, with particular attention to alignment with **Bulgaria's Smart Specialisation Strategy (RIS3 2021–2027)** and the SustainX focus on digital and green transitions. Identified stakeholder categories included:

- **National and regional authorities** (e.g., Ministry of Innovation and Growth, Bulgarian SME Promotion Agency, regional administrations);
- **Universities and research institutions** (e.g., Sofia University, Technical University of Sofia, Agricultural Academy);
- **Innovation intermediaries and support organisations** (e.g., Cleantech Bulgaria, Digital Innovation Hubs, EEN Bulgaria);
- **Sectoral clusters and business associations** (e.g., ICT Cluster, Automotive Cluster, Cleantech Cluster);
- **SMEs and startups** operating in RIS3 priority areas (e.g., mechatronics, bioeconomy, ICT, creative industries);
- **Civil society and ecosystem enablers**, including digital skills NGOs, rural innovation networks, and women-led business organisations.

Competence Survey and Needs Assessment

A structured online survey and consultation process was conducted with stakeholders across all identified categories. The survey aimed to capture:

- Awareness and implementation of RIS3 logic in institutional or business practice;
- Capacity in designing, managing, or scaling innovation projects;
- Experience with accessing EU programmes and international collaborations;
- Gaps in digital and sustainability skills and support needs related to SME innovation scaling.

Collaborative Input and Feedback Loops

Survey findings were validated through bilateral meetings and collaborative sessions involving **SustainX partners** such as **ARC Fund, Cleantech Bulgaria, Sofia Tech Park**, and other ecosystem representatives. These discussions helped refine the **national intervention logic**, align actions with real-world challenges, and foster buy-in for implementation.

KEY STAKEHOLDERS ENGAGED

• **Research and Academia**

Institutions such as the University of Sofia, University of National and World Economy, and Agricultural Academy provided input on the status of research infrastructure, innovation commercialisation bottlenecks, and academic-industry cooperation in RIS3 areas like agri-tech, mechatronics, and ICT.

• **Business Support and Innovation Agencies**

Organisations like **EEN Bulgaria**, **Digital Innovation Hubs (e.g., AgroHub.BG, HealthHub.BG)**, and regional development agencies shared key insights into SME readiness challenges, skills gaps, and underutilised RIS3 tools. They also supported action co-design in training, policy alignment, and internationalisation.

• **SMEs and Startups**

Firms active in areas like bio-based materials, digital services, robotics, and food innovation provided first-hand accounts of challenges with scaling, access to EU programmes, and navigating innovation financing. Their feedback shaped actions on commercialisation support and funding readiness.

• **Clusters and Industry Networks**

Sectoral clusters and regional business networks helped identify market trends and policy barriers in domains such as clean energy, ICT, creative industries, and precision agriculture. Their role was instrumental in refining focus areas for ecosystem platforms and cross-sector collaboration.

• **Government and Policymaking Bodies**

Representatives from the **Ministry of Innovation and Growth**, **Ministry of Education and**

Science, and **regional councils** contributed to strategic alignment with national innovation strategies, RIS3 operationalisation, and regulatory coherence.

KEY INSIGHTS FROM STAKEHOLDER CONSULTATIONS

The consultation process highlighted several systemic and cross-cutting challenges:

- **High demand for structured collaboration platforms** across research, SMEs, and intermediaries;
- **Limited SME scaling capacity** and weak support for early commercialisation stages;
- **Policy misalignment** between RIS3 domains and actual funding programme design and implementation;
- **Skills shortages and uneven training access**, especially in rural regions and among smaller firms;
- **Administrative complexity** and low awareness hinder SME participation in Horizon Europe and Digital Europe;
- **Fragmented governance structures**, limiting strategic coordination between national and regional innovation bodies.

ROLE OF STAKEHOLDERS IN ACTION PLAN IMPLEMENTATION

Stakeholders will remain active participants throughout the **implementation phase** of the NAP, with responsibilities including:

- **Co-development and delivery of modular training programmes** on RIS3 logic, innovation scaling, and EU funding access;
- **Participation in taskforces, working groups, and innovation labs**, with a focus on digital and green transitions;
- **Validation and piloting of new policy tools** (e.g., innovation dashboards, SME vouchers, RIS3-aligned funding schemes);
- **Feedback provision through annual reviews, workshops, and monitoring mechanisms** to ensure adaptive learning and long-term impact.

The Bulgarian Action Plan will continue to foster engagement via **digital collaboration platforms**, **regional innovation dialogues**, and **transnational exchanges**, ensuring broad ownership, institutional learning, and effective coordination across Bulgaria's innovation ecosystem.

Would you like me to proceed with the **SMART Objectives & KPIs** section next?

SMART OBJECTIVES

The Action Plan for Bulgaria is structured around a clear framework of **SMART (Specific, Measurable, Achievable, Relevant, Time-bound) objectives** designed to strengthen

national innovation capacity, improve ecosystem coordination, and ensure alignment with **Bulgaria's Smart Specialisation Strategy (RIS3 2021–2027)**. These objectives reflect Bulgaria's distinct challenges and opportunities—such as regional disparities, limited SME scaling capacity, underutilised research potential, and the need for greater integration into EU innovation networks. They are formulated to drive systemic progress in support of the **green and digital transitions**, while delivering on the **Key Performance Indicators (KPIs)** of the SustainX project.

Each objective contributes to Bulgaria's RIS3 thematic areas—such as mechatronics, ICT, circular economy, creative industries, and clean energy—and supports the long-term vision of building a more **resilient, sustainable, and innovation-driven economy** through targeted, inclusive, and evidence-based actions.

The objectives reflect region-specific findings, yet have been formulated at project level, enabling flexibility and adaptation over time.

The Action Plan for Bulgaria is structured around a framework of **SMART (Specific, Measurable, Achievable, Relevant, Time-bound)** objectives to strengthen national innovation capacity, improve RIS3 implementation, and accelerate the green and digital transitions. The objectives respond to persistent ecosystem challenges—such as underinvestment in R&D, limited SME scaling, fragmented governance, and skills gaps—while leveraging national strengths in sectors like ICT, mechatronics, clean technologies, agri-food, and creative industries.

Each objective contributes to the strategic priorities outlined in Bulgaria's **Smart Specialisation Strategy (RIS3 2021–2027)** and directly supports the **SustainX Key Performance Indicators (KPIs).**

OBJECTIVE 1: ENHANCE SME CAPACITY FOR INNOVATION SCALING IN PRIORITY SECTORS

Specific: Support at least 30 Bulgarian SMEs to advance from pilot to market-ready innovations in areas such as ICT, agri-food, green technologies, and mechatronics through mentoring, testing access, and EU funding readiness.

Measurable: Participation rates, innovation outcomes, and EU programme involvement.

Achievable: Builds on national clusters, EEN Bulgaria, Digital Innovation Hubs, and university-based innovation centres.

Relevant: Responds to weak commercialization infrastructure and underused R&D outcomes.

Time-bound: 2025–2026

OBJECTIVE 2: FOSTER CROSS-SECTOR COLLABORATION AND ECOSYSTEM COORDINATION

Specific: Establish and operationalize at least three multi-stakeholder collaboration platforms in RIS3 domains (e.g., clean tech, digital health, circular economy) bringing together SMEs, academia, clusters, and public bodies.

Measurable: Number and diversity of active participants, co-created actions, and outputs.

Achievable: Builds on Bulgaria's national innovation forums, RIS3 working groups, and recent cluster development initiatives.

Relevant: Addresses coordination gaps and promotes mission-driven cooperation.

Time-bound: By end of 2025

OBJECTIVE 3: MAINSTREAM RIS3 AWARENESS AND STRATEGIC ALIGNMENT

Specific: Train and equip at least 60 SMEs and intermediaries to align with RIS3 logic and apply it in project planning, funding access, and strategic positioning.

Measurable: Training completion rates, tool uptake, and observed S3 alignment in innovation activities.

Achievable: Delivered by national training bodies (e.g., Sofia Tech Park, BSMEPA, academia) and supported by online tools.

Relevant: Addresses limited RIS3 operationalization at SME/intermediary level.

Time-bound: 2025–2026

OBJECTIVE 4: INCREASE BULGARIA'S INVOLVEMENT IN EU AND INTERREGIONAL INNOVATION NETWORKS

Specific: Support at least 6 Bulgarian organisations to join cross-border innovation initiatives, EU projects, and peer learning platforms by 2026.

Measurable: Number of consortia joined, exchanges conducted, and results disseminated.

Achievable: Activates the SustainX network, BSMEPA, EEN Bulgaria, and Interreg opportunities.

Relevant: Addresses low visibility and limited international engagement of national actors.

Time-bound: 2025–2026

OBJECTIVE 5: UPSKILL TALENT FOR THE GREEN AND DIGITAL ECONOMY

Specific: Deliver targeted training for at least 120 individuals (with geographic and gender diversity), covering topics such as AI, circular economy, clean energy, digital transformation, and innovation management.

Measurable: Enrolment numbers, post-training application, and innovation outcomes.

Achievable: Co-delivered by universities, DIHs, and VET centres in partnership with national agencies.

Relevant: Responds to survey-identified skill gaps and regional disparities in access.

Time-bound: By mid-2026

INTERLINKAGES AND MONITORING

These objectives are **mutually reinforcing**: RIS3-aligned training (Objective 3) supports SME scaling (Objective 1); ecosystem platforms (Objective 2) enable interregional collaboration (Objective 4); and capacity-building (Objective 5) boosts innovation delivery across sectors.

Monitoring will follow the **SustainX Monitoring, Evaluation & Learning (MEL) framework**, with data shared through national roundtables, policy updates, and interregional benchmarking sessions.

SWOT ANALYSIS

This SWOT analysis provides a structured diagnosis of Bulgaria's national innovation ecosystem in the context of the SustainX project, focusing on opportunities and barriers related to the green and digital transitions. It synthesizes internal and external factors that shape Bulgaria's ability to implement its Smart Specialisation Strategy (RIS3 2021–2027) and foster inclusive, sustainable innovation.

Strengths	Weaknesses
✓ Clearly defined RIS3 priority areas (e.g., ICT, mechatronics, agri-food, clean technologies) with alignment to EU missions. ✓ Strong ICT sector and competitive advantage in software development and cybersecurity. ✓ Emerging clusters in mechatronics, biotechnology, and creative industries. ✓ Solid research infrastructure in select universities and technical institutes. ✓ Active participation in EU programmes (e.g., Horizon Europe, Digital Europe, Interreg). ✓ Growing network of DIHs, EEN partners, and innovation intermediaries across the country.	▪ Persistent underinvestment in R&D—public and especially private sector remains below the EU average. ▪ Limited SME absorption capacity for innovation and weak linkages with academia. ▪ Fragmented innovation governance and insufficient coordination between national and regional levels. ▪ Brain drain and skills mismatch in green, digital, and high-tech sectors. ▪ Complex administrative procedures for accessing innovation support and EU funding. ▪ Low RIS3 visibility and operational alignment at SME/intermediary level.

Opportunities	**Threats**
○ Leverage EU Green Deal, REPowerEU, and Digital Europe instruments for green and digital transformation. ○ Expand innovation-driven entrepreneurship in rural and less developed regions through place-based RIS3 actions. ○ Strengthen cross-sector collaboration via new mission-oriented platforms and living labs. ○ Boost SME scaling and export potential through EU project engagement and commercialization support tools. ○ Build human capital through targeted VET–industry partnerships and upskilling aligned with RIS3 domains.	❖ Continued talent outmigration undermining national innovation capacity. ❖ Risk of policy fragmentation and uneven RIS3 implementation across administrative levels. ❖ High administrative burden deterring SME and public sector participation in innovation programmes. ❖ Growing regional disparities in access to support services and digital infrastructure. ❖ Vulnerability to delayed structural reforms in education, R&D funding, and public procurement innovation.

KEY INSIGHTS FROM THE SWOT ANALYSIS

Recognized sectoral strengths with limited ecosystem integration: Bulgaria's RIS3 domains—such as ICT, mechatronics, clean technologies, and agri-food—are well aligned with EU priorities and have demonstrated international competitiveness. However, the country's innovation system remains fragmented, with weak SME–research collaboration and underdeveloped commercialization pathways.

RIS3 priorities are well defined but unevenly implemented: Bulgaria's strategic focus on digital transformation, green innovation, and smart specialization is clearly articulated in national strategies. However, operational alignment at the regional and intermediary level remains limited, and many SMEs are unaware or unprepared to leverage RIS3-aligned opportunities.

High potential to leverage EU support for transitions: Bulgaria stands to benefit significantly from EU recovery instruments, Green Deal funding, and cohesion policy support—especially in areas like digital manufacturing, circular economy, and decarbonization of traditional industries.

Structural and demographic challenges persist: Key threats include talent outmigration, skills mismatches in emerging sectors, administrative burdens in accessing funding, and

significant disparities in innovation capacity across regions. These require systemic responses, especially in human capital development and governance reform.

Implications for SustainX and Action Plan Implementation

The SWOT analysis underscores the need for a strategic and nationally coordinated innovation plan tailored to Bulgaria's specific challenges and assets. Key takeaways for the SustainX Action Plan include:

- Strengthening SME scaling capacity and commercialization support in RIS3 priority sectors such as ICT, clean technologies, and agri-food innovation;
- Activating regional innovation platforms to connect academia, SMEs, public authorities, and civil society—especially in less developed regions;
- Developing flexible training pathways and targeted upskilling initiatives to retain talent and close gaps in digital, green, and entrepreneurial skills;
- Investing in shared infrastructure such as innovation labs, digital testbeds, and sectoral accelerators—co-funded by public and private sources;
- Improving RIS3 governance and policy coordination, including simplification of access to support instruments, better stakeholder feedback mechanisms, and integration with national and EU strategic objectives.

Through these targeted interventions, Bulgaria's Action Plan under SustainX will contribute to reducing regional innovation disparities, promoting inclusive economic transformation, and accelerating the country's alignment with the European Green Deal, Digital Decade, and New European Innovation Agenda.

ACTION PLAN

The **Canary Islands Action Plan** under the SustainX project sets out a cohesive and targeted portfolio of actions designed at project level. These actions address systemic gaps, leverage regional strengths, and foster green and digital transition pathways, closely aligned with the Canary Islands' Smart Specialisation Strategy (RIS3 2021–2027) and broader EU missions.
They are structured to be flexible, scalable, and adaptable throughout the project's evolution.

The design reflects the **SustainX principles** of place-based transformation, quadruple helix collaboration, and interregional learning, and is directly linked to the SustainX Key Performance Indicators (KPIs).
Each action has been refined to balance ambition with feasibility, based on stakeholder input and administrative realities.

ACTION 1: FOSTER REGIONAL INNOVATION COLLABORATION SERVICES AND ROADMAPS

Objective:
Promote structured multi-actor collaboration in Bulgaria's RIS3 sectors through flexible, targeted cooperation services and short-term strategic planning.

Description:
Instead of establishing permanent platforms, this action will deliver light collaboration services in three thematic RIS3 priority areas:

Green and Digital Manufacturing (e.g., sensors, robotics, smart materials)

Digital Health and Active Ageing (e.g., assistive technologies, medical data platforms)

Circular Bioeconomy and Agri-Food Innovation

These will be implemented through practical tools such as stakeholder matchmaking sessions, thematic co-creation workshops, and pilot ideation formats. Each area will be supported by a roadmap co-developed with key actors to identify common goals, joint funding opportunities, and shared pilot initiatives.

Timing: Q3 2025 – Q4 2026
Lead Actors: ARC Fund, Ministry of Innovation and Growth, regional clusters and innovation agencies
Expected Outcomes:

3 cooperation services launched

At least 3–5 collaborative pilot actions initiated

Increased connectivity among SMEs, RTOs, and public actors across regions

ACTION 2: STRENGTHEN SME CAPACITIES THROUGH RIS3-ALIGNED TRAINING AND RECOGNITION

Objective:
Equip SMEs and support organisations with practical knowledge on innovation management, EU project participation, and sustainability.

Description:
Deliver a national series of modular trainings targeting 80–100 participants, focused on:

Bulgaria's RIS3 domains

EU funding access (Horizon Europe, Interreg, Digital Europe)

Innovation lifecycle management and twin transition opportunities

Participants completing the training will receive SustainX digital badges and certificates, helping them demonstrate innovation readiness and improve visibility in national and EU ecosystems.

Timing: Q4 2025 – Q2 2026
Lead Actors: DIHs, Enterprise Europe Network Bulgaria, Bulgarian Chamber of Commerce, ARC Fund
Expected Outcomes:

Greater SME capacity in RIS3 application and scaling

Enhanced intermediary support for innovation pipelines

Dissemination of RIS3-aligned guidance toolkits

ACTION 3: SUPPORT SME SCALING, POLICY DIALOGUE, AND INTERREGIONAL COLLABORATION

Objective:
Support the transition of Bulgarian SMEs from early-stage innovation to market uptake and improve RIS3 policy coordination.

Description:

SME Scaling Support
Offer mentoring and advisory support in business model validation, IP guidance, and access to innovation funding schemes (e.g., innovation vouchers, cascade funding). Priority focus on digital transformation, green technologies, and health innovation.

Policy Dialogue Sessions
Organize policy-business dialogue formats to:

Gather SME feedback on support instruments

Identify regulatory bottlenecks

Co-design proposals for better alignment of RIS3 programmes with market needs

Interregional Collaboration
Facilitate learning exchanges and project-building with partner regions (e.g., Latvia, Thessaly, Canary Islands), focused on shared sectors and RIS3 mission areas.

Timing: Q1 2025 – Q4 2026
Lead Actors: ARC Fund, Ministry of Innovation and Growth, EEN Bulgaria, Interreg programme contact points
Expected Outcomes:

30 SMEs supported in scaling

2 SME-policy dialogue sessions conducted

5 cross-border innovation collaborations initiated

ACTION 4: DEVELOP THE BULGARIA RIS3 INNOVATION DASHBOARD

Objective:
Establish a low-barrier, dynamic tool to monitor RIS3 implementation progress and support foresight-driven policy.

Description:
Develop a simplified, shared digital dashboard (e.g., Google Sheets or Excel-based) accessible to key innovation stakeholders to track:

SME engagement and funding uptake

Progress on strategic KPIs (e.g., training, collaboration, scaling)

Cross-sector innovation performance

The system will feature basic visualizations (e.g., traffic light indicators, trendlines) and quarterly data updates.

Timing: Q1 2025 – Q2 2026
Lead Actors: ARC Fund, National Statistical Institute, Ministry of Innovation and Growth
Expected Outcomes:

Transparent, real-time RIS3 data tracking

Informed adjustments to innovation policy instruments

Easier coordination among regional and national stakeholders

ACTION 5: STRENGTHEN GREEN AND DIGITAL SKILLS PATHWAYS WITH RECOGNITION MECHANISMS

Objective:
Address human capital shortages in priority innovation sectors and strengthen SME readiness for the green and digital transitions.

Description:
Co-develop flexible, applied training pathways for 120–150 individuals in:

Circular economy, clean tech, and digital manufacturing

AI, data management, and Industry 4.0

Agri-innovation and smart health

Each training track will include practical exercises, exposure to real use cases, and project-level digital badges, allowing trainees to document new skills on public platforms (LinkedIn, CVs). A parallel initiative will help SMEs build internal training roadmaps to align workforce development with innovation goals.

Timing: Q2 2025 – Q4 2026
Lead Actors: National Agency for Vocational Education and Training, universities, DIHs, sectoral clusters
Expected Outcomes:

50+ individuals trained

20+ SMEs involved in skills roadmap development

Greater visibility of Bulgaria's innovation talent pipeline

SUMMARY TABLE OF ACTIONS - AT A PROJECT LEVEL

Action	Timeline	Lead Actors	Key Outputs
Innovation Collaboration Platforms	Q3 2025 – Q4 2026	Project partners	3 dashboards; 6+ co-created projects
S3-Aligned Capacity Building	Q4 2025 – Q2 2026	Project partners	100+ trained staff from SMEs/intermediaries
SME Innovation Scaling Scheme	Q1 2025 – Q4 2026	Project partners	30 SMEs scaled; 20 market-ready innovations
RIS3 Policy Alignment	Q3 2025 – Q3 2026	Project partners	Revised innovation support tools
Interregional Collaboration	Q4 2025 – Q4 2026	Project partners	5 cross-border projects; 4 exchanges
RIS3 Innovation Dashboard	Q1 2025 – Q2 2026	Project partners	Digital dashboard for ecosystem tracking
Skills for Green & Digital Transition	Q2 2025 – Q4 2026	Project partners	100 trained professionals; SME-skills alignment

IMPLEMENTATION LOGIC

The actions proposed in the SustainX Action Plan for the Canary Islands are **strategically interconnected and mutually reinforcing**, creating a cohesive pathway for strengthening the regional innovation ecosystem and advancing the green and digital transitions.

They have been **sequenced carefully** to balance early momentum with long-term systemic transformation and are designed to be flexible to evolving needs and opportunities.

The synergies between the actions unfold as follows:

Improving SME Innovation Capacity and Scaling Support
(Actions 2, 3, 6)

Training and upskilling (Action 2) equip SMEs and intermediaries with RIS3-aligned innovation capabilities, while scaling support (Action 3) helps SMEs transition from prototypes to market-ready solutions. Action 6 ensures talent pipelines meet SME needs, strengthening scaling potential over the long term.

Enhancing Policy Coherence and Strategic Governance
(Actions 4, 5)

Policy alignment activities (Action 4) streamline support schemes with RIS3 objectives, reducing administrative barriers. In parallel, the development of the RIS3 Innovation Dashboard (Action 5) provides real-time data to guide adjustments, enabling dynamic, evidence-based governance.

Fostering Ecosystem Collaboration and Trust Across Islands
(Actions 1, 3)

Light, modular innovation collaboration services (Action 1) activate quadruple helix synergies across RIS3 domains, while interregional learning activities under Action 3 enhance trust, bring new practices into the ecosystem, and position the Canary Islands more firmly in EU innovation networks.

Driving Data-Informed Planning, Monitoring, and Learning
(Action 5)

The RIS3 Dashboard (Action 5) facilitates real-time monitoring of innovation dynamics, talent development, and EU programme participation, creating feedback loops that inform adaptive management and strategic foresight.

Together, these actions create a **circular and self-reinforcing system**:

Capacity building boosts SME innovation and cross-sector collaboration,

Better collaboration informs smarter policies and resource allocation,

Real-time monitoring enables continuous learning and adjustment,

Strengthened governance attracts new investments and talent,

New talent and investments sustain innovation-driven growth.

By operationalizing this **integrated and participatory approach**, the Action Plan not only supports the **Canary Islands' RIS3 ambitions** but also directly contributes to the **SustainX pan-European mission**—empowering moderate and underrepresented innovation regions to become **resilient, inclusive, and future-ready innovation ecosystems**.

KEY RECOMMENDATIONS

The analysis conducted under the SustainX project—supported by stakeholder consultations and strategic policy review—has identified several **systemic, institutional, and capacity-related bottlenecks** that continue to hinder Bulgaria's innovation performance and its ability to fully leverage the green and digital transitions.

The recommendations below are grouped under four strategic pillars and are aimed at guiding **national and regional policymakers**, **innovation intermediaries**, and **ecosystem stakeholders** in strengthening Bulgaria's RIS3 implementation, enabling SME scaling, enhancing the skills base, and deepening integration into European innovation networks.

1. Strengthening Innovation Governance and RIS3 Operationalisation

- Establish a **national RIS3 Coordination Council** involving the Ministry of Innovation and Growth, regional development councils, the Bulgarian SME Promotion Agency, academia, DIHs, and key business associations, to oversee implementation and alignment of RIS3 priorities with funding mechanisms.
- Create **regional working groups** across Bulgaria's planning regions (e.g., South-Central, North-West), focused on thematic RIS3 domains (e.g., mechatronics, bioeconomy, clean technologies), to improve vertical coordination and stakeholder co-creation.
- Revise innovation support schemes (e.g., innovation vouchers, R&D grants, cluster funding) to simplify access for SMEs and ensure alignment with updated RIS3 sectors and the green/digital transition agenda.
- Deploy a **national RIS3 Innovation Dashboard** (Action 4) to track key innovation indicators, visualize funding distribution, identify bottlenecks, and enable evidence-based policy adjustment.

2. Empowering SMEs for Scaling and Internationalisation

- Implement a **National SME Scaling Scheme** (Action 3) that combines mentoring, access to testbeds, certification support, and funding readiness training—targeted at green and digital innovations in sectors like clean energy, ICT, and precision agriculture.
- Develop a **Bulgarian Innovation Readiness Toolkit**, helping SMEs self-assess innovation maturity, align projects with RIS3 domains, and plan for market entry and internationalisation.
- Set up a **dedicated EU Project Facilitation Service** within Enterprise Europe Network (EEN) Bulgaria and DIHs to boost SME participation in Horizon Europe, Interreg Europe, and Digital Europe.

- Introduce a **"RIS3 Champion Label"** for Bulgarian SMEs demonstrating scalable, sustainable, and RIS3-aligned innovations to attract co-investment and increase their visibility in EU value chains.

3. Enhancing Skills and Talent Retention in Strategic Domains

- Expand modular training and **upskilling programmes** (Action 5) in AI, circular economy, sustainable materials, and digital transformation—targeted at SME employees, public sector staff, and early-career researchers.
- Strengthen **University–Industry collaboration** through dual training schemes and applied research partnerships, particularly in regions with established academic and industrial bases (e.g., Plovdiv, Sofia, Ruse).
- Launch **internship and mobility programmes** connecting students, PhD researchers, and innovation professionals with SMEs, innovation clusters, and technology centres.
- Support **Communities of Practice** in key RIS3 domains such as mechatronics, sustainable agriculture, and clean technologies to promote knowledge exchange, joint experimentation, and peer learning.

4. Fostering Ecosystem Collaboration and Transnational Engagement

- Launch **lightweight innovation collaboration services** (Action 1) such as matchmaking events, design sprints, and co-creation workshops, engaging academia, SMEs, clusters, municipalities, and NGOs around RIS3 themes.
- Promote **interregional collaboration** through joint activities under SustainX, Horizon Europe Missions, and Interreg projects, particularly with neighbouring Danube countries and EU innovation ecosystems.
- Institutionalize **open innovation labs** and living labs in Bulgaria's science and technology parks (e.g., Sofia Tech Park, Plovdiv TechPark) to serve as neutral ground for piloting cross-sector solutions.
- Develop a **National Roadmap for Participation in EU Partnerships**, identifying priority areas (e.g., energy, circular economy, health innovation) and building national stakeholder consortia to lead or join relevant calls.

Cross-Cutting Recommendation: Foster Inclusive and Sustainable Innovation

- Ensure **inclusive access to innovation support** for rural and peripheral regions, women-led enterprises, and youth entrepreneurs, particularly in underperforming areas such as the North-West region.
- Embed **ESG criteria** and sustainability goals into innovation funding, procurement, and RIS3-aligned public programmes.

- Promote **open access and low-barrier pathways** for micro-enterprises and civil society actors to participate in innovation ecosystems.

Final Reflection

These recommendations are designed to be **interconnected, scalable, and aligned with national and EU policy frameworks**. When implemented in a coordinated manner, they will enable Bulgaria to evolve from fragmented innovation support structures to a **resilient, inclusive, and RIS3-driven ecosystem**—capable of delivering sustainable, innovation-led growth.

Moreover, they contribute directly to **SustainX objectives**, supporting:

- **Governance and coordination** improvements (KPI3, KPI6),
- **SME scaling and support structures** (KPI1, KPI2),
- **Talent development and skills matching** (KPI5),
- **Interregional integration and learning** (KPI4, KPI7).

MONITORING & EVALUATION

The successful implementation and long-term impact of the **Bulgarian SustainX Action Plan** will rely on a **robust, participatory, and adaptive Monitoring & Evaluation (M&E) framework**. In line with the SustainX methodology, the M&E system is designed not only to track progress but also to enable **evidence-informed policymaking**, foster **strategic foresight**, and embed **continuous learning** into Bulgaria's national and regional innovation governance.

The system will ensure alignment between **RIS3 implementation**, the **green and digital transitions**, and **European innovation priorities**, while also contributing to shared learning across the SustainX partner regions.

M&E GOVERNANCE AND INSTITUTIONAL ARCHITECTURE

The M&E system will be coordinated at the national level, building on Bulgaria's existing RIS3 governance architecture and involving all relevant actors across government, academia, business, and civil society. Key roles include:

- **Ministry of Innovation and Growth (MIG)**: Lead coordinator of the M&E system, ensuring integration with national innovation policy, EU programme participation, and RIS3 implementation.
- **Bulgarian SME Promotion Agency & Enterprise Europe Network (EEN) Bulgaria**: Monitor implementation of SME-related actions, gather feedback on scaling support and internationalisation measures.
- **Regional Development Councils** (e.g., South-Central, North-West): Support regional data collection, reflect local dynamics and disparities, and ensure inclusive territorial feedback.

- **Digital Innovation Hubs (DIHs), Clusters, and Intermediaries**: Track KPIs related to commercialization, training impact, and SME engagement in green/digital projects.
- **Universities and VET Centres** (e.g., Sofia University, Plovdiv University, VET training consortia): Evaluate capacity-building activities and contribute to the RIS3 dashboard indicators.
- **SustainX Partner ARC Fund**: Ensure methodological quality and comparability across partner regions, support peer review and interregional learning.

A **National M&E Taskforce** will be established, led by MIG and composed of representatives from ministries, clusters, regional councils, SMEs, academia, and social partners. This taskforce will regularly validate results, review indicators, and propose adaptive updates to the Action Plan.

INDICATORS AND DATA COLLECTION FRAMEWORK

The framework will apply a **multi-tier structure** aligned with:

- The **SMART objectives** of the Bulgarian Action Plan;
- The **national RIS3 domains** (e.g., Mechatronics, Bioeconomy, Clean Technologies, ICT);
- The **SustainX Key Performance Indicators (KPIs)**.

Data will be disaggregated by **region, sector, and stakeholder type**, and tracked at intervals suited to each indicator category.

KPI Category	Key Indicators	Data Sources	Frequency
Implementation Monitoring	Actions launched/completed, Stakeholder engagement rate	MIG, Action Leads	Quarterly
SME Innovation Impact	Number of SMEs supported, Market-ready innovations, Participation in EU programmes	EEN Bulgaria, DIHs, Clusters, SME self-reporting	Biannually
RIS3 Alignment	Share of supported projects aligned with RIS3, RIS3 awareness metrics	Survey tools, Funding data, Monitoring reports	Annually
Skills & Capacity Building	Individuals trained, Post-training application, SME feedback	VET providers, Universities, Evaluation forms	Biannually
Cross-Border Collaboration	Number of joint EU projects, Peer-learning and exchanges conducted	Interreg, Horizon Europe, SustainX reports	Annually

Governance & Policy Learning	Policy instruments adapted, M&E-informed programme changes	MIG, M&E Taskforce, Policy feedback mechanisms	Annually

RIS3 Innovation Dashboard (Action 4)

A **national RIS3 Innovation Dashboard** will be developed under Action 4 as the primary tool for:

- **Real-time monitoring** of ecosystem engagement, project performance, and funding uptake;
- **Foresight and scenario planning**, helping anticipate gaps and emerging priorities;
- **Transparency and participation**, allowing stakeholders to access visual summaries and contribute data.

Hosted by the **Ministry of Innovation and Growth** in collaboration with ARC Fund and national statistical bodies, the dashboard will be designed for **low-barrier use**, with features such as:

- Simple data input forms,
- Visual indicators (traffic light system, charts),
- Exportable reports for policymaking and stakeholder briefings.

EVALUATION METHODOLOGY

The evaluation of the Bulgarian SustainX Action Plan will follow a three-tiered approach designed to ensure accountability, strategic learning, and adaptability. It is fully embedded within the broader Monitoring & Evaluation (M&E) system and contributes directly to the refinement of Bulgaria's RIS3 implementation and innovation policies.

1. Formative Evaluation (Mid-2025)

Purpose:
Assess early-stage implementation progress, identify emerging challenges, and inform real-time adjustments to enhance Action Plan effectiveness.

Focus Areas:

- Engagement of SMEs, intermediaries, and regional actors in pilot activities
- Early alignment of funded actions with national and regional RIS3 priorities
- Responsiveness of actions to identified regional innovation gaps

Methods:

- Structured online surveys targeting stakeholders across ministries, DIHs, clusters, and universities

- Semi-structured interviews with Action Leads and regional development authorities
- Focus groups and policy dialogue sessions facilitated by ARC Fund and the national M&E Taskforce

2. Summative Evaluation (End-2026)

Purpose:
Assess the degree to which the SMART objectives of the Action Plan were achieved, determine sustainability of impacts, and identify system-level transformations.

Focus Areas:

- Measurable improvements in SME scaling, skills development, and internationalisation
- Uptake and institutionalisation of innovation governance tools (e.g., RIS3 Dashboard)
- Strengthening of ecosystem-wide collaboration and RIS3-driven policy implementation

Methods:

- Application of a Theory of Change-based evaluation framework tailored to the SustainX KPIs
- Data triangulation from dashboard indicators, stakeholder feedback, and national statistics
- Outcome mapping to link project outputs to ecosystem-level impacts

3. Peer-Based and Comparative Evaluation

Purpose:
Extract lessons and identify transferable models through benchmarking and collaboration with other SustainX regions (e.g., Thessaly, Latvia, Canary Islands).

Focus Areas:

- Shared innovation governance challenges in moderate innovator regions
- Scalable SME support mechanisms and policy alignment tools
- Interregional knowledge exchange on green and digital transition strategies

Methods:

- Cross-regional peer reviews, hosted by ARC Fund and coordinated with SustainX partners
- Joint synthesis reports comparing Action Plan performance and capturing replicable practices

- Structured reflection sessions during SustainX alignment events and EU-level learning platforms

Feedback Loops and Adaptive Management

The evaluation process is designed to support **continuous improvement** of the Action Plan and national innovation policy instruments. Feedback mechanisms include:

- **Quarterly Stakeholder Labs**: Gather qualitative insights and technical feedback from SMEs, clusters, universities, and local authorities; validate KPI performance and emerging needs.
- **Biannual Progress Reports**: Prepared by the national M&E Taskforce, these reports will assess implementation milestones, raise early warning flags, and highlight opportunities for reallocation or acceleration.
- **Annual SustainX Alignment Workshops**: Co-hosted by ARC Fund and national partners to consolidate evaluation findings, refine Bulgaria's RIS3 implementation approach, and support integration into broader EU strategies (e.g., Horizon Europe, Digital Europe).

This evaluation approach will ensure that the **SustainX Action Plan for Bulgaria remains responsive, learning-oriented, and resilient**, capable of adapting to fast-evolving challenges—such as technological disruptions, talent shifts, or environmental risks—while maintaining alignment with national RIS3 goals and EU missions.

SUSTAINABILITY OF MONITORING STRUCTURES

To maintain monitoring capacity beyond the SustainX project lifecycle, the following actions will be pursued:

- **Capacity building for public sector M&E officers** through targeted training programmes (leveraging Erasmus+ and ESF+ opportunities).
- **Integration of the RIS3 Dashboard and KPIs** into permanent public digital infrastructure, accessible to all innovation stakeholders.
- **Open-access knowledge repository**: Sharing evaluations, best practices, and policy recommendations with the wider Bulgarian Islands innovation community.
- **Exploration of sustainable funding streams** (e.g., ERDF, REACT-EU, regional operational programmes) to support future evaluation and strategic foresight activities.

Final Reflection

The Monitoring & Evaluation (M&E) framework for Bulgaria's SustainX Action Plan elevates monitoring from a procedural obligation to a strategic enabler of innovation governance.

By embedding foresight, adaptability, and broad stakeholder inclusion, it ensures that Bulgaria's national innovation system evolves in line with RIS3 goals, EU priorities, and the dynamic needs of SMEs and regional ecosystems. In doing so, it reinforces Bulgaria's position as a forward-looking, sustainability-driven EU member committed to inclusive and place-based innovation—fully aligned with the mission of SustainX.

SUSTAINABILITY & TRANSFERABILITY

Ensuring the long-term relevance, resilience, and replicability of the Canary Islands Action Plan is key to its sustained impact within the SustainX project and beyond.

Sustainability is conceived holistically—encompassing institutional, financial, and operational dimensions—while transferability highlights the broader value of adapting and sharing successful models with other EU regions, particularly those facing challenges related to geographic isolation, SME fragmentation, or RIS3 operationalisation.

SUSTAINABILITY

The Action Plan is structured to drive system-wide strengthening beyond the SustainX timeframe, underpinned by three mutually reinforcing pillars:

a) Institutional Sustainability

The Action Plan is firmly anchored within the Canary Islands' Smart Specialisation Strategy (RIS3 2021–2027), addressing priorities such as sustainable tourism, blue economy, health and wellbeing, aerospace, and digital transformation.

Key implementing partners—ACIISI, Fundación Santa Cruz Sostenible, Universidad de La Laguna, EEN Canary Islands, and sectoral clusters—are actively engaged in regional innovation governance and EU project participation, ensuring committed ownership.

A distributed governance approach, involving island-specific actors and regional bodies, fosters decentralisation, promotes shared leadership, and strengthens long-term institutional resilience across the archipelago.

b) Financial Sustainability

Actions are strategically linked to current and future funding streams, including ERDF, Horizon Europe, Interreg MAC, Digital Europe, and national/regional programmes.

Core initiatives—such as SME scaling schemes, training programmes, and monitoring tools—are designed to be modular and scalable, facilitating integration into public-private funding models.

Dedicated capacity-building in EU funding access, proposal writing, and financial management is embedded, empowering regional actors to independently secure resources for future innovation actions.

c) Operational Sustainability

Flagship outputs like the **RIS3 Innovation Dashboard**, cross-sectoral innovation platforms, and green/digital skills training pathways are structured for institutionalisation within ACIISI, academic partners, and sectoral hubs.

The participatory Monitoring & Evaluation (M&E) framework, including feedback loops and peer review mechanisms, ensures adaptive governance and policy responsiveness beyond 2026.

Strategic foresight practices, such as scenario planning and anticipatory policymaking, are progressively embedded into regional innovation management processes.

TRANSFERABILITY

The Canary Islands Action Plan introduces methods and instruments highly adaptable for other EU regions, particularly outermost, island, coastal, or structurally constrained territories:

a) Inter-Island Collaboration Platforms

Practical models of cross-island thematic collaboration—focused on areas like digital tourism, blue economy, and health innovation—demonstrate how geographically dispersed ecosystems can build cohesive innovation strategies.

These platforms serve as replicable templates for quadruple-helix engagement, participatory governance, and project co-creation.

b) Modular Capacity Building for SMEs and Innovation Intermediaries

Short-cycle, modular training models on green/digital transitions, entrepreneurship, and EU project readiness are designed for adaptation across sectors and regions.

Open-source toolkits and training curricula will be shared through SustainX peer-learning channels, the S3 Community of Practice, and EEN platforms.

c) Real-Time Monitoring and Foresight Integration

The **RIS3 Innovation Dashboard**, combining real-time KPI tracking with foresight tools, provides a replicable governance asset for evidence-informed policymaking.

Emphasizing transparent stakeholder access and participatory data collection, the model fosters trust and strengthens ecosystem accountability.

d) Participatory Policy Innovation

The Action Plan's use of **co-creation policy labs** to realign innovation instruments with RIS3 priorities offers a low-cost, high-impact model for other regions seeking to modernise policy design and delivery.

Processes like simplification of funding calls, SME-friendly eligibility frameworks, and RIS3-driven strategic filtering will be documented for replication.

3. Knowledge Sharing and Ecosystem Scaling

The Canary Islands will proactively contribute to the broader EU innovation ecosystem through:

Active participation in SustainX learning missions, the S3 Community of Practice, Interreg Atlantic and MAC programmes.

Publication of open-access toolkits, templates, and case studies on inter-island innovation, digitalisation pathways, and circular economy models.

Hosting a **SustainX Regional Learning Workshop** in 2026 (Santa Cruz de Tenerife) to catalyse peer exchanges with stakeholders from other outermost and coastal regions (e.g., Azores, Madeira, Réunion).

CONCLUSION

The Canary Islands Action Plan, developed under the SustainX project, offers a strategic, forward-looking roadmap to strengthen the region's innovation ecosystem through a place-based, RIS3-aligned, and mission-driven approach.

Informed by extensive stakeholder engagement, ecosystem analysis, and strategic foresight, the Plan responds to long-standing systemic barriers—such as fragmented inter-island collaboration, limited SME scaling capacity, skills mismatches, and weak policy coordination—while leveraging the Canary Islands' unique assets to drive the green and digital transitions.

The region is well-positioned to accelerate transformation, thanks to:

- Strong alignment with key RIS3 domains including sustainable tourism, blue economy, health and well-being, aerospace, and circular economy;
- Increasing involvement in EU innovation programmes such as Horizon Europe, Digital Europe, and Interreg MAC;
- An active and diverse stakeholder network of universities, clusters, intermediaries, and public authorities committed to innovation.

The Action Plan addresses these strengths and challenges through five interlinked interventions designed to:

- Scale up SME innovation and improve commercialization;
- Foster cross-sectoral co-creation through flexible, low-barrier collaboration services;
- Build green and digital skills to support workforce readiness and talent retention;

- Improve governance, RIS3 operationalisation, and strategic alignment of funding instruments;
- Deepen international integration through interregional partnerships and knowledge exchange.

One of the Plan's key achievements is the activation of a distributed, inclusive innovation ecosystem that bridges public, private, academic, and civic actors across all islands—grounded in shared priorities and designed for long-term impact.

In doing so, the Canary Islands Action Plan contributes directly to the broader SustainX mission: enhancing territorial innovation capacity, addressing regional disparities, and promoting inclusive, mission-oriented ecosystems across Europe's moderate and modest innovator regions.

Moving forward, successful implementation will depend on:

- Continued political and institutional commitment at both regional and island levels;
- Strategic alignment with European policy frameworks such as the Green Deal, Digital Decade, and EU Cohesion Policy;
- A robust Monitoring & Evaluation system that ensures adaptability, accountability, and shared learning.

Ultimately, the Action Plan is not only a regional strategy but a replicable European model for inclusive and sustainable innovation. It demonstrates how outermost regions like the Canary Islands can lead the way in building future-ready, resilient innovation ecosystems—while inspiring and enabling others to do the same.

ANNEX I.

REGION-SPECIFIC CHALLENGES

As a moderate innovator within the EU and a structurally diverse country with significant regional disparities, **Bulgaria faces a number of systemic and institutional barriers** that limit its ability to fully capitalize on green and digital transitions. These challenges are rooted in persistent issues such as underinvestment in innovation, skills mismatches, and weak interregional connectivity. Based on stakeholder consultations, survey results, and strategic document reviews under the SustainX project, the following **three region-specific challenges** have been identified:

1. FRAGMENTED INNOVATION ECOSYSTEM AND LIMITED CROSS-SECTOR COORDINATION

Bulgaria's innovation landscape remains fragmented both institutionally and territorially. Despite the presence of active research centers, innovation hubs, and business clusters, **coordination between academia, SMEs, regional authorities, and civil society remains weak**, especially outside of major urban areas like Sofia and Plovdiv.

- There is a lack of structured collaboration platforms at regional or national level to facilitate co-creation, joint piloting, and policy feedback.
- The **Smart Specialisation Strategy (S3/RIS3)** is not sufficiently operationalized across regions, with SMEs and innovation intermediaries reporting low awareness and limited guidance on how to align with priority domains.
- **Knowledge and technology transfer between research institutions and the private sector is underdeveloped**, hindering commercialization of scientific outputs and the uptake of applied innovation.

This fragmentation results in missed synergies, duplicated efforts, and slow policy uptake—especially in sectors relevant to the green and digital transitions, such as clean energy, sustainable manufacturing, and AI.

2. INSUFFICIENT SME SCALING CAPACITY AND ACCESS TO APPLIED INNOVATION SUPPORT

While Bulgaria has a vibrant startup and entrepreneurial ecosystem, many **SMEs struggle to scale innovations from prototype to market**, particularly outside of the capital region. Challenges include:

- **Limited access to testbeds, demonstration sites, certification support, and go-to-market expertise**, especially in RIS3 priority sectors like mechatronics, ICT, clean technologies, and health innovation.

- A **shortage of funding instruments tailored to the growth phase**, including cascade funding schemes, innovation vouchers, and blended finance opportunities.
- SMEs report **low readiness and capacity to participate in EU projects**, with many lacking internal staff or advisory support for accessing Horizon Europe, Digital Europe, or Interreg programmes.

This hampers Bulgaria's ability to turn early-stage innovation into economic value and reduce the innovation gap with more advanced EU regions.

3. STRUCTURAL SKILLS GAPS AND UNEVEN DIGITAL TRANSFORMATION

Bulgaria faces an ongoing mismatch between labor market needs and the skills pipeline—both in digital and green transition sectors. While the country has **a strong foundation in STEM education**, several critical gaps persist:

- **VET and lifelong learning systems are often misaligned** with the real-time needs of employers in sustainability, AI, cybersecurity, and advanced manufacturing.
- Talent retention is an issue, with **high levels of youth outmigration** and limited incentives for graduates to pursue careers in innovation-intensive industries.
- In rural and less developed regions, digital inclusion remains a challenge, with **limited access to broadband infrastructure, digital tools, and training opportunities** for SMEs and citizens.

These structural gaps constrain the absorptive capacity of the workforce, increase regional inequality, and slow the twin transition across the territory.

Strategic Implications for SustainX Implementation

Addressing these region-specific challenges in Bulgaria will require a multi-level strategy that builds on SustainX's principles of place-based innovation and cross-border collaboration. Recommended priorities include:

- Establishing **multi-stakeholder co-creation platforms** and thematic innovation networks to operationalize RIS3 across regions;
- Enhancing **scaling and commercialization support for SMEs** through modular schemes and better integration into EU project pipelines;
- Investing in **skills ecosystems** through targeted training, micro-credentials, and stronger university-industry-VET cooperation, particularly outside major urban centers.

These actions will help **strengthen Bulgaria's innovation resilience** and reinforce its strategic alignment with European goals under the **Green Deal, Digital Decade**, and **Smart Specialisation framework**.

ANNEX II.

BULGARIAN REGIONAL INNOVATION ROADMAP (MID-2025 – END-2026)

This roadmap provides a **structured, time-bound, and mission-oriented framework** for implementing the **SustainX National Action Plan (NAP) for Bulgaria** from mid-2025 to the end of 2026. It transforms strategic intent into operational milestones, supporting Bulgaria's ambition to scale innovation-led growth, enhance its role in European innovation networks, and accelerate the **green and digital transitions**.

The roadmap builds on Bulgaria's **Smart Specialisation Strategy (S3) 2021–2027**, addressing national challenges such as **fragmented innovation governance, low private R&D investment**, and **regional disparities** in innovation capacity. It aligns closely with EU-level frameworks including the **European Green Deal**, **Digital Decade Strategy**, **New European Innovation Agenda**, and **Cohesion Policy 2021–2027**.

Strategic Focus of the Roadmap

- The roadmap prioritizes five interlinked transformation pillars:
- **Strengthening SME innovation and scaling capacity** in sectors such as clean technologies, digital health, mechatronics, and agriculture;
- **Activating cross-sector and cross-regional collaboration mechanisms** (e.g., S3 platforms, RIS working groups);
- **Upskilling the national workforce for green and digital transformation**, with a focus on inclusive access and practical relevance;
- **Aligning national and EU funding tools with Bulgaria's S3 priority domains**, using participatory review mechanisms;
- **Deepening EU integration and interregional knowledge exchange** through cross-border partnerships, learning missions, and project co-development.
- Each action under the roadmap contributes to the achievement of **SustainX Work Package 1 Key Performance Indicators (KPIs)**, ensuring results are **measurable, accountable, and adaptable**.

Key Priorities Embedded in the Roadmap

- **Scaling SME Innovation** through modular support schemes, mentoring, and access to international networks;
- **Strategic RIS3 Alignment** by reviewing and updating national innovation instruments based on real-time feedback;
- **Green and Digital Skills Development** via targeted, modular training pathways connected to labour market demand;
- **Real-Time Monitoring and Learning** using a practical national-level RIS3 Innovation Dashboard to support evidence-based decision-making;

- **Interregional Collaboration** via bilateral learning, proposal development, and integration into EU-level platforms such as the S3 CoP, Horizon Europe clusters, and Interreg.

This roadmap reflects **Bulgaria's commitment to inclusive, place-based innovation governance**—ensuring that national ambitions translate into actionable outcomes across public, private, academic, and civil society actors. It offers a flexible yet focused path to **operationalize Bulgaria's S3 strategy**, while reinforcing the country's participation in Europe's collective transition toward a greener, smarter, and more resilient future.

Timeframe and Strategic Milestones

Timeframe	Strategic Milestone	Key Actions / Outputs	Lead Actors	SustainX KPIs*
Q2 2025	Governance Activation	Reactivate S3 Monitoring Committee; establish M&E Working Group and reporting structure	Ministry of Innovation and Growth, ARC Fund, BAS	KPI1, KPI3
Q2–Q4 2025	Innovation Platforms Launch	Launch 3 national thematic collaboration services (e.g., digital health, agri-tech, energy)	ARC Fund, Sofia Tech Park, EDIHs	KPI2.1–2.3
Q3 2025 – Q1 2026	RIS3-Aligned Training Rollout	Train 100 SMEs and intermediaries on S3 domains, EU project readiness, innovation strategy	EEN Bulgaria, DIHs, regional chambers	KPI3.1–3.3, KPI5.1
Q3 2025 – Q4 2026	SME Scaling Support Programme	Offer 30 SMEs vouchers/mentoring for scaling; support 20+ market-ready innovations	MIG, BSMEPA, Cluster Networks	KPI1.1–1.3
Q3 2025 – Q2 2026	S3 Dashboard & Policy Alignment	Launch national S3 Dashboard; adapt funding calls through stakeholder feedback mechanisms	ARC Fund, NSI, S3 Coordination Council	KPI3.3, KPI6
Q4 2025 – Q4 2026	Interregional Collaboration Expansion	Host 2 learning visits, 3 proposal labs; launch 5+ cross-border projects	ARC Fund, EEN, Interreg coordinators	KPI4.1–4.3

Q4 2025 – Q4 2026	Green and Digital Skills Upskilling	Upskill 150 individuals in AI, circular economy, energy systems and digital entrepreneurship	Sofia University, VET providers, Bulgarian Academy of Sciences	KPI5.1–5.3
Q4 2026	Evaluation & Knowledge Transfer	Conduct national RAP evaluation; publish toolkits and share good practices at EU level	ARC Fund, Ministry of Innovation and Growth	KPI6

Implementation Guidance

1. Governance and Coordination

- Establish a cross-functional RIS3 Steering Group chaired by ACIISI and composed of representatives from ULL, clusters, innovation hubs, regional councils, and sectoral associations.
- Activate the M&E Taskforce responsible for KPI monitoring, adaptive management recommendations, and quarterly reporting.

2. Modular Work Package Development

Each roadmap milestone will be implemented through clearly defined work packages, including:

- Specific tasks and outputs,
- Allocated responsibilities and budgets,
- Aligned funding instruments (ERDF, Horizon Europe, Interreg MAC, Digital Europe).

3. Digital Monitoring Tools

- RIS3 Innovation Dashboard will function as the main tool for KPI visualization, foresight integration, and stakeholder transparency.
- Shared Gantt charts, project tracking sheets, and real-time status dashboards will ensure collaborative implementation and cross-stakeholder visibility.

4. Interregional Learning and Peer Exchange

SustainX-facilitated peer learning activities will include:

- Bilateral site visits,
- Co-creation of project proposals,
- Dissemination of templates, dashboards, and toolkits through SustainX and EU platforms.

5. Adaptive Management and Annual Reviews

An Annual Roadmap Review will be held each Q4, coordinated by the RIS3 Steering Group and the M&E Taskforce.

Activities will include:

- KPI and milestone assessment,
- Stakeholder feedback integration,
- Adjustment of timelines and resource allocations where needed.
- Continuous learning will be supported through quarterly updates and targeted reflection sessions.

This roadmap positions the Canary Islands to act not only as a regional leader in green and digital transformation but also as a strategic connector in Europe's innovation space—demonstrating how outermost regions can thrive through targeted, collaborative, and evidence-based innovation policy implementation.

***SustainX Key Performance Indicators (KPIs)**

KPI1: Number of SMEs supported through innovation scaling programs.

KPI1.1: Number of innovation vouchers distributed to SMEs.

KPI1.2: Number of SMEs receiving mentoring support.

KPI1.3: Number of SMEs accessing testbeds or pilot facilities.

KPI2.1: Number of cross-sectoral RIS3 platforms operationalized.

KPI2.2: Number of joint pilot projects launched through these platforms.

KPI2.3: Level of stakeholder engagement in cross-sectoral platforms.

KPI3: Number of regional funding instruments aligned with RIS3 priorities.

KPI3.1: Number of SMEs and intermediaries trained on RIS3 priorities.

KPI3.2: Number of innovation management training sessions conducted.

KPI3.3: Number of EU project participation workshops held.

KPI4.1: Number of regional peer exchanges organized.

KPI4.2: Number of consortium-building labs conducted.

KPI4.3: Number of cross-border collaborations initiated.

KPI5.1: Number of individuals upskilled in green and digital skills.

KPI5.2: Number of training programs developed for green and digital skills.

KPI5.3: Level of satisfaction among participants in upskilling programs.

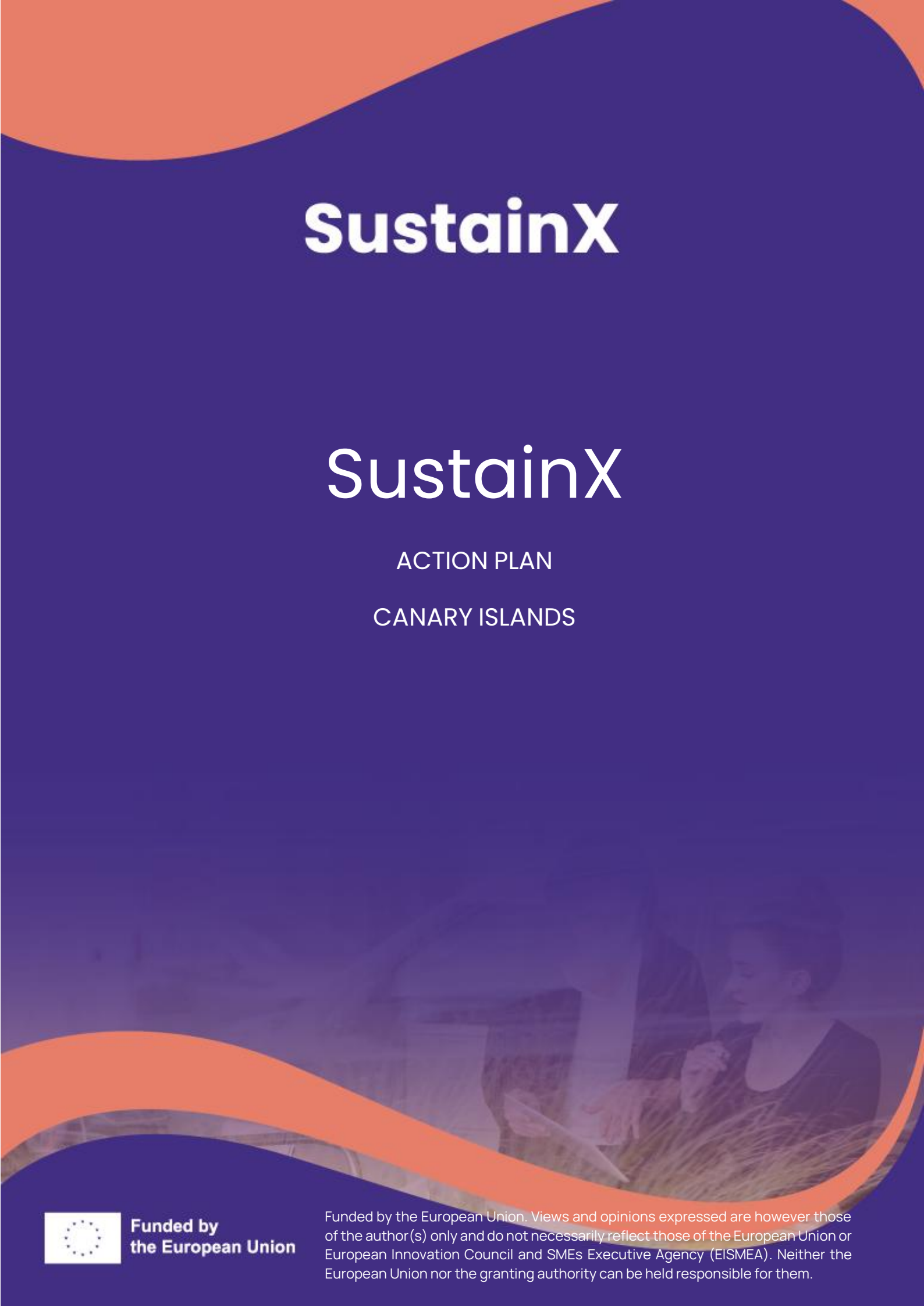
KPI6: Number of policy instruments adapted based on M&E findings.

SustainX

SustainX

ACTION PLAN

CANARY ISLANDS



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SustainX Action Plan – Canary Islands

EXECUTIVE SUMMARY

The **SustainX Regional Action Plan for the Canary Islands** presents a practical, targeted strategy to strengthen the region's innovation ecosystem, address systemic challenges, and unlock local potential in alignment with the SustainX project objectives and the Canary Islands' Smart Specialisation Strategy (RIS3 2021–2027). Positioned at the crossroads of Europe, Africa, and the Americas, the Canary Islands aim to foster a more resilient, inclusive, and internationally connected innovation environment that supports the twin green and digital transitions.

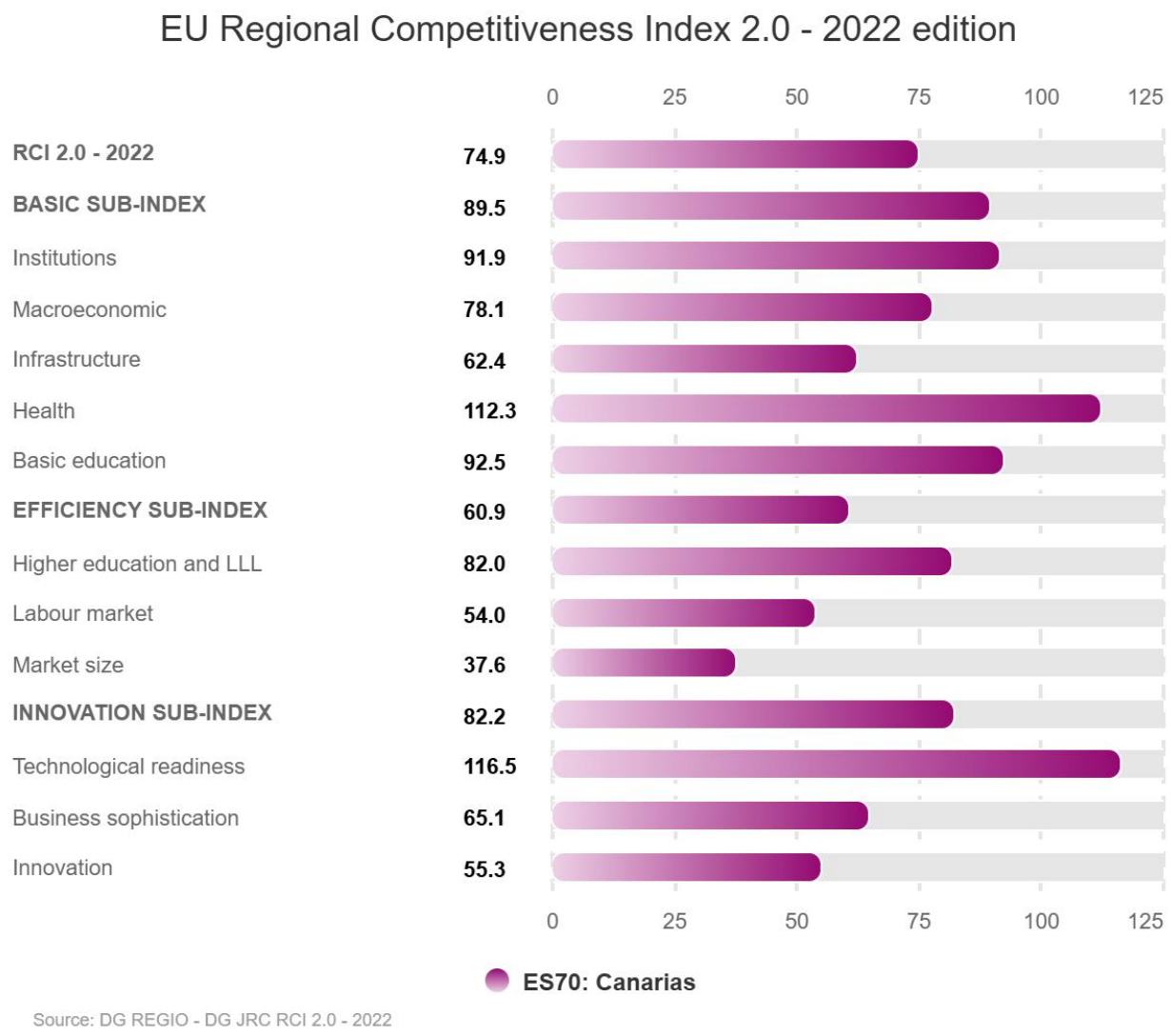
Identified Challenges

Based on stakeholder consultations, competence mapping, and strategic analysis, several persistent and interlinked challenges were identified:

Economic dependence on tourism: Heavy reliance on tourism increases vulnerability to external shocks and limits diversification opportunities.

- **Low private-sector R&D&I investment:** Business participation in research and innovation remains below EU averages, constraining commercialization and scaling.
- **Environmental pressures and climate risks:** The region faces growing stress on ecosystems and infrastructure, necessitating eco-innovation and sustainable models.
- **Human capital retention issues:** Youth unemployment, talent outmigration, and skills mismatches weaken innovation capacity.
- **Fragmented multi-actor collaboration:** Gaps between academia, SMEs, civil society, and public institutions hinder the systemic implementation of RIS3 goals.
- **Digital divide and access barriers:** Although digitalization is advancing, SMEs—particularly on less connected islands—face hurdles in accessing technology and funding.

Canary Islands Performance in the *European Regional Competitiveness Index 2.0 - 2022*



Source: DG REGIO - DG JRC RCI 2.0 (2022).

74.9

RCI 2.0 - 2022 score

EU27=100

190 / 234

Rank

Equal ranking is assigned if regions have the same score at the 1-digit level

Less developed region

Stage of development

Less developed regions; transition regions; more developed regions

Source: European Comission. EU regional and urban development (2022).

Strengths of the Canary Islands Innovation Ecosystem

Despite the challenges, the region possesses significant strengths that create a solid foundation for transition and growth:

- **Strong sectoral focus:** Clear RIS3 priorities in areas such as digital tourism, blue economy, space and aerospace, and health innovation.
- **World-class research infrastructure:** Institutions like the Institute of Astrophysics of the Canary Islands (IAC) and ITER support frontier research and technology development.
- **Growing digital and sustainable competencies:** Universities, training centers, and emerging DIHs foster ICT, energy transition, and smart specialization skills.
- **Geostrategic positioning:** Proximity to multiple continents supports international collaboration and market access opportunities.
- **Commitment to cross-cutting innovation:** Sustainability and digitalisation are embedded throughout RIS3 domains and regional planning frameworks.

Strategic Focus Areas

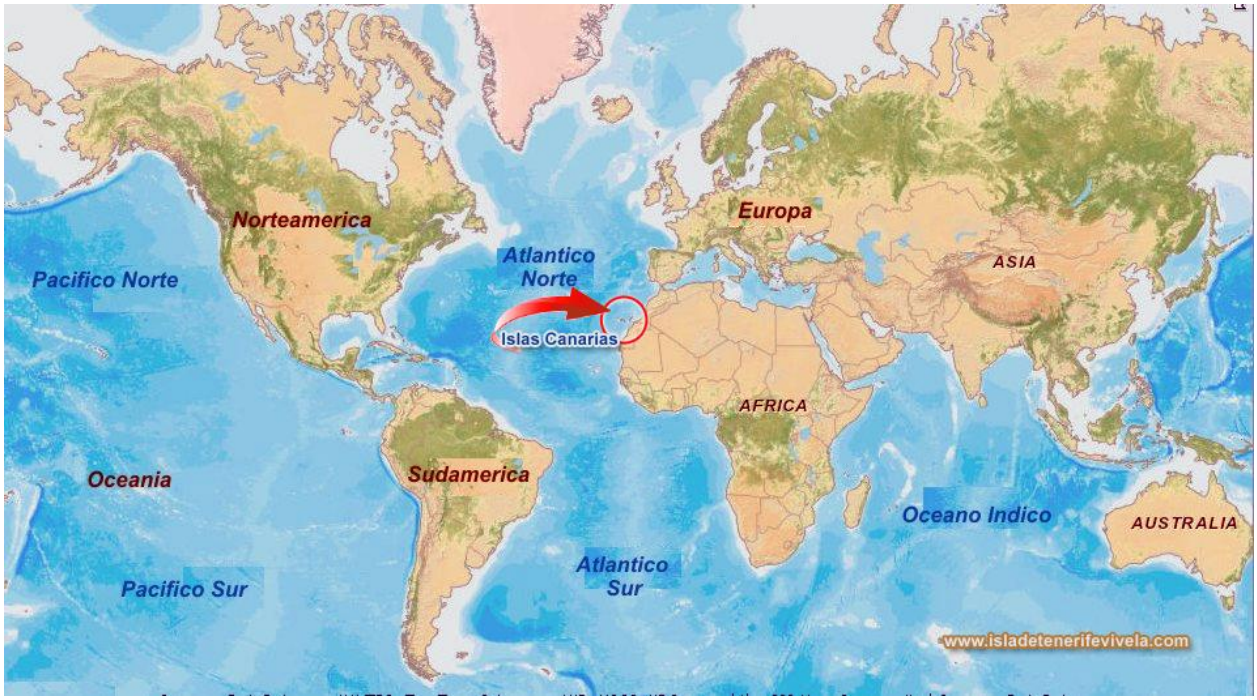
The Action Plan articulates the following targeted interventions:

- **Fostering SME commercialization pathways**, particularly in strategic sectors such as marine biotech, smart tourism, and health technologies.
- **Enhancing cross-sector cooperation** through light, practical cooperation services and living lab models rather than creating heavy structures.
- **Scaling digital capacity** by promoting AI adoption, cybersecurity, and digital entrepreneurship among SMEs and intermediaries.
- **Promoting inclusive innovation** via flexible, non-formal upskilling programmes with project-level digital badges and targeted support for youth, women, and vulnerable groups.
- **Boosting eco-innovation** by supporting circular economy approaches in tourism, marine industries, and clean energy transitions.
- **Expanding interregional integration** by strengthening connections to EU R&I networks and leveraging the islands' strategic geographic location.
- **Alignment with RIS3 Priorities**
- The SustainX Action Plan directly supports the Canary Islands' extended RIS3 areas:
- **Digital and Sustainable Tourism** – advancing AI-powered smart tourism and ecotourism solutions.
- **Health and Wellness** – fostering digital health platforms, personalized care innovations, and Silver Economy opportunities.
- **Blue Economy** – enabling marine renewables, sustainable aquaculture, and blue circular economy initiatives.
- **Astrophysics, Space, and Aeronautics** – scaling up applications of miniaturized tech, advanced materials, and space-data services.

- **Emerging Industries** – encouraging entrepreneurship and high-tech innovation in agro-food, ICT, and advanced manufacturing sectors.
- **Digitalisation (Transversal Priority)** – promoting smart industry, cloud computing, and secure data ecosystems.
- **Sustainability (Transversal Priority)** – integrating climate adaptation technologies and energy transition models across industries.

Through this Action Plan, the Canary Islands are positioned to accelerate systemic innovation, strengthen their regional ecosystems, and emerge as a green and digital leader among Europe's outermost regions.
The SustainX framework will enable capacity-building, cross-border cooperation, and learning-driven resilience, supporting the region's ambitions for sustainable, inclusive, and forward-looking innovation-driven development.

Strategic location of the Canary Islands, between Europe, Africa, and the Americas:



Source: Isladetenerifevivela.

USED ABBREVIATIONS

SustainX	**SustainX Project (full project name not expanded in the document)**
S3 / RIS3	Smart Specialisation Strategy / Research and Innovation Smart Specialisation Strategy
SME	Small and Medium-sized Enterprise

NE RDA	North-East Regional Development Agency
MRID	Ministry of Research, Innovation and Digitalization (Romania)
EEN	Enterprise Europe Network
DIH	Digital Innovation Hub
EU	European Union
R&D	Research and Development
AI	Artificial Intelligence
VET	Vocational Education and Training (Centres)
KPI	Key Performance Indicator
NRRP	National Recovery and Resilience Plan (Romania)
NECP	National Energy and Climate Plan
RRF	Recovery and Resilience Facility (EU funding mechanism)
MEL	Monitoring, Evaluation, and Learning
ERDF	European Regional Development Fund
ESG	Environmental, Social, and Governance
ICT	Information and Communication Technology
RDI	Research, Development and Innovation
EIT	European Institute of Innovation and Technology

METHODOLOGY

The development of the *Canary Islands Regional Action Plan (RAP)* under the *SustainX project* adopted a structured, participatory, and evidence-informed approach to ensure alignment with the region's strategic priorities, innovation ecosystem needs, and the twin transitions at the heart of the SustainX mission. This methodology combined desk research,

stakeholder engagement, survey analysis, and alignment exercises to formulate actionable, context-sensitive measures.

1. DESK RESEARCH

The first phase involved in-depth desk analysis of regional and EU-level strategic frameworks to understand the policy landscape and thematic innovation priorities of the Canary Islands. The main sources included:

- **Extended Smart Specialisation Strategy of the Canary Islands (RIS3 ampliada, 2021–2027)** – to identify priority sectors (e.g., sustainable tourism, blue economy, aerospace, digital health), systemic challenges, and governance structures;
- **Canarias Progreso 2030 Agenda** and related regional innovation strategies – to contextualize long-term development goals, knowledge valorization pathways, and economic diversification imperatives;
- **Relevant EU frameworks** such as the *European Green Deal*, *Digital Europe Programme*, *Horizon Europe*, and *NextGenerationEU* – to align regional goals with overarching European innovation and sustainability agendas;

This review established the foundation for targeting interventions in areas such as sustainable innovation, talent retention, and cross-island collaboration.

2. STAKEHOLDER & COMPETENCE MAPPING

A comprehensive stakeholder mapping exercise identified key actors in the innovation ecosystem across the **quadruple helix**: academia, industry, government, and civil society. This included:

- **Universities and scientific institutions** such as the *Instituto de Astrofísica de Canarias* (IAC), *Universidad de La Laguna*, and *ITER* (renewable energy research);
- **Cluster organizations** in tourism, marine economy, and ICT;
- **Local and regional government bodies**, including innovation and economic development departments;
- **SMEs and startups** from emerging sectors including digital tourism, blue biotech, and health innovation;
- **Innovation agencies, funding bodies**, and enterprise support structures.

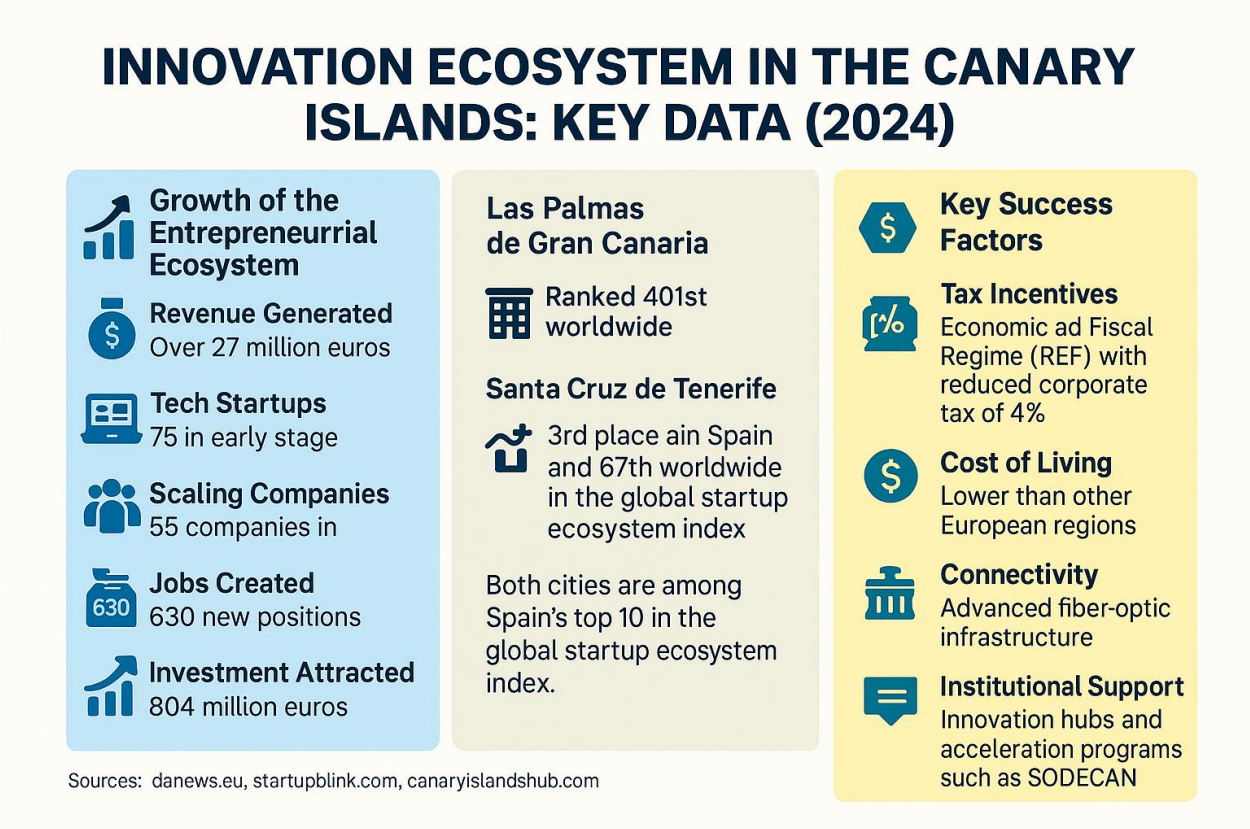
A **structured competence self-assessment survey** was conducted with project partner, collecting insights into:

- Innovation strategy development and business model innovation;
- Experience with digital and sustainability-driven projects;
- Collaboration capacity across institutions and regions;

- Needs for upskilling and accessing EU funding instruments.

The mapping revealed that while the region has significant strength in research and digital infrastructure, gaps remain in SME scaling, collaboration across silos, and stakeholder engagement from outer islands.

Innovation Ecosystem in the Canary Islands: Key Actors and Interactions:



3. SURVEY ANALYSIS AND NEEDS ASSESSMENT

Survey responses from Canary Islands stakeholders were analyzed to identify critical ecosystem gaps and support priorities. Key findings include:

- **Strengths**: Highly skilled professionals, research excellence, digital capabilities, participation in EU projects (e.g., Horizon Europe, Interreg), and strategic geolocation.
- **Challenges**:
    - Economic dependency on tourism and limited diversification;
    - Low private investment in R&D and commercialization support;
    - Environmental stress due to overdevelopment and climate vulnerability;
    - Fragmented coordination between islands and between actors;

  - Difficulties in accessing EU funding and digital tools.

- **Support needs**:
  - Tailored training in innovation lifecycle, funding readiness, and sustainability tools;
  - Enhanced SME access to advanced technologies and innovation labs;
  - Platforms for interdisciplinary and cross-island collaboration.

Priority domains emerging from the survey include:

- **Smart and sustainable tourism**
- **Marine renewable energy and blue biotechnology**
- **Digital health and silver economy**
- **Aerospace innovation and applied research**
- **Circular economy and climate resilience technologies**

4. ALIGNMENT WITH RIS3 AND SUSTAINX OBJECTIVES

The Action Plan was developed to ensure strong alignment with the **seven RIS3 extended priorities** of the Canary Islands:

1. **Digital and Sustainable Tourism**
2. **Health and Well-being**
3. **Blue Economy**
4. **Astrophysics, Space, and Aeronautics**
5. **Emerging Industries (including agro-food tech)**
6. **Digitalization (transversal)**
7. **Sustainability (transversal)**

Each action within the RAP is directly mapped to these strategic priorities, ensuring coherence with both regional and EU frameworks. Special attention was given to the **twin green and digital transitions**, along with **SustainX KPIs**, such as:

- Identification of region-specific challenges;
- Capacity-building for SMEs;
- Enhanced interregional and cross-sector cooperation.

5. ITERATIVE REFINEMENT AND PARTNER FEEDBACK

The draft Action Plan underwent an iterative validation process, incorporating feedback from key project partners such as *ARC Fund*, *iED*, and *Fundación Santa Cruz Sostenible*. Through internal reviews, peer learning sessions, and alignment checks with other regional RAPs, improvements were made to:

- Strengthen the **European dimension** of the action plan;
- Include **transferable practices** from more developed regions;
- Ensure feasibility and stakeholder ownership of proposed interventions.

This co-creation process ensured that the RAP reflects both local priorities and transnational opportunities for innovation ecosystem growth.

PROBLEM DEFINITION

The **Canary Islands** are navigating a pivotal moment in their innovation journey. While equipped with world-class scientific infrastructure, a strategic geographic position, and defined RIS3 priorities, the region faces persistent systemic barriers to realizing its full innovation potential—particularly in scaling SME innovations, strengthening ecosystem coordination, and fostering inclusive participation in green and digital transitions. The following problem definition synthesizes insights from desk research, stakeholder mapping, and survey-based competence assessment conducted under the *SustainX project*.

SYSTEMIC BARRIERS TO INNOVATION SCALING AND COMMERCIALIZATION

A key challenge echoed across both strategic documents and stakeholder feedback is the difficulty faced by regional SMEs in scaling innovations beyond early-stage R&D. Although there is growing activity in fields such as **sustainable tourism, digital health, marine biotechnology**, and **renewable energy**, the commercialization pipeline remains weak. Contributing factors include:

- **Insufficient private investment** in R&D&I, significantly below national and EU averages;
- **Limited infrastructure for testing and prototyping**, particularly in blue economy and aerospace sectors;
- **Weak access to international markets**, EU project capitalisation, and cross-border value chains.

These constraints limit the return on early innovation efforts, reduce SME competitiveness, and stall the transition from ideas to impact in RIS3 priority domains.

FRAGMENTED ECOSYSTEM AND WEAK INTER-ISLAND COLLABORATION

The Canary Islands' innovation ecosystem is rich in actors but lacks systemic integration. Regional fragmentation—geographically and institutionally—hampers coordinated innovation. Survey and mapping insights revealed:

- **Silos between academia, industry, and government**, particularly in knowledge transfer and applied research commercialization;
- **Limited presence of shared co-creation environments**, such as living labs, for SMEs and research institutions to test and pilot innovations;
- **Disparities between islands** in innovation capacity and participation, with Santa Cruz and Gran Canaria dominating activity while smaller islands are underrepresented.

This fragmentation stifles collaborative innovation and prevents a truly regional approach to RIS3 implementation and sustainable development.

SKILLS GAPS AND UNEVEN TALENT DISTRIBUTION

While the Canary Islands host universities and advanced training centres producing high-skilled graduates, stakeholder responses point to a **misalignment between skills supply and innovation demand**. The region faces:

- **Shortages in specialized technical profiles** (e.g., AI, circular economy, marine tech);
- **Limited lifelong learning and upskilling offers**, especially for SMEs and peripheral islands;
- **Ongoing brain drain**, with young, skilled professionals leaving for mainland Spain or Northern Europe due to limited career opportunities.

This reduces the region's absorptive capacity for new technologies and slows digital and green transition uptake among SMEs.

UNDERUTILIZATION OF EUROPEAN INNOVATION ECOSYSTEM LINKAGES

Despite active participation in European funding programs (e.g., Horizon Europe, Interreg MAC), many local actors struggle to **translate involvement into long-term partnerships or scalable business opportunities**. Key barriers include:

- **Limited institutional support** for internationalization and transnational matchmaking;
- **Weak project management capacity** in smaller organizations and across remote islands;
- **Low visibility and presence** in thematic EU innovation networks (e.g., EIT, S3 CoP, Enterprise Europe Network).

This weakens the Canary Islands' potential as a regional innovation node within European and global value chains.

REGULATORY BARRIERS AND INCONSISTENT POLICY COORDINATION

Stakeholders emphasized regulatory and policy-related issues that hamper innovation adoption and ecosystem development. Specific challenges include:

- **Delays in operationalizing RIS3-aligned support instruments**, such as innovation vouchers or cluster initiatives;
- **Complex and fragmented funding procedures**, particularly across ERDF, national, and regional sources;
- **Regulatory uncertainty** in areas like marine renewables, health innovation, and dual-use space technologies.

These regulatory issues contribute to a **lack of trust and uptake** among SMEs and discourage risk-taking in emerging sectors.

CROSS-CUTTING OBSERVATIONS AND SUSTAINX RELEVANCE

The interdependence of these challenges is clear: underinvestment in R&D worsens commercialization gaps, which are in turn compounded by talent shortages and limited internationalization capacity. In this complex landscape, the *SustainX project* offers a unique opportunity for structural impact by:

- **Aligning regional needs with EU-level strategic frameworks**, such as the European Green Deal and Digital Europe;
- **Providing capacity-building and peer learning** to empower SMEs and intermediaries;
- **Fostering inter-island and transnational cooperation**, especially by supporting regions with complex geographies and distributed innovation ecosystems;
- **Developing an Action Plan logic model** that connects concrete interventions with measurable KPIs and scalable good practices.

The following Strategy and Action sections will elaborate on how the Canary Islands' RAP leverages this opportunity to build a more resilient, inclusive, and future-ready regional innovation ecosystem.

STRATEGIC ALIGNMENT

The *SustainX Regional Action Plan for the Canary Islands* is firmly rooted in the region's ambition to drive innovation-led, digitally enabled, and environmentally sustainable development. It complements and operationalizes the Canary Islands' extended Smart Specialisation Strategy (RIS3 2021–2027) and reinforces the territorial dimension of EU policy frameworks. The RAP functions as both a regional innovation roadmap and a bridge to transnational cooperation, advancing the overarching goals of the *SustainX project* through targeted, context-aware interventions.

Source: CEOE Canarias, based on the Smart Specialisation Strategy for the Canary Islands (RIS3).

ALIGNMENT WITH THE CANARY ISLANDS' SMART SPECIALISATION STRATEGY (RIS3)

The RIS3 of the Canary Islands identifies seven transformative domains to harness local strengths, improve competitiveness, and promote sustainability. The RAP addresses each of these domains, embedding them into concrete, stakeholder-informed actions and closing capability gaps revealed through the SustainX survey and stakeholder mapping.

1. Digital and Sustainable Tourism

The RAP contributes to the evolution of the tourism model by supporting:

- AI-powered solutions for smart and sustainable visitor experiences;
- New business models that integrate ecotourism, heritage, and demographic trends (e.g., silver tourism);
- Digital transformation of local SMEs to align with sustainability standards and data-driven service delivery.

2. Health and Well-being (Silver Economy)

RAP actions support innovation in healthcare and aging by:

- Enhancing digital health platforms and personalized care tools;
- Strengthening applied research and business formation in med-tech and health informatics;
- Promoting the Silver Economy through inclusive upskilling and service innovation for aging populations.

3. Blue Economy Industry

To unlock the potential of the blue economy, the RAP prioritizes:

- Support for marine renewable energy (e.g., wave, offshore wind, blue hydrogen);
- Innovation in aquaculture, desalination, and circular port services;
- Cross-sectoral R&D collaboration in marine biotechnology and sustainability.

4. Astrophysics, Space, and Aeronautics Industry

Given the global relevance of regional institutions like IAC, the RAP aligns with this RIS3 pillar by:

- Supporting innovation in miniaturized space technologies, satellite systems, and aerospace materials;
- Facilitating public-private partnerships in applied space research;
- Promoting Canary Islands as a testbed for advanced aerospace experimentation.

5. Emerging Industries

The RAP promotes diversification through:

- High-tech entrepreneurship support in smart manufacturing, agri-food tech, and advanced materials;
- SME access to innovation labs and digital prototyping;
- Development of cluster-based approaches to stimulate innovation in non-tourism sectors.

6. Digitalisation (Transversal)

Digital innovation is embedded throughout the RAP via:

- Capacity building for SMEs in AI, cybersecurity, and cloud technologies;
- Support for Industry 4.0 adoption and smart business model development;

- Strengthening digital connectivity and competence across outer islands.

7. Sustainability (Transversal)

Green transition is a cross-cutting focus of the RAP, with actions addressing:

- Integration of renewable energy systems and smart grids;
- Circular economy practices in tourism, marine, and energy sectors;
- Climate adaptation technologies and resource-efficiency solutions for island ecosystems.

LINK TO REGIONAL AND NATIONAL STRATEGIC FRAMEWORKS

The RAP is closely aligned with the broader Canary Islands and Spanish innovation agenda, reinforcing coherence and maximizing synergy:

- **Canarias Progreso 2030**: RAP actions contribute to economic diversification, green transformation, and territorial cohesion;
- **Spanish National Strategy for Science, Technology and Innovation 2021–2027**: The RAP supports inclusive and decentralized innovation, R&D investment, and mission-oriented approaches;
- **Energy and Climate Action Plans**: Through actions in smart energy, the RAP contributes to decarbonization goals and resilience-building;
- **National Digitalisation Strategy**: The RAP facilitates digital maturity and innovation capacity in SMEs and public innovation intermediaries.

CONTRIBUTION TO EU-LEVEL POLICY OBJECTIVES

The Canary Islands RAP supports major EU strategies and funding alignment through:

- **European Green Deal**: Addressing climate action, circular economy, and biodiversity protection via innovation in marine energy, eco-tourism, and sustainable materials;
- **Digital Decade Strategy**: Supporting regional uptake of digital tools, infrastructures, and services, especially in remote island contexts;
- **New European Innovation Agenda**: Advancing inclusive innovation, reducing regional disparities, and supporting deep-tech entrepreneurship;
- **Horizon Europe Missions & Partnerships**: Enabling local stakeholders to participate in Clusters 4 (Digital, Industry and Space) and 5 (Climate, Energy and Mobility), through capacity-building and ecosystem readiness;
- **Smart Specialisation Community of Practice (S3 CoP)**: Sharing regional experience and learning with EU peers, while improving monitoring and evaluation of RIS3 implementation.

SYNERGY WITH SUSTAINX PROJECT OBJECTIVES

The RAP is a practical expression of the *SustainX* mission—transforming regional innovation ecosystems to be more inclusive, green, and digitally ready. It directly contributes to the project's core Key Performance Indicators:

- **KPI1**: Clearly identifies region-specific challenges such as fragmented collaboration, limited SME scaling, and uneven digital access;
- **KPI2**: Co-develops regional strategies addressing RIS3 domains with concrete actions and measurable impacts;
- **KPI3**: Strengthens multi-stakeholder engagement via inclusive design and inter-island coordination structures;
- **KPI4**: Enhances participation in EU programmes by building capacity for cross-border cooperation and proposal development;
- **KPI5**: Facilitates peer learning, benchmarking, and knowledge exchange with other less developed regions, including Atlantic and outermost regions.

Moreover, the Canary Islands RAP integrates *SustainX values* of **place-based innovation, collaboration, and long-term resilience** by empowering local ecosystems, reducing participation barriers for underserved actors, and supporting systemic transformation through agile, replicable solutions.

STAKEHOLDER INVOLVEMENT

The development of the *SustainX Regional Action Plan (RAP) for the Canary Islands* has been underpinned by an inclusive and multi-actor engagement process, aligned with the **quadruple helix model** and the **co-creation principles** central to the SustainX project. The process ensured broad participation from key innovation stakeholders across **policy, research, business, and civil society**, contributing both strategic insights and operational experience to the identification of challenges and co-design of actions.

METHODOLOGY OF ENGAGEMENT

Stakeholder involvement was conducted in three phases:

1. Stakeholder Identification and Mapping
A mapping exercise was carried out to identify relevant actors across the innovation value chain, aligned with the Canary Islands' RIS3 domains and the SustainX focus areas. Stakeholders were categorized into:

- Public sector institutions and policymakers (including regional innovation departments and island-level authorities);
- Universities and research organizations (e.g., *Universidad de La Laguna*, *Instituto de Astrofísica de Canarias*, *ITER*);

- Business intermediaries and cluster organizations (e.g., clusters in tourism, marine economy, renewable energy);
- SMEs, startups, and industry representatives, especially in emerging sectors like digital tourism, health tech, and space innovation;
- Civil society actors and ecosystem enablers (e.g., *Fundación Santa Cruz Sostenible*, social economy initiatives).

2. Competence Survey and Needs Assessment
A detailed stakeholder survey was distributed to assess:

- Capacity in innovation strategy development;
- Involvement in EU-funded projects;
- Awareness and application of RIS3 priorities;
- Key barriers faced by SMEs in innovation management, funding access, and twin digital/green transitions.

3. Collaborative Input and Feedback Loops
Findings were validated and enriched through bilateral discussions, feedback from *SustainX project partners* (including ARC Fund and iED), and ongoing dialogues with local innovation actors. These conversations helped prioritize strategic domains, refine the action logic, and surface opportunities for inter-island and transnational cooperation.

KEY STAKEHOLDERS ENGAGED

• **Research and Academia**
Institutions such as *Universidad de La Laguna*, *IAC*, and *ITER* contributed insights on scientific priorities and the role of R&D infrastructure in supporting sectors like **space tech, astrophysics, marine energy**, and **climate innovation**. They also highlighted the need to bridge academic excellence with business needs through stronger university-industry cooperation.

• **Business Support and Innovation Agencies**
Regional innovation agencies and intermediaries, including *Enterprise Europe Network (EEN)* partners and cluster facilitators, shared key findings on SME gaps in commercialisation, digital capacity, and access to innovation financing. Their input shaped actions on capacity building and interregional learning.

• **SMEs and Startups**
SMEs operating in digital tourism, bioeconomy, and health innovation were actively involved through the competence mapping survey. They reported challenges with **regulatory complexity, talent retention**, and access to **testbeds and innovation spaces**, particularly on smaller islands. Their input directly informed the RAP's SME support measures.

• **Clusters and Industry Networks**
Sector-specific clusters in **tourism, blue economy, and agro-food innovation** helped

identify emerging innovation trends and gaps. Their engagement helped co-design initiatives that link **local strengths with EU value chains**, particularly in the context of green transition.

• **Government and Policy Stakeholders**
Representatives from the *Canary Islands Government* and relevant departments ensured alignment of the RAP with **regional RIS3 implementation frameworks**, digitalization and sustainability roadmaps, and island-specific economic development agendas.

KEY INSIGHTS FROM STAKEHOLDER CONSULTATIONS

Stakeholder input highlighted several consistent themes across the regional innovation ecosystem:

- High willingness for **cross-sector collaboration**, but lack of structured platforms and coordination mechanisms;
- Need for **more effective commercialization support**, especially for SMEs transitioning from R&D to market;
- Limited alignment between public innovation agendas and private-sector realities, particularly in relation to RIS3 domains;
- Gaps in **digital and sustainability skills**, with unequal access between central hubs (e.g., Tenerife, Gran Canaria) and more remote islands;
- **Underutilization of EU funding and internationalization opportunities**, due to administrative complexity and low project management capacity;
- Desire for **regional innovation hubs**, living labs, and co-creation spaces to foster trust and experimentation across sectors.

Additionally, there was a shared call to improve **inter-island collaboration**, addressing disparities in innovation capacity and supporting decentralized development.

ROLE OF STAKEHOLDERS IN RAP IMPLEMENTATION

Stakeholders are not only beneficiaries but **active contributors** in implementing the Action Plan. Their roles include:

- **Co-design and delivery of training programmes** on innovation management, RIS3 alignment, digital and sustainable innovation;
- **Participation in regional taskforces and innovation clusters**, especially those focused on digital tourism, marine technologies, and aerospace;
- **Piloting and validation of innovation tools and methodologies**, co-developed through the SustainX framework;
- **Shaping policy recommendations** through regular feedback, best practice sharing, and participation in monitoring and evaluation processes.

The Action Plan will continue to foster **structured engagement pathways**—including **living labs**, **island innovation working groups**, and **multi-level policy roundtables**—to ensure inclusive participation, long-term commitment, and adaptive governance.

SMART OBJECTIVES

The *SustainX Regional Action Plan for the Canary Islands* sets out a results-oriented framework of SMART (Specific, Measurable, Achievable, Relevant, Time-bound) objectives to advance regional innovation capacity, inter-island ecosystem collaboration, and alignment with Smart Specialisation (RIS3) priorities. These objectives reflect the unique challenges and opportunities of the Canary Islands—such as geographic fragmentation, economic dependence on tourism, and strengths in research infrastructure—and are designed to drive systemic progress on the green and digital transitions while fulfilling the Key Performance Indicators (KPIs) of the SustainX project.

Each objective supports the Canary Islands' seven RIS3 domains and contributes to the long-term transformation toward a sustainable, diversified, and innovation-driven regional economy.

The objectives reflect region-specific findings, yet have been formulated at project level, enabling flexibility and adaptation over time.

OBJECTIVE 1: STRENGTHEN SME CAPACITY TO SCALE INNOVATION IN TOURISM, BLUE ECONOMY, AND HEALTH

Specific: Support at least 10 Canary Islands SMEs to scale innovation from pilot to market-ready stage by 2026, particularly in digital tourism, marine innovation, and digital health, through coaching, testbed access, and EU programme engagement.
Measurable: Measured through SME participation, commercialization outcomes, and EU funding access.
Achievable: Builds on assets such as EEN Canary Islands, Universidad de La Laguna, ITER, and DIHs.
Relevant: Addresses commercialization gaps, regional fragmentation, and sector-specific opportunities.
Time-bound: 2025–2026

OBJECTIVE 2: DEEPEN QUADRUPLE-HELIX COLLABORATION ACROSS ISLANDS

Specific: Establish and operationalize at least 3 cross-sectoral, cross-island collaboration platforms uniting research, SMEs, public authorities, and civil society in RIS3 areas (e.g., sustainable tourism, blue energy, aerospace).
Measurable: Assessed by platform sustainability, diversity of actors, and co-created outcomes.
Achievable: Builds on existing cluster activity and EEN structures, supported by regional institutions.
Relevant: Tackles fragmentation across islands and sectors; fosters place-based

innovation.
Time-bound: By end of 2025

OBJECTIVE 3: EMBED RIS3 AWARENESS AND GOVERNANCE ACROSS ECOSYSTEM ACTORS

Specific: Train and equip at least 15 SMEs and intermediaries to align with RIS3 logic and apply it to funding proposals, innovation planning, and cross-sector cooperation.
Measurable: Evaluated through training participation, tool uptake, and observed alignment in activities.
Achievable: Leverages survey data, existing RIS3 monitoring systems, and public-private coordination.
Relevant: Addresses RIS3 visibility and operational disconnect, especially on smaller islands.
Time-bound: 2024–2026

OBJECTIVE 4: ENHANCE CANARY ISLANDS' PARTICIPATION IN EU INNOVATION NETWORKS

Specific: Facilitate the participation of at least 6 regional actors in EU-funded innovation projects and platforms by 2026 to foster peer learning and project-based cooperation.
Measurable: Based on successful project involvement, exchanges, and dissemination of practices.
Achievable: Activates the SustainX network, EEN partnerships, and Interreg MAC linkages.
Relevant: Responds to limited EU integration and need for cross-regional visibility.
Time-bound: 2024–2026

OBJECTIVE 5: UPSKILL HUMAN CAPITAL FOR GREEN AND DIGITAL INNOVATION

Specific: Deliver structured training for at least 100 individuals (with geographic and gender balance), covering AI, marine technologies, sustainability, and innovation management.
Measurable: Tracked by course enrolment, satisfaction, and application in workplace innovation.
Achievable: Joint delivery with universities, DIHs, and sectoral clusters.
Relevant: Targets survey-identified talent gaps, especially for SMEs and younger workers.
Time-bound: By mid-2026

INTERLINKAGES AND MONITORING

These objectives are designed to be mutually reinforcing: stakeholder engagement supports SME readiness; RIS3 alignment boosts EU project uptake; training feeds into platform capacity and innovation delivery. Monitoring will be integrated into the SustainX MEL (Monitoring, Evaluation & Learning) framework, with updates shared during interregional sessions, stakeholder roundtables, and EU dissemination events.

By translating strategic priorities into SMART objectives, this RAP will empower the Canary Islands to reinforce ecosystem resilience, scale transformative innovation, and serve as a role model among EU outermost regions.

SWOT ANALYSIS

This SWOT analysis provides a structured diagnosis of the **Canary Islands' regional innovation ecosystem** in the context of the *SustainX* project, focusing on the green and digital transitions. It synthesizes inputs from desk research, stakeholder surveys, and regional policy frameworks to outline internal factors (strengths and weaknesses) and external dynamics (opportunities and threats) that influence the region's innovation performance and its RIS3 implementation.

Strengths	Weaknesses
✓ World-class research institutions (e.g., **IAC**, **ITER**) in astrophysics, renewable energy, and space. ✓ Clearly defined RIS3 domains with high alignment to EU priorities (e.g., digital tourism, blue economy, aerospace). ✓ Strong **scientific base** in marine, aerospace, and health technologies. ✓ **Privileged geostrategic location** between Europe, Africa, and the Americas. ✓ Growing participation in **EU programmes** (e.g., Interreg MAC, Horizon Europe, EIT). ✓ Existing cluster activity in tourism, marine biotech, renewable energy.	▪ **Low private-sector investment in R&D&I**, below the national and EU averages. ▪ **Fragmented innovation ecosystem** across islands with uneven access to resources and infrastructure. ▪ **Limited SME capacity to scale** innovation from prototype to market, particularly in smaller islands. ▪ Skills mismatch and ongoing **brain drain**, particularly in digital, engineering, and sustainability sectors. ▪ **Regulatory complexity** and delays in deploying RIS3-aligned funding and support tools. ▪ Insufficient **collaborative platforms** (e.g., living labs, testbeds) for cross-sector innovation.
Opportunities	**Threats**
○ Leverage **EU green and digital transition funding** (e.g., REPowerEU, Digital Europe) to modernize key sectors. ○ Expansion of RIS3 domains like **blue hydrogen, sustainable tourism, and smart mobility**.	❖ High **economic dependence on tourism**, increasing vulnerability to external shocks. ❖ **Environmental pressure** from overdevelopment and inadequate waste/resource management.

○ Foster **cross-border cooperation** through transnational initiatives and platforms like *SustainX*. ○ Develop **talent retention and attraction programmes**, especially in the Silver Economy and digital health. ○ Boost innovation in **outermost regions** via tailored EU mechanisms for island resilience.	❖ **Limited inter-island coordination** in innovation governance and funding access. ❖ Risk of **underutilizing research excellence** due to weak university-SME knowledge transfer. ❖ **Administrative burdens** that discourage SME engagement with public innovation schemes.

KEY INSIGHTS FROM THE SWOT ANALYSIS

- **Unique scientific excellence with limited ecosystem integration**: The Canary Islands are home to world-renowned institutions and RIS3 domains that align strongly with EU missions. However, commercialization of innovation is limited by SME capacity, inter-island fragmentation, and weak collaboration infrastructures.
- **RIS3 priorities are ambitious and relevant—but unevenly activated**: Priority areas such as blue economy, sustainable tourism, and aerospace reflect regional strengths, yet mechanisms to connect these domains with SME and community-level actors remain underdeveloped.
- **Opportunities exist at the nexus of local strengths and EU priorities**: The region is well positioned to capitalize on the EU's outermost region instruments, green transition funding, and interregional cooperation—especially in marine innovation, smart tourism, and renewable energy.
- **Risks tied to structural and geographic realities**: Persistent threats such as climate vulnerability, skills mismatch, and overdependence on tourism necessitate systemic, cross-island solutions focused on resilience, talent, and sustainability.

Implications for SustainX and Action Plan Implementation

The SWOT analysis confirms the need for a **mission-oriented, place-sensitive strategy** for the Canary Islands—one that combines:

- **Capacity-building and commercialization support for SMEs** in strategic RIS3 sectors (e.g., blue biotech, health, digital tourism);
- **Cross-sector and inter-island innovation platforms** to promote coordination and ecosystem cohesion;
- **Training and talent development pathways** aligned with regional and EU green/digital transition needs;
- **Public-private co-investment in innovation spaces**, testbeds, and applied research infrastructure;

- **Tailored governance models** to improve RIS3 implementation, stakeholder engagement, and policy coherence.

The Canary Islands *Action Plan*, as part of *SustainX's pan-European framework*, will help transform these insights into targeted interventions and long-term innovation-driven competitiveness—strengthening the role of the archipelago as a sustainable innovation hub among EU outermost regions.

ACTION PLAN

The **Canary Islands Action Plan** under the SustainX project sets out a cohesive and targeted portfolio of actions designed at project level. These actions address systemic gaps, leverage regional strengths, and foster green and digital transition pathways, closely aligned with the Canary Islands' Smart Specialisation Strategy (RIS3 2021–2027) and broader EU missions.
They are structured to be flexible, scalable, and adaptable throughout the project's evolution.

The design reflects the **SustainX principles** of place-based transformation, quadruple helix collaboration, and interregional learning, and is directly linked to the SustainX Key Performance Indicators (KPIs).
Each action has been refined to balance ambition with feasibility, based on stakeholder input and administrative realities.

ACTION 1: FOSTER REGIONAL INNOVATION COLLABORATION SERVICES AND ROADMAPS

Objective:
Strengthen structured multi-actor collaboration in RIS3 priority sectors through light, flexible cooperation services and strategic roadmaps.

Description:
Rather than establishing heavy new platforms, this action will develop practical cooperation services in three thematic areas:

- **Digital and Sustainable Tourism** (smart visitor services, AI-driven ecotourism),
- **Blue Economy and Marine Innovation** (marine renewable energy, circular aquaculture),
- **Health and Silver Economy** (digital health tools, longevity innovation).

Strategic roadmaps will be developed and shared with stakeholders identifying collaboration opportunities, funding channels, and priority pilot ideas.
Emphasis will be on **low-barrier participation** for SMEs, cluster actors, and civil society.

Timing: Q3 2025 – Q4 2026
Desired Actors: Fundación Santa Cruz Sostenible, Universidad de La Laguna, EEN Canary

Islands

Expected Outcomes:

- 3 cooperation services launched.
- 3 initial joint innovation projects supported.
- Improved cross-sector and inter-island engagement.

ACTION 2: STRENGTHEN SME CAPACITIES THROUGH RIS3-ALIGNED TRAINING AND RECOGNITION

Objective:
Enhance SME and intermediary operational capacity for innovation, EU funding access, and green/digital transition.

Description:
Deliver modular, hands-on training for at least 45 participants, covering:

- RIS3 priority domains,
- Sustainability-driven business models,
- Innovation scaling and funding access (Horizon Europe, Interreg, Digital Europe).

Participants completing modules will receive **SustainX project-level digital badges** and certificates recognizing innovation competencies, motivating further engagement.

Timing: Q4 2025 – Q2 2026
Desired Actors: EEN Canary Islands, ACIISI, DIHs, Chambers of Commerce
Expected Outcomes:

- SMEs equipped with innovation and EU project skills.
- Broader RIS3 awareness and operationalization at SME level.
- Dissemination of practical guidance toolkits.

ACTION 3: SUPPORT SME SCALING, POLICY DIALOGUE, AND INTERREGIONAL COLLABORATION

Objective:
Enable SME innovation scaling and improve policy alignment through targeted support and learning exchanges.

Description:
This action will offer targeted mentoring and advisory support to help SMEs validate and scale their innovations, with a focus on RIS3-aligned sectors. It will also create opportunities for dialogue between SMEs and policymakers to improve the relevance of funding instruments and support schemes. Finally, the action will enable participation in up to three

interregional exchanges with other EU regions to share practices and foster joint project development

ACTION 4: DEVELOP THE CANARY ISLANDS RIS3 INNOVATION DASHBOARD

Objective:
Enable real-time RIS3 monitoring, foresight, and evidence-based innovation governance.

Description:
The **Regional RIS3 Dashboard** could essentially be a **shared collaborative document or spreadsheet**, structured around simple, easily updatable indicators.
It should prioritize **ease of contribution, transparency, and low technical barriers** over complex design.

Rather than building a custom IT platform (which is costly and time-consuming), the Dashboard could be:

- A **Google Sheet**, **Microsoft Excel Online**, or **SharePoint List**,
- Hosted on a **common cloud drive** accessible to the main partners (TUIASI, NE RDA, ARC Fund, clusters, intermediaries),
- Editable based on **agreed responsibilities** (e.g., who updates which indicator quarterly or biannually).

Visually, it can look like a simple dashboard table with:

- Traffic-light color codes (red/yellow/green),
- Very simple data entry fields,
- Automatic charts (e.g., trendlines, pie charts).

Timing: Q1 2025 – Q2 2026
Desired Actors: ACIISI, University of La Laguna Data Teams, Regional Statistics Office
Expected Outcomes:

- Transparent RIS3 progress visualization.
- Dynamic adaptation of innovation actions.
- Better alignment of funding and programming with real-time needs.

ACTION 5: STRENGTHEN GREEN AND DIGITAL SKILLS PATHWAYS WITH RECOGNITION MECHANISMS

Objective:
Reduce talent shortages in key innovation sectors and increase SME workforce readiness.

Description:
Description:
Develop **modular, flexible training pathways** focused on core competencies in:

- Green innovation and circular economy,
- Digital transformation (AI, data, automation),
- Sustainable agri-food technologies.

The training offer will be practice-oriented and designed to complement existing upskilling efforts at national and regional level.

Upon completion, participants will receive a **non-formal SustainX project-level digital badge** — issued as a recognition, motivational and reputational tool — certifying their engagement with innovation-relevant topics under the project framework.
The badge will be visual, suitable for showcasing on platforms such as LinkedIn and CVs, clearly branded under the SustainX community.

In parallel, **skills integration roadmaps** will be co-designed to help SMEs connect acquired skills with business innovation strategies, ensuring real impact on organizational transformation.

The approach ensures light, motivating recognition without imposing complex accreditation burdens, fully aligned with the project-level ambition and available resources.

Timing: Q2 2025 – Q4 2026
Desired Actors: Universities, VET centres, Clusters, Regional Education Agency
Expected Outcomes:

- 45 individuals upskilled in RIS3 sectors.
- Stronger SME-talent integration.
- New pathways for youth and women into emerging sectors.

SUMMARY TABLE OF ACTIONS - AT A PROJECT LEVEL

Action	Timeline	Lead Actors	Key Outputs
Innovation Collaboration Platforms	Q3 2025 – Q4 2026	Project partners	3 dashboards; 5+ co-created projects
S3-Aligned Capacity Building	Q4 2025 – Q2 2026	Project partners	100+ trained staff from SMEs/intermediaries
SME Innovation Scaling Scheme	Q1 2025 – Q4 2026	Project partners	30 SMEs scaled; 20 market-ready innovations
RIS3 Policy Alignment	Q3 2025 – Q3 2026	Project partners	Revised innovation support tools
Interregional Collaboration	Q4 2025 – Q4 2026	Project partners	5 cross-border projects; 4 exchanges

RIS3 Innovation Dashboard	Q1 2025 – Q2 2026	Project partners	Digital dashboard for ecosystem tracking
Skills for Green & Digital Transition	Q2 2025 – Q4 2026	Project partners	100 trained professionals; SME-skills alignment

IMPLEMENTATION LOGIC

The actions proposed in the SustainX Action Plan for the Canary Islands are **strategically interconnected and mutually reinforcing**, creating a cohesive pathway for strengthening the regional innovation ecosystem and advancing the green and digital transitions.

They have been **sequenced carefully** to balance early momentum with long-term systemic transformation and are designed to be flexible to evolving needs and opportunities.

The synergies between the actions unfold as follows:

Improving SME Innovation Capacity and Scaling Support
(Actions 2, 3, 6)

Training and upskilling (Action 2) equip SMEs and intermediaries with RIS3-aligned innovation capabilities, while scaling support (Action 3) helps SMEs transition from prototypes to market-ready solutions. Action 6 ensures talent pipelines meet SME needs, strengthening scaling potential over the long term.

Enhancing Policy Coherence and Strategic Governance
(Actions 4, 5)

Policy alignment activities (Action 4) streamline support schemes with RIS3 objectives, reducing administrative barriers. In parallel, the development of the RIS3 Innovation Dashboard (Action 5) provides real-time data to guide adjustments, enabling dynamic, evidence-based governance.

Fostering Ecosystem Collaboration and Trust Across Islands
(Actions 1, 3)

Light, modular innovation collaboration services (Action 1) activate quadruple helix synergies across RIS3 domains, while interregional learning activities under Action 3 enhance trust, bring new practices into the ecosystem, and position the Canary Islands more firmly in EU innovation networks.

Driving Data-Informed Planning, Monitoring, and Learning
(Action 5)

The RIS3 Dashboard (Action 5) facilitates real-time monitoring of innovation dynamics, talent development, and EU programme participation, creating feedback loops that inform adaptive management and strategic foresight.

Together, these actions create a **circular and self-reinforcing system**:

Capacity building boosts SME innovation and cross-sector collaboration,

Better collaboration informs smarter policies and resource allocation,

Real-time monitoring enables continuous learning and adjustment,

Strengthened governance attracts new investments and talent,

New talent and investments sustain innovation-driven growth.

By operationalizing this **integrated and participatory approach**, the Action Plan not only supports the **Canary Islands' RIS3 ambitions** but also directly contributes to the **SustainX pan-European mission**—empowering moderate and underrepresented innovation regions to become **resilient, inclusive, and future-ready innovation ecosystems**.

KEY RECOMMENDATIONS

The analysis conducted under the SustainX project, together with stakeholder consultations and strategic document reviews, has identified systemic, institutional, and capacity-related gaps that limit the Canary Islands' innovation performance and their ability to fully leverage the green and digital transitions.

The following recommendations are grouped under four strategic pillars and aim to guide regional policymakers, innovation intermediaries, and ecosystem actors in strengthening innovation governance, enabling SME growth, enhancing workforce skills, and deepening the region's integration into European innovation ecosystems.

1. Strengthening Innovation Governance and RIS3 Operationalisation

- **Enhance RIS3 coordination mechanisms** across islands by establishing an Inter-Island RIS3 Steering Taskforce, ensuring coherent policy implementation, inclusive governance, and balanced participation of all islands.
- **Operationalise thematic RIS3 working groups** around strategic domains (e.g., Blue Economy, Digital Tourism, Health Innovation) to foster regular bottom-up stakeholder engagement and practical co-creation.
- **Align regional support instruments** with RIS3 priorities by revising funding calls, eligibility criteria, and project evaluation frameworks—simplifying SME access and encouraging cross-sectoral innovation.
- **Deploy the Canary Islands RIS3 Innovation Dashboard** (Action 6) to track KPIs, funding uptake, ecosystem gaps, and emerging foresight trends, supporting evidence-based governance and real-time learning loops.

2. Empowering SMEs for Scaling and Internationalisation

- **Launch a SME Innovation Scaling Support Scheme** (Action 3), combining vouchers, mentoring, certification support, and internationalisation advice—targeting SMEs in sectors such as blue economy, digital health, and smart tourism.
- **Co-develop an Innovation Readiness Toolkit** to help SMEs self-assess capabilities, align with RIS3 markets, and plan strategic growth pathways.
- **Establish a Canary Islands EU Project Facilitation Service**, embedded within EEN and innovation intermediaries, to boost SME participation in Horizon Europe, Interreg MAC, and Digital Europe programmes.
- **Create a "RIS3 Excellence Label"** to recognize and promote SMEs with strong RIS3-aligned innovations, facilitating access to investors, national support, and international consortia.

3. Enhancing Skills and Talent Retention in Strategic Domains

- **Develop modular upskilling programmes** in green innovation, AI, cybersecurity, blue energy, and digital transformation (Actions 2 and 7), targeting both young graduates and SME employees.
- **Promote University–Industry dual learning pathways**, linking academic curricula with real market demands in priority sectors like marine energy, aerospace, and sustainable tourism.
- **Introduce regional internship and mobility schemes**, connecting students, early-career researchers, and entrepreneurs with innovation-driven SMEs and Living Labs.
- **Support Communities of Practice** in fields like marine innovation, health tech, and sustainable tourism, facilitating continuous knowledge exchange, peer mentoring, and collaborative project development.

4. Fostering Ecosystem Collaboration and Transnational Engagement

- **Activate light, flexible innovation collaboration services** (Action 1) to stimulate mission-oriented co-creation between research, industry, public authorities, and civil society.
- **Strengthen interregional cooperation** through SustainX peer exchanges, Horizon Europe partnerships, and alliances with other EU outermost regions (e.g., Azores, Madeira) and North Africa.
- **Establish open, inclusive Living Labs** in smart tourism, marine circularity, and digital health innovation, serving as practical hubs for testing solutions and stakeholder engagement.
- **Develop a roadmap for strategic participation in EU Missions and Partnerships**, leveraging the Canary Islands' unique geostrategic position to act as a European innovation gateway to Africa and the Americas.

Cross-Cutting Recommendation: Foster Inclusive and Sustainable Innovation

- **Embed inclusiveness and sustainability as guiding principles** across innovation policies, ensuring gender balance, youth engagement, and support for actors from outer and rural islands.
- **Mainstream ESG and circular economy criteria** into public funding schemes, regional innovation programmes, and SME support initiatives.
- **Promote accessible and low-barrier entry points** to innovation services, ensuring micro-enterprises, social entrepreneurs, and traditionally underrepresented groups can participate in and benefit from innovation ecosystems.

Final Reflection

These recommendations are designed to be **mutually reinforcing** and **coordinated** across governance levels and stakeholder groups. When adopted, they will support the Canary Islands' evolution from a fragmented innovation landscape into a **resilient, inclusive, and RIS3-driven ecosystem**, capable of scaling sustainable, digital, and internationally connected growth.

The recommendations also directly contribute to the SustainX project's objectives, reinforcing:

- **Governance strengthening** (KPI3, KPI6),
- **SME innovation capacity** (KPI1, KPI2),
- **Skills development and talent retention** (KPI5),
- **Interregional integration and learning** (KPI4, KPI7).

MONITORING & EVALUATION

The successful implementation and long-term impact of the Canary Islands Action Plan under SustainX will depend on a robust, participatory, and adaptive Monitoring & Evaluation (M&E) framework.

In line with the SustainX methodology, the M&E system is designed not only to track progress but also to foster strategic foresight, enable evidence-informed decision-making, and embed continuous learning across the region's innovation governance structures. It will support both RIS3 operationalisation and the region's green and digital transition goals.

M&E GOVERNANCE AND INSTITUTIONAL ARCHITECTURE

The M&E framework will be embedded within the Canary Islands' RIS3 coordination system and mobilize key regional actors to ensure coherence and legitimacy:

- **ACIISI** (Agencia Canaria de Investigación, Innovación y Sociedad de la Información): Overall coordinator of the M&E system, ensuring alignment with regional innovation policy and funding mechanisms.
- **Island Development Councils** (Tenerife, Gran Canaria, La Palma, and others): Facilitate place-based data collection, ensuring the inclusion of island-specific dynamics and challenges.
- **Innovation intermediaries** (e.g., EEN Canary Islands, sectoral clusters, DIHs): Monitor action-level implementation, track SME support indicators, and gather feedback on capacity-building outcomes.
- **Universities and VET Centres**: Support the evaluation of skills development programmes and feed into dashboard data updates.
- **SustainX Partner ARC Fund**: Provides methodological templates, peer-learning facilitation, and ensures cross-regional comparability.

A **Regional M&E Task Force** will be established under ACIISI's leadership, composed of representatives from government, research, clusters, SMEs, and civil society, to validate findings, review indicators, and adapt the Action Plan based on evidence.

INDICATORS AND DATA COLLECTION FRAMEWORK

A multi-tier indicator framework will be applied, structured around the SMART objectives of the Action Plan and aligned with SustainX Key Performance Indicators (KPIs).

Data will be disaggregated by sector, island, and stakeholder group, and monitored quarterly, biannually, or annually, depending on the KPI type.

KPI Category	Key Indicators	Data Sources	Frequency
Implementation Monitoring	Actions initiated/completed, Stakeholder engagement levels	ACIISI, Action Leaders	Quarterly
SME Innovation Impact	SMEs supported, Innovations commercialized, EU programme participation	EEN, DIHs, Clusters, SME reporting	Biannually
RIS3 Alignment	% of supported projects aligned with RIS3 domains, RIS3 awareness across ecosystem	Surveys, Funding evaluations, Project reports	Annually
Skills & Capacity Building	Number of individuals trained, Training satisfaction/application rates	Universities, VET Centres, Feedback forms	Biannually

Cross-Border Collaboration	Joint EU-funded projects, Number of peer-learning exchanges	Interreg MAC, Horizon Europe, SustainX reports	Annually
Governance & Policy Learning	Policy instruments adapted, M&E-driven governance adjustments	Regional authorities, RIS3 Monitoring Committee	Annually

The **Canary Islands RIS3 Innovation Dashboard** (developed under Action 6) will serve as the main digital tool for real-time tracking, visualization of progress, and strategic foresight support.

EVALUATION METHODOLOGY

The evaluation approach will blend accountability, learning, and adaptive management, with three main phases:

Formative Evaluation (Mid-2025)

- **Purpose:** Assess early implementation effectiveness, surface challenges, and recalibrate actions if necessary.
- **Focus:** Stakeholder engagement, RIS3 alignment of early projects, SME participation.
- **Method:** Mixed methods (online surveys, interviews, regional focus groups).

Summative Evaluation (End-2026)

- **Purpose:** Measure achievement of SMART objectives, sustainability of impacts, and systemic change.
- **Focus:** Transformation of SME capacities, innovation ecosystem cohesion, skills uptake.
- **Method:** Theory of Change-based evaluation framework supported by SustainX tools.

Peer-Based and Comparative Evaluation

- **Purpose:** Benchmark practices across SustainX regions and extract replicable models.
- **Focus:** Shared challenges, scalable solutions, collaborative innovation pathways.
- **Method:** Cross-regional peer reviews and joint synthesis reports facilitated by ARC Fund.

FEEDBACK LOOPS AND ADAPTIVE MANAGEMENT

Continuous learning and adaptation will be integrated through:

- **Quarterly Stakeholder Labs:** To gather direct input from SMEs, researchers, clusters, and civil society actors on implementation progress and necessary recalibrations.
- **Biannual Progress Reports:** Compiled by the M&E Task Force to track outputs, analyse trends, and highlight emerging needs or bottlenecks.
- **Annual SustainX Alignment Workshops:** Incorporate lessons learned into RIS3 governance, Horizon Europe participation strategies, and regional funding roadmaps.

The M&E system ensures that the Action Plan remains responsive to evolving regional priorities and external shocks (e.g., climate, economic, or digital market trends).

SUSTAINABILITY OF MONITORING STRUCTURES

To maintain monitoring capacity beyond the SustainX project lifecycle, the following actions will be pursued:

- **Capacity building for public sector M&E officers** through targeted training programmes (leveraging Erasmus+ and ESF+ opportunities).
- **Integration of the RIS3 Dashboard and KPIs** into permanent public digital infrastructure, accessible to all innovation stakeholders.
- **Open-access knowledge repository**: Sharing evaluations, best practices, and policy recommendations with the wider Canary Islands innovation community.
- **Exploration of sustainable funding streams** (e.g., ERDF, REACT-EU, regional operational programmes) to support future evaluation and strategic foresight activities.

Final Reflection

The M&E framework for the Canary Islands transforms monitoring from a compliance activity into a strategic innovation governance tool.

It fosters foresight, agility, and inclusivity—allowing the Canary Islands to lead as a resilient, green, and digitally enabled European outermost region, fully aligned with SustainX's overarching mission.

The effectiveness and long-term impact of the **Canary Islands Action Plan** under *SustainX* will depend on a robust, participatory, and adaptive **Monitoring & Evaluation (M&E)** framework. Designed not only to track progress but also to enable evidence-based policymaking, strategic foresight, and continuous learning, the M&E system will help guide the region's green and digital transitions while supporting the operationalization of RIS3 priorities.

Aligned with the *SustainX* methodology, this M&E framework complements existing regional RIS3 governance efforts and introduces added value through real-time monitoring tools, inter-island feedback loops, and cross-regional peer learning mechanisms.

SUSTAINABILITY & TRANSFERABILITY

Ensuring the long-term relevance, resilience, and replicability of the Canary Islands Action Plan is key to its sustained impact within the SustainX project and beyond.

Sustainability is conceived holistically—encompassing institutional, financial, and operational dimensions—while transferability highlights the broader value of adapting and sharing successful models with other EU regions, particularly those facing challenges related to geographic isolation, SME fragmentation, or RIS3 operationalisation.

SUSTAINABILITY

The Action Plan is structured to drive system-wide strengthening beyond the SustainX timeframe, underpinned by three mutually reinforcing pillars:

a) Institutional Sustainability

The Action Plan is firmly anchored within the Canary Islands' Smart Specialisation Strategy (RIS3 2021–2027), addressing priorities such as sustainable tourism, blue economy, health and wellbeing, aerospace, and digital transformation.

Key implementing partners—ACIISI, Fundación Santa Cruz Sostenible, Universidad de La Laguna, EEN Canary Islands, and sectoral clusters—are actively engaged in regional innovation governance and EU project participation, ensuring committed ownership.

A distributed governance approach, involving island-specific actors and regional bodies, fosters decentralisation, promotes shared leadership, and strengthens long-term institutional resilience across the archipelago.

b) Financial Sustainability

Actions are strategically linked to current and future funding streams, including ERDF, Horizon Europe, Interreg MAC, Digital Europe, and national/regional programmes.

Core initiatives—such as SME scaling schemes, training programmes, and monitoring tools—are designed to be modular and scalable, facilitating integration into public-private funding models.

Dedicated capacity-building in EU funding access, proposal writing, and financial management is embedded, empowering regional actors to independently secure resources for future innovation actions.

c) Operational Sustainability

Flagship outputs like the **RIS3 Innovation Dashboard**, cross-sectoral innovation platforms, and green/digital skills training pathways are structured for institutionalisation within ACIISI, academic partners, and sectoral hubs.

The participatory Monitoring & Evaluation (M&E) framework, including feedback loops and peer review mechanisms, ensures adaptive governance and policy responsiveness beyond 2026.

Strategic foresight practices, such as scenario planning and anticipatory policymaking, are progressively embedded into regional innovation management processes.

TRANSFERABILITY

The Canary Islands Action Plan introduces methods and instruments highly adaptable for other EU regions, particularly outermost, island, coastal, or structurally constrained territories:

a) Inter-Island Collaboration Platforms

Practical models of cross-island thematic collaboration—focused on areas like digital tourism, blue economy, and health innovation—demonstrate how geographically dispersed ecosystems can build cohesive innovation strategies.

These platforms serve as replicable templates for quadruple-helix engagement, participatory governance, and project co-creation.

b) Modular Capacity Building for SMEs and Innovation Intermediaries

Short-cycle, modular training models on green/digital transitions, entrepreneurship, and EU project readiness are designed for adaptation across sectors and regions.

Open-source toolkits and training curricula will be shared through SustainX peer-learning channels, the S3 Community of Practice, and EEN platforms.

c) Real-Time Monitoring and Foresight Integration

The **RIS3 Innovation Dashboard**, combining real-time KPI tracking with foresight tools, provides a replicable governance asset for evidence-informed policymaking.

Emphasizing transparent stakeholder access and participatory data collection, the model fosters trust and strengthens ecosystem accountability.

d) Participatory Policy Innovation

The Action Plan's use of **co-creation policy labs** to realign innovation instruments with RIS3 priorities offers a low-cost, high-impact model for other regions seeking to modernise policy design and delivery.

Processes like simplification of funding calls, SME-friendly eligibility frameworks, and RIS3-driven strategic filtering will be documented for replication.

3. Knowledge Sharing and Ecosystem Scaling

The Canary Islands will proactively contribute to the broader EU innovation ecosystem through:

Active participation in SustainX learning missions, the S3 Community of Practice, Interreg Atlantic and MAC programmes.

Publication of open-access toolkits, templates, and case studies on inter-island innovation, digitalisation pathways, and circular economy models.

Hosting a **SustainX Regional Learning Workshop** in 2026 (Santa Cruz de Tenerife) to catalyse peer exchanges with stakeholders from other outermost and coastal regions (e.g., Azores, Madeira, Réunion).

CONCLUSION

The Canary Islands Action Plan, developed under the SustainX project, represents a strategic, future-oriented blueprint for strengthening the region's innovation ecosystem through a place-based, RIS3-aligned, and mission-driven approach.

Grounded in stakeholder dialogue, ecosystem mapping, and strategic foresight, the Plan seeks to unlock the archipelago's innovation potential by addressing systemic challenges—such as fragmented inter-island collaboration, SME scaling barriers, skills mismatches, and policy alignment gaps—and harnessing distinctive regional assets to drive green and digital transitions.

The Canary Islands present an exceptional foundation for transformation:

- Strong alignment with RIS3 domains such as sustainable tourism, blue growth, health and wellbeing, space technologies, and circular economy.
- A robust and expanding participation in EU programmes like Horizon Europe, Digital Europe, and Interreg MAC.
- A network of engaged innovation stakeholders spanning universities, clusters, intermediaries, and public agencies.

The Action Plan responds with an integrated and coherent strategy organized around seven key interventions, designed to:

- Scale SME innovation and commercialization pathways;
- Activate cross-sectoral co-creation platforms;

- Strengthen skills and talent pipelines aligned with emerging market needs;
- Enhance governance and funding alignment through RIS3 operationalisation;
- Expand cross-border collaboration and visibility in EU innovation ecosystems.

A major achievement of this process is the activation of a distributed, inclusive innovation ecosystem across the archipelago—bridging the public, private, research, and civic sectors under a shared innovation agenda.

Moreover, the Canary Islands Action Plan contributes directly to the wider SustainX mission: fostering territorial innovation capacity, reducing regional disparities, and promoting mission-driven, inclusive ecosystems across Europe's moderate and modest innovator regions.

Looking ahead, successful implementation will depend on:

- Sustained political and institutional leadership at regional and island levels;
- Continued alignment with EU priorities such as the European Green Deal, the Digital Decade, and cohesion policy goals;
- Robust monitoring, evaluation, and adaptive management practices.

Ultimately, the Canary Islands Action Plan is more than a roadmap for regional transformation—it is a scalable European model of inclusive, sustainable innovation designed to thrive in a fast-evolving global landscape.

It reflects the Canary Islands' ambition to lead as a green and digital frontrunner among Europe's outermost regions, while empowering other territories to follow a similar path toward resilient, future-proof innovation ecosystems.

ANNEX I.

REGION-SPECIFIC CHALLENGES

The Santa Cruz region, encompassing the eastern part of the Canary Islands archipelago, faces several structural and systemic challenges that impact its ability to fully embrace sustainable and digital transitions. These challenges are compounded by its geographical positioning and socioeconomic dynamics. Below are the three key region-specific challenges identified under KPI1:

1. GEOGRAPHICAL ISOLATION AND HIGH TRANSPORT DEPENDENCY

The Canary Islands are situated over 1,000 kilometers from mainland Spain and over 2,000 kilometers from Brussels. This isolation significantly impacts supply chains, leading to high dependency on maritime and air transport for both imports and exports. The region's insular nature limits economies of scale, increases costs for goods and services, and complicates the logistics of sustainable materials and technologies.

This transport dependency also contributes to a larger carbon footprint and delays in adopting circular economy practices. Moreover, local businesses—particularly SMEs—struggle to access sustainable supply chain alternatives due to limited local manufacturing and the absence of circular logistics providers. The transition to green logistics is further hindered by the absence of integrated inter-island and island-mainland transport strategies that prioritize decarbonization.

2. UNDERDEVELOPED RENEWABLE ENERGY INFRASTRUCTURE, PARTICULARLY IN SMALLER MUNICIPALITIES

Despite high solar irradiance and wind potential, the region still relies heavily on imported fossil fuels for electricity generation. While there has been progress in renewable energy deployment—especially in larger islands and urban centers—smaller municipalities and remote communities remain underserved. Grid connectivity challenges, limited storage capacity, and outdated infrastructure create barriers for integrating intermittent renewable energy sources.

This uneven distribution limits the region's ability to transition to a low-carbon economy and increases energy vulnerability. The public sector lacks sufficient technical capacity and investment strategies to scale renewable energy deployment at a regional level. Moreover, permitting and administrative processes often discourage investment in decentralized energy systems such as microgrids or community-owned RES initiatives.

3. SKILLS MISMATCH IN THE LOCAL LABOR MARKET

The Canary Islands face persistently high unemployment rates, particularly among youth. At the same time, local businesses report difficulties in finding qualified workers with digital, green, or innovation-related skills. This mismatch is due to a combination of factors, including outdated vocational education and training (VET) offerings, insufficient alignment of curricula with emerging green sectors, and limited collaboration between businesses and educational institutions.

Additionally, the region's labor market remains heavily dependent on low-skilled, seasonal employment in tourism, which reduces incentives for lifelong learning and digital upskilling. While several initiatives have been launched to promote reskilling and entrepreneurship, they are often fragmented, lack coordination, and do not reach underserved rural areas.

Addressing these challenges requires a multi-level strategy: improving transport sustainability through regional and EU-supported logistics innovation; investing in decentralized renewable energy infrastructure and smart grids; and bridging the skills gap by transforming the regional education system and fostering public-private training partnerships. These priorities are essential to enhance Santa Cruz's resilience and support its green and digital transformation within the SustainX framework.

ANNEX II.

CANARY ISLANDS REGIONAL INNOVATION ROADMAP (MID-2025 – END-2026)

This roadmap provides a structured, time-sensitive, and mission-oriented framework for implementing the SustainX Regional Action Plan (RAP) in the Canary Islands from mid-2025 to the end of 2026.

It operationalises the region's ambition to bridge short-term interventions with long-term strategic transformation, fully embedded within the Canary Islands' extended Smart Specialisation Strategy (RIS3 2021–2027) and aligned with the European Green Deal, the Digital Decade Strategy, and the New European Innovation Agenda.

Strategic Focus of the Roadmap

The roadmap prioritizes five interlinked pillars:

- Empowering SMEs to scale innovations and access new markets;
- Strengthening inter-island collaboration through cross-sector platforms;
- Upskilling the workforce for the green and digital transitions, with emphasis on inclusivity;
- Aligning funding instruments with RIS3 domains through participatory mechanisms;
- Expanding international engagement and peer learning to accelerate systemic transformation.

Each action is designed to deliver measurable outputs, mapped to SustainX Work Package 1 Key Performance Indicators (KPIs), ensuring both operational discipline and strategic flexibility.

Key Priorities Embedded in the Roadmap

- SME Innovation Scaling through vouchers, mentoring, and commercialization support;
- RIS3 Alignment of regional funding instruments based on participatory review processes;
- Green and Digital Skills Development through modular, accessible training programs;
- Real-time Innovation Monitoring using a dynamic RIS3 Dashboard;
- Interregional Collaboration by building bridges across EU innovation ecosystems.

Timeframe and Strategic Milestones

Timeframe	Strategic Milestone	Key Actions / Outputs	Lead Actors	SustainX KPIs*
Q2 2025	Governance Activation	Activate RIS3 Steering Group and M&E Taskforce; clarify stakeholder roles and reporting schedules	ACIISI, Regional Councils, RIS3 Coordination Unit	KPI1, KPI3
Q2–Q4 2025	Inter-Island Innovation Platforms	Operationalize 3 cross-sector RIS3 platforms (Tourism, Blue Economy, Health); launch joint pilot projects	Santa Cruz Sostenible, ULL, EEN Canary Islands	KPI2.1–2.3
Q3 2025 – Q1 2026	Capacity Building and Training	Train 100+ SMEs and intermediaries on RIS3 priorities, innovation management, and EU project participation	ACIISI, DIHs, Chambers of Commerce	KPI3.1–3.3, KPI5.1
Q3 2025 – Q4 2026	SME Innovation Scaling Support	Deliver innovation vouchers, mentoring, and access to testbeds for 30 SMEs; deploy 20+ market-ready innovations	ACIISI, Clusters, Chambers	KPI1.1–1.3
Q3 2025 – Q2 2026	Policy Alignment & Dashboard Launch	Adapt regional funding schemes; launch a live RIS3 Dashboard integrating foresight capabilities	RIS3 Monitoring Unit, ULL, Regional Statistical Services	KPI3.3, KPI6
Q4 2025 – Q4 2026	EU Integration and Peer Learning	Organise 2 regional peer exchanges, 3 consortium-building labs; initiate 5+ cross-border collaborations	EEN Canary Islands, ARC Fund, Santa Cruz Sostenible	KPI4.1–4.3
Q4 2025 – Q4 2026	Green and Digital Skills Upskilling	Upskill 150 individuals (balanced by island and gender) in AI, marine energy, circular economy, and innovation leadership	ULL, VET Centres, Education Agency	KPI5.1–5.3

Q4 2026	Sustainability and Legacy Actions	Conduct final evaluation; compile toolkits, dashboards, and best practices for transfer across EU outermost regions	ACIISI, ARC Fund, Santa Cruz Sostenible	KPI6

Implementation Guidance

1. Governance and Coordination

- Establish a cross-functional RIS3 Steering Group chaired by ACIISI and composed of representatives from ULL, clusters, innovation hubs, regional councils, and sectoral associations.
- Activate the M&E Taskforce responsible for KPI monitoring, adaptive management recommendations, and quarterly reporting.

2. Modular Work Package Development

Each roadmap milestone will be implemented through clearly defined work packages, including:

- Specific tasks and outputs,
- Allocated responsibilities and budgets,
- Aligned funding instruments (ERDF, Horizon Europe, Interreg MAC, Digital Europe).

3. Digital Monitoring Tools

- RIS3 Innovation Dashboard will function as the main tool for KPI visualization, foresight integration, and stakeholder transparency.
- Shared Gantt charts, project tracking sheets, and real-time status dashboards will ensure collaborative implementation and cross-stakeholder visibility.

4. Interregional Learning and Peer Exchange

SustainX-facilitated peer learning activities will include:

- Bilateral site visits,
- Co-creation of project proposals,
- Dissemination of templates, dashboards, and toolkits through SustainX and EU platforms.

5. Adaptive Management and Annual Reviews

An Annual Roadmap Review will be held each Q4, coordinated by the RIS3 Steering Group and the M&E Taskforce.

Activities will include:

- KPI and milestone assessment,
- Stakeholder feedback integration,
- Adjustment of timelines and resource allocations where needed.
- Continuous learning will be supported through quarterly updates and targeted reflection sessions.

This roadmap positions the Canary Islands to act not only as a regional leader in green and digital transformation but also as a strategic connector in Europe's innovation space—demonstrating how outermost regions can thrive through targeted, collaborative, and evidence-based innovation policy implementation.

***SustainX Key Performance Indicators (KPIs)**

KPI1: Number of SMEs supported through innovation scaling programs.

KPI1.1: Number of innovation vouchers distributed to SMEs.

KPI1.2: Number of SMEs receiving mentoring support.

KPI1.3: Number of SMEs accessing testbeds or pilot facilities.

KPI2.1: Number of cross-sectoral RIS3 platforms operationalized.

KPI2.2: Number of joint pilot projects launched through these platforms.

KPI2.3: Level of stakeholder engagement in cross-sectoral platforms.

KPI3: Number of regional funding instruments aligned with RIS3 priorities.

KPI3.1: Number of SMEs and intermediaries trained on RIS3 priorities.

KPI3.2: Number of innovation management training sessions conducted.

KPI3.3: Number of EU project participation workshops held.

KPI4.1: Number of regional peer exchanges organized.

KPI4.2: Number of consortium-building labs conducted.

KPI4.3: Number of cross-border collaborations initiated.

KPI5.1: Number of individuals upskilled in green and digital skills.

KPI5.2: Number of training programs developed for green and digital skills.

KPI5.3: Level of satisfaction among participants in upskilling programs.

KPI6: Number of policy instruments adapted based on M&E findings.

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ACTION PLAN – THESSALY, GREECE

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EXECUTIVE SUMMARY

The SustainX Regional Action Plan for Thessaly, Greece, is developed to enhance the regional innovation ecosystem's capacity for green and digital transitions. Anchored in the national and regional Smart Specialisation Strategy (RIS3) for 2021–2027 and the overarching goals of the SustainX project, this action plan reflects the ambitions of Thessaly to strengthen its innovation performance and socio-economic resilience.

Thessaly, a dynamic region with a strong agri-food base, strategic positioning in central Greece, and emerging capabilities in circular economy and industrial innovation, faces a critical need to diversify and modernize its economic base. This Action Plan sets a clear roadmap for fostering inclusive, sustainable, and innovation-driven growth by addressing structural gaps and mobilizing local assets through cross-sector collaboration.

IDENTIFIED CHALLENGES IN THESSALY'S INNOVATION ECOSYSTEM

Drawing from stakeholder consultations, national assessments (GSRI), and RIS3 regional diagnostics, the following systemic challenges were identified in Thessaly:

- **Underutilization of R&D and innovation infrastructure:**

While Thessaly hosts strong universities and research institutes (e.g. University of Thessaly), their connection with SMEs and regional industries remains limited, impeding the commercialization of research and innovation outputs.

- **Fragmented stakeholder collaboration:**

There is weak integration among key innovation actors—academic institutions, regional authorities, businesses, and civil society—hindering co-creation and reducing the impact of innovation interventions.

- **Skills mismatch and limited entrepreneurial capacity:**

The regional workforce lacks the advanced digital and sustainability-related skills required by emerging sectors such as circular bioeconomy, industrial materials, and smart farming.

- **Weak uptake of digital solutions by SMEs:**

SMEs in traditional sectors, especially agriculture and manufacturing, face difficulty adopting digital technologies due to financial barriers, low digital literacy, and insufficient advisory support.

- **Low alignment between RIS3 implementation and local needs:**

Stakeholders report limited awareness of RIS3 priorities and difficulty accessing funding instruments aligned with their strategic focus areas.

STRENGTHS OF THE THESSALY INNOVATION ECOSYSTEM

Despite these gaps, Thessaly offers significant assets for transformation:

- **Strategic focus on agri-food and circular economy:**

The region's RIS3 prioritizes sustainable agri-food value chains, waste valorization, and water resource management—areas with strong research and SME presence.

- **High potential in industrial materials and ICT:**

Thessaly is home to specialized research in advanced materials and has growing capabilities in smart sensors, photonics, and ICT applications for health and industry.

- **Strong academic and applied research base:**

Institutions such as the University of Thessaly and the Institute of Bio-Economy and Agri-Technology (iBO) of CERTH provide a solid foundation for knowledge-intensive innovation.

- **Active participation in EU projects:**

Stakeholders are engaged in Interreg, Horizon Europe, and EIT KICs, which offer experience and networks to scale up regional innovations and foster cross-border collaboration.

STRATEGIC FOCUS AREAS

To address the identified challenges and leverage regional strengths, the Thessaly Action Plan will focus on:

- **Bridging research and industry through innovation platforms:**

Establishing and scaling co-creation spaces and living labs in bioeconomy, agri-tech, and advanced materials that bring together researchers, SMEs, and citizens.

- **Supporting digital transformation of SMEs:**

Launching targeted support schemes, advisory services, and demonstration actions to foster SME uptake of AI, IoT, robotics, and data-driven solutions in priority sectors.

- **Building skills for twin transitions:**

Developing regional upskilling initiatives in sustainability, smart specialization domains, and digital innovation aligned with RIS3 and Horizon Europe opportunities.

- **Enhancing funding alignment and policy coordination:**

Streamlining regional funding access, aligning support measures with RIS3 sectors, and enabling integrated governance between the Region of Thessaly and national innovation bodies (GSRI, EETT).

ALIGNMENT WITH THESSALY RIS3 PRIORITIES

The SustainX Thessaly Action Plan directly supports the region's Smart Specialisation priorities:

1. **Agri-food and Bioeconomy** – advancing precision agriculture, food innovation, and circular farming models.
2. **Health and Pharmaceuticals** – integrating smart health services, biotechnology, and med-tech into regional value chains.
3. **Advanced Materials and Industrial Processes** – focusing on lightweight composites, coatings, and smart sensors.
4. **ICT and Digital Transformation** – fostering digital platforms, AI integration, and cybersecurity for SMEs.
5. **Environment and Sustainable Resource Management** – promoting eco-innovation in water, waste, and energy systems.

By enabling targeted interventions and fostering cross-sectoral synergies, this Action Plan sets the foundation for a more innovative, sustainable, and inclusive Thessaly—contributing meaningfully to the SustainX pan-European mission of transforming regional ecosystems for sustainability.

METHODOLOGY

The development of the Thessaly Regional Action Plan under the SustainX project followed a structured, evidence-based, and participatory methodology designed to reflect regional innovation dynamics, stakeholder needs, and Smart Specialisation Strategy (RIS3) priorities. Combining desk research, stakeholder engagement, survey-based analysis, and alignment with both national and EU policy frameworks, this approach ensured that the Action Plan would offer targeted, realistic, and scalable solutions in support of Thessaly's twin green and digital transitions.

1. Desk Research

The process commenced with a comprehensive desk review of regional and national-level strategies, policy frameworks, and analytical assessments, including:

- **Greece's National Smart Specialisation Strategy (RIS3) and Regional RIS3 for Thessaly (2021–2027)** – to define the key priority domains for Thessaly, such as agri-food innovation, advanced materials, health and pharmaceuticals, and ICT;

- **National Recovery and Resilience Plan and National Energy and Climate Plan (NECP)** – to understand the policy landscape on digitalisation and sustainability at the macro level;
- **EU policy frameworks**, including the European Green Deal, Digital Europe Programme, Horizon Europe, and the Cohesion Policy – to ensure strategic alignment and policy coherence;
- **Reports from the General Secretariat for Research and Innovation (GSRI)** and **EDP optimization analysis** – for insights into governance structures, monitoring gaps, and RIS3 implementation needs.

This phase established a baseline understanding of Thessaly's innovation ecosystem strengths, sectoral focus areas, and challenges, such as low engagement of SMEs in research-commercialization chains and weak quadruple helix interaction.

2. Stakeholder & Competence Mapping

To ensure that the Action Plan addressed real-world needs and leveraged ecosystem capacities, a stakeholder and competence mapping exercise was carried out. This included the identification of actors along the quadruple helix:

- **Academic and research institutions** (e.g., University of Thessaly, CERTH/iBO)
- **SMEs, startups, cooperatives**, and emerging innovation-driven enterprises
- **Clusters and business support structures**, such as innovation agencies, chambers of commerce, and development agencies
- **Regional authorities**, municipal governments, and civil society representatives

The survey explored capabilities and needs in:

- Innovation lifecycle and strategy development
- Business model innovation and commercialization support
- Interdisciplinary collaboration and EU project readiness
- Digital skills, sustainability orientation, and readiness for twin transitions

Findings indicated that although most respondents rated their analytical and advisory skills positively, there was a consistent call for enhanced support in EU funding navigation, digital technology transfer, and facilitation of university-industry linkages.

3. Survey Analysis and Needs Assessment

The survey responses were systematically reviewed to identify:

- **Ecosystem strengths** such as academic excellence, involvement in EU projects (e.g., Interreg, Horizon), and emerging bioeconomy and ICT capabilities;

- **Systemic challenges**, including weak SME participation in innovation networks, insufficient commercialization pathways, and low digital adoption in traditional sectors;
- **Support needs** such as training in AI, green technologies, stakeholder engagement mechanisms, and more structured support for interregional collaboration;
- **Priority areas**, as highlighted by stakeholders, included:
    - Smart and sustainable agri-food systems
    - Bio-based and circular economy innovations
    - Advanced materials and industrial processes
    - Digital technologies and smart health
    - Water and waste management for environmental sustainability

Additionally, the mapping revealed demand for stronger governance mechanisms, greater RIS3 ownership among regional actors, and better integration of civil society in innovation planning.

4. Alignment with RIS3 and SustainX Objectives

The proposed actions in the Thessaly Action Plan are explicitly aligned with the **Thessaly RIS3 strategic priorities**, which include:

1. **Agri-food and Bioeconomy**
2. **Health and Pharmaceuticals**
3. **Advanced Materials and Industrial Innovation**
4. **Information and Communication Technologies (ICT)**
5. **Environment, Waste, and Sustainable Resource Use**

Each action is designed to contribute to one or more RIS3 domains, while ensuring alignment with **SustainX WP1 KPIs**, such as region-specific challenge identification (KPI1), SME support and capacity-building (KPI2, KPI5), and stakeholder engagement (KPI3–4).

The methodology also incorporated recommendations from the **GSRT Deliverable 3** on RIS3 governance and monitoring, ensuring that the Plan contributes to stronger interinstitutional coordination, stakeholder alignment, and evidence-informed policymaking.

5. Iterative Refinement and Partner Feedback

Draft versions of the Thessaly Action Plan were shared with **iED** (Institute of Entrepreneurship Development), project coordinator **ARC Fund**, and the broader SustainX consortium for peer feedback. This step allowed for:

- Validation of proposed actions and alignment with similar efforts in other EU regions;

- Integration of best practices, especially related to cluster activation, digital innovation hubs (DIHs), and living labs;
- Refinement of measures for SME scaling, cross-sector collaboration, and talent development.

This iterative and consultative process ensured that the Action Plan reflects both **local needs** and **European strategic orientation**, positioning Thessaly as an active contributor to the SustainX mission of fostering resilient, inclusive, and green regional innovation ecosystems.

PROBLEM DEFINITION

Thessaly, a region with strong academic and agri-food foundations, is at a pivotal stage in advancing its green and digital transitions. Despite a well-articulated RIS3 strategy and active participation in national and EU innovation programmes, the region continues to face structural and operational barriers that constrain the potential of its innovation ecosystem. These challenges—identified through stakeholder surveys, competence mapping, and policy analysis—highlight the need for coordinated, capacity-building interventions in line with SustainX objectives.

SYSTEMIC BARRIERS TO SCALING INNOVATIONS AND COMMERCIALIZATION

A recurring issue in Thessaly's innovation landscape is the difficulty that SMEs face in moving from early-stage innovation to market-ready solutions. While pockets of excellence exist in agri-tech, digital tools, advanced materials, and sustainable energy systems, the pathway from R&D to commercialization is underdeveloped. Key bottlenecks include:

- **Limited financial instruments tailored to SME growth and internationalization**, especially in the deep-tech and green transition domains;
- **Gaps in pilot-scale infrastructure, testing environments, and product certification**, which restrict go-to-market readiness;
- **Low SME engagement in cross-border innovation networks**, limiting exposure to new markets and technologies.

These constraints reduce the return on public and private R&D investment and slow down the deployment of innovative solutions aligned with Thessaly's RIS3 focus areas.

FRAGMENTED INNOVATION ECOSYSTEM AND COLLABORATION GAPS

Although Thessaly hosts key research actors and has a growing number of innovation-driven SMEs, its ecosystem suffers from fragmentation and lack of systemic collaboration. According to stakeholder input and strategic analysis:

- **University-industry cooperation remains ad hoc**, lacking permanent platforms for co-creation and joint experimentation;

- **Innovation intermediaries (e.g., DIHs, clusters) are underutilized or disconnected**, reducing knowledge circulation and synergy;
- **Local and regional authorities are not fully integrated into innovation governance**, leading to misaligned policy implementation and missed coordination opportunities.

This fragmented landscape limits the region's ability to generate complex, cross-sectoral innovations and reduce time-to-impact for RIS3 priorities.

SKILLS MISMATCHES AND TALENT DRAIN

The human capital base of Thessaly presents both a strength and a vulnerability. While the region has a strong university and vocational training presence, there are significant challenges in aligning educational output with emerging innovation demands. Stakeholder feedback points to:

- **Skills shortages in ICT, bioeconomy, and smart manufacturing sectors**, which are strategic to the region's RIS3 domains;
- **Migration of young graduates and skilled professionals** to urban centers or abroad, weakening the regional innovation workforce;
- **Insufficient access to continuous upskilling and digital training**, particularly among SMEs and mid-career professionals.

These issues undermine the absorption and deployment of advanced technologies and reduce the capacity of SMEs to engage in innovation.

LIMITED INTEGRATION WITH EUROPEAN INNOVATION ECOSYSTEMS

Although Thessaly participates in several EU-funded projects (e.g., Interreg MED, Horizon Europe, EIT), long-term strategic positioning within European innovation networks remains weak. Identified gaps include:

- **Limited institutional support for matchmaking, technology scouting, and joint ventures**, particularly for smaller companies and startups;
- **Low awareness of or capability to navigate EU project frameworks**, especially beyond initial pilot participation;
- **Underrepresentation in transnational platforms**, which restricts access to best practices, funding mechanisms, and pan-European value chains.

This limits Thessaly's ability to function as a regional innovation node with outward-facing impact and collaboration.

POLICY AND IMPLEMENTATION MISALIGNMENTS WITH RIS3

Despite the presence of a robust RIS3 framework, implementation at the regional level is uneven and often perceived as detached from the needs of SMEs and research actors. According to policy and stakeholder analysis:

- **Support instruments lack timely deployment**, with delays in RIS3-driven calls and insufficient communication of opportunities;
- **Bureaucratic procedures and regulatory ambiguities** create disincentives for innovation-oriented SMEs;
- **Legal and strategic uncertainty** in domains like agri-biotech, digital health, and circular economy slow down experimentation and scaling.

Such misalignments reduce the trust of ecosystem actors in policy instruments and hinder the region's capacity to attract and retain innovation activity.

CROSS-CUTTING OBSERVATIONS AND RELEVANCE TO SUSTAINX

These challenges are interconnected—skills shortages exacerbate weak commercialization, while ecosystem fragmentation limits the effectiveness of policy instruments. SustainX provides a timely and structured mechanism to address these systemic issues by:

- **Offering a KPI-based action framework** that enables tailored interventions at the intersection of green and digital innovation;
- **Bridging regional challenges with European-level strategies**, including the Green Deal, Digital Europe Programme, and Horizon Missions;
- **Promoting transnational cooperation and knowledge transfer**, helping Thessaly evolve from a peripheral actor into a more integrated innovation region.

The next sections of the Action Plan will outline strategic priorities and concrete actions to tackle these barriers and unlock Thessaly's potential for inclusive, RIS3-aligned, and sustainable innovation.

STRATEGIC ALIGNMENT

The SustainX Action Plan for **Thessaly, Greece** is strategically anchored in the region's vision for sustainable, inclusive, and innovation-driven growth. It strengthens the operational capacity of Thessaly's Smart Specialisation Strategy (RIS3) and acts as a mechanism to localize EU-level policy goals through context-sensitive interventions. This Action Plan aligns with national frameworks, contributes to European missions, and supports transnational collaboration, fulfilling the broader ambitions of the SustainX project to empower regional ecosystems across Europe.

ALIGNMENT WITH THESSALY'S SMART SPECIALISATION STRATEGY (RIS3)

Thessaly's RIS3 identifies five key priority domains, designed to accelerate structural transformation through innovation. The SustainX Action Plan for Thessaly is fully aligned

with these domains and proposes measures to address identified capability gaps, strengthen ecosystem cohesion, and scale regional impact:

1. Agri-Food and Bioeconomy

The Action Plan promotes the transition from traditional to **sustainable, digital, and circular agri-food systems**, through:

- Smart agriculture, precision farming, and climate-resilient practices;
- Bio-based innovation in food processing and waste valorization;
- Strengthened links between research institutions and agricultural SMEs.

2. Health and Pharmaceuticals

To improve regional capacities in health innovation, the Plan supports:

- Development and uptake of **digital health technologies** and smart care solutions;
- University-industry cooperation in **biotechnology, diagnostics, and e-health**;
- Localized participation in **Horizon Europe Cluster 1** activities.

3. Advanced Materials and Industrial Innovation

Actions in this domain seek to enhance the regional industrial base by:

- Supporting R&D in **lightweight materials, coatings, and industrial biotechnology**;
- Facilitating innovation partnerships between manufacturers and research centers;
- Enabling commercialization of smart materials aligned with EU value chains.

4. Information and Communication Technologies (ICT)

To accelerate digital transformation across sectors, the Plan focuses on:

- **AI, cloud, IoT, and data analytics adoption** by SMEs;
- Development of **digital platforms** and services for public and private sectors;
- Tailored support for ICT startups and digital talent retention in Thessaly.

5. Environment, Water, Waste, and Resource Efficiency

The Plan supports the green transition through:

- Deployment of **circular economy models**, especially in agriculture and industry;
- Pilot initiatives in **smart water management and waste recycling**;
- Training and awareness-raising on eco-innovation practices.

LINK TO NATIONAL STRATEGIC FRAMEWORKS

The Thessaly Action Plan is embedded in national priorities for sustainability and digitalisation. It contributes to:

- **Greece's National RIS3 Strategy 2021–2027**: Operationalizing smart specialization with a regional lens;
- **National Recovery and Resilience Plan (Greece 2.0)**: Promoting digital and green investments;
- **National Energy and Climate Plan (NECP)**: Advancing decarbonisation and sustainable resource use;
- **Digital Transformation Bible 2020–2025**: Supporting SME digital readiness and public service transformation.

CONTRIBUTION TO EU-LEVEL POLICY OBJECTIVES

The SustainX Action Plan for Thessaly also supports several major EU policy initiatives:

- **European Green Deal**: By investing in agri-bioeconomy, circular solutions, and clean energy, the Plan aligns with EU climate neutrality objectives.
- **Digital Decade Strategy**: Actions promoting digital skills, SME tech adoption, and connectivity directly contribute to the 2030 digital targets.
- **Horizon Europe Missions and Partnerships**: The Plan stimulates local participation in Clusters 4 (Digital, Industry) and 6 (Food, Bioeconomy, Natural Resources).
- **New European Innovation Agenda**: The Plan supports deep-tech scaling, inclusive innovation, and startup growth within RIS3 sectors.

SYNERGY WITH SUSTAINX PROJECT OBJECTIVES

The Thessaly Action Plan operationalizes the SustainX mission by driving regional transformation through systemic innovation support. It contributes to:

- **KPI1**: Identification of ecosystem-specific challenges such as SME scaling limitations, weak inter-institutional coordination, and skills mismatches;
- **KPI2**: Co-development of RIS3-based actions targeting the agri-food, materials, and ICT sectors;
- **KPI3**: Multi-actor governance and the creation of co-creation spaces like Living Labs and Digital Innovation Hubs;
- **KPI4**: Strengthened participation in European cooperation frameworks and increased EU funding absorption capacity;
- **KPI5**: Peer-learning processes through exchange with other EU regions, focusing on innovation governance and SME support.

Moreover, the Thessaly Action Plan integrates **SustainX's guiding principles**—mission orientation, inclusiveness, and scalability—by fostering ecosystems that reduce barriers for local SMEs, align public-private investments, and promote long-term collaboration between academia, industry, and civil society.

STAKEHOLDER INVOLVEMENT

The development of the **SustainX Action Plan for Thessaly, Greece** has been grounded in a participatory, inclusive process following the **quadruple helix model** and **co-creation principles** central to the SustainX approach. Stakeholders across the public sector, research and academia, industry, and civil society were actively involved in shaping the Action Plan—from identifying key challenges to validating strategic priorities and defining implementation roles. The participatory process actively leveraged existing structures such as JOIST Innovation Park in Larissa, home to regional innovation clusters and testbed infrastructure.

METHODOLOGY OF ENGAGEMENT

Stakeholder involvement in Thessaly followed a three-phase structure:

1. Stakeholder Identification and Mapping

A stakeholder mapping exercise was conducted to capture the key actors across Thessaly's innovation ecosystem, aligned with the region's RIS3 domains and the thematic focus areas of SustainX. Stakeholders were categorized into:

- **Regional government authorities and public innovation agencies** (e.g., Region of Thessaly, GSRI contact points)
- **Universities and research centres**, especially the **University of Thessaly** and regional hubs of **CERTH/iBO**
- **SMEs, startups**, and technology-based enterprises across agri-food, ICT, materials, and bioeconomy sectors
- **Cluster organisations**, chambers of commerce, and business support networks (e.g., Enterprise Europe Network – iED)
- **Civil society and community-based organisations**, particularly those supporting sustainability and youth engagement
- In addition, the stakeholder group included a European Digital Innovation Hub (EDIH): the Health Hub coordinated by iED, which operates from JOIST Innovation Park. This hub bring sectoral specialization in healthcare innovation and digital public services, respectively, and represent critical intermediaries for Thessaly's digital transformation goals.

2. Competence Survey and Needs Assessment

Stakeholders were invited to participate in a structured **SustainX survey**, which assessed:

- Their **capacities in innovation strategy, EU programme involvement, and digital/green transitions**;
- **Knowledge and application** of RIS3 priorities;
- The **barriers SMEs face** in accessing support, funding, and testbed infrastructure;
- **Training and capability-building needs**, particularly in sustainability-oriented innovation and digital adoption.

The survey responses were cross-referenced with previous regional studies and strategic evaluations (e.g., GSRT's EDP and governance reports) to ensure triangulation of findings. Results highlighted persistent barriers in SME access to EU innovation programmes, a lack of brokerage mechanisms, and gaps in technology transfer from regional universities.

3. Collaborative Input and Feedback Loops

Findings were discussed and refined through:

- **Bilateral discussions with key stakeholders**, including academic representatives and local SMEs;
- **Workshops and informal feedback mechanisms** with innovation intermediaries (e.g., iED, DIZ);
- Insights gained from participation in previous and ongoing EU projects (e.g., Interreg MED, Horizon Europe partnerships) involving Thessaly-based partners.

This approach enabled alignment between stakeholder input, RIS3 focus areas, and the proposed actions within the Action Plan.

KEY STAKEHOLDERS ENGAGED

The following stakeholder groups provided substantial input and validation for the Thessaly Action Plan:

1. **Research and Academia**

Institutions like the **University of Thessaly** and **CERTH/iBO** contributed insights into:

- Regional R&D capacity and infrastructure gaps;
- Priority innovation domains (e.g., agri-tech, bioeconomy, smart materials);
- Strategies for enhancing research-industry collaboration.

University representatives identified the lack of a structured technology transfer office (TTO) as a barrier to commercialising research outputs, particularly in agri-biotech and environmental monitoring.

2. **SMEs and Startups**

Representatives from technology-oriented SMEs across Thessaly provided first-hand perspectives on:

- **Barriers to scaling and commercialization**;
- Difficulties in accessing EU funding and testbed environments;
- The need for **practical support in digital transformation** and **green innovation**.

3. **Business Support and Innovation Agencies**

Actors such as **iED** (Institute of Entrepreneurship Development) and EEN Thessaly played a vital role in:

- Identifying ecosystem-wide challenges and capability gaps;
- Proposing actions for **capacity building**, **technology transfer**, and RIS3 alignment;
- Facilitating engagement between public bodies and private innovators.

iED proposed integrating EDIH tools such as digital maturity assessments and test-before-invest schemes into pilot actions.

4. **Clusters and Industry Associations**

Emerging clusters in **bioeconomy**, **environmental technologies**, and **advanced materials** helped:

- Identify market and technology trends;
- Define the requirements for regional **collaborative platforms** and **pilot schemes**;
- Support **EU-level positioning** for local SMEs.

5. **Government and Regional Authorities**

Policy actors from the **Region of Thessaly**, including representatives involved in RIS3 implementation and ERDF management, ensured that:

- The Action Plan is aligned with **policy priorities and operational realities**;
- Interventions complement ongoing programmes (e.g., RIS, NECP, Greece 2.0);
- **Public-private coordination mechanisms** are strengthened.

KEY INSIGHTS FROM STAKEHOLDER CONSULTATIONS

Stakeholder dialogue and survey responses highlighted the following themes:

- **Strong appetite for collaboration**, but lack of stable platforms or facilitation structures (e.g., innovation hubs, living labs);
- **Competency gaps in innovation commercialization**, EU funding, and digital upskilling;

- Need for **integrated governance**, bridging policy design and SME support at both regional and national levels;
- Limited interconnection between Thessaly and **EU innovation ecosystems**, despite participation in some funded projects;
- **High demand for targeted training**, matchmaking tools, and RIS3-coherent support services.

Stakeholders also emphasized the need for a regional one-stop-shop service to simplify access to funding, pilot opportunities, and advisory services, particularly for rural and early-stage SMEs. Stakeholders emphasized the importance of **building institutional capacity**, **simplifying access to public funding**, and **fostering interregional learning** opportunities.

ROLE OF STAKEHOLDERS IN ACTION PLAN IMPLEMENTATION

Stakeholders are not passive recipients but **co-creators and implementers** of the Thessaly Action Plan. Their ongoing roles will include:

- **Co-design and delivery** of training programmes on sustainability, digitalisation, and innovation management;
- **Active participation in regional innovation taskforces**, clusters, and co-creation formats;
- **Pilot testing of SustainX methodologies and tools**, including ecosystem diagnostics and matchmaking platforms;
- **Feedback provision for policy learning and monitoring**, strengthening RIS3 delivery and refining support mechanisms over time.

The Action Plan will institutionalize stakeholder engagement through mechanisms such as:

- **Living Labs in priority domains** (e.g., bioeconomy/agri-tech);
- **Regional working groups** involving SMEs, policymakers, and researchers;
- **Thematic policy roundtables**, focusing on funding alignment, digital uptake, and sustainability transitions.

These pathways aim to ensure **inclusive ownership**, foster continuous learning, and embed long-term collaboration practices within Thessaly's regional innovation ecosystem.

SMART OBJECTIVES - THESSALY, GREECE

The **SustainX Action Plan for Thessaly** outlines a results-oriented framework of **SMART (Specific, Measurable, Achievable, Relevant, Time-bound)** objectives designed to catalyze RIS3 implementation, accelerate the region's digital and green transition, and enhance innovation system coordination. These objectives reflect stakeholder-identified

challenges and are structured to address ecosystem gaps, boost SME capabilities, and embed Thessaly more firmly in the European Innovation Area. The objectives are fully aligned with assets such as the EDIH Health Hub's test-before-invest capabilities, JOIST's cluster infrastructure, and iED's access to EU-wide innovation networks, which enable immediate operationalization.

Each objective supports the **SustainX WP1 Key Performance Indicators (KPIs)** and responds to key findings from Thessaly's competence mapping, EDP governance assessments, and strategic priorities defined in the **Regional RIS3 2021–2027**.

OBJECTIVE 1: SUPPORT 30 THESSALIAN SMES TO SCALE SUSTAINABLE AND DIGITAL INNOVATIONS

Specific: Provide tailored support (training, mentoring, EU funding readiness, testing environments) to at least 30 SMEs by 2026 to progress from early-stage innovation to commercial deployment in key RIS3 sectors (agri-food, ICT, advanced materials, bioeconomy).

Measurable: Monitored through SME enrolment, product/service commercialization, and EU programme participation.

Achievable: Builds on assets like iED (EEN node), University of Thessaly, CERTH/iBO, and regional clusters.

Relevant: Responds to scaling challenges and commercialization barriers cited by SMEs in Thessaly.

Time-bound: 2024–2026

OBJECTIVE 2: ACTIVATE 3 CROSS-SECTORAL INNOVATION PLATFORMS IN THESSALY'S RIS3 DOMAINS

Specific: Establish and operationalize three permanent co-creation spaces or working groups focused on Thessaly's strategic areas (bioeconomy, digital health, circular economy), involving academia, SMEs, public authorities, and community actors.

Measurable: Evaluated through platform activity, stakeholder engagement, and co-created outcomes.

Achievable: Leverages existing informal networks and proposed Living Lab frameworks.

Relevant: Addresses ecosystem fragmentation and lack of RIS3 operational platforms in the region.

Time-bound: 2024–2025

OBJECTIVE 3: IMPROVE RIS3 AWARENESS AND IMPLEMENTATION ACROSS 50 REGIONAL ACTORS

Specific: Develop training programmes and practical toolkits to support 50 SMEs and ecosystem actors in integrating RIS3 logic into funding proposals, innovation strategy, and project design.

Measurable: Based on training reach, toolkit uptake, and S3-aligned innovation projects.

Achievable: Builds on GSRI tools, existing regional RIS3 training materials, and SustainX methodology.

Relevant: Responds to weak RIS3 understanding and misalignment between support instruments and SME needs.

Time-bound: 2024–2026

OBJECTIVE 4: ENHANCE THESSALY'S PARTICIPATION IN EU AND INTERREGIONAL INNOVATION NETWORKS

Specific: Facilitate Thessaly's deeper integration in the European Innovation Area by supporting 5 new cross-border collaborations involving SMEs, clusters, and academia in SustainX-relevant domains. These will be pursued through coordinated applications under Interreg NEXT MED and Horizon Europe Missions, building on iED's recent success in co-leading Erasmus+ and EIC Transition proposals.

Measurable: Measured through EU project engagement, staff exchanges, and shared good practices.

Achievable: Builds on experience with Interreg MED, Horizon, EIT participation and SustainX peer regions.

Relevant: Addresses low participation in EU networks and limited knowledge exchange outside national borders.

Time-bound: 2024–2026

OBJECTIVE 5: TRAIN 100 INDIVIDUALS IN GREEN AND DIGITAL SKILLS FOR INNOVATION

Specific: Deliver demand-driven upskilling and reskilling actions focused on digitalization, AI, circular economy, and innovation management, targeting youth, SME staff, and unemployed professionals.

Measurable: Assessed via number of individuals trained, partner organisations involved, and impact on innovation capability.

Achievable: Implemented through iED, DIH actors, University of Thessaly, and vocational training providers.

Relevant: Directly responds to stakeholder-identified skills mismatch and youth outmigration.

Time-bound: By mid-2026

INTERLINKAGES AND MONITORING

These objectives are interdependent: skills development strengthens SME innovation absorption (Obj. 5 → Obj. 1), while activated innovation platforms (Obj. 2) foster RIS3 alignment (Obj. 3) and transnational collaboration (Obj. 4). All activities will be tracked through the **SustainX MEL (Monitoring, Evaluation, and Learning) framework**, with updates shared during partner peer exchanges, regional working groups, and national policy dialogues.

This framework positions **Thessaly** as a proactive, RIS3-driven innovation region—ready to capitalize on EU opportunities, mobilize local assets, and address structural bottlenecks through inclusive, scalable, and future-proof actions.

SWOT ANALYSIS – THESSALY, GREECE

This **SWOT analysis** provides a structured diagnostic of **Thessaly's regional innovation ecosystem**, informed by desk research, regional policy documents, the SustainX stakeholder survey, and input from key ecosystem actors. It frames internal capabilities and constraints (Strengths and Weaknesses) alongside external enabling and disruptive factors (Opportunities and Threats), supporting the strategic design and implementation of the **SustainX Action Plan**.

Strengths	Weaknesses
✓ Strong academic base in innovation-relevant fields through the **University of Thessaly**, **CERTH/iBO**, and regional research institutes. ✓ Clearly articulated RIS3 domains focused on **agri-food, bioeconomy, health, advanced materials, ICT, and sustainability**. ✓ Participation in EU-funded projects (Interreg MED, Horizon Europe, EIT) and regional experience in managing cross-border initiatives. ✓ Presence of intermediaries (e.g., **iED**, EEN node, regional development agencies) supporting innovation outreach. ✓ Natural assets and strong regional identity enable innovation in **sustainable agri-food**, water management, and eco-tourism.	▪ **Fragmented collaboration** among public bodies, research, and business actors—lack of operational innovation governance structures. ▪ **Weak commercialization capacity** among SMEs—low use of testbeds, limited access to prototyping and validation services. ▪ **Limited SME awareness of RIS3 priorities** and misalignment between public funding instruments and innovation needs. ▪ **Skills mismatch**, especially in digital technologies, green innovation, and smart manufacturing. Youth outmigration further reduces the innovation talent pool. ▪ Low SME participation in EU networks and innovation clusters; limited interregional knowledge transfer mechanisms. ▪ RIS3 implementation remains under-institutionalized; weak monitoring,

✓ Growing regional focus on **circular economy and digitalization** as policy priorities.	feedback loops, and policy learning mechanisms.
Opportunities	**Threats**
○ **Leverage the SustainX platform** to align local innovation efforts with EU-level missions and increase Thessaly's visibility in the European Innovation Area. ○ **Boost SME participation in Horizon Europe, Interreg NEXT MED, and Digital Europe** through support structures and project coaching. ○ Mobilize emerging EU priorities (Green Deal, Digital Decade, CAP reform) to support **bioeconomy pilots, AI/IoT for farming, and green manufacturing**. ○ Expand capacity-building for **digital and green skills** through collaboration with DIHs, VET centers, and universities. ○ Use RIS3 as a catalyst for creating **co-creation platforms**, regional innovation labs, and circular economy demonstrators. Develop Living Labs and ecosystem-based governance in collaboration with quadruple helix actors.	❖ **Brain drain and demographic decline**, particularly in rural municipalities, further weaken the regional innovation workforce. ❖ **Regulatory and funding complexity** discourages SME engagement in RIS3-aligned innovation or green transition projects. ❖ **Vulnerability to climate change impacts** (e.g., floods, droughts) threatens key RIS3 sectors like agriculture and tourism. ❖ **Dependence on time-limited project funding** with limited long-term innovation investment planning. ❖ **Innovation fatigue** among small firms due to low ROI from past projects and weak innovation absorption capacity. **Fragmented monitoring of RIS3 outcomes**, limiting evidence-based policymaking and public-private trust.

KEY INSIGHTS FROM THE SWOT ANALYSIS

- **Strong sectoral potential, underutilized ecosystem capacity**: Thessaly has institutional strengths and natural advantages in bioeconomy, health, and agri-food innovation. However, the commercialization and collaboration structures required to unlock this potential are not yet fully operational.
- **RIS3 priorities are well-structured but poorly communicated and executed**: While the regional RIS3 strategy identifies relevant growth areas, many SMEs and ecosystem actors are unaware of how to align with it or benefit from related instruments.
- **External policy and funding landscapes offer transformative opportunities**: EU initiatives such as the Green Deal and Digital Europe offer a unique chance for Thessaly to scale sustainability-driven innovation—if regional actors can navigate and access these frameworks effectively.

- **Risks are interconnected and require coordinated responses**: Skills shortages, regulatory fragmentation, and limited co-investment in innovation support infrastructure must be addressed through joined-up governance and ecosystem strengthening.

IMPLICATIONS FOR SUSTAINX AND ACTION PLAN IMPLEMENTATION

The SWOT confirms that Thessaly's innovation system requires a **mission-oriented, place-based strategy** that targets specific weaknesses while building on regional strengths and EU-level momentum. SustainX provides the framework to deliver this through:

- Support for **scaling SME innovation** and enhancing EU funding readiness;
- Establishing **horizontal governance and multi-actor coordination platforms** aligned with RIS3;
- Addressing **skills shortages** via tailored upskilling and talent retention programmes;
- Fostering Thessaly's integration into **European innovation ecosystems** through peer learning and interregional collaboration;
- Promoting co-investment in infrastructure, demonstrators, and **pilot actions** that accelerate both green and digital transitions.

This analysis sets the stage for implementing targeted, high-impact actions under the Thessaly Action Plan—ensuring both territorial relevance and European added value in line with the SustainX vision.

ACTION PLAN – THESSALY, GREECE

The **Thessaly Regional Action Plan**, developed under the **SustainX project**, presents a cohesive, flexible set of targeted interventions designed to address systemic gaps, unlock regional innovation potential, and support the twin green and digital transitions.

The actions are built at the **project level**, while carefully incorporating the specific needs and opportunities identified in Thessaly.
They are aligned with **Greece's Smart Specialisation Strategy (S3)**, **Thessaly's Regional Innovation Strategy**, and broader EU frameworks such as the European Green Deal, the Digital Decade Strategy, and Horizon Europe Missions.

In line with SustainX principles of **place-based transformation** and **modular implementation**, this Action Plan emphasizes **capacity building**, **ecosystem coordination**, **SME scaling support**, and **interregional cooperation**.

As the project progresses, these actions may be further **refined and expanded**, integrating emerging priorities, national policy adjustments, and interregional synergies across the SustainX network.

ACTION 1: FOSTER MULTI-ACTOR INNOVATION COLLABORATION SERVICES AND ROADMAPS

Objective:
Enable structured, mission-oriented collaboration across Thessaly's innovation ecosystem aligned with RIS3 priority sectors.

Description:
Develop modular, activity-based collaboration services across key RIS3 domains — Agri-food and Bioeconomy, Health and Wellbeing, and Digital Transformation.
Each thematic service will support light, flexible cooperation among SMEs, clusters (e.g., AgroBioCluster), JOIST Innovation Park, universities, Living Labs, and public bodies.

Key elements:

Co-creation events, pilot labs, and matchmaking workshops,

Development of short-term strategic roadmaps (18–24 months),

Focus on practical collaboration, not heavy institutional structures.

Timing: Q3 2025 – Q4 2026

Involved Actors:
Project partners; AgroBioCluster; JOIST Innovation Park; University of Thessaly; Regional Development Fund of Thessaly; RIS3 stakeholders.

Expected Outcomes:

Launch of 3 cooperation services,

Initial collaborative projects supported (target: 3–5),

Increased cross-sector engagement and trust-building.

ACTION 2: STRENGTHEN SME CAPACITIES THROUGH MODULAR RIS3 TRAINING AND RECOGNITION

Objective:
Enhance the ability of SMEs and intermediaries to align innovation strategies with RIS3 priorities and access EU opportunities.

Description:
Deliver modular training covering:

Smart Specialisation principles and funding navigation,

Digital and green transition pathways,

EU project preparation (Horizon Europe, Interreg).

Participants completing modules will receive:

Non-formal digital badges under SustainX,

Certificates recognizing innovation-relevant skills and knowledge.

Timing: Q4 2025 – Q2 2026

Involved Actors:
Project partners; University of Thessaly; JOIST Innovation Park; Regional Innovation Support Offices; VET providers.

Expected Outcomes:

80–100 individuals trained,

Dissemination of RIS3 toolkits and self-assessment templates,

Increased SME engagement with S3 logic and EU programmes.

ACTION 3: SUPPORT SME SCALING, POLICY DIALOGUE, AND INTERREGIONAL COLLABORATION

Objective:
Promote SME innovation scaling, improved policy alignment, and strengthened cross-border collaboration.

Description:
This consolidated action integrates:

- Mentoring services for SME scaling and validation,
- Dialogue workshops between SMEs, clusters, and public authorities to enhance RIS3 funding alignment,
- Peer learning exchanges with other SustainX regions and European innovation ecosystems.

Timing: Q1 2025 – Q4 2026

Involved Actors:
Project partners; AgroBioCluster; JOIST Innovation Park; EEN Thessaly; Regional Innovation Council.

Expected Outcomes:

- 20+ SMEs benefiting from mentoring support,
- 2+ RIS3 dialogue workshops held,

- 3–4 interregional peer exchanges delivered.

ACTION 4: DEVELOP A LIGHTWEIGHT RIS3 INNOVATION DASHBOARD

Objective:
Enable real-time, evidence-based monitoring of Thessaly's innovation ecosystem progress.

Description:
Create a simple, shared RIS3 Dashboard (e.g., via Google Sheets, Microsoft 365) tracking key indicators:

- SME scaling activities,
- Skills development achievements,
- Cross-sector collaboration intensity.

This low-barrier tool will ensure transparency, flexibility, and participatory monitoring, without requiring complex IT systems.

Timing: Q1 2025 – Q2 2026

Involved Actors:
Project partners; University of Thessaly; Statistics Authorities; Regional Development Fund of Thessaly.

Expected Outcomes:

- RIS3 Innovation Dashboard operational,
- Key trends visualized quarterly,
- Improved strategic foresight for local policymakers.

ACTION 5: BOOST GREEN AND DIGITAL SKILLS DEVELOPMENT WITH PROJECT-LEVEL RECOGNITION

Objective:
Equip Thessaly's workforce — especially youth and SMEs — with future-ready skills for digital and green transitions.

Description:
Develop modular, practice-oriented training programs on:

- AI, data analytics, and digital entrepreneurship,
- Circular economy, sustainable agri-food systems, and clean energy.

Participants will receive non-formal **digital badges** and micro-certifications under SustainX.

Timing: Q2 2025 – Q4 2026

Involved Actors:
Project partners; University of Thessaly; JOIST Innovation Park; VET Centres; SMEs; Clusters.

Expected Outcomes:

- 100–120 individuals upskilled,
- Skills roadmaps for SMEs introduced,
- Strengthened SME–workforce integration for innovation.

SUMMARY TABLE OF ACTIONS – AT A PROJECT LEVEL

Action	Timeline	Lead Actors	Key Outputs
Innovation Collaboration Platforms	Q3 2025 – Q4 2026	Project partners, AgroBioCluster, JOIST	3 dashboards; 5+ co-created projects
S3-Aligned Capacity Building	Q4 2025 – Q2 2026	Project partners, JOIST, University of Thessaly	100+ trained staff from SMEs/intermediaries
SME Innovation Scaling Scheme	Q1 2025 – Q4 2026	Project partners, AgroBioCluster, EEN Thessaly	30 SMEs scaled; 20 market-ready innovations
RIS3 Policy Alignment	Q3 2025 – Q3 2026	Project partners, University of Thessaly	Revised innovation support tools
Interregional Collaboration	Q4 2025 – Q4 2026	Project partners, JOIST, VET providers	5 cross-border projects; 4 exchanges
RIS3 Innovation Dashboard	Q1 2025 – Q2 2026	Project partners, JOIST	Digital dashboard for ecosystem tracking

IMPLEMENTATION LOGIC

The five actions outlined in the Thessaly Action Plan are designed as an **interconnected and modular framework**, where each contributes to building a stronger, more inclusive and resilient regional innovation ecosystem.

Actions 1 and 3 focus on enabling **structured collaboration** and SME engagement, linking local actors with European peers and funding mechanisms.

Actions 2 and 5 reinforce **capacity-building and skills development**, equipping SMEs, intermediaries, and individuals with tools to navigate RIS3 domains, funding schemes, and transition strategies.

Action 4 supports the ecosystem with **real-time monitoring and strategic foresight**, empowering stakeholders with accessible, data-driven insights for smarter policy design and implementation.

Together, these actions are:

Participatory, involving actors across the quadruple helix through co-creation labs, policy dialogues, and regional training pathways.

Scalable, allowing expansion beyond the project lifecycle and potential replication across other RIS3 regions.

Flexible, offering light, modular services that can evolve in response to ecosystem needs and partner feedback.

This coherent implementation logic supports:

Thessaly's RIS3 operationalisation, particularly in agri-food, health, and digital innovation sectors;

The **SustainX transnational mission**, by fostering knowledge exchange, inclusive governance, and interregional learning;

And long-term **territorial resilience**, by strengthening coordination, future skills, and evidence-based planning.

As the project progresses, this logic will remain adaptive—guided by stakeholder insights, interregional collaboration, and structured Monitoring & Evaluation.

KEY RECOMMENDATIONS

The analysis of Thessaly's regional innovation landscape and stakeholder consultations under the **SustainX project** have highlighted several systemic and operational challenges that must be addressed to realize the region's innovation potential in line with RIS3 objectives and the green and digital transitions. The following recommendations are structured around four strategic pillars and one cross-cutting theme, building on the Thessaly partners' feedback and the five newly defined actions.

1. STRENGTHENING INNOVATION GOVERNANCE AND RIS3 OPERATIONALISATION

- **Activate a RIS3 Steering Taskforce for Thessaly**, including representatives from the Region of Thessaly, the University of Thessaly, GSRI, DIHs, clusters (e.g., AgroBioCluster), and intermediaries such as JOIST and iED, to align implementation,

facilitate co-ownership, and monitor outcomes. A rotating chair model can ensure balanced representation.

- **Operationalize RIS3 domains** through **Living Labs and Innovation Working Groups**, initially focusing on agri-food, health, and digitalisation. Leverage JOIST Innovation Park's infrastructure as a physical anchor for co-creation events and roadmap development.
- **Introduce flexible, low-barrier innovation funding instruments** (e.g., seed vouchers, pilot grants), targeted at green, digital, and circular economy projects, especially in rural and underserved communities.
- **Launch a user-friendly RIS3 Innovation Dashboard**, hosted by the University of Thessaly or a regional knowledge institution, using open tools (e.g., Google Sheets or SharePoint) to track key metrics such as SME participation, innovation project outcomes, and interregional linkages.
- **Contribute to a shared interregional methodology** for capturing innovation potential, in collaboration with Romania and Latvia. A SustainX-supported working group (including Improve) can co-develop tools for improving regional innovation statistics and RIS3 monitoring frameworks.

2. EMPOWERING SMES FOR SCALING AND INTERNATIONALISATION

- Design light-touch SME scaling support schemes, combining digital readiness assessments (via iED), mentoring, and access to testbeds (e.g., Health Hub). Focus on SMEs active in RIS3 domains like bioeconomy, health tech, and digital services.
- Deploy a "RIS3 Readiness Toolkit" for SMEs, enabling them to self-assess innovation maturity, identify gaps, and access curated support services and funding opportunities.
- Establish a one-stop EU Project Facilitation Hub within EEN Thessaly or iED, providing SMEs with matchmaking, proposal preparation, and compliance support for Horizon Europe, Interreg, and Digital Europe.
- Introduce a Thessaly RIS3 Innovation Badge or Label, recognizing SMEs with high-impact, scalable solutions aligned with RIS3 domains. This can be used for branding, policy advocacy, and co-investment mobilization.

3. ENHANCING SKILLS AND TALENT RETENTION IN STRATEGIC DOMAINS

- Develop modular, upskilling pathways in AI, digital health, agri-food innovation, and circular economy, implemented by VET providers, DIHs, and the University of Thessaly. Training should include microcredentials and project-level badges.
- Promote dual education programmes in RIS3 sectors through industry placements, innovation-focused thesis projects, and course co-design.
- Pilot a Thessaly Innovation Talent Mobility Scheme, supporting short-term placements in SMEs, Living Labs, or EU partner regions, helping retain skilled youth and connect them to the local innovation economy.
- Support peer-led Communities of Practice, anchored by JOIST, iED, or the University of Thessaly, focused on topics like sustainable tourism, eHealth, or precision

agriculture. These should link to the broader SustainX network and S3 Thematic Platforms.

4. FOSTERING ECOSYSTEM COLLABORATION AND TRANSNATIONAL ENGAGEMENT

- Scale up regional co-creation platforms, bringing together SMEs, public authorities, academia, and civil society to tackle missions like climate adaptation, green food systems, and digital transition in rural areas.
- Participate actively in interregional partnerships, especially through SustainX exchanges, Interreg calls, and thematic S3 networks (e.g., Agri-Food, Smart Health). Appoint a liaison within the Region of Thessaly to coordinate international outreach and maintain a live pipeline of joint projects.
- Institutionalize Living Labs as long-term innovation spaces, supporting user-driven experimentation and participatory design in RIS3 areas. These labs can also serve as pilot sites for testing the Innovation Dashboard and SME mentoring tools.
- Create a regional European Partnerships Roadmap, highlighting strengths and aligning actors around relevant missions (e.g., soil health, climate-resilient agriculture), leveraging Thessaly's experience in Horizon Europe and EIT initiatives.

CROSS-CUTTING RECOMMENDATION: PROMOTE INCLUSIVE AND SUSTAINABLE INNOVATION

- Integrate social inclusion and sustainability principles across all innovation actions, ensuring accessibility for rural SMEs, women-led businesses, and youth. Partner with local women's networks and social cooperatives for targeted outreach.
- Embed ESG and circular economy criteria into public procurement and regional funding mechanisms, positioning Thessaly as a sustainability-focused innovation region.

Final Reflection

Together, these recommendations provide a practical framework for strengthening Thessaly's RIS3 implementation and transforming the regional innovation ecosystem. They address key barriers such as scaling limitations, skills mismatches, fragmented support, and limited EU integration—while building on Thessaly's vibrant ecosystem of clusters, digital hubs, and engaged institutions.

Aligned with the SustainX project's values of co-creation, inclusiveness, and interregional solidarity, this roadmap positions Thessaly to become a mission-driven, sustainability-focused, and internationally connected innovation region — contributing to both national development priorities and the EU's long-term innovation cohesion agenda.

MONITORING & EVALUATION

The effectiveness and long-term impact of the **SustainX Action Plan for Thessaly** will depend on the deployment of a robust, participatory, and adaptive **Monitoring & Evaluation (M&E)** framework. In line with **SustainX principles**, the M&E system will not only track

implementation progress but also foster **strategic foresight**, **learning**, and **evidence-informed policymaking** across the region.

Designed to complement and enhance **Thessaly's RIS3 governance architecture**, the framework integrates **real-time monitoring tools**, **multi-stakeholder feedback loops**, and **interregional benchmarking**—making M&E a core enabler of innovation system resilience.

1. M&E Governance and Institutional Architecture

The M&E framework in Thessaly will be integrated within the **regional RIS3 implementation structure**, supported by key institutional actors:

- **RIS3 Regional Coordination Unit (Region of Thessaly):** Leads overall coordination and ensures alignment with national innovation priorities.
- **University of Thessaly & VET Providers:** Serve as data custodians and training evaluators; lead RIS3 Dashboard development (Action 6).
- **iED and EEN Thessaly:** Coordinate SME engagement, track action-level implementation, and collect outcome metrics.
- **GSRI and Ministry of Development & Investments (S3 authorities):** Provide strategic policy alignment and liaise with national RIS3 reporting structures.
- **SustainX Partner ARC Fund:** Supports methodological consistency and facilitates interregional comparison and peer learning.

A dedicated **RIS3 Monitoring Working Group** will meet biannually to validate findings, review performance data, and propose adaptations to implementation strategies.

2. Indicators and Data Collection Framework

A **multi-tier KPI model** will be used, aligned with Thessaly's SMART objectives and the SustainX KPIs. Indicators will be **disaggregated by sector, location (urban/rural), and target group**. Data will be collected at regular intervals using mixed sources.

KPI Category	Key Indicators	Data Sources	Frequency
Implementation Monitoring	- Number of actions initiated/completed - Level of stakeholder participation	Action Leaders, Region of Thessaly	Quarterly
SME Innovation Impact	- SMEs supported - Innovations commercialized - EU project involvement	iED, EEN, SME reporting, project outputs	Biannually

RIS3 Alignment	- % of projects aligned with RIS3 - RIS3 awareness and uptake	Survey tools, funding data, evaluations	Annually
Skills & Capacity Building	- Individuals trained - Training satisfaction and outcomes	VET/HEI evaluations, participant feedback	Biannually
Interregional Engagement	- Cross-border projects - Peer learning and exchanges	SustainX reporting, Interreg, Horizon Europe	Annually
Governance Feedback Loops	- Policy adjustments informed by M&E - Institutional learning activities	Regional Council, RIS3 coordination reports	Annually

The **Thessaly RIS3 Innovation Dashboard** (developed under Action 6) will visualize performance data in real time and provide strategic insights for decision-makers.

3. Evaluation Methodology

Evaluation activities will be staged to ensure both accountability and learning, using a combination of **quantitative metrics**, **qualitative insights**, and **collaborative reflection**.

3.1. Formative Evaluation (Mid-2025)

- **Purpose:** Track early progress, surface bottlenecks, and adjust action implementation.
- **Focus:** Effectiveness of platforms, RIS3 awareness, SME engagement.
- **Method:** Surveys, interviews, focus groups, early data review.

3.2. Summative Evaluation (End-2026)

- **Purpose:** Measure final outcomes and system-level impact.
- **Focus:** Objective achievement, ecosystem evolution, policy relevance.
- **Method:** Theory of Change-based impact evaluation with SustainX templates.

3.3. Peer & Comparative Evaluation

- **Purpose:** Facilitate benchmarking and joint learning with SustainX regions.
- **Focus:** Replicable practices, structural gaps, shared policy opportunities.
- **Method:** Peer reviews, joint reports, cross-regional synthesis via ARC Fund.

4. Feedback Loops and Adaptive Management

To remain dynamic and responsive, the M&E framework will embed **iterative learning mechanisms** into the governance process:

- **Quarterly Stakeholder Labs** (within co-creation platforms) to review implementation status, gather feedback, and adjust interventions.
- **Biannual Implementation Reports**, prepared by the RIS3 Coordination Unit, summarizing progress, issues, and recommended improvements.
- **SustainX Alignment Workshops** to integrate lessons learned into EU project proposals, RIS3 revisions, and future policy roadmaps.

5. Sustainability of M&E Structures

To ensure long-term relevance, the following measures will support the **institutionalization of the M&E framework** in Thessaly:

- **Capacity-building for M&E Officers** from public bodies and innovation intermediaries, integrated into regional public administration and VET curricula.
- **Digital continuity** through the Thessaly Innovation Dashboard and open-access repositories of evaluations and lessons learned.
- **Sustainable funding mechanisms**, including ERDF, Horizon Europe, and national budget lines, will be explored to finance ongoing monitoring, data infrastructure, and impact assessment beyond 2026.

The Monitoring & Evaluation system in Thessaly will be **accountable**, **adaptive**, and **mission-driven**—transforming M&E from a compliance exercise into a strategic lever for innovation governance. It will provide actionable insights, reinforce RIS3 operationalisation, and foster a culture of transparency and continuous improvement, thus ensuring that **Thessaly's innovation ecosystem thrives within the European Green Deal and Digital Decade frameworks**.

SUSTAINABILITY & TRANSFERABILITY

Ensuring the **long-term relevance, replicability, and resilience** of the **Thessaly Action Plan** is central to its role within the **SustainX project**. Sustainability in this context encompasses **institutional, financial, and operational continuity**, while **transferability** highlights the region's ability to contribute useful models and insights to other innovation ecosystems—particularly those facing similar RIS3 implementation or structural challenges.

SUSTAINABILITY

The Thessaly Action Plan is conceived as a **system-strengthening instrument**, designed to outlive the SustainX project by embedding innovation-supporting mechanisms into permanent regional and national structures. Its sustainability is grounded in three interdependent pillars:

a) Institutional Sustainability

- The Action Plan is directly aligned with **Thessaly's Smart Specialisation Strategy (RIS3)**, the **Partnership Agreement for Greece 2021–2027**, and the **Operational Programme "Competitiveness"**, ensuring high policy coherence.
- Implementation is shared by core regional actors including the **Region of Thessaly**, **University of Thessaly**, **iED**, **regional DIHs**, and chambers of commerce, fostering **local ownership** and **policy continuity**.
- Multi-level governance is promoted through **co-creation platforms and RIS3 Working Groups**, ensuring structured public-private collaboration and decentralised innovation governance.

b) Financial Sustainability

- Key actions (e.g., SME scaling schemes, skills programmes, RIS3 Dashboard) are designed for integration with existing and upcoming **ERDF, ESF+, and Horizon Europe** programmes.
- **Co-financing models** (e.g., vouchers, micro-grants, blended funding) will be piloted to increase regional buy-in and support continuity beyond project timelines.
- **Capacity-building in funding acquisition** and project design will empower regional actors to independently access national and EU resources in the future.

c) Operational Sustainability

- Flagship initiatives like the **RIS3 Innovation Dashboard**, **capacity-building modules**, and **co-creation platforms** will be embedded in institutions such as the University of Thessaly and iED for long-term delivery.
- **Participatory Monitoring & Evaluation (M&E)**, including regular stakeholder roundtables and learning sessions, will ensure adaptability and institutional learning.
- Integration of **strategic foresight tools** and performance management processes into the **Region of Thessaly's planning cycles** will support evidence-based policy adaptation.

TRANSFERABILITY

The Thessaly Action Plan provides **practical, adaptable, and scalable models** for other European regions facing similar challenges in translating RIS3 priorities into ecosystem-level impact. Key transferable elements include:

a) Cross-Sector Co-Creation Platforms in RIS3 Domains

- Platforms established in **digital agriculture, health & well-being, and circular bioeconomy** offer replicable formats for **multi-actor innovation governance**, with strong potential for EU-level alignment.
- These platforms can serve as **cost-efficient tools for piloting innovation**, facilitating citizen engagement, and fostering regional-to-regional exchanges.

b) Modular RIS3-Aligned Capacity Building

- The Thessalian model of **modular training**, tailored to **SMEs and innovation intermediaries**, can be adapted to other moderate innovator regions.
- Tools such as the **RIS3 Readiness Toolkit**, **innovation diagnostics**, and **funding navigation guides** will be published and shared via SustainX channels, EEN, and the S3 CoP.

c) Foresight-Enabled Data Monitoring

- The **RIS3 Innovation Dashboard** will offer a **replicable model** for real-time tracking of innovation KPIs, aligned with RIS3 domains and local priorities.
- Thessaly's approach to combining **M&E, foresight, and feedback loops** provides a governance model that other regions can adopt to improve agility and learning.

d) Policy & Programme Alignment Mechanisms

- Thessaly's **participatory policy review** and alignment processes will provide a blueprint for harmonizing regional funding calls with RIS3 goals.
- Simplification of access rules, clarification of eligibility criteria, and integrated support services can be adapted in other regions to reduce SME entry barriers.

3. Knowledge Sharing and Ecosystem Scaling

Thessaly is committed to **interregional learning and collaboration**, ensuring that its experiences contribute to the broader goals of the **European Innovation Area**:

- The region will actively participate in **SustainX peer exchanges**, the **S3 Community of Practice**, and thematic S3 Partnerships (e.g., Agri-Food, Smart Health).
- **Toolkits, case studies, training curricula, and policy briefs** developed under the Action Plan will be shared through EU knowledge platforms and workshops.
- A **SustainX Knowledge Transfer Workshop** will be hosted in Thessaly in 2026, focused on **place-based innovation**, SME scaling, and RIS3 implementation, targeting regions from the Balkans, Mediterranean, and other moderate innovator territories.

The **Thessaly Action Plan** is a **sustainable and scalable framework** for regional innovation transformation, anchored in:

- Strategic RIS3 and EU mission alignment;
- Strong institutional ownership and policy continuity;
- Operational readiness and stakeholder co-creation;
- A commitment to EU-wide knowledge exchange and peer learning.

It positions Thessaly as both a **beneficiary and a contributor** within the SustainX community—offering practical pathways toward a **greener, smarter, and more inclusive Europe**.

CONCLUSION

The **SustainX Action Plan for Thessaly** offers a strategic roadmap for transforming the region's innovation ecosystem through a **place-based, RIS3-aligned**, and **future-ready approach**. Built upon rigorous desk research, stakeholder consultations, and competence mapping, the Action Plan provides actionable responses to the **territorial challenges and opportunities** facing Thessaly's transition toward a **green, digital, and inclusive economy**.

Thessaly possesses **considerable untapped assets**: a strong agri-food base with rising bioeconomy potential, academic excellence in digital and health domains (anchored by the University of Thessaly), and a growing presence in EU-funded programmes. However, systemic bottlenecks persist, including:

- **Fragmented stakeholder coordination**, especially between SMEs and academia;
- **Limited SME scaling pathways**, particularly for green and digital innovations;
- **Skill mismatches** in strategic sectors such as AI, precision farming, and smart health;
- **Underutilized RIS3 alignment mechanisms** and gaps in interregional collaboration.

The Action Plan responds with a **cohesive, 7-action strategy** designed to:

- Empower Thessalian SMEs with innovation acceleration tools and EU project support;
- Build cross-sector co-creation platforms in RIS3 domains such as **digital agriculture**, **smart health**, and **circular bioeconomy**;
- Upskill regional talent in **green and digital innovation competencies**;
- Institutionalize **data-driven governance** and foresight via the **RIS3 Dashboard**;
- Improve policy and funding alignment across local and national innovation actors;
- Strengthen **interregional partnerships and visibility** in EU innovation networks.

A core achievement of this process has been the **activation of a collaborative innovation ecosystem**—uniting policymakers, research institutions, business intermediaries, SMEs, and civic actors around **shared regional missions**. This integrated ecosystem is vital for fostering **agility**, **resilience**, and **long-term strategic coherence** in innovation policy.

Importantly, Thessaly's Action Plan contributes to the **pan-European vision of SustainX**: fostering innovation cohesion, empowering underrepresented regions, and amplifying cross-border learning. Through its modular training, foresight-enabled monitoring, and

inclusive co-creation mechanisms, Thessaly's experience offers a **replicable model** for other "moderate innovator" regions across Europe.

Looking ahead, the Action Plan enters a dynamic implementation phase where success will rely on:

- **Sustained institutional commitment and stakeholder ownership**;
- **Strategic alignment with Greek national programmes and EU missions**;
- And the ability to **learn, adapt, and recalibrate interventions** in real time.

In essence, the Thessaly Action Plan is not only a roadmap for regional transformation—it is a signal of commitment to **inclusive, mission-driven innovation**. It reflects the region's readiness to harness its unique strengths, bridge systemic gaps, and actively contribute to Europe's green and digital future.

ANNEX I

REGION-SPECIFIC CHALLENGES

The Region of Thessaly is a predominantly rural area in central Greece, with strong agricultural traditions, emerging industrial activities, and a growing interest in sustainability. However, it also faces critical structural and systemic challenges that limit its ability to fully engage in the twin green and digital transitions. Below are three region-specific challenges aligned with the SustainX objectives.

1. VULNERABILITY OF THE AGRICULTURAL SECTOR TO CLIMATE CHANGE AND WATER SCARCITY

Agriculture is the backbone of Thessaly's economy, yet it is increasingly threatened by **climate-induced disruptions**. The region is facing:

- **Intensifying droughts and water scarcity**, especially in the fertile Thessalian Plain.
- **Extreme weather events** (e.g., floods, heatwaves), severely affecting crop yields and infrastructure.
- **Over-reliance on water-intensive crops** and inefficient irrigation methods.

These pressures demand urgent **digital and green innovations** in irrigation, soil management, and climate-resilient farming practices. However, adoption is limited due to fragmented land ownership, small farm sizes, and a lack of awareness of available agri-tech solutions.

2. UNDERUTILIZED INNOVATION ECOSYSTEM AND LIMITED R&D LINKAGES

Despite the presence of institutions like the **University of Thessaly** and various research centers, **regional innovation performance remains below the EU average**. Key issues include:

- **Weak links between academia and SMEs**, resulting in limited commercialization of research.
- **Insufficient incentives for private R&D investment**, especially in circular economy or clean energy.

- **Lack of intermediaries** to facilitate technology transfer and public-private collaboration.

This results in a **fragmented innovation ecosystem**, where knowledge and technology are not effectively translated into market-ready solutions, particularly in traditional sectors like agri-food, textiles, or tourism.

3. POPULATION DECLINE AND BRAIN DRAIN FROM RURAL AREAS

Rural municipalities in Thessaly face a steady **outflow of young people** to larger cities or abroad, creating:

- **A shrinking and aging population**, especially in mountain and inland areas.
- **Skills shortages in emerging sectors**, including digital technologies and green engineering.
- **Limited entrepreneurship**, as many young people do not see viable career paths in their home region.

This demographic shift reduces regional resilience, lowers demand for innovation services, and risks entrenching socio-economic disparities. It also undermines the long-term success of EU-funded development efforts unless specifically addressed.

To accelerate its twin transition, Thessaly must **climate-proof its agricultural sector**, **activate its research and innovation ecosystem**, and **retain and reskill its population** through inclusive and place-based strategies. SustainX can support this through **capacity building, interregional learning, and access to smart investment tools** focused on innovation in agri-tech, clean energy, and sustainable rural development.

ANNEX II.

THESSALY REGIONAL INNOVATION ROADMAP FOR GREEN AND DIGITAL TRANSITION (MID-2025 – END-2026)

This roadmap serves as a strategic blueprint for translating the SustainX Regional Action Plan for Thessaly into a sequenced set of operational milestones and concrete deliverables from mid-2025 through the end of 2026. It outlines how the region will implement a series of targeted interventions to strengthen its innovation ecosystem and accelerate the twin transitions—green and digital—across Thessaly's key smart specialisation domains.

Firmly rooted in Thessaly's RIS3 priorities and aligned with EU-level policy objectives (notably the European Green Deal, Digital Decade Strategy, and Horizon Europe Missions), this updated roadmap ensures that each action supports both local development goals and transnational innovation ambitions. It is designed to guide immediate implementation while fostering systemic transformation by addressing persistent structural barriers and leveraging the region's latent potential.

The roadmap organizes implementation into interconnected workstreams centered on five key strategic pillars:

- Scaling up SME innovation and facilitating access to commercialization and EU funding;
- Reinforcing cross-sectoral collaboration through RIS3-aligned platforms and co-creation mechanisms;
- Upskilling the regional workforce in digital and green technologies, with a focus on employability and inclusion;
- Enhancing innovation governance and aligning regional support instruments with RIS3 priorities;
- Deepening Thessaly's integration into the European Innovation Area through interregional partnerships and benchmarking.

Each milestone is linked to:

- Specific actions and outputs (for example, operational innovation platforms, tailored training programmes, SME mentoring schemes, policy tools, and digital monitoring dashboards);
- Clearly assigned lead actors (such as TUIASI, the Digital Innovation Zone (DIZ), the Institute of Entrepreneurship Development (iED), regional authorities, and innovation intermediaries);
- Relevant SustainX Work Package 1 Key Performance Indicators (KPIs) to ensure coherence with the overall project's monitoring and learning framework.

This implementation strategy establishes a rhythm that is both agile and accountable. The roadmap is designed to allow for iterative learning, real-time course correction, and robust collaborative oversight. Key supporting mechanisms include:

- A RIS3 Steering and Monitoring Task Force to centralize governance and drive alignment;
- Deployment of a digital RIS3 Innovation Dashboard for real-time KPI tracking and data-informed decision making;
- Regular review cycles (with an annual comprehensive review integrated into regional RIS3 governance) and ongoing peer exchanges with SustainX partners to share best practices and adapt interventions as needed.

By following this revised roadmap, Thessaly is positioned to shift from a fragmented innovation environment to a coordinated, mission-driven ecosystem. The region will be better equipped to absorb, adapt, and scale innovations that meet both its local needs and broader European strategic priorities. In essence, this roadmap is not only a practical guide but also a strategic lever to ensure that the SustainX Action Plan moves from diagnosis to tangible impact.

Timeframe	Strategic Milestone	Key Actions / Outputs	Lead Actors	SustainX KPIs*
Q2 2025	*Governance Consolidation*	- Reactivate the RIS3 Taskforce and formalize the M&E Task Force- Set the planning calendar	Region of Thessaly, DIZ, iED, Univ. of Thessaly	KPI1, KPI3
Q2 – Q3 2025	*Platform Activation & Co-Design*	- Launch 3 co-creation labs (focusing on Agri-food, Circular Bioeconomy, Digital Health)- Establish stakeholder working groups	Univ. of Thessaly, iED, DIZ	KPI2, KPI3
Q3 2025 – Q1 2026	*Capacity Building & Training*	- Roll out RIS3 training modules for SMEs and intermediaries- Train 50+ participants in sustainability and digitalization	iED, DIZ, VET Centres	KPI5

Q1 2026	*Acceleration Schemes*	- Launch the SME Innovation Voucher & Mentoring Programme- Provide testing, certification, and IP support for an initial cohort	Region of Thessaly, AgroBioCluster	KPI1.1–1.3
Q2 2026	*Monitoring & Data Systems*	- Develop and deploy the RIS3 Innovation Dashboard- Initiate baseline data collection and visualization	Univ. of Thessaly, DIZ, GSRI	KPI3
Q3 – Q4 2026	*EU Integration & Interregional Learning*	- Organize 2 interregional peer visits and host 2 proposal labs- Launch 3-5 new cross-border project consortia	ARC Fund, iED, DIZ, EEN Thessaly	KPI4
End 2026	*Consolidation, Scale-Up & Legacy*	- Expand training programmes (target up to 150 individuals)- Conduct a final evaluation of co-creation labs- Document and disseminate best practices for SustainX legacy and interregional transfer	RIS3 Monitoring Group, DIZ, ARC Fund	KPI5.3, KPI6

To ensure the successful and timely execution of this roadmap, **Thessaly must adopt a structured, participatory, and adaptive implementation approach**. This involves activating regional governance mechanisms, clearly defining roles, using smart monitoring tools, and engaging in interregional learning with other SustainX partners.

1. GOVERNANCE AND COORDINATION MECHANISMS

The foundation for effective implementation lies in the **mobilization of regional RIS3 coordination structures**, in particular:

- The **Regional RIS3 Steering Taskforce**, led by the **Region of Thessaly**, and composed of:
    - **University of Thessaly** and affiliated R&D institutions;
    - **Institute of Entrepreneurship Development (iED)**, **EEN Thessaly**, and other innovation intermediaries;
    - **VET providers** and regional chambers;
    - **GSRI national contact points**;
    - **SME and cluster representatives**.
- A dedicated **Monitoring & Evaluation (M&E) Working Group**, responsible for:
    - Tracking progress on KPI delivery;
    - Coordinating data collection across stakeholders;
    - Organizing feedback loops and supporting adaptive management.

These two governance bodies will:

- Provide **strategic oversight** and ensure alignment with Thessaly's RIS3 and national innovation policies;
- Coordinate **cross-sectoral collaboration** between academia, public authorities, businesses, and civil society;
- Monitor **risk factors**, identify implementation delays, and initiate corrective actions.

2. WORK PACKAGE OPERATIONALIZATION

Each action outlined in the roadmap should be broken down into **modular work packages**, with:

- Clearly defined **tasks, outputs, and timeframes**;
- Assigned **lead and supporting actors** with allocated responsibilities;
- Aligned **budgets and resources**, drawing from ERDF, Horizon Europe, Digital Europe, or other relevant funding schemes;
- Built-in **progress checkpoints** and evaluation milestones to ensure delivery and accountability.

This modular and phased approach ensures scalability, flexibility, and adaptability in response to shifting needs and opportunities.

3. USE OF DIGITAL TOOLS AND DASHBOARD

Smart monitoring tools will be central to ensuring transparency, performance tracking, and collaborative management. Key tools include:

- The **RIS3 Innovation Dashboard** (developed under Action 6), which will:
    - Track progress on strategic KPIs;
    - Visualize stakeholder engagement and output generation;
    - Support scenario analysis and data-driven decision-making.
- **Gantt charts and activity timelines** for each roadmap action, detailing dependencies, deliverables, and critical paths;
- A shared **digital repository** with templates, project tracking tools, reporting formats, and training materials.

Where possible, these tools should integrate foresight functions for long-term planning and impact modeling.

4. INTERREGIONAL LEARNING AND PEER EXCHANGE

Thessaly, as part of the SustainX project, should actively engage in:

- **Bilateral and multilateral exchanges** with partner regions (e.g., North-Eastern Romania, Santa Cruz, Latvia);
- Sharing and testing of outputs such as:
    - Co-creation lab methodologies,
    - Training toolkits,
    - Policy briefs,
    - RIS3 Dashboard visualizations;
- Peer review mechanisms and joint pilot designs through SustainX's learning network.

This engagement serves as both a **capacity-building tool** and a **mechanism for visibility and recognition** at the EU level.

5. ANNUAL REVIEW AND ADAPTIVE MANAGEMENT

The roadmap should be treated as a **living strategy**, subject to refinement as lessons emerge and context evolves. To that end:

- An **annual review process** should be held each autumn (Q4), coordinated by the RIS3 Steering Taskforce and supported by the M&E Group;
- The review should include:
    - KPI assessment,
    - Stakeholder feedback collection (especially from SMEs and VET providers),
    - Adjustments to sequencing, resourcing, and timelines;
- Results should be integrated into regional RIS3 updates and innovation planning frameworks.

Additionally, it is recommended to conduct:

- **Quarterly internal updates** to track progress and flag bottlenecks early;
- **Biannual peer learning sessions** with SustainX partners to benchmark practices and refine interventions.

***SustainX Key Performance Indicators (KPIs)**

- KPI1: Number of SMEs supported through innovation scaling programs.
- KPI1.1: Number of innovation vouchers distributed to SMEs.
- KPI1.2: Number of SMEs receiving mentoring support.
- KPI1.3: Number of SMEs accessing testbeds or pilot facilities.
- KPI2.1: Number of cross-sectoral RIS3 platforms operationalized.
- KPI2.2: Number of joint pilot projects launched through these platforms.
- KPI2.3: Level of stakeholder engagement in cross-sectoral platforms.
- KPI3: Number of regional funding instruments aligned with RIS3 priorities.
- KPI3.1: Number of SMEs and intermediaries trained on RIS3 priorities.
- KPI3.2: Number of innovation management training sessions conducted.
- KPI3.3: Number of EU project participation workshops held.
- KPI4.1: Number of regional peer exchanges organized.
- KPI4.2: Number of consortium-building labs conducted.
- KPI4.3: Number of cross-border collaborations initiated.
- KPI5.1: Number of individuals upskilled in green and digital skills.

- KPI5.2: Number of training programs developed for green and digital skills.
- KPI5.3: Level of satisfaction among participants in upskilling programs.
- KPI6: Number of policy instruments adapted based on M&E findings.

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ACTION PLAN – LATVIA

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EXECUTIVE SUMMARY

The SustainX Action Plan for Latvia is designed to address key challenges and leverage existing strengths within the regional innovation ecosystem, in alignment with Latvia's Smart Specialisation Strategy (RIS3) and the overarching objectives of the SustainX project. Latvia is positioned at a strategic intersection of advanced digital transformation, sustainable bioeconomy, and smart energy transitions, with growing regional momentum to strengthen innovation capabilities and cross-sector collaboration.

Identified Challenges

Through the stakeholder consultation and competence mapping process, several persistent and interlinked challenges were identified in the Latvian innovation ecosystem:

- Insufficient support for scaling innovation: While Latvian SMEs are actively engaged in innovation, many face systemic challenges when transitioning from prototyping to market-ready solutions.
- Limited access to funding and infrastructure: Respondents highlighted restricted access to EU and national funding schemes, as well as difficulties in accessing advanced technological infrastructure and R&D facilities.
- Knowledge transfer and collaboration gaps: Weak collaboration between academia, industry, and policymakers undermines co-creation potential and hinders the commercialization of research outcomes.
- Brain drain and skills mismatch: Talent outflow to other EU regions and limited availability of specialized workforce in high-tech sectors (e.g., AI, smart manufacturing) continue to be critical concerns.
- Regulatory complexity and misalignment with S3: Regulatory and administrative hurdles, alongside insufficient alignment between regional support measures and RIS3 priorities, limit innovation traction.

Strengths of the Latvian Innovation Ecosystem

Despite these challenges, Latvia's innovation ecosystem possesses several enabling strengths that can be harnessed to support the green and digital transitions:

- Strong R&D and technical universities: Institutions such as the Latvian Technological Center and universities contribute to high-quality R&D and provide a basis for innovation-driven education and collaboration.

- Digital infrastructure and tech-savvy workforce: Latvia has advanced digital infrastructure and a growing talent pool in ICT, mechatronics, and digital entrepreneurship.
- Active EU engagement: Participation in EU-funded initiatives like Horizon Europe, Interreg, and EIT Community activities enables Latvian stakeholders to access best practices and funding channels.
- Emerging innovation hubs and cluster dynamics: While still developing, there is an upward trend in regional cluster formation and engagement, particularly in the bioeconomy, health technologies, and smart materials domains.

Strategic Focus Areas

The Latvian Action Plan will prioritize interventions along the following lines:

- Strengthening SME capabilities to scale innovation through targeted support for commercialization, product diversification, and international market access.
- Enhancing cross-sector collaboration by establishing co-creation platforms involving universities, SMEs, clusters, and public bodies, with a special focus on bridging research-industry gaps.
- Aligning funding instruments and training with S3 priorities, especially in the fields of bioeconomy, digital health, photonics and smart energy, and fostering the development of regional innovation ecosystems.
- Supporting talent retention and skills development through upskilling programs in sustainability and digital innovation, and promoting inclusive innovation practices.

Alignment with RIS3 Priorities

This Action Plan is aligned with Latvia's five RIS3 domains:

1. Knowledge-Intensive Bioeconomy – supporting precision agriculture, biomass valorization, and circular economy models.
2. Biomedicine and Health Technologies – strengthening digital health, medical devices, and biotech-driven innovation.
3. Photonics and Smart Materials – promoting new materials, coatings, and embedded technologies in advanced manufacturing.
4. Smart Energy and Mobility – boosting green energy adoption, smart city solutions, and sustainable transport.
5. ICT and Digital Transformation – accelerating AI adoption, cybersecurity, and digital infrastructure for SMEs.

By tackling the identified gaps and activating the ecosystem's full potential, the Latvian Action Plan will contribute to the long-term resilience, competitiveness, and sustainability of the region, in full synergy with SustainX's pan-European mission.

METHODOLOGY

The development of the Latvian Action Plan(ACTION PLAN) under the SustainX project followed a systematic and participatory approach to ensure alignment with regional realities, stakeholder needs, and Smart Specialisation Strategy (RIS3) priorities. The methodology combined qualitative and quantitative methods to gather insights, assess challenges and opportunities, and define targeted actions for strengthening innovation ecosystems in support of the twin green and digital transitions.

1. Desk Research

The process began with a comprehensive desk review of key national and regional strategic documents, legislation, and analytical reports. This included:

- Latvia's Smart Specialisation Strategy (RIS3) – to identify thematic priorities, industrial strengths, and innovation domains with transformative potential;
- National Industrial Policy Guidelines and the Latvian Sustainable Development Strategy – to contextualize economic, environmental, and digital policy directions;
- Relevant EU frameworks such as the European Green Deal, Digital Europe Programme, and Horizon Europe strategic plans – to align regional actions with EU-level policy drivers;
- Academic and policy literature on Latvia's innovation performance, digital transformation, and energy transition, particularly within the context of smart specialization and regional development.

This phase provided a foundational understanding of Latvia's strengths in areas like bioeconomy, smart materials, ICT, and renewable energy, as well as persistent gaps in stakeholder cooperation and innovation scalability.

2. Stakeholder & Competence Mapping

To ensure that the Action Plan is grounded in real-world needs and opportunities, an extensive stakeholder mapping exercise was conducted. This included the identification and categorization of key innovation actors across quadruple helix dimensions (academia, industry, public sector, civil society), such as:

- Universities and research institutes
- Cluster organizations and innovation agencies
- SMEs, startups, and scale-ups in strategic sectors
- Public administration and policy-making bodies

- Business support organizations, banks, and funding agencies

In addition, a stakeholder competence self-assessment was carried out through a structured survey circulated to Latvian innovation advisors and intermediaries. The survey captured competencies in areas such as:

- Innovation strategy development and implementation
- Business model innovation and commercialisation capacity
- Digital and sustainable innovation readiness
- Cross-sectoral and interregional collaboration capacity

The mapping revealed that most stakeholders were confident in identifying clients and leveraging analytical methods but faced challenges in scaling SME innovations, fostering university-industry linkages, and navigating EU funding mechanisms.

3. Survey Analysis and Needs Assessment

The survey responses were systematically analysed to extract:

- Perceived strengths of the regional innovation ecosystem (e.g., digital infrastructure, skilled workforce, EU project participation);
- Identified challenges, such as brain drain, limited access to advanced technologies and funding, and insufficient support for scaling innovations;
- Support needs, including training on digital and sustainable technologies, access to EU funding, and better stakeholder alignment with RIS3 priorities;
- Priority domains, as expressed by respondents, namely:
    - Digital transformation (AI, IoT, cloud solutions)
    - Bioeconomy and agri-tech
    - Green and smart energy systems
    - Health and well-being innovation

The survey also provided insight into institutional and ecosystem-level gaps, especially in terms of weak collaboration mechanisms, lack of regional innovation hubs, and limited availability of interdisciplinary talent.

4. Alignment with RIS3 and SustainX Objectives

The Action Plan was then refined to ensure coherence with Latvia's RIS3 priorities, which include:

1. Knowledge-intensive bioeconomy
2. Biomedicine, medical technology, and pharmacy

3. Photonics, smart materials, and engineering systems
4. Smart energy and mobility
5. ICT and digital transformation

ADD WHICH ARE THE CROSSING POINTS BETWEEN THE PARTNERING REGIONS

Each proposed action or recommendation in the ACTION PLAN is directly mapped to one or more of these priorities, ensuring relevance and scalability within both national and EU policy frameworks. In addition, the methodology ensured compliance with SustainX Key Performance Indicators (KPIs), including region-specific challenge identification and tailored solutions for SME support and capacity-building.

5. Iterative Refinement and Partner Feedback

The draft version of the Action Plan was shared with project partners, including ARC Fund, iED, and DIZ, for peer validation and input. Feedback loops allowed the integration of external perspectives, best practices from other regional ecosystems, and insights into replicable innovation support mechanisms.

This iterative process helped validate the proposed actions, strengthened the rationale for interventions, and contributed to the European dimension of the ACTION PLAN by identifying synergies with other participating regions.

PROBLEM DEFINITION

Latvia stands at a critical juncture in its innovation trajectory—striving to advance both digital transformation and green transition while tackling structural gaps that inhibit the full potential of its regional innovation ecosystem. Despite notable achievements in ICT development, participation in EU research frameworks, and well-defined RIS3 priorities, Latvia continues to face persistent bottlenecks that affect SME competitiveness, research commercialization, and cross-sectoral innovation. The problem definition below synthesizes insights from desk research, stakeholder mapping, and survey-based needs assessment within the SustainX project.

SYSTEMIC BARRIERS TO SCALING INNOVATIONS AND COMMERCIALIZATION

A recurrent challenge identified across both survey results and desk research is the **insufficient capacity of Latvian SMEs to scale innovation beyond pilot or early prototype stages**. While innovation is evident in digital tools, bioeconomy solutions, and health technologies, a weak commercialization infrastructure hampers wider adoption. This includes:

- **Limited access to tailored financial instruments** for growth-stage ventures;
- **Gaps in testing, piloting, and certification facilities** needed to bring products to market readiness;

- **Low SME exposure to internationalization channels and cross-border partnerships**.

This results in a diminished return on early-stage R&D investments and contributes to fragmented market uptake of innovations aligned with RIS3 domains.

FRAGMENTED INNOVATION ECOSYSTEM AND COLLABORATION GAPS

Despite a growing number of actors across academia, industry, and government, **Latvia's innovation ecosystem remains siloed**, with fragmented communication and collaboration mechanisms. Survey feedback revealed:

- Weak links between **universities and SMEs**, limiting the flow of applied knowledge;
- **Not fully developed/ limited capacity permanent co-creation structures**, such as innovation hubs or Living Labs;
- **Limited role of regional public authorities** in strategically steering innovation activities toward RIS3 missions. may be rephrase

These deficits hinder systemic innovation and reduce opportunities for interdisciplinary, high-impact innovation that aligns with EU-wide priorities like the Green Deal or Digital Europe.

SKILLS GAPS AND HUMAN CAPITAL CHALLENDES

While Latvia benefits from robust digital infrastructure and a growing base of skilled professionals, it continues to face a mismatch between labor market supply and the evolving needs of its innovation ecosystem. Stakeholders acknowledged progress in digital upskilling, with several national and regional programs supporting SME digitalization, both through in-company training and external courses. Additionally, targeted reskilling initiatives for rural populations—often delivered online and linked to 5G connectivity rollouts—are expanding access across underserved areas. However, gaps remain in aligning these efforts with strategic innovation priorities. The region still experiences shortages of high-skilled professionals in areas such as smart manufacturing, AI, and green technologies, and the ongoing outmigration of young, technically trained individuals to more competitive EU labor markets continues to challenge long-term ecosystem resilience.

LIMITED INTEGRATION WITH EUROPEAN INNOVATION ECOSYSTEMS

Although Latvia participates in EU innovation frameworks (e.g., Horizon Europe, Interreg), it often struggles to **translate project involvement into long-term strategic partnerships**. According to the stakeholder survey and desk findings:

- SMEs and clusters **lack support for structured matchmaking and knowledge exchange** with EU peers; - there are programmes on this too look up. Investment and development agencies active in writing projects

- Insufficient capacity for international project management; new project ideas and integrating the project results; to be also interregional challenge;
- Latvia's **visibility in transnational innovation networks** is still emerging, which affects access to best practices and peer learning.

This weakens the region's ability to position itself as an innovation node within pan-European value chains.

INCONSISTENT POLICY AND REGULATORY ALIGNMENT WITH RIS3 AND INNOVATION NEEDS

Stakeholders underscored a lack of **regulatory agility** and **misalignment of national policies with innovation ambitions**. Main obstacles include:

- **RIS3-aligned support instruments** to SMEs are presented but not well communicated to the SMEs.
- **Complex application procedures** and insufficient transparency in funding programmes;
- Not very effective implementation of Legal framework in fast-evolving areas like **digital health**, **bio-based materials**, and **smart mobility**.

This reduces trust in public support mechanisms and limits SME participation in policy-led innovation incentives.

CROSS-CUTTING OBSERVATIONS AND SUSTAINX RELEVANCE

The above challenges are **deeply interconnected**—for instance, regulatory rigidity often compounds collaboration gaps, while brain drain exacerbates SMEs' limited innovation absorption. Within this complexity, **SustainX offers a critical framework** for systemic intervention:

- Through its **multi-level action planning and capacity-building efforts**, SustainX can help align regional needs with EU-level strategies;
- The methodology and KPI-driven logic of SustainX enable **tailored support for SMEs**, based on actual gaps in funding, collaboration, and skills;
- SustainX fosters **cross-border collaboration** and learning, helping Latvian stakeholders embed themselves in broader innovation ecosystems.

The upcoming Strategy and Action sections will demonstrate how Latvia's ACTION PLAN leverages this opportunity to build an inclusive, RIS3-aligned, and future-proof innovation system

PROBLEM DEFINITION

Latvia stands at an important crossroads in its innovation trajectory — striving to capitalize on digital transformation and green transition opportunities while addressing structural gaps that limit the full potential of its regional innovation ecosystem.

Despite strong progress in ICT development, active participation in EU research frameworks, and clearly defined RIS3 priorities, several persistent challenges continue to affect SME competitiveness, knowledge transfer, commercialization, and cross-sectoral collaboration.

The problem definition below synthesizes findings from desk research, stakeholder mapping, and the survey-based needs assessment conducted under the **SustainX project**.

Systemic Barriers to Scaling Innovations and Commercialization

A recurrent challenge across all data sources is the limited capacity of Latvian SMEs to successfully transition from early-stage innovation to scalable, market-ready solutions. While there is vibrant innovation activity in sectors such as digital tools, bioeconomy, and health technologies, commercialization pathways remain underdeveloped.

Key bottlenecks include:

Limited access to tailored financial instruments and commercialization support for growth-stage SMEs,

Gaps in testing, piloting, certification, and demonstration infrastructure,

Low exposure of SMEs to internationalization channels and cross-border market opportunities.

These gaps diminish the return on early-stage R&D investments and contribute to fragmented adoption of innovations aligned with RIS3 domains.

Fragmented Innovation Ecosystem and Collaboration Gaps

Latvia's innovation ecosystem includes dynamic actors across academia, industry, government, and civil society; however, collaboration mechanisms remain fragmented, limiting the systemic potential for innovation.

Identified challenges:

Weak functional links between **universities, research institutions, and SMEs**, resulting in limited applied knowledge transfer and commercialization of research outcomes,

Limited availability of **permanent co-creation structures** (e.g., innovation hubs, living labs) to foster interdisciplinary collaboration,

Regional public authorities have opportunities to more strategically support cross-sectoral innovation activities aligned with RIS3 domains.

While positive initiatives exist, a more structured, mission-driven approach to cross-sectoral cooperation could significantly enhance impact.

Skills Gaps and Human Capital Dynamics

Latvia benefits from strong digital infrastructure and a skilled talent base; however, skills development remains uneven across sectors and regions.

Key observations:

Reskilling and upskilling programmes exist (e.g., for unemployed individuals, SME digitalization, rural digital skills through 5G access), but their visibility, uptake, and alignment with innovation needs could be strengthened,

Ongoing **brain drain** — particularly of highly skilled STEM and ICT professionals — challenges local innovation absorption,

Shortages persist in specialized areas such as smart manufacturing, green technologies, and AI-related skills.

Addressing these mismatches is critical to fully leveraging Latvia's research and technological strengths for the green and digital transitions.

Limited Integration into European Innovation Ecosystems

While Latvian organizations participate actively in programmes like **Horizon Europe** and **Interreg**, several integration challenges remain.

Challenges include:

Some SMEs and clusters lack structured support for **matchmaking, knowledge exchange, and project design** with EU peers (although national investment and development agencies are actively supporting these efforts),

Capacity gaps in managing international projects strategically and integrating project results into long-term innovation strategies — an issue also recognized as an interregional challenge across SustainX partners,

Latvia's visibility in European innovation networks is growing, but stronger positioning within transnational innovation corridors would enhance access to peer learning, funding, and partnership opportunities.

Regulatory and Policy Alignment Challenges

Stakeholders emphasized that while innovation support instruments are largely in place, challenges remain in terms of **communication, accessibility, and operational clarity** for SMEs.

Main obstacles identified:

Limited SME awareness of available RIS3-aligned support programmes and funding instruments — with room to improve outreach and guidance,

Complexity in application procedures and insufficient transparency around eligibility and selection criteria,

Implementation challenges in adapting legal frameworks to fast-evolving fields like digital health, bio-based materials, and smart mobility, which can slow down SME innovation in emerging sectors.

Clearer communication, simplification of access, and regulatory agility will be important enablers of future innovation-driven growth.

Cross-Cutting Observations and SustainX Relevance

The above challenges are **deeply interconnected**—for instance, regulatory rigidity often compounds collaboration gaps, while brain drain exacerbates SMEs' limited innovation absorption. Within this complexity, **SustainX offers a critical framework** for systemic intervention:

- Through its **multi-level action planning and capacity-building efforts**, SustainX can help align regional needs with EU-level strategies;
- The methodology and KPI-driven logic of SustainX enable **tailored support for SMEs**, based on actual gaps in funding, collaboration, and skills;
- SustainX fosters **cross-border collaboration** and learning, helping Latvian stakeholders embed themselves in broader innovation ecosystems.

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STRATEGIC ALIGNMENT

The **SustainX Action Planfor Latvia** is strategically adapted, in the country's vision for innovation-led, digitally enabled, and environmentally sustainable growth. It strengthens the regional dimension of Latvia's national strategies and supports the **operationalization of Smart Specialisation priorities** through targeted, place-sensitive interventions. The ACTION PLAN also acts as a mechanism to localize and activate key European Union initiatives, while fulfilling the transnational cooperation ambitions of the **SustainX project**.

ALIGNMENT WITH LATVIA'S SMART SPECIALISATION STRATEGY (RIS3)

Latvia's RIS3 outlines five transformative domains designed to unlock economic potential, harness scientific excellence, and guide innovation investment. The ACTION PLAN addresses all five, not only by reinforcing existing trajectories but also by filling capability gaps identified through stakeholder consultation and survey results:

1. Knowledge-Intensive Bioeconomy

The ACTION PLAN fosters the **transition toward sustainable, circular, and value-added bio-based industries**, with a focus on:

- Biomass valorisation, sustainable packaging, and agri-food innovation;
- Enhanced stakeholder collaboration in rural and coastal regions;
- SME access to EU bioeconomy networks and funding.

2. Biomedicine, Medical Technology, and Pharmacy

ACTION PLAN actions strengthen:

- Digital health integration and med-tech prototyping;
- Capacity to translate research into health innovation startups;
- Participation in EU partnerships for predictive, personalized healthcare.

3. Photonics, Smart Materials, and Engineering Systems

Through innovation labs and SME support, the ACTION PLAN promotes:

- Functional materials development, sensor tech, and optoelectronics;
- Improved commercialization capacity for advanced materials;
- Skills development in photonics and embedded systems.

4. Smart Energy and Mobility

Aligned actions support:

- Decentralized renewable energy projects and smart grid innovation;
- Electric mobility pilots and urban sustainability solutions;
- RIS3-consistent green tech entrepreneurship pathways.

5. ICT and Digital Transformation

The ACTION PLAN reinforces digital transformation across all sectors by:

- Facilitating AI, IoT, and cloud-based service adoption by SMEs;
- Delivering demand-driven upskilling in data analytics, cybersecurity, and smart infrastructure;
- Supporting innovation intermediaries in guiding digital transitions.

LINK TO NATIONAL STRATEGIC FRAMEWORKS

The ACTION PLAN is also embedded in Latvia's national policy framework and aligns with its long-term economic and innovation trajectory:

- **National Industrial Policy Guidelines 2021–2027:** ACTION PLAN actions strengthen innovation diffusion across industrial value chains and support the scaling of high-tech SMEs.
- **Latvia2030 Sustainable Development Strategy:** The ACTION PLAN directly supports knowledge-based growth, environmental sustainability, and regional cohesion.
- **National Energy and Climate Plan (NECP):** The ACTION PLAN's energy and mobility initiatives contribute to emissions reductions and circular economy development.
- **Digital Transformation Guidelines 2021–2027:** Through digital skills training and technology adoption initiatives, the ACTION PLAN supports Latvia's ambition to become a digitally mature economy.

CONTRIBUTION TO EU-LEVEL POLICY OBJECTIVES

The Latvian ACTION PLAN contributes to several major EU strategies and instruments, ensuring policy coherence and maximizing leverage potential for EU funding and cooperation:

- **European Green Deal:** By promoting circular bioeconomy, clean energy, and resource-efficient technologies, the ACTION PLAN supports Latvia's contribution to EU climate neutrality.
- **Digital Decade Strategy:** The ACTION PLAN's focus on SME digital transformation aligns with EU targets on digital infrastructure, services, and skills.
- **Horizon Europe Missions and Partnerships:** ACTION PLAN actions support engagement in HEU clusters, particularly Clusters 4 and 5, through ecosystem strengthening and innovation capacity building.
- **New European Innovation Agenda:** The ACTION PLAN promotes deep tech scale-up, inclusive innovation ecosystems, and cross-regional cooperation, addressing core objectives of the Innovation Agenda.

SYNERGY WITH SUSTAINX PROJECT OBJECTIVES

The ACTION PLAN operationalizes the core aims of SustainX by serving as a **model of regionally grounded, impact-oriented innovation policy**. Specifically, the Latvian Action Plan contributes to:

- **KPI1**: Identification and prioritization of **region-specific challenges**, including SME scaling barriers, skills gaps, and ecosystem fragmentation;
- **KPI2**: Co-design of **tailored regional strategies**, addressing RIS3 domains through actionable interventions;
- **KPI3**: Strengthened **multi-stakeholder engagement and governance mechanisms**, improving collaboration across sectors;

- **KPI4**: Improved **participation in EU programs** and facilitation of **interregional partnerships**;
- **KPI5**: Uptake of **peer learning**, benchmarking, and experimentation through exchanges with other regions.

Moreover, the ACTION PLAN integrates the **SustainX values** of inclusiveness, agility, and mission-orientation by promoting collaborative innovation, reducing participation barriers for SMEs, and targeting systemic bottlenecks with scalable solutions.

STAKEHOLDER INVOLVEMENT

The development of the **SustainX Action Plan for Latvia** was grounded in a **participatory, multi-actor engagement process**, aligned with the **quadruple helix model** and the **co-creation principles** central to SustainX.
Stakeholder engagement was not treated as a one-time exercise but is intended to remain **dynamic and evolving** throughout the project lifecycle, supporting continuous updates to the stakeholder mapping and co-design activities as regional needs and priorities evolve.

The process ensured the involvement of a diverse set of innovation actors across policy, research, business, and civil society, contributing both strategic insights and operational experience to the design of interventions.

1. Methodology of Engagement

Stakeholder involvement was structured across **three interconnected phases**:

Phase 1: Stakeholder Identification and Initial Mapping

An initial mapping exercise was conducted to identify relevant actors across the innovation value chain, aligned with Latvia's RIS3 domains and SustainX thematic priorities.
Stakeholders were grouped into categories such as:

Public sector institutions and regional policymakers,

Universities and research organizations,

Business intermediaries, DIHs, and cluster organizations,

SMEs, startups, and scale-ups in strategic sectors,

Civil society actors and ecosystem enablers.

Note:
This mapping is intended as a **living document**. As the project progresses, stakeholder engagement will continue to be expanded and refined, ensuring openness to new actors and emerging initiatives.

Phase 2: Competence Survey and Needs Assessment

A structured stakeholder survey was carried out to assess:

Innovation strategy development capacity,

Involvement and experience in EU-funded projects,

Knowledge and operationalization of RIS3 priorities,

Key barriers faced by SMEs and intermediaries regarding innovation management, funding access, commercialization, and green/digital transition readiness.

The survey provided foundational insights into existing competencies and support needs, highlighting gaps to be addressed through SustainX interventions.

Phase 3: Collaborative Input and Feedback Loops

Findings from the survey were validated and enriched through:

Bilateral consultations with key innovation actors,

Targeted discussions with project partners (ARC Fund, iED, DIZ),

Lessons learned from previous EU projects such as EEN and Interreg collaborations.

These feedback loops helped to prioritize strategic focus areas, identify high-potential collaboration opportunities, and align action design with real-world needs.

2. Key Stakeholders Engaged

The following categories of stakeholders actively contributed to the Action Plan:

Research and Academia:
Institutions such as Riga Technical University and the Latvian Technological Center provided critical input on research priorities, innovation infrastructure gaps, and opportunities for strengthening university–industry collaboration, especially in photonics, ICT, and biomedicine.

Business Support and Innovation Agencies:
Organizations including Digital Innovation Hubs and the Enterprise Europe Network (EEN Latvia) played a vital role in identifying SME needs, supporting technology transfer, and advising on RIS3 alignment and funding navigation.

SMEs and Startups:
SMEs and startups shared firsthand experiences on challenges related to scaling, internationalization, regulatory complexity, and skills needs, informing the design of capacity-building and scaling support actions.

Cluster Organisations and Sector Networks:
Sector-specific clusters in smart materials, bioeconomy, digital health, and renewable

energy highlighted emerging industry demands and contributed to shaping cooperation services and cross-sector engagement models.

Public Authorities and Policymakers:
Representatives from public institutions at national and regional levels ensured alignment with strategic frameworks, RIS3 implementation structures, and regulatory innovation initiatives.

3. Key Insights from Stakeholder Consultations

The stakeholder consultations revealed several cross-cutting themes:

- Strong openness and motivation for cross-sector and international collaboration, yet a lack of structured and accessible cooperation platforms,
- Competence gaps in innovation scaling, commercialization, and effective EU programme participation,
- Need for enhanced support in aligning public and private innovation agendas with RIS3 domains,
- Complexity and fragmentation in accessing national and EU innovation funding instruments,
- Demand for expanded opportunities for skills development in green and digital innovation fields,
- Recognition of the importance of interregional collaboration to boost visibility, capacity, and funding success.

These insights directly informed the formulation of modular actions under the Action Plan, emphasizing practical support services, skills pathways, and cooperation facilitation.

4. Role of Stakeholders in Action Plan Implementation

Stakeholders are envisioned not just as beneficiaries but as **co-creators and implementation partners**. Their active participation will continue across multiple dimensions, including:

- Co-design and delivery of **training programmes** on innovation management, S3 alignment, and green/digital transition readiness,
- Participation in **regional working groups and innovation taskforces**, coordinating cross-sectoral and interregional initiatives,
- Piloting and validating **innovation support tools and methodologies**, including those developed through SustainX,
- Providing continuous **feedback and learning inputs** through participatory monitoring and evaluation activities, Helping **scale best practices** by sharing experience across the SustainX community and beyond.

Future stakeholder engagement activities will be facilitated through open platforms such as **living labs, regional cooperation forums, policy dialogue roundtables, and digital collaboration spaces**, supporting long-term ownership, inclusive innovation governance, and ecosystem resilience.

SMART OBJECTIVES

The **SustainX Action Plan for Latvia** establishes a results-oriented framework of **SMART** (Specific, Measurable, Achievable, Relevant, Time-bound) objectives to strengthen regional innovation capacity, foster multi-actor collaboration, and embed Smart Specialisation Strategy (RIS3) principles into operational practice.

In addition to targeting Latvia-specific bottlenecks, the SMART objectives of this Action Plan are designed to contribute to tackling **common interregional challenges** identified across the SustainX partnership and reflected in the project's Grand Agreement KPIs.

These shared challenges include:

- **Fragmented collaboration mechanisms** between innovation actors across regions, hindering knowledge transfer and co-creation,
- **Limited SME scaling capacity** beyond regional and national markets, particularly in green and digital sectors,
- **Insufficient operationalization of RIS3 strategies** at SME and intermediary level,
- **Skills gaps** in emerging domains essential for twin transitions (e.g., AI, circular economy, sustainable mobility),
- **Low cross-border integration** into EU innovation networks, resulting in reduced access to peer learning, funding opportunities, and best practice models.

Through coordinated actions — including SME scaling support, RIS3-aligned cooperation services, targeted skills development, and cross-border learning initiatives — the Latvian Action Plan directly addresses these interregional gaps, contributing to **wider systemic resilience**, **territorial innovation cohesion**, and the **SustainX vision of inclusive, place-based transformation** across Europe.

These objectives have been shaped through desk research, stakeholder mapping, and survey analysis, and are designed to address identified regional needs while contributing to the wider **SustainX Key Performance Indicators (KPIs)** and **cross-regional challenges**, including ecosystem fragmentation, SME scaling gaps, and skills mismatches.

Each objective is linked to Latvia's RIS3 domains, national strategies, and SustainX's commitment to promoting inclusive, mission-driven innovation across Europe.

OBJECTIVE 1: STRENGTHEN SME CAPACITY TO SCALE GREEN AND DIGITAL INNOVATION

Specific: Facilitate support services for at least **30 Latvian SMEs** by 2026 to move from early-stage innovation to market-ready solutions, particularly in RIS3-priority sectors.

Measurable: Progress will be tracked through SME participation in scaling activities, product commercialization rates, and EU programme engagement.

Achievable: Builds on regional assets such as Digital Innovation Hubs (DIHs), EEN Latvia, and emerging cluster networks.

Relevant: Addresses the scaling bottlenecks and innovation absorption gaps identified through stakeholder consultations.

Time-bound: 2025–2026

OBJECTIVE 2: FACILITATE QUADRUPLE-HELIX COLLABORATION THROUGH RIS3-ALIGNED SERVICES

Specific: Launch and operationalize **3 modular cooperation services** in RIS3 thematic areas (e.g., digital health, circular economy, smart manufacturing).

Measurable: Assessed by the number of services activated, diversity of participating stakeholders, and collaborative outputs.

Achievable: Builds on initial mapping efforts, active clusters, and emerging collaboration needs.

Relevant: Addresses persistent ecosystem fragmentation and the need for structured, mission-oriented co-creation.

Time-bound: By the end of 2025

OBJECTIVE 3: PROMOTE RIS3 AWARENESS AND STRATEGIC ALIGNMENT ACROSS THE ECOSYSTEM

Specific: Deliver modular training and practical guidance to at least **50 SMEs and intermediaries** on applying RIS3 logic and innovation funding strategies.

Measurable: Evaluated based on training participation, tool adoption, and RIS3-aligned project development.

Achievable: Builds on existing RIS3 instruments and stakeholder learning needs.

Relevant: Responds to observed gaps in RIS3 operationalization across SMEs and innovation intermediaries.

Time-bound: 2025–2026

OBJECTIVE 4: STRENGTHEN LATVIA'S ENGAGEMENT IN EU AND INTERREGIONAL INNOVATION INITIATIVES

Specific: Support at least **5 Latvian organizations** to join cross-border innovation collaborations, facilitating knowledge exchange and positioning Latvia more strongly within European innovation networks.

Measurable: Measured through new project participation, peer learning events, and good practice sharing.

Achievable: Builds on existing participation in Horizon Europe, Interreg, and SustainX partnerships.

Relevant: Addresses interregional challenges such as limited cross-border visibility and capacity to manage international partnerships.

Time-bound: 2025–2026

OBJECTIVE 5: BUILD SKILLS AND TALENT FOR SUSTAINABLE AND DIGITAL INNOVATION

Specific: Provide targeted training opportunities for at least **100 individuals**, focusing on green and digital innovation skills, entrepreneurship, gamification, and inclusive employment (e.g., rehabilitation and inclusion of disadvantaged groups).

Measurable: Measured through participant numbers, diversity of skillsets, and SME feedback.

Achievable: Delivered through collaboration with DIHs, universities, clusters, and business support organizations.

Relevant: Directly addresses human capital gaps and supports workforce resilience in the context of the twin transitions.

Time-bound: By mid-2026

INTERLINKAGES AND MONITORING

These objectives are **mutually reinforcing**:

- SME capacity-building enhances absorption of innovation support,
- Collaboration platforms stimulate new projects and RIS3 alignment,
- Skills development fuels innovation scaling and competitiveness,
- Interregional learning fosters cross-border solidarity and policy improvements.

Monitoring and learning will be embedded within the **SustainX MEL (Monitoring, Evaluation, and Learning) framework**, with regular updates through stakeholder dialogues, peer sessions, and adaptive management cycles.

The Action Plan explicitly recognizes the importance of tackling **shared interregional challenges**, including:

- Strengthening SME scaling pathways,
- Enhancing RIS3 operationalization at the ground level,
- Boosting skills ecosystems for twin transitions,
- Improving international visibility and integration into EU innovation networks.

SWOT ANALYSIS

This SWOT analysis offers a structured diagnosis of Latvia's regional innovation ecosystem in the context of the green and digital transitions, framed by SustainX's ecosystem approach. It synthesizes desk research, stakeholder inputs, and policy reviews to highlight both internal factors (strengths and weaknesses) and external dynamics (opportunities and threats) influencing Latvia's innovation trajectory.

Strengths	Weaknesses
✓ **Advanced digital infrastructure** in urban centers (broadband coverage, data centers), supporting digitalization and smart economy development. ✓ **Active participation in EU-funded programmes** (Horizon Europe, EIT, Interreg, Digital Europe) enhancing access to resources, knowledge, and partnerships. ✓ **Clearly defined RIS3 domains** aligned with EU missions, focusing on bioeconomy, digitalization, health, and sustainable energy sectors. ✓ **Strong scientific and research base** in ICT, photonics, health technologies, and smart materials, providing a solid foundation for applied innovation. ✓ **Established innovation intermediaries** (EEN, DIHs, Digital Innovation Zone) offering SMEs pathways to scaling and internationalization. ✓ **Emerging sectoral clusters** in fields such as smart energy, life sciences, and circular economy, creating new innovation synergies. ✓ **Digitally skilled workforce**, particularly in urban innovation hubs, ready to drive smart specialisation and digital transformation efforts.	▪ **Coordination among innovation actors** remains a work in progress, with opportunities to further strengthen cross-sector platforms and ecosystem connectivity. ▪ **Scaling support for SMEs** could be expanded, particularly in providing access to testing, validation, and growth services beyond early-stage development. ▪ **Commercialization pathways** for research and innovation outputs are not yet fully optimized, particularly for SMEs in rural or peripheral regions. ▪ **Skills gaps and talent outflow** in high-tech and green transition sectors present a challenge, though national reskilling programmes are being increasingly promoted. ▪ **Administrative processes and funding access** can still be complex, highlighting a need for simplified, SME-friendly support schemes. ▪ **Visibility and understanding of RIS3 priorities** among SMEs and intermediaries could be further enhanced to improve alignment and funding uptake.

	▪ **Public sector engagement** in strategic innovation orchestration offers room for growth, especially in promoting RIS3 missions and cross-sector collaboration initiatives.
Opportunities	**Threats**
✓ **Expansion of EU funding and cooperation opportunities** through Horizon Europe, Interreg NEXT, Digital Europe, and other programmes. ✓ **Growing policy emphasis on green and digital transitions**, creating demand for innovations in bioeconomy, smart health, digital transformation, and renewable energy. ✓ **Strengthening and leveraging emerging clusters** in smart energy, circular economy, and health tech to foster innovation ecosystems and internationalization. ✓ **Next-generation digital infrastructure roll-out**, including 5G expansion, enabling adoption of AI, IoT, smart manufacturing, and cybersecurity solutions. ✓ **Mobilization of digital talent** to scale up RIS3 priority sectors and reduce skills gaps through targeted upskilling and inclusion programmes. ✓ **Progressive implementation of RIS3**, creating opportunities to better align support tools with real SME needs and innovation trends. ✓ I**nterregional learning and peer exchange** through SustainX and EU platforms, fostering transfer of good practices and strengthening Latvia's positioning in European innovation networks.	▪ **Continued brain drain and competition for high-skilled talent** may affect regional innovation potential unless retention and upskilling strategies are further strengthened. ▪ **Fragmented ecosystem coordination** could slow down innovation scalability if not addressed through structured collaboration platforms and stakeholder engagement. ▪ **Over-reliance on external funding** (EU programmes) could create sustainability risks without stronger national and regional co-investment mechanisms. ▪ **Disparities between urban and rural innovation capacities** could widen if support services are not spatially inclusive. ▪ **Slow adaptation of regulatory frameworks** to fast-moving sectors (e.g., digital health, green tech) may limit SME innovation in emerging industries. ▪ **Visibility and leadership in European innovation ecosystems** need to be continuously strengthened to maximize opportunities for cross-border collaboration and funding access.

KEY INSIGHTS FROM THE SWOT ANALYSIS

Strong assets, but ecosystem maturity still evolving: Latvia benefits from an advanced digital infrastructure, active engagement in EU programmes, and a RIS3 framework aligned with European missions. However, collaboration between innovation actors and

commercialization pathways remain areas for further strengthening, particularly for SMEs and emerging clusters.

RIS3 offers a clear strategic direction, with opportunities to enhance operationalization: While Latvia's RIS3 domains capture real sectoral strengths, further efforts are needed to translate them into SME support mechanisms, accessible funding instruments, and inclusive skills pipelines, especially beyond urban innovation centers.

Significant opportunities at the intersection of European policy priorities and regional ambition: Latvia is well-positioned to leverage EU-level initiatives such as the Green Deal, Digital Decade, Horizon Europe Missions, and interregional cooperation under SustainX to foster SME scaling, cross-sector collaboration, and skills development in priority domains.

Challenges are interlinked and require coordinated, mission-driven responses: Talent retention, scaling support, and inclusive innovation growth are interconnected issues that call for a systemic approach — one that builds on multi-level governance, public-private collaboration, and continuous peer learning with other European regions.

Implications for SustainX and Action Plan Implementation

The SWOT analysis highlights that **Latvia's innovation ecosystem** requires a **holistic, mission-oriented strategy** to fully activate its potential and reinforce its role within the European Innovation Area.

THE SUSTAINX ACTION PLAN WILL CONTRIBUTE TO THIS BY:

Empowering SME innovation scaling through practical services and access to cross-border opportunities,

Enhancing ecosystem connectivity by facilitating quadruple helix collaboration across RIS3 domains,

Fostering talent development and skills upgrading in green and digital sectors through targeted, modular initiatives,

Strengthening interregional learning and knowledge transfer, helping Latvia benchmark with peer regions and integrate good practices,

Supporting evidence-based governance through the deployment of lightweight innovation monitoring and foresight tools.

In this way, the Latvian Action Plan will serve not only as a catalyst for regional transformation but also as a replicable model for inclusive, sustainable innovation-driven development across SustainX territories.

ACTION PLAN

The **Latvian Action Plan**, developed under the **SustainX project**, presents a cohesive portfolio of targeted, modular interventions designed to address system-level challenges while unlocking the region's innovation potential.

While closely reflecting Latvia's specific findings and priorities, the actions have been designed at **project level** to ensure **flexibility, scalability, and responsiveness** to evolving needs across all participating regions.

The Action Plan focuses on advancing the **green and digital transitions**, while reinforcing ecosystem collaboration, skills development, SME scaling, and strategic foresight capacities.
It fully aligns with **Latvia's Smart Specialisation Strategy (RIS3)** and SustainX's pan-European mission.

As implementation progresses, actions can be further **tailored with country-specific elements**, expanded, or replicated in synergy with other SustainX regions.

ACTION 1: FOSTER REGIONAL INNOVATION COLLABORATION SERVICES AND ROADMAPS

Objective:
Enable structured, multi-actor collaboration aligned with Latvia's RIS3 priority sectors.

Description:
Pilot modular cooperation services and co-designed strategic roadmaps to promote cross-sector collaboration between SMEs, universities, clusters, innovation intermediaries, and public authorities.
Focus areas:

Digital Health (e.g., telemedicine, health data solutions),

Circular Agri-Food Systems (e.g., biomass valorization, sustainable packaging),

Smart Manufacturing (e.g., robotics, Industry 4.0 solutions).

Services will be:

Light and flexible, based on practical activities (e.g., workshops, matchmaking, pilot initiatives),

Mission-driven, linked to RIS3 domains,

Inclusive, engaging SMEs and civil society alongside larger institutions.

Each thematic group will co-create a short-term strategic roadmap (18–24 months) identifying key challenges, collaboration opportunities, funding prospects, and pilot ideas.

Timing: Q3 2025 – Q4 2026
Involved Actors: Project partners; Cluster organisations, SME networks, innovation

intermediaries
Expected Outcomes:

3 cooperation services launched,

3–5 collaborative initiatives or pilots initiated,

Strengthened trust and cross-sector engagement.

ACTION 2: STRENGTHEN SME CAPACITIES THROUGH RIS3 TRAINING AND RECOGNITION

Objective:
Enhance SME and intermediary capacity to align with RIS3 domains and access innovation opportunities.

Description:
Deliver modular, hands-on training programmes helping SMEs and support actors understand:

RIS3 principles and domain priorities,

Green and digital transition strategies,

EU funding pathways (Horizon Europe, Interreg, Digital Europe).

Key Features:

Flexible, modular content,

Non-formal recognition through SustainX-branded digital badges and certificates,

Practical toolkits (self-assessments, funding checklists, mini-guides) supporting immediate application.

The approach ensures accessibility, motivation, and lightweight skill certification without heavy administrative burdens.

Timing: Q4 2025 – Q2 2026
Involved Actors: Project partners; Regional DIHs, universities, business support organisations
Expected Outcomes:

80–100 individuals trained,

Practical RIS3 guidance materials disseminated,

Increased SME awareness and innovation readiness.

ACTION 3: SUPPORT SME SCALING, POLICY DIALOGUE, AND INTERREGIONAL COLLABORATION

Objective:
Promote SME innovation scaling, enhanced policy alignment, and peer learning.

Description:
This action integrates:

- SME Innovation Scaling Services: Mentoring on product validation, market access, EU project preparation,
- RIS3 Policy Dialogues: 2 dialogue events between SMEs, clusters, and policymakers to improve funding alignment and reduce barriers,
- Interregional Peer Exchanges: 3–4 learning missions with SustainX partner regions (e.g., Thessaly, Santa Cruz) to share scaling models and funding strategies.

Focus will be placed on SMEs active in RIS3 sectors.

Timing: Q1 2025 – Q4 2026
Involved Actors: Project partners; SME associations, cluster networks, public authorities, EU project offices
Expected Outcomes:

- 20+ SMEs mentored for scaling,
- 2 RIS3 policy dialogue sessions held,
- 3–4 interregional exchanges completed,
- Increased EU network visibility for Latvian SMEs.

ACTION 4: DEVELOP A REGIONAL RIS3 DASHBOARD FOR EVIDENCE-BASED INNOVATION GOVERNANCE

Objective:
Provide regional actors with an accessible, shared monitoring tool.

Description:
Launch a lightweight, collaborative RIS3 Innovation Dashboard, focusing on a simple, transparent system:

- Google Sheets or SharePoint-based format,
- Key KPIs for innovation scaling, skills development, and collaboration intensity,
- Traffic-light coding and simple automatic charts.

This avoids costly IT systems while still offering strategic oversight for ecosystem trends and foresight planning.

Timing: Q1 2025 – Q2 2026
Involved Actors: Project partners; National Institute of Statistics, regional innovation

bodies

Expected Outcomes:

- Dashboard operational for regional use,
- Ecosystem KPIs monitored regularly,
- Evidence-based strategic planning enhanced.

ACTION 5: STRENGTHEN GREEN AND DIGITAL SKILLS PATHWAYS WITH PROJECT-LEVEL RECOGNITION

Objective:
Support workforce adaptation to sustainable and digital economy demands.

Description:
Design modular, flexible upskilling pathways in:

- Green innovation and circular economy,
- Digitalization and smart technologies,
- Sustainable agri-food systems.

Participants will earn non-formal SustainX project-level digital badges, visible on LinkedIn and CVs, providing motivational recognition.
Skills integration roadmaps will help SMEs connect training outcomes with business strategies.

Timing: Q2 2025 – Q4 2026
Involved Actors: Project partners; VET Centres, universities, business organisations
Expected Outcomes:

- 100–120 individuals upskilled,
- Skills integration roadmaps introduced for SMEs,
- Strengthened SME-skills ecosystem linkages.

SUMMARY TABLE OF ACTIONS – AT A PROJECT LEVEL

Action	Timeline	Lead Actors	Key Outputs
Innovation Collaboration Platforms	Q3 2025 – Q4 2026	Project partners	3 dashboards; 5+ co-created projects
S3-Aligned Capacity Building	Q4 2025 – Q2 2026	Project partners	100+ trained staff from SMEs/intermediaries
SME Innovation Scaling Scheme	Q1 2025 – Q4 2026	Project partners	30 SMEs scaled; 20 market-ready innovations

RIS3 Policy Alignment	Q3 2025 – Q3 2026	Project partners	Revised innovation support tools
Interregional Collaboration	Q4 2025 – Q4 2026	Project partners	5 cross-border projects; 4 exchanges
RIS3 Innovation Dashboard	Q1 2025 – Q2 2026	Project partners	Digital dashboard for ecosystem tracking

IMPLEMENTATION LOGIC

The redesigned actions are **interlinked and mutually reinforcing**, creating an adaptive, dynamic pathway for strengthening Latvia's innovation ecosystem while contributing to SustainX's pan-European objectives.

Innovation collaboration is fostered through the deployment of modular cooperation services and strategic roadmaps (Action 1), enabling SMEs, research institutions, clusters, and public authorities to co-create initiatives aligned with Latvia's RIS3 domains.

SME scaling, policy dialogue, and interregional cooperation are consolidated under a single, pragmatic approach (Action 3), integrating mentoring support for SMEs, structured dialogues with policymakers on RIS3 alignment, and peer learning activities with other SustainX regions and European ecosystems.

Capacity building and skills development are strengthened through modular training programmes, practical toolkits, and project-level recognition (Actions 2 and 5), promoting hands-on RIS3 operationalization and supporting the transition toward a digitally skilled and sustainability-oriented workforce.

Strategic foresight and evidence-based governance are enhanced through the creation of a lightweight, collaborative RIS3 Innovation Dashboard (Action 4), enabling real-time monitoring of key innovation ecosystem trends, facilitating learning loops, and supporting strategic decision-making.

This integrated, project-level approach simultaneously supports:

Latvia's regional innovation transformation, by building capacities, strengthening cross-sector collaboration, and enhancing SME resilience and competitiveness;

The SustainX project's mission, by empowering moderate innovator regions through inclusive, scalable, and mission-driven innovation strategies that strengthen territorial resilience, foster interregional solidarity, and contribute to European innovation cohesion.

By embracing a **flexible, evolving document philosophy**, the Action Plan ensures that interventions remain responsive to stakeholder needs, adaptable to emerging opportunities, and aligned with evolving European priorities such as the Green Deal, the Digital Decade, and the New European Innovation Agenda.

KEY RECOMMENDATIONS

The analysis and stakeholder consultations carried out within the SustainX project have highlighted a series of systemic and operational gaps that need to be addressed to unlock Latvia's full innovation potential in line with the green and digital transitions.

The following recommendations are structured around four strategic pillars, designed to support Latvian national and regional policymakers, innovation intermediaries, and ecosystem actors in **strengthening governance**, **enhancing SME capabilities**, and **leveraging RIS3 priorities** more effectively — while also reinforcing interregional learning and cooperation.

1. Strengthening Innovation Governance and RIS3 Operationalisation

Build on the existing RIS3 national coordination mechanisms by reinforcing inter-ministerial and regional dialogue, while ensuring systematic SME and cluster representation.

Establish interregional RIS3 working groups (Latvia–Estonia–Lithuania) to facilitate continuous stakeholder dialogue, co-design of actions, and sharing of best practices across the Baltic region.

Introduce more flexible, SME-accessible funding instruments aligned with RIS3 strategy, with simplified procedures, cross-sector eligibility, and support for interdisciplinary innovation projects.

Institutionalize lightweight foresight and monitoring tools, such as a Regional RIS3 Innovation Dashboard, to enable real-time performance tracking and strategic adjustment.

Address the lack of methodologies for capturing innovation potential (in Latvia, Romania, and Bulgaria) by creating dedicated interregional working groups and research workshops — involving initiatives like IMPROVE — and producing a guidance document on Innovation Governance and improved Innovation Statistics.

2. Empowering SMEs for Scaling and Internationalisation

Design tailored SME innovation programmes that combine mentoring, micro-financing, and access to testing infrastructures, especially for bioeconomy, health tech, ICT, and smart energy sectors.

Adapt Innovation Readiness Assessment tools at the interregional level, allowing regional-level customization while maintaining a common SustainX learning logic.

Establish a "One-Stop Station" service for SMEs and intermediaries to facilitate participation in EU programmes (Horizon Europe, Interreg), including:

Online tools and templates (e.g., project proposal matrices),

Training on proposal writing and consortium building,

Streamlined guidance for navigating EU opportunities.

3. Enhancing Skills and Talent Retention in Strategic Domains

Expand upskilling and reskilling initiatives focused on critical areas such as AI, data science, green technologies, and smart manufacturing, building on national digitalisation and employment programmes.

Promote university–industry joint training programmes and expand dual education models to better align academic curricula with industry and RIS3 sector needs.

Analyze best practices for regional innovation internships and mobility schemes, piloting initiatives to retain young talent and create structured career pathways in Latvia's innovation ecosystem.

Support the creation of communities of practice in priority RIS3 sectors to promote continuous knowledge exchange, SME mentoring, and innovation leadership development.

4. Fostering Ecosystem Collaboration and Transnational Engagement

Create structured collaboration platforms around mission-oriented challenges (e.g., green mobility, circular agri-food systems), facilitating interdisciplinary dialogue and joint innovation actions.

Encourage interregional and international cluster cooperation, promoting matchmaking, joint funding proposals, and peer learning activities through SustainX and complementary European initiatives.

Support place-based innovation models, such as Living Labs and Open Innovation Hubs, that connect local strengths with European-level innovation initiatives and contribute to visibility in the Innovation Scoreboard and other comparative metrics.

Cross-cutting Recommendation: Promote Inclusive and Sustainable Innovation

Embed inclusiveness and sustainability as guiding principles across innovation and RIS3 implementation, ensuring:

Equal access to support services for rural areas, women-led enterprises, and underrepresented groups,

Gender balance in leadership structures.

Foster the integration of ESG (Environmental, Social, Governance) and circular economy principles into innovation support schemes and funding instruments to future-proof Latvia's innovation pathways.

MONITORING & EVALUATION

The effectiveness and long-term impact of the Latvian Action Plan(ACTION PLAN) under SustainX will rely on a robust, participatory, and adaptive Monitoring & Evaluation (M&E)

framework. The M&E system is designed not only to measure progress but also to enable strategic foresight, support evidence-based governance, and foster continuous learning at both the regional and national levels.

Aligned with the SustainX methodology, the M&E framework builds on Latvia's existing RIS3 governance infrastructure and introduces added value through real-time monitoring tools, multi-level feedback loops, and interregional peer learning mechanisms.

1. M&E Governance and Institutional Architecture

The M&E framework will be embedded in the national RIS3 coordination system, with clearly delineated responsibilities across institutions to ensure coherence, legitimacy, and continuity:

- National RIS3 Coordination Unit (Ministry of Economics): Leads overall coordination and alignment with national innovation policies and RIS3 tracking.
- Regional Development Agencies and Councils: Coordinate data collection and engage local stakeholders to ensure place-based feedback and insights.
- Innovation intermediaries (e.g. DIHs, Latvian Technological Center, EEN Latvia): Monitor action implementation and collect SME-level and capacity-building impact data.
- SustainX Partner ARC Fund: Provides M&E methodology templates, supports peer learning, and ensures cross-regional comparability within the SustainX community.

A dedicated Inter-Institutional M&E Working Group will oversee implementation, validate findings, and propose adjustments to ACTION PLAN activities and related policy instruments.

2. Indicators and Data Collection Framework

The M&E system will apply a tiered KPI model, fully aligned with the Action Plan's SMART Objectives and SustainX evaluation criteria.
Indicators will be disaggregated by:

RIS3 domain,

Target group (e.g., SMEs, intermediaries, workforce),

Geography (urban, rural balance).

KPI Category	Key Indicators	Data Sources	Frequency
Implementation Monitoring	- Actions launched/completed - Stakeholder engagement	M&E Coordination Unit, Action Leaders	Quarterly
SME Innovation Impact	- SMEs supported - Innovations scaled - EU uptake	DIHs, Clusters, EEN, SME feedback	Biannually

RIS3 Alignment	- RIS3-aligned projects - RIS3 awareness improvement	Surveys, project data, funding reports	Annually
Capacity-Building & Skills	- Individuals trained - Training relevance	VET providers, universities, clusters	Biannually
Cross-Border Collaboration	- Joint projects - Peer learning events	SustainX reports, EU programme data	Annually
Governance & Policy Learning	- Policies revised - Use of M&E insights in planning	MoE, Regional Councils, RIS3 working group	Annually

The lightweight RIS3 Innovation Dashboard (developed under Action 4) will serve as a central digital tool to visualize progress and support strategic decision-making.

3. Evaluation Methodology

Evaluation will be carried out along three complementary dimensions, ensuring learning, accountability, and adaptability:

Formative Evaluation (Mid-2025):

Purpose: Identify early progress, detect bottlenecks, recalibrate actions.

Method: Surveys, stakeholder interviews, M&E data trends, reflection workshops.

Summative Evaluation (End-2026):

Purpose: Assess final achievements, sustainability potential, and systemic impact.

Method: Theory of Change-based impact analysis combined with qualitative feedback from stakeholders.

Peer-Based and Comparative Evaluation:

Purpose: Foster interregional benchmarking, extract good practices, and identify shared challenges.

Method: SustainX peer reviews, cross-region case studies, twinning exercises.

4. Feedback Loops and Adaptive Management

The M&E system will be dynamic and participatory, ensuring responsiveness to emerging needs:

Quarterly Stakeholder Review Sessions:
Review interim findings, gather feedback, and co-develop potential adaptations with ecosystem actors.

Biannual Implementation Reports:
Synthesizing action progress, challenges, and proposed adjustments, submitted to the RIS3 Coordination Unit.

Integration with RIS3 Governance:
Continuous feedback loops between action-level insights and national RIS3 policy cycles, supporting adaptive programming.

This ensures the Action Plan remains flexible, resilient to external shifts (e.g., EU policy changes, economic conditions), and stakeholder-centered.

5. Sustainability of Monitoring Structures

To ensure continuity and institutional memory beyond the SustainX project:

Capacity-building for M&E officers and regional coordinators will be offered through targeted training and peer exchange.

Digital tools (e.g., the RIS3 Dashboard) will be maintained on open-access platforms, linked to national innovation data systems.

Funding options (ERDF, Horizon Europe coordination actions, national budgets) will be explored to support the evolution of M&E tools and sustain impact measurement practices.

The Monitoring & Evaluation framework transforms M&E from a compliance tool into a **strategic capability** for innovation governance in Latvia.
It fosters transparency, continuous learning, evidence-based policy design, and interregional solidarity — enabling Latvia's innovation ecosystem to navigate the twin transitions and contribute actively to European innovation cohesion.

SUSTAINABILITY & TRANSFERABILITY

The successful implementation and long-term impact of the Latvian Action Plan under the SustainX project will be underpinned by a strong commitment to **sustainability**, **institutional learning**, and **interregional transferability**.
Sustainability in this context goes beyond project timelines — it includes policy durability, financial integration, operational resilience, and knowledge diffusion across European innovation ecosystems.

Aligned with the SustainX methodology, the Action Plan is designed as a **flexible, scalable, and place-sensitive instrument**, enabling Latvia to advance its twin transitions while offering replicable models for other moderate innovator regions.

1. Sustainability of the Action Plan

The Latvian Action Plan embeds sustainability across three key dimensions:

Institutional Sustainability:

Building on Latvia's established RIS3 Coordination Unit and Working Groups under the Ministry of Economics, ensuring continuity and integration with national and regional innovation policy cycles.

Engaging regional development agencies, innovation intermediaries (e.g., DIHs, EEN), and clusters to maintain ecosystem coordination and feedback loops beyond SustainX's lifecycle.

Financial Sustainability:

Designing modular actions that can be embedded into future funding streams such as ERDF programmes, Horizon Europe, Interreg NEXT, and national innovation funds.

Enhancing stakeholder capacity for direct funding acquisition and proposal development to secure independent, long-term support.

Operational Sustainability:

Institutionalizing tools such as the lightweight RIS3 Innovation Dashboard within Latvia's innovation governance system.

Continuing participatory practices (e.g., Stakeholder Roundtables, peer learning workshops) as part of routine RIS3 governance and monitoring.

Through these mechanisms, the Latvian Action Plan becomes a dynamic tool for driving innovation system strengthening over the long term.

2. Transferability Across the EU

The Latvian Action Plan offers scalable and adaptable approaches highly relevant to other EU regions, particularly those aiming to operationalize RIS3 more effectively or address twin transition challenges.

Key transferable elements include:

Cross-Sector Collaboration Platforms:

The Action Plan's light and mission-driven cooperation services (in digital health, bioeconomy, and smart energy) provide a replicable model for fostering practical multi-stakeholder engagement.

Modular Capacity Building for SMEs and Intermediaries:

Latvia's approach to modular, RIS3-aligned training (including non-formal recognition through badges) addresses common SME innovation gaps and is easily adaptable to different regional contexts.

Data-Driven Monitoring and Strategic Foresight:

The lightweight RIS3 Dashboard concept—simple, collaborative, and real-time—serves as a practical model for evidence-based policy support without heavy IT infrastructure demands.

Policy and Funding Alignment:

Latvia's iterative methodology for RIS3 filtering of funding instruments and simplification of administrative processes offers valuable lessons for improving SME access and programme effectiveness elsewhere.

These elements are designed to be **cost-effective, flexible, and accessible**, making them highly relevant to regions across the EU facing similar innovation system development challenges.

3. Knowledge Sharing and Ecosystem Scaling

Latvia is committed to playing an active role in **interregional learning and knowledge transfer** within the SustainX project and beyond:

Participation in SustainX peer exchanges, S3 Community of Practice events, and Vanguard Initiative cooperation platforms.

Publication of replicable toolkits and good practices, focusing on RIS3 operationalization, SME scaling, and inclusive innovation governance.

Hosting a SustainX Knowledge Transfer Workshop in Latvia (targeting Baltic Sea and other modest innovator regions) to strengthen regional communities of practice around mission-driven innovation.

Through these efforts, Latvia aims to contribute meaningfully to European innovation cohesion, helping bridge gaps between leading and moderate innovator regions.

The Latvian Action Plan represents a sustainable, scalable, and inclusive model for regional innovation transformation.
It is grounded in:

Realistic, evidence-based objectives,

Strong multi-level governance structures,

Embedded stakeholder ownership and learning mechanisms,

And a proactive commitment to EU-wide knowledge transfer and collaboration.

By aligning fully with EU missions, RIS3 priorities, and SustainX objectives, Latvia positions itself not only as a regional innovation leader but also as a contributor to a greener, smarter, and more cohesive European Innovation Area.

CONCLUSION

The **Latvian Action Plan**, developed within the **SustainX project**, presents a strategic and operational roadmap for advancing Latvia's innovation ecosystem through a **place-based**, **RIS3-aligned**, and **future-oriented** approach.

Grounded in participatory stakeholder engagement, survey insights, and cross-sector collaboration, the Action Plan aims to **unlock Latvia's innovation potential** by addressing persistent system-level barriers and enabling the twin green and digital transitions.

Latvia demonstrates **considerable untapped potential**, anchored in:

- A strong scientific base across priority domains such as **bioeconomy, ICT, smart materials, energy systems, and health technologies**,
- Active participation in **EU programmes** (e.g., Horizon Europe, Interreg, Digital Europe),
- Robust **digital infrastructure** and growing innovation capabilities.

Yet, persistent challenges — such as **fragmented collaboration**, **underdeveloped SME scaling pathways**, **skills mismatches**, and **gaps in policy implementation** — continue to constrain the region's full innovation performance.

The Action Plan responds to these gaps with a **coherent, modular set of five interlinked actions**, designed to:

- Equip SMEs and intermediaries with tools for **scaling innovation** and accessing **EU funding ecosystems**,
- Foster **cross-sector collaboration** through mission-driven services and thematic roadmaps,
- Enhance **digital and green skills** through targeted, flexible training pathways with non-formal recognition,
- Strengthen **strategic foresight and innovation governance** via a lightweight, real-time monitoring dashboard,
- Improve **Latvia's interregional engagement** and visibility within the European Innovation Area.

A defining achievement of this process has been the **activation of a collaborative, ecosystemic dynamic** — bringing together public authorities, academia, business intermediaries, SMEs, and civil society around **shared innovation missions**.

This ecosystemic approach is critical for sustaining Latvia's innovation capacity, promoting strategic agility, and ensuring **adaptive governance** in the face of evolving challenges.

Moreover, the Latvian Action Plan contributes directly to a **broader European ambition** — championed by SustainX — to **strengthen territorial innovation governance**, **promote interregional learning and solidarity**, and **foster inclusive, resilient innovation ecosystems** across Europe.

The methodologies, modular approaches, and learning mechanisms developed through Latvia's experience are designed to be **transferable** — offering practical pathways for other moderate innovator regions facing similar challenges of scale, governance, and inclusion.

Looking ahead, the Action Plan sets the stage for a **dynamic implementation phase**, where:

- **Stakeholder ownership**,
- **Strategic foresight**,
- And **continuous feedback mechanisms** will be essential for success.

Delivering impact will require:

- Sustained **political and institutional commitment** at both national and regional levels,
- Continued **alignment with EU strategic frameworks** (e.g., Green Deal, Digital Decade, Horizon Europe Missions),
- And a strong emphasis on **interregional solidarity and cross-border learning**.

Ultimately, the Latvian Action Plan serves not only as a **national innovation roadmap**, but as a **European contribution to building a greener, smarter, and more inclusive innovation landscape** —
grounded in context, driven by evidence, and shaped by shared ambition.

It marks both a **starting point** and a **commitment** to positioning Latvia as a resilient and forward-looking innovation actor within the evolving European innovation space.

ANNEX I.

REGION-SPECIFIC CHALLENGES

Latvia, as one of the Baltic states, has made significant progress in aligning with EU green and digital priorities. However, regional disparities and legacy issues continue to present barriers to sustainable development, particularly in less urbanized areas. The following three challenges are particularly relevant to SustainX goals and Latvia's smart specialization priorities.

1. SLOW DIGITAL TRANSFORMATION OF TRADITIONAL SECTORS

Agriculture and manufacturing remain key sectors in Latvia's regional economy, especially outside Riga. However, **digitalization in these sectors remains limited**, particularly among SMEs and family-owned businesses. A lack of investment capacity, insufficient knowledge of available digital tools, and low trust in digital innovation are key barriers.

- **Agriculture**: Many farms rely on traditional methods, with limited use of precision agriculture, digital monitoring, or data-driven resource management.
- **Manufacturing**: Small and medium-sized manufacturers often lack automation, integrated supply chain systems, and Industry 4.0 practices.

This gap restricts competitiveness, limits productivity gains, and reduces the resilience of these sectors to disruptions, such as climate shocks or supply chain volatility.

2. LIMITED REGIONAL INVESTMENT IN GREEN AND CLEAN TECHNOLOGIES

While Latvia has adopted ambitious national and EU climate targets, regional progress is uneven. **Investment in green technologies**—such as energy-efficient machinery, sustainable construction, or circular economy solutions—is concentrated in urban areas or driven by a few innovation leaders. In many rural and semi-rural regions, municipalities and businesses face constraints including:

- **Limited access to green finance** instruments.
- **Shortage of local project developers** familiar with EU or ESG funding.
- **Gaps in technical expertise** for implementing clean tech solutions.

As a result, **climate-neutral transition is slower in regions**, and innovation ecosystems struggle to generate bottom-up green solutions.

3. DEMOGRAPHIC CHALLENGES AFFECTING INNOVATION POTENTIAL

Latvia faces one of the highest rates of **population decline in the EU**, particularly in rural regions. This includes:

- **Youth outmigration** to capital cities or abroad.
- **Aging workforce**, especially in public administration and traditional industries.

These demographic trends create several innovation-related challenges:

- **Brain drain**, with fewer young entrepreneurs and tech-savvy professionals.
- **Labor shortages**, especially in sectors that require re-skilling for green and digital roles.
- **Reduced local demand** for innovative services due to shrinking populations.

Without targeted regional policies and coordinated educational and employment programs, these trends will continue to undermine the long-term innovation capacity of Latvian regions.

Latvia's regional development and innovation potential require **targeted support for digital transformation in key sectors**, **investment incentives for green technologies**, and **demographic revitalization strategies**. SustainX can support these efforts by promoting interregional exchange, capacity-building for SMEs and municipalities, and enhancing access to European innovation and cohesion instruments.

ANNEX II.

LATVIA REGIONAL INNOVATION ROADMAP (MID-2025 – END-2026)

This roadmap provides a **strategic and operational guide** for implementing the **SustainX Regional Action Plan (RAP)** in Latvia during the period from mid-2025 through the end of 2026.
It translates stakeholder insights, competence mapping findings, and strategic analysis into **concrete, time-bound actions** designed to deliver measurable ecosystem-level impact.

Firmly rooted in **Latvia's Smart Specialisation Strategy (RIS3)** and aligned with broader **EU frameworks** such as the European Green Deal, the Digital Decade Strategy, and Horizon Europe Missions, the roadmap links long-term policy ambitions with **pragmatic regional delivery**.

It builds on Latvia's assets — such as strong digital infrastructure, capable R&D institutions, and increasing EU engagement — while addressing bottlenecks like fragmented collaboration, limited SME scaling support, and skills mismatches.

Core Objectives of the Roadmap:

- Strengthen SME innovation capacity and scaling pathways.
- Foster ecosystem-wide collaboration through practical cooperation services and roadmaps.
- Enhance RIS3 awareness and operationalisation among SMEs and intermediaries.
- Build digital and green skills pipelines through modular, flexible training pathways.
- Improve evidence-based governance through the deployment of a lightweight RIS3 Innovation Dashboard.
- Promote interregional integration through peer exchanges and cross-border project building.

Strategic Focus Areas:

The roadmap will primarily focus on the following RIS3 domains:

1. Knowledge-Intensive Bioeconomy
2. Biomedicine, Medical Technology & Pharmacy
3. Photonics, Smart Materials & Engineering Systems
4. Smart Energy and Mobility
5. ICT and Digital Transformation

Each roadmap milestone is mapped to one or more of these domains and linked to the **SustainX Work Package 1 KPIs**.

Timeline and Strategic Milestones

Timeframe	Strategic Milestone	Key Actions / Outputs	Lead Actors	SustainX KPIs
Q2 2025	Governance Activation	Reactivate RIS3 Coordination and Monitoring Taskforce; Confirm stakeholder roles and align workstreams.	MoE, RIS3 Coordination Unit, RDAs	KPI1, KPI3
Q2–Q4 2025	Platform Launch & Co-Design	Launch 3 modular cooperation services in digital health, bioeconomy, and smart manufacturing; Facilitate pilot co-creation labs.	Latvian Technological Center, RTU, EEN Latvia	KPI2.1–2.3
Q3 2025 – Q1 2026	SME Capacity Building	Deliver modular training to 80–100 SMEs and intermediaries on RIS3 logic, green/digital transitions, and EU opportunities.	DIH Latvia, Cluster Networks, RDAs	KPI3.1–3.3, KPI5.1
Q3 2025 – Q4 2026	SME Innovation Scaling Support	Launch SME mentoring support for scaling and access to Cascade Funding; Support 20 green/digital innovations.	LIAA, MoE, Sectoral Clusters	KPI1.1–1.3
Q3 2025 – Q2 2026	Policy Alignment & Dashboard Deployment	Review and fine-tune RIS3-aligned funding instruments; Launch lightweight RIS3 Innovation Dashboard.	MoE, RIS3 Coordination Unit, Statistics Bureau	KPI3.3, KPI6
Q4 2025 – Q4 2026	EU Integration & Peer Learning	Organize 2 peer exchanges and 3 consortium-building workshops; Launch at least	ARC Fund, DIZ, EEN Latvia	KPI4.1–4.3

		5 cross-border project initiatives.		
Q4 2025 – Q4 2026	Skills for Green & Digital Transition	Upskill 120–150 individuals through modular training in AI, circular economy, smart manufacturing, and green innovation.	RTU, VET Centres, Ministry of Education	KPI5.1–5.3
Q4 2026	SustainX Legacy and Knowledge Transfer	Summative evaluation; Publish practical toolkits and case studies to support broader EU learning.	MoE, ARC Fund, RIS3 Taskforce	KPI6

Implementation Guidance

1. Governance and Coordination

- Mobilize the existing **RIS3 Coordination Unit** and set up a **Monitoring & Evaluation Taskforce**.
- Engage intermediary actors (e.g., DIHs, clusters, EEN Latvia) for decentralized delivery support.
- Regular alignment with European peers through SustainX peer sessions and Interreg networking.

2. Modular Work Package Delivery

- Each action will be translated into a dedicated **work package** with:
    - Specific tasks, outputs, and funding sources,
    - Timeline tracking using Gantt charts and shared online tools,
    - Integrated modularity for flexible adaptation as needed.

3. Digital Monitoring Tools

- The **RIS3 Innovation Dashboard** will serve as a real-time tracking tool for action progress and foresight scanning.
- Open-access, collaborative documents and visualization dashboards will support transparent updates and adjustments.

4. Interregional Learning and Visibility

- Active participation in SustainX peer exchanges and knowledge-sharing initiatives.
- Dissemination of Latvian good practices (e.g., modular RIS3 training, dashboard templates) through EU platforms (S3 CoP, Vanguard, JRC).

5. Annual Review and Adaptation

- Organize an annual stakeholder review cycle each autumn to:
    - Assess KPI achievement,
    - Identify emerging opportunities,
    - Refine actions and timelines for stronger impact.

This roadmap functions not only as a delivery schedule for the SustainX Action Plan in Latvia but also as a **strategic enabler of systemic change**.
It empowers Latvia's innovation ecosystem to:

- Achieve stronger SME scaling,
- Strengthen cross-sector collaboration,
- Improve policy coordination,
- And increase visibility and participation within the European Innovation Area.

By embedding adaptability, modularity, and stakeholder ownership, the roadmap ensures that Latvia's innovation transition is both **resilient** and **future-proof** — fully aligned with RIS3 priorities and SustainX's European mission.

***SustainX Key Performance Indicators (KPIs)**

KPI1: Number of SMEs supported through innovation scaling programs.

KPI1.1: Number of innovation vouchers distributed to SMEs.

KPI1.2: Number of SMEs receiving mentoring support.

KPI1.3: Number of SMEs accessing testbeds or pilot facilities.

KPI2.1: Number of cross-sectoral RIS3 platforms operationalized.

KPI2.2: Number of joint pilot projects launched through these platforms.

KPI2.3: Level of stakeholder engagement in cross-sectoral platforms.

KPI3: Number of regional funding instruments aligned with RIS3 priorities.

KPI3.1: Number of SMEs and intermediaries trained on RIS3 priorities.

KPI3.2: Number of innovation management training sessions conducted.

KPI3.3: Number of EU project participation workshops held.

KPI4.1: Number of regional peer exchanges organized.

KPI4.2: Number of consortium-building labs conducted.

KPI4.3: Number of cross-border collaborations initiated.

KPI5.1: Number of individuals upskilled in green and digital skills.

KPI5.2: Number of training programs developed for green and digital skills.

KPI5.3: Level of satisfaction among participants in upskilling programs.

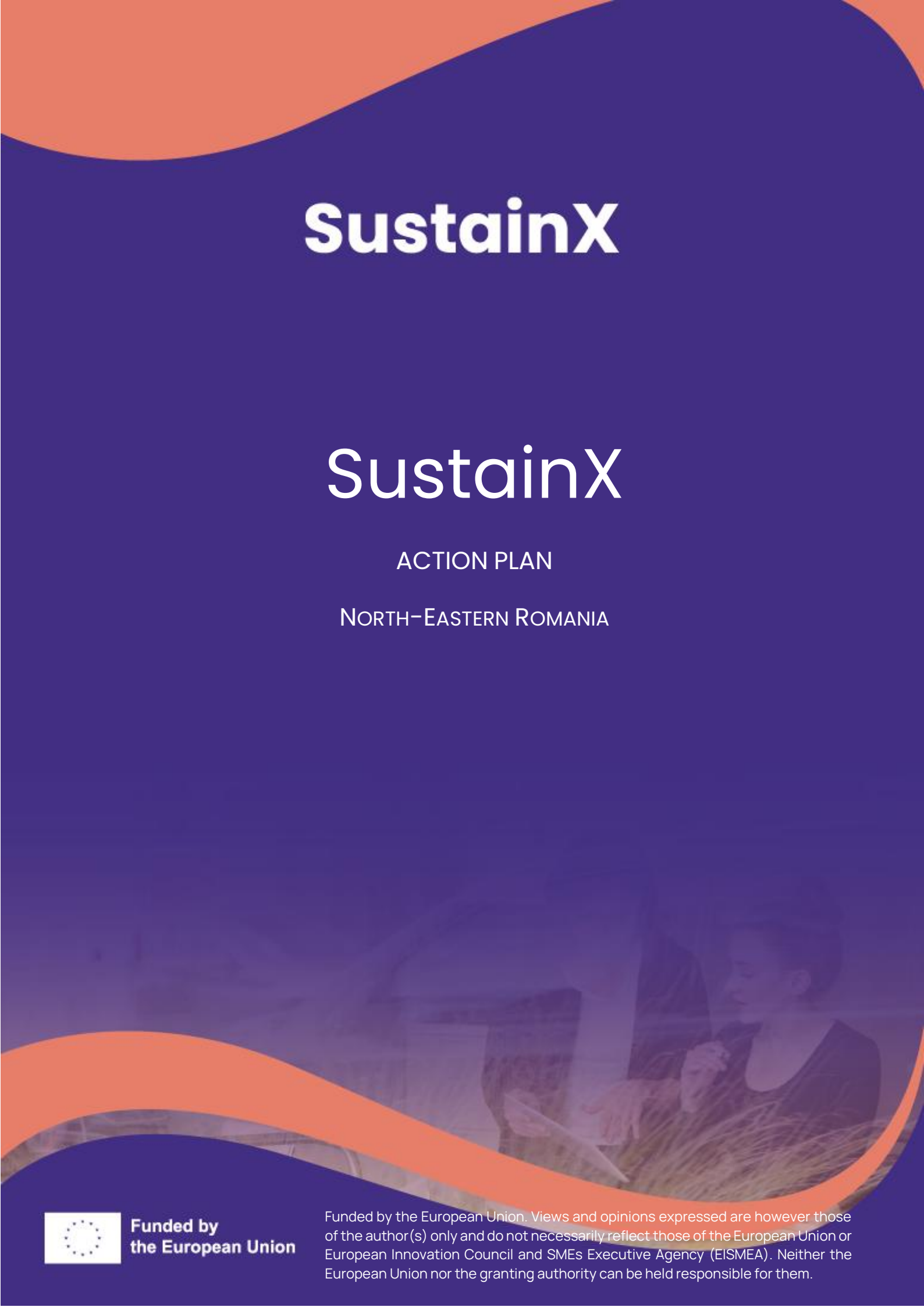
KPI6: Number of policy instruments adapted based on M&E findings.

SustainX

SustainX

ACTION PLAN

North-Eastern Romania



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SustainX Action Plan – North-Eastern Romania

EXECUTIVE SUMMARY

The **SustainX Action Plan for North-Eastern Romania** is designed to address region-specific challenges and leverage existing strengths to drive a sustainable, digitally enabled, and innovation-driven transformation.
Aligned with Romania's **National Strategy for Research, Innovation and Smart Specialisation (S3)** and the **SustainX project objectives**, this plan provides a **flexible, project-level framework** for coordinated, cross-sector interventions that can evolve and expand as implementation progresses.

Identified Challenges

Through stakeholder consultations, competence mapping, and regional analyses, several persistent and interconnected challenges were identified:

Scaling barriers for SMEs: Despite entrepreneurial dynamism, innovative SMEs face hurdles in moving from early-stage ideas to scalable, market-ready solutions, due to limited commercialization support and internationalization pathways.

Funding access and infrastructure gaps: Difficulties navigating EU and national funding programmes, and underutilized R&D facilities, constrain innovation uptake and scaling.

Fragmented collaboration across sectors: Weak synergies between universities, SMEs, clusters, and public authorities reduce the region's ability to generate and sustain innovation value chains.

Talent leakage and skills gaps: A persistent outflow of skilled individuals, especially in digital and green sectors, highlights the need for targeted upskilling and career development initiatives.

Policy and administrative misalignments: Insufficient alignment between regional policies and S3 priorities, alongside complex administrative procedures, limits the effectiveness of innovation support instruments.

Strengths of the Regional Innovation Ecosystem

Despite these challenges, North-Eastern Romania benefits from notable assets that provide a strong foundation for future progress:

Academic excellence and research capacity: Institutions like the Technical University of Iași (TUIASI) drive R&D in key sectors such as digital health, Industry 4.0, and sustainable mobility.

Emerging digital and green innovation ecosystems: Initiatives in circular economy, AI applications, and smart agriculture are gaining momentum, supported by Digital Innovation Hubs and EU project participation.

Vibrant entrepreneurial culture: A growing network of startups, clusters, and incubators is fostering early-stage innovation and expanding international cooperation.

European project experience: Active involvement in Horizon Europe, Interreg, and other EU initiatives has improved access to best practices, funding, and cross-regional collaboration.

Strategic Focus Areas

The Action Plan guides regional innovation efforts by prioritizing:

SME scaling and innovation support: Developing mentoring services, roadmaps, and access to pilot and testing infrastructures tailored to SMEs' needs.

Fostering collaboration and knowledge co-creation: Launching cooperation services and roadmaps across strategic RIS3 domains, engaging academia, business, and public actors.

Skills development and talent retention: Designing modular training pathways, digital badges, and skills roadmaps to strengthen regional capacity in digital and green innovation.

Evidence-based governance: Creating a basic RIS3 Dashboard to monitor progress, inform decision-making, and support strategic foresight.

Cross-border cooperation and learning: Promoting peer exchanges and interregional project development to strengthen ties with European innovation ecosystems.

Alignment with S3 Priorities

The Action Plan ensures strong coherence with Romania's national Smart Specialisation domains and the North-Eastern Regional Development Plan by addressing:

Digital Transformation and ICT: Promoting AI, automation, cybersecurity, and data analytics.

Health and Wellbeing: Advancing digital health, assistive technologies, and personalized care innovations.

Agri-Food and Bioeconomy: Supporting sustainable agriculture, bio-based product development, and circular economy models.

Smart Mobility and Sustainable Transport: Fostering low-carbon, integrated urban and rural mobility systems.

Advanced Manufacturing and Industry 4.0: Encouraging smart production, robotics, and sensor technologies through academia-industry collaboration.

By addressing regional bottlenecks, mobilizing local strengths, and embedding flexible, mission-oriented interventions, the **SustainX Action Plan for North-Eastern Romania** will help create a more **resilient**, **inclusive**, and **future-ready innovation ecosystem**.

The plan contributes directly to broader European ambitions for **territorial cohesion**, **green and digital transitions**, and **inclusive innovation growth**—positioning North-Eastern Romania as an active contributor to Europe's sustainable and digital future.

USED ABBREVIATIONS

SustainX	SustainX Project (full project name not expanded in the document)
S3 / RIS3	Smart Specialisation Strategy / Research and Innovation Smart Specialisation Strategy
SME	Small and Medium-sized Enterprise
NE RDA	North-East Regional Development Agency
MRID	Ministry of Research, Innovation and Digitalization (Romania)
EEN	Enterprise Europe Network
DIH	Digital Innovation Hub
EU	European Union
R&D	Research and Development
AI	Artificial Intelligence
VET	Vocational Education and Training (Centres)
KPI	Key Performance Indicator
NRRP	National Recovery and Resilience Plan (Romania)
NECP	National Energy and Climate Plan
RRF	Recovery and Resilience Facility (EU funding mechanism)
MEL	Monitoring, Evaluation, and Learning
ERDF	European Regional Development Fund
ESG	Environmental, Social, and Governance

ICT	Information and Communication Technology
RDI	Research, Development and Innovation
EIT	European Institute of Innovation and Technology

METHODOLOGY

The development of the North-Eastern Romania Action Plan under the SustainX project adopted a structured, participatory, and evidence-based methodology, ensuring regional relevance and alignment with both Romania's Smart Specialisation Strategy (S3) and the SustainX objectives for green and digital transformation.

The methodology combined desk research, stakeholder engagement, survey-based needs assessment, and iterative partner feedback to ensure the Action Plan is rooted in the region's real needs while being scalable, adaptable, and transferable.

DESK RESEARCH

The process began with a comprehensive review of key policy frameworks, strategic documents, and scientific literature to establish the innovation context:

Romania's National Strategy for Research, Innovation and Smart Specialisation (S3) — identifying priority domains and regional capabilities.

North-East Regional Development Plan 2021–2027 and the Regional Innovation Strategy — providing a place-based policy framework.

European-level frameworks (European Green Deal, Digital Europe Programme, Horizon Europe Missions, S3 Platform guidance) — ensuring alignment with broader EU goals.

Scientific analyses and regional diagnostics — particularly focusing on university-industry collaboration, ecosystem fragmentation, and RIS3 implementation progress.

This phase highlighted both regional strengths (e.g., ICT, health innovation, agri-food bioeconomy) and challenges (e.g., stakeholder fragmentation, underutilized R&D infrastructure).

STAKEHOLDER MAPPING AND COMPETENCE ASSESSMENT

A targeted stakeholder and competence mapping was conducted under Work Package 1, identifying key actors across the quadruple helix:

Academic and Research Institutions, notably TUIASI and associated research centres;

Clusters and Business Support Organisations, including digital innovation hubs and sectoral associations;

Regional Public Authorities and Development Agencies, especially NE RDA;

SMEs and Startups active in digital, green, and health sectors;

Civil Society and Innovation Intermediaries, contributing to inclusive innovation.

An online survey captured stakeholder competencies across innovation strategy, business model innovation, digital transition, and cross-sector collaboration.
While many respondents expressed confidence in operational innovation methods, challenges persisted around scaling SMEs, accessing EU funding, and enhancing university-industry cooperation.

SURVEY ANALYSIS AND ECOSYSTEM NEEDS ASSESSMENT

Survey data were systematically analysed to extract insights into regional needs, resulting in the following key findings:

Strengths:

- Active participation in EU-funded projects (e.g., Horizon Europe, Interreg);
- Strong digital infrastructure and emerging startup culture;
- Skilled human capital linked to key research centres.

Challenges:

- Limited scaling pathways for SMEs;
- Underexploited R&D infrastructure;
- Fragmented ecosystem collaboration;
- Persistent brain drain in key technology sectors.

Priority Support Needs:

- Capacity building for RIS3-aligned innovation strategies;
- Improved access to EU and national funding opportunities;
- Facilitation of structured cooperation and ecosystem orchestration.

Priority Innovation Domains:

- Digital Transformation (AI, data science, cybersecurity);
- Agri-food and Circular Bioeconomy;
- Health and Wellbeing Innovation;
- Advanced Manufacturing and Industry 4.0.

These findings directly informed the design of the cooperation services, SME scaling support, and skills development actions proposed in the Action Plan.

ALIGNMENT WITH S3 AND SUSTAINX OBJECTIVES

The Action Plan's structure and actions have been carefully aligned with:

Romania's national S3 domains, including ICT, health and wellbeing, advanced manufacturing, environmental sustainability, and circular bioeconomy;

SustainX twin transition goals, addressing green and digital transformation priorities;

SustainX Work Package 1 Key Performance Indicators, such as:

Identification of region-specific challenges (KPI1),

Stakeholder involvement and competence mapping (KPI2),

Support for capacity building, collaboration, and RIS3 mainstreaming (KPIs 3–6).

Each action has been designed to reinforce one or more priority domains while ensuring adaptability and scalability across SustainX regions.

ITERATIVE REFINEMENT AND PARTNER FEEDBACK

A preliminary version of the Action Plan was shared with SustainX project partners (ARC Fund, DIZ, iED, TUIASI) for peer review and refinement.
Through structured feedback loops, the following improvements were introduced:

Streamlining of actions, ensuring feasibility within project constraints;

Integration of lighter cooperation formats (e.g., roadmaps instead of heavy platforms);

Consolidation of SME scaling, policy alignment, and interregional collaboration into a single coherent action;

Adjustments to KPIs to ensure realism, scalability, and project-wide responsibility (rather than individual partner targets).

This iterative process embedded transnational learning, strengthened the European dimension of the plan, and enhanced its transferability to other moderate innovator regions.

PROBLEM DEFINITION

The **North-Eastern Region of Romania** is at a pivotal moment in its innovation journey, striving to harness the dual momentum of **digital transformation** and **sustainable growth**. While the region benefits from strong academic institutions, a vibrant SME sector, and rising engagement in EU innovation initiatives, several systemic barriers continue to constrain its ability to scale innovation and fully align with Romania's **Smart Specialisation Strategy (S3)**.

This section synthesizes the key challenges identified through **desk research**, **stakeholder mapping**, and **survey-based needs assessment** under the **SustainX project**.

Systemic Barriers to Scaling Innovation and Market Uptake

Despite dynamic early-stage activity, many innovative SMEs in North-Eastern Romania face hurdles in moving beyond the prototype phase toward successful market deployment. Core barriers include:

- **Limited access to tailored support services and scaling mechanisms**, particularly financial instruments and advisory services for market readiness.
- **Insufficient availability of testing, validation, and demonstration infrastructures**, especially outside urban hubs like Iași.
- **Underdeveloped internationalization pathways**, limiting integration into European and global innovation networks.

These challenges reduce the return on early R&D investments and weaken the region's capacity to translate innovation into tangible socio-economic benefits.

Fragmentation in the Innovation Ecosystem

Although the region hosts strong academic and support institutions, functional collaboration across sectors remains limited. Key gaps highlighted include:

- **Weak university-industry linkages**, resulting in limited joint R&D and knowledge transfer.
- **Absence of structured co-creation mechanisms**, such as permanent innovation hubs or collaborative platforms.
- **Limited proactive engagement of public authorities** in coordinating RIS3-aligned cross-sector innovation initiatives.

This fragmentation restricts the region's ability to mobilize interdisciplinary solutions needed for tackling complex societal challenges aligned with EU missions.

Human Capital Drain and Skills Gaps

The North-Eastern Region is challenged by persistent **brain drain** and a mismatch between the skills of graduates and emerging innovation needs:

- **Outmigration of STEM and ICT talent** toward more competitive labor markets within and beyond Romania.
- **Shortage of domain-specific expertise** in AI, green technologies, smart manufacturing, and circular economy practices.
- **Limited modular upskilling and reskilling offers**, tailored to the fast-changing demands of SMEs and innovation clusters.

These talent gaps weaken the region's absorptive capacity for advanced technologies and risk exacerbating regional disparities.

Limited Integration into European Innovation Networks

Although some actors successfully participate in EU-funded projects (e.g., Horizon Europe, Interreg), broader systemic integration remains limited:

- **Lack of structured access to EU matchmaking platforms and interregional consortia;**
- **Capacity gaps in managing transnational projects and complying with complex EU requirements;**
- **Underdeveloped strategic positioning within European innovation corridors**, affecting knowledge transfer and collaboration intensity.

This restricts opportunities for North-Eastern Romania to scale innovation efforts and contribute to pan-European innovation value chains.

Inconsistent Policy Support and S3 Misalignment

Stakeholder feedback consistently pointed to gaps in the operationalization of policy instruments:

- **Delayed deployment and low visibility of RIS3-aligned programmes** at regional level;
- **Administrative complexity and rigid eligibility criteria** for funding calls targeting innovation actors;

Limited adaptive policy mechanisms addressing emerging sectors such as digital health, smart mobility, and circular bioeconomy.

This misalignment undermines trust among SMEs and innovation stakeholders, leading to underutilization of available support instruments.

Cross-Cutting Observations and SustainX Contribution

These challenges are **deeply interconnected**:

- Fragmented stakeholder collaboration reduces the critical mass needed for impactful projects;
- Talent leakage lowers innovation absorption capacity;
- Policy misalignment diminishes ecosystem engagement and agility.

Within this complex landscape, the **SustainX project** provides an enabling framework to activate systemic improvements:

- Its **challenge-driven, KPI-aligned methodology** supports the identification of region-specific barriers and targeted interventions.
- **Capacity-building tools, funding navigation services, and cooperation roadmaps** offer practical support to address gaps in SME scaling, collaboration, and skills.

- **Interregional learning and peer exchange mechanisms** foster exposure to best practices and facilitate strategic integration into the European innovation ecosystem.

The following sections of the Action Plan translate these insights into **concrete strategic priorities and realistic actions**, designed to strengthen the region's innovation capabilities while contributing to a **more inclusive, sustainable, and digitally empowered Europe**.

STRATEGIC ALIGNMENT

The North-Eastern Romania Action Plan under the SustainX project is strategically anchored in Romania's vision for building a sustainable, innovation-driven, and inclusive economy, as articulated in the National Strategy for Research, Innovation, and Smart Specialisation (S3) and the North-East Regional Development Plan 2021–2027.

The Action Plan translates high-level national and European ambitions into localized, actionable priorities, addressing region-specific needs while reinforcing Romania's contribution to the European Green Deal and the Digital Decade.

It also acts as a delivery mechanism for the SustainX mission to empower moderate innovation regions through systemic, place-based innovation strategies.

Alignment with Romania's Smart Specialisation Strategy (S3)

Romania's S3 framework identifies priority domains based on regional strengths, emerging opportunities, and technological potential.
The North-Eastern region, through this Action Plan, particularly advances five key S3 domains:

1. ICT and Digital Transformation

Supported through:

SME adoption of AI, cloud services, and data analytics tools;

Expansion of digital innovation hubs and cooperation services;

Skills development in cybersecurity, smart systems, and digital entrepreneurship.

2. Health and Wellbeing Technologies

Supported through:

Development of telemedicine, assistive technologies, and eHealth platforms;

Strengthened connections between medical research, SMEs, and startups;

Support for healthcare-focused living labs and spin-off initiatives.

3. Agri-Food and Circular Bioeconomy

Supported through:

Acceleration of agri-tech adoption and precision farming practices;

Promotion of circular economy models for waste valorization and bio-based innovation;

Rural innovation initiatives linking farmers, SMEs, and research actors.

4. Advanced Manufacturing and Industry 4.0

Supported through:

Uptake of robotics, sensors, and smart production tools by SMEs;

University-industry collaboration to promote industrial R&D;

SME readiness building for integration into European manufacturing value chains.

5. Environmental Sustainability and Green Innovation

Supported through:

Community-driven renewable energy projects and sustainable mobility pilots;

SME development in eco-design, energy efficiency, and green technologies;

Public-private collaboration on sustainability-oriented initiatives.

Link to National and Regional Strategic Frameworks

The Action Plan complements and operationalizes several key national and regional strategies:

- National S3 Strategy 2021–2027: Enhancing the implementation of smart specialisation through targeted, place-based interventions.
- North-East Regional Development Plan: Supporting regional priorities on digital transformation, SME competitiveness, and green growth.
- Romania's National Recovery and Resilience Plan (PNRR): Complementing investments in digital transition, RDI infrastructure, and workforce development.
- National Energy and Climate Plan (NECP): Contributing to decarbonization goals through green innovation support.
- Romania's Digitalization Strategy: Addressing digital skills gaps, technology adoption, and entrepreneurship development.

Contribution to EU-Level Policy Objectives

The Action Plan is aligned with major European strategies, ensuring coherence and future funding leverage:

- European Green Deal: Promoting green technologies, circular economy practices, and climate-neutral solutions.
- EU Digital Decade: Enhancing digital skills, connectivity, and SME digitalization.
- Horizon Europe Missions and Partnerships: Strengthening regional capacities for participation in Clusters 4 (Digital, Industry & Space) and 6 (Food, Bioeconomy, Natural Resources).
- New European Innovation Agenda: Facilitating inclusive innovation, deep tech scaling, and regional innovation ecosystems development.

Synergy with SustainX Project Objectives

The North-Eastern Romania Action Plan directly supports the SustainX mission by:

KPI1: Identifying region-specific innovation barriers such as SME scaling limitations, skills shortages, and collaboration gaps.

KPI2: Co-designing adaptive, RIS3-aligned regional strategies with active stakeholder engagement.

KPI3: Enhancing multi-stakeholder governance and cross-sectoral coordination.

KPI4: Facilitating improved participation in European funding programs through targeted support measures.

KPIs 5–6: Building regional capacity for innovation management, SME growth, and institutional strengthening.

The Action Plan reflects SustainX values of inclusiveness, territorial sensitivity, and cross-border learning, positioning North-Eastern Romania as an active contributor to Europe's innovation-driven, sustainable transformation.

STAKEHOLDER INVOLVEMENT

The Action Plan benefited from substantive input from the following stakeholder groups:

- **Research and Academia:**
  TUIASI and regional R&D centers contributed expertise on R&D trends, university-industry collaboration challenges, and emerging technology areas (e.g., Industry 4.0, digital health).
- **Business Support Organizations and Innovation Agencies:**
  Intermediaries and cluster managers provided insights into SME needs, innovation bottlenecks, and opportunities for ecosystem coordination.
- **SMEs and Startups:**
  Entrepreneurs across ICT, agri-tech, healthcare, and manufacturing sectors

participated in surveys and consultations, highlighting needs related to scaling, funding access, and skills development.

- **Cluster Organizations and Sectoral Networks:**
  Clusters validated the relevance of S3 domains, identified market trends, and highlighted areas for cross-sector synergies and internationalization.
- **Regional Authorities and Policymakers:**
  Public authorities ensured strategic alignment with the North-East Regional Development Plan and RIS3 implementation strategies, contributing perspectives on funding mechanisms and regulatory environments.

Key Insights from Stakeholder Consultations

Several consistent themes emerged from stakeholder input:

- **Strong motivation for cross-sector collaboration**, but limited existing structures to sustain it (e.g., innovation platforms, living labs).
- **Capacity gaps in innovation governance and RIS3 operationalization**, especially within public institutions and SME intermediaries.
- **Complex and fragmented access to EU funding instruments**, hindering SME innovation scaling.
- **Limited visibility in European innovation ecosystems**, reducing opportunities for cross-border collaboration and learning.
- **High demand for practical, modular training and matchmaking services**, especially in digital skills, green innovation, and international project participation.
- **Concerns about talent leakage**, requiring urgent action to retain and develop skilled human capital.

These insights shaped the Action Plan's emphasis on **cooperation services**, **SME support**, **skills development**, and **evidence-based governance**.

Role of Stakeholders in Action Plan Implementation

Stakeholders will continue to play a **central role** throughout the Action Plan's implementation as:

- **Co-creators** of training programs, funding advisory services, and cooperation roadmaps;
- **Participants** in regional working groups and thematic taskforces to coordinate and monitor ecosystem activities;
- **Pilots and testers** of tools and methodologies developed under SustainX, such as SME readiness assessments and RIS3 monitoring dashboards;

- **Feedback providers and policy co-designers**, contributing to adaptive governance and strategic refinement.

To sustain engagement, the Action Plan foresees the creation of **structured collaboration mechanisms**, including regional co-creation forums, online cooperation platforms, and innovation policy roundtables.
These mechanisms will ensure **institutional learning**, **shared ownership**, and **long-term alignment** of innovation support efforts with regional needs and European priorities.

SMART OBJECTIVES & KPIS

The SustainX Action Plan for North-Eastern Romania establishes a realistic and dynamic framework of SMART (Specific, Measurable, Achievable, Relevant, Time-bound) objectives. These objectives are designed to strengthen regional innovation capacity, foster multi-actor collaboration, and embed Smart Specialisation (S3) principles into practice, while contributing to the overall SustainX project goals.

The objectives reflect region-specific findings, yet have been formulated at project level, enabling flexibility and adaptation over time.

As the Action Plan evolves, targets and interventions may be refined or expanded with additional country-specific actions or through shared approaches across SustainX regions.

Each objective addresses key ecosystem gaps—such as SME scaling, skills shortages, and collaboration barriers—and supports the region's contribution to green and digital transitions.

OBJECTIVE 1: FOSTER REGIONAL INNOVATION COLLABORATION SERVICES

Specific: Develop and operationalize lightweight cooperation services and roadmaps across RIS3 priority sectors (digital health, circular agri-food, smart manufacturing).

Measurable: Number of cooperation services launched; number of collaborative initiatives initiated.

Achievable: Builds on active clusters, universities, and emerging SME ecosystems.

Relevant: Addresses fragmented collaboration and supports place-based innovation.

Time-bound: Q3 2025 – Q4 2026

OBJECTIVE 2: STRENGTHEN RIS3 CAPACITIES AMONG SMES AND INNOVATION ACTORS

Specific: Deliver modular training programmes on RIS3 logic, innovation scaling, and EU project participation.

Measurable: Participation rates and practical tool adoption.

Achievable: Leverages existing DIHs, universities, and business support networks.

Relevant: Responds to low RIS3 awareness and need for practical operationalization.

Time-bound: Q4 2025 – Q2 2026

OBJECTIVE 3: SUPPORT SME SCALING, POLICY DIALOGUE, AND INTERREGIONAL COLLABORATION

Specific: Pilot SME scaling services, promote awareness of RIS3 alignment among policymakers, and foster cross-border collaboration.

Measurable: SMEs supported, dialogue sessions organized, peer exchanges completed.

Achievable: Builds on SustainX partner expertise, existing funding schemes, and EEN networks.

Relevant: Tackles SME market readiness challenges and improves ecosystem connectivity.

Time-bound: Q1 2025 – Q4 2026

OBJECTIVE 4: IMPROVE EVIDENCE-BASED GOVERNANCE THROUGH A RIS3 DASHBOARD

Specific: Develop and launch a basic innovation monitoring dashboard tracking key ecosystem indicators.

Measurable: Availability and usage of dashboard by regional actors.

Achievable: Builds on existing data initiatives at regional and national level.

Relevant: Supports transparent, data-driven policy-making aligned with RIS3.

Time-bound: Q1 2025 – Q2 2026

OBJECTIVE 5: DEVELOP GREEN AND DIGITAL SKILLS PATHWAYS AND RECOGNITION BADGES

Specific: Deliver modular training for individuals on sustainability, AI, digitalisation, and entrepreneurship, with project-level recognition badges.

Measurable: Number of individuals trained and skills roadmaps adopted by SMEs.

Achievable: Builds on TUIASI, VET providers, and innovation intermediaries' capacities.

Relevant: Responds to talent shortages and supports sustainable economic transitions.

Time-bound: Q2 2025 – Q4 2026

INTERLINKAGES AND ADAPTIVE MONITORING

These objectives are mutually reinforcing—capacity building enhances SME innovation absorption, collaboration services nurture RIS3 ecosystems, and dashboard monitoring supports continuous improvement.

Progress will be monitored through the **SustainX Monitoring, Evaluation, and Learning (MEL) framework**, using light, semi-annual tracking and stakeholder feedback loops. As the project advances, objectives and KPIs may be **adjusted based on learning outcomes, stakeholder engagement**, and evolving regional needs.

Collectively, these objectives position **North-Eastern Romania** to contribute actively to a **resilient, green, and digitally enabled innovation ecosystem**, fully aligned with national and European ambitions.

SWOT ANALYSIS

This SWOT analysis provides a structured overview of the North-Eastern Romania innovation ecosystem in the context of the green and digital transitions, framed through SustainX's ecosystem approach. It synthesizes desk research, stakeholder feedback, and strategic documents to identify both internal factors (strengths and weaknesses) and external dynamics (opportunities and threats) influencing the region's innovation trajectory.

Strengths	Weaknesses
✓ Strong academic and research base, led by institutions like Technical University of Iași (TUIASI) with recognized expertise in digital, engineering, and health innovation. ✓ Growing participation in EU-funded programmes (e.g., Horizon Europe, Interreg, EIT), particularly by research institutions and clusters. ✓ Clearly defined S3 domains: ICT, health and well-being, agri-food bioeconomy, and smart manufacturing. ✓ Active engagement of the North-East Regional Development Agency and existing RIS3 implementation structures.	▪ Fragmented coordination among quadruple helix actors; lack of systemic platforms for structured cross-sectoral collaboration. ▪ Underdeveloped SME support infrastructure for scaling innovation—especially in rural and peripheral areas. ▪ Weak innovation absorption capacity among SMEs; limited commercialization and tech transfer from academia to business. ▪ Persistent skills mismatches and outmigration of young professionals in STEM and sustainability fields. ▪ Low visibility and use of RIS3 priorities among SMEs and intermediaries.

✓ Emerging clusters and digital innovation hubs (e.g., ICT, health tech, agri-tech). ✓ Strong cultural motivation and entrepreneurship spirit among youth and civil society.	▪ Administrative and regulatory barriers limit access to national and EU innovation support programmes.
Opportunities	**Threats**
○ Access to substantial EU resources through Horizon Europe, Interreg NEXT, Digital Europe, and Romania's NRRP and Cohesion Funds. ○ Rising demand for green and digital innovation solutions (e.g., agri-tech, digital health, circular economy) from both public and private sectors. ○ Political and financial support for smart specialization, regional innovation ecosystems, and mission-oriented innovation. ○ Opportunity to integrate and scale up local innovations in national and EU markets through clustering and interregional cooperation. ○ Emerging momentum to align regional strategies with EU missions (e.g., climate neutrality, health resilience, digital transition).	❖ Continued brain drain and talent loss to Western Europe, undermining regional capacity for innovation. ❖ Risk of regional marginalization in pan-European innovation initiatives due to low project leadership and coordination capacity. ❖ Overdependence on external (EU) funding without building long-term co-investment models or sustainable local financing tools. ❖ Vulnerability to climate change and social inequality, especially in rural and disadvantaged areas, if innovation is not inclusive. ❖ Risk of widening the urban-rural innovation divide if capacity-building efforts are not spatially inclusive.

KEY INSIGHTS FROM THE SWOT ANALYSIS

The SWOT analysis conducted as part of the SustainX Action Plan development process for North-Eastern Romania revealed a landscape of strong assets, clear opportunities, and persistent systemic challenges.
These insights directly informed the design of targeted, scalable interventions aligned with both regional strengths and SustainX objectives.

Strong Assets, but Fragmented Innovation Pathways

North-Eastern Romania possesses significant resources in academia, sectoral clusters, and emerging entrepreneurial networks.
However, innovation efforts are often siloed, and the transition from research to market remains underdeveloped:

Functional collaboration across sectors (academia, SMEs, public authorities) is sporadic;

Knowledge transfer mechanisms and structured cooperation platforms are still in early stages;

Innovation outputs are not consistently scaled to national or European markets.

S3 Provides Strategic Direction, but Local Operationalization is Incomplete

Romania's Smart Specialisation Strategy (S3) offers a well-targeted strategic framework for innovation investment and ecosystem development.
Yet, many SMEs, innovation intermediaries, and local actors face challenges in effectively operationalizing RIS3 priorities:

Capacity gaps in aligning business models with S3 domains persist;

Access to S3-aligned funding tools and support services is perceived as complex or opaque;

Awareness of RIS3 opportunities and processes among SMEs and intermediaries remains uneven.

External Opportunities Align Well with Local Priorities

North-Eastern Romania is well-positioned to benefit from European policy frameworks and investment opportunities that align with local development needs:

EU Recovery and Resilience Facility (RRF) investments in green transition, digital transformation, and smart specialization directly match regional challenges;

Horizon Europe Missions and Interreg programs offer new pathways for cross-border collaboration and scaling innovation;

SustainX's interregional cooperation platform enhances access to peer learning, funding synergies, and benchmarking tools.

These opportunities can serve as accelerators for SME scaling, skills development, and ecosystem strengthening.

Systemic Challenges Require Coordinated Regional Action

Persistent cross-cutting threats continue to impact the region's innovation potential:

Talent retention and workforce development: Brain drain and skills mismatches limit absorptive capacity for new technologies and innovation practices.

Innovation scalability: SMEs struggle to transition innovations from prototype to commercial deployment.

Inclusive growth and rural integration: Disparities between urban centers and rural areas challenge balanced innovation-driven development.

Innovation governance: Fragmented coordination reduces systemic efficiency and limits the region's ability to act cohesively at national and European levels.

Addressing these interconnected challenges requires joint public-private investment, adaptive innovation governance, and targeted actions for rural and underserved communities.

The SWOT analysis confirms that North-Eastern Romania possesses the building blocks for sustainable and inclusive innovation growth, but strategic, coordinated actions are needed to:

- Strengthen collaboration across sectors through new cooperation services;
- Empower SMEs with targeted support for scaling and funding access;
- Build skills pipelines aligned with green and digital transition priorities;
- Enhance evidence-based governance via tools like the RIS3 Dashboard;
- Leverage European partnerships to accelerate transformation and resilience.

The SustainX Action Plan is designed to activate these opportunities while addressing systemic bottlenecks, contributing to a more connected, innovative, and future-ready regional ecosystem.

ACTION PLAN

The **North-Eastern Romania Action Plan**, developed under the **SustainX project**, presents a cohesive portfolio of targeted interventions designed at the **project level**. While closely considering the **specific findings** and challenges identified for the region, the actions have been shaped to ensure flexibility, scalability, and coherence with the overall SustainX methodology.

The Action Plan focuses on addressing systemic gaps and unlocking regional innovation potential, particularly in support of the **green and digital transitions**. It aligns with Romania's **Smart Specialisation Strategy (S3)** and regional development priorities, integrating insights from stakeholder consultations, competence mapping, and strategic policy analysis.

In line with SustainX principles of **place-based transformation**, the Action Plan emphasizes **capacity-building**, **ecosystem coordination**, and **interregional learning**. Each action contributes to the strategic strengthening of **regional innovation governance**, **skills development**, and **SME resilience**, while being aligned with the **SustainX Key Performance Indicators (KPIs)**.

As the project progresses, these actions may be **further refined or expanded**, incorporating additional **country-specific elements** or adapting similar approaches across participating regions to ensure responsiveness to emerging needs and opportunities.

The following actions, designed at project level with attention to region-specific findings, provide a flexible framework that can be adapted and expanded with country-specific elements as the SustainX project evolves.

ACTION 1: FOSTER REGIONAL INNOVATION COLLABORATION SERVICES AND ROADMAPS

Objective:
Enable structured, multi-actor collaboration aligned with RIS3 priority sectors.

Description:
This action will pilot a set of **practical, modular cooperation services and strategic roadmaps** to support **cross-sector collaboration** among SMEs, universities, clusters, innovation intermediaries, and public authorities.

The services will focus on three key RIS3-aligned thematic areas:

- **Digital Health** (e.g., telemedicine innovation, health data solutions),
- **Circular Agri-Food Systems** (e.g., precision agriculture, biomass valorization),
- **Smart Manufacturing** (e.g., robotics, Industry 4.0 solutions).

Key Characteristics of the Cooperation Services:

- **Light and Flexible**: Services will be activity-based (e.g., workshops, matchmaking events, collaborative pilot calls) rather than creating permanent structures.
- **Mission-Oriented**: Activities will align with concrete challenges or opportunities within the RIS3 domains (e.g., "Digital health adoption in SMEs by 2026"; "Circular business models for agri-food clusters").
- **Roadmap Development**: For each thematic area, partners and stakeholders will co-create a **short-term strategic roadmap** (18–24 months horizon), identifying:
    - Key challenges,
    - Opportunities for collaboration,
    - Potential funding sources (e.g., Interreg, Horizon Europe Missions),
    - Shortlist of collaborative pilot ideas or joint initiatives.
- **Inclusiveness**: The approach will actively engage SMEs and civil society actors, ensuring that not only large institutions but also smaller innovation players

contribute to and benefit from cooperation.

Special focus will be placed on **lower-barrier entry formats** like design sprints, ideation labs, or open calls for cooperation pilots, ensuring broad accessibility.

Timing: Q3 2025 – Q4 2026

Involved Actors:
Project partners;
Other stakeholders: Cluster organisations, SME networks, innovation intermediaries

Expected Outcomes:

- Launch of 3 cooperation services
- Initial collaborative projects or initiatives supported (target: 3–5)
- Strengthened trust and cross-sector engagement

ACTION 2: STRENGTHEN SME CAPACITIES THROUGH RIS3 TRAINING AND RECOGNITION

Objective:
Enhance the knowledge and operational capacity of SMEs and innovation actors to align with RIS3 domains.

Description:

Deliver a national series of modular trainings targeting 80–100 participants, focused on:

- Bulgaria's RIS3 domains
- EU funding access (Horizon Europe, Interreg, Digital Europe)
- Innovation lifecycle management and twin transition opportunities

Participants completing the training will receive SustainX digital badges and certificates, helping them demonstrate innovation readiness and improve visibility in national and EU ecosystems.

Timing: Q4 2025 – Q2 2026

Involved Actors:
Project partners;
Other stakeholders: Regional DIHs, universities, business support organisations

Expected Outcomes:

80–100 individuals trained (cumulative target)

Dissemination of practical RIS3 guidance materials

Increased SME awareness of innovation and funding opportunities

ACTION 3: SUPPORT SME SCALING, POLICY DIALOGUE, AND INTERREGIONAL COLLABORATION

Objective:
Promote SME innovation scaling, better policy alignment, and international learning exchanges.

Description:
This action will offer targeted mentoring and advisory support to help SMEs validate and scale their innovations, with a focus on RIS3-aligned sectors. It will also create opportunities for dialogue between SMEs and policymakers to improve the relevance of funding instruments and support schemes. Finally, the action will enable participation in up to three interregional exchanges with other EU regions to share practices and foster joint project development

Timing: Q1 2025 – Q4 2026

Involved Actors:
Project partners;
Other stakeholders: SME associations, cluster networks, public authorities, EU project offices

Expected Outcomes:

- 20+ SMEs benefiting from mentoring and scaling advice
- At least 2 dialogue sessions with policymakers organised
- 3–4 peer exchanges or twinning visits carried out
- Shared good practices and enhanced visibility in European networks

ACTION 4: DEVELOP A REGIONAL RIS3 DASHBOARD FOR EVIDENCE-BASED INNOVATION GOVERNANCE

Objective:
Provide regional actors with a practical tool to monitor innovation ecosystem trends and support strategic foresight.

Description:
The **Regional RIS3 Dashboard** could essentially be a **shared collaborative document or spreadsheet**, structured around simple, easily updatable indicators.
It should prioritize **ease of contribution, transparency, and low technical barriers** over complex design.

Rather than building a custom IT platform (which is costly and time-consuming), the Dashboard could be:

- A **Google Sheet**, **Microsoft Excel Online**, or **SharePoint List**,

- Hosted on a **common cloud drive** accessible to the main partners (TUIASI, NE RDA, ARC Fund, clusters, intermediaries),
- Editable based on **agreed responsibilities** (e.g., who updates which indicator quarterly or biannually).

Visually, it can look like a simple dashboard table with:

- Traffic-light color codes (red/yellow/green),
- Very simple data entry fields,
- Automatic charts (e.g., trendlines, pie charts).

Timing: Q1 2025 – Q2 2026

Involved Actors:
Project partners;
Other stakeholders: National Institute of Statistics, regional innovation bodies

Expected Outcomes:

- RIS3 Dashboard available for regional use
- Key indicators visualized for ecosystem monitoring
- Enhanced strategic planning capabilities for local policymakers

ACTION 5: STRENGTHEN GREEN AND DIGITAL SKILLS PATHWAYS WITH PROJECT-LEVEL RECOGNITION

Objective:
Equip the regional workforce with key skills for sustainable and digital transformation.

Description:
Develop **modular, flexible training pathways** focused on core competencies in:

- Green innovation and circular economy,
- Digital transformation (AI, data, automation),
- Smart manufacturing and Industry 4.0,
- Sustainable agri-food technologies.

The training offer will be practice-oriented and designed to complement existing upskilling efforts at national and regional level.

Upon completion, participants will receive a **non-formal SustainX project-level digital badge** — issued as a recognition, motivational and reputational tool — certifying their engagement with innovation-relevant topics under the project framework.
The badge will be visual, suitable for showcasing on platforms such as LinkedIn and CVs, clearly branded under the SustainX community.

In parallel, **skills integration roadmaps** will be co-designed to help SMEs connect acquired skills with business innovation strategies, ensuring real impact on organizational transformation.

The approach ensures light, motivating recognition without imposing complex accreditation burdens, fully aligned with the project-level ambition and available resources.

Timing: Q2 2025 – Q4 2026

Involved Actors:
Project partners

Other stakeholders: VET Centres, universities, business organisations

Expected Outcomes:

- Around 100–120 individuals upskilled
- Skills roadmaps introduced for SMEs participating
- Stronger links between SME needs and workforce development initiatives

SUMMARY TABLE OF ACTIONS - AT A PROJECT LEVEL.

Action	Timeline	Lead Actors	Key Outputs
Innovation Collaboration Platforms	Q3 2025 – Q4 2026	Project partners	3 dashboards; 5+ co-created projects
S3-Aligned Capacity Building	Q4 2025 – Q2 2026	Project partners	100+ trained staff from SMEs/intermediaries
SME Innovation Scaling Scheme	Q1 2025 – Q4 2026	Project partners	30 SMEs scaled; 20 market-ready innovations
RIS3 Policy Alignment	Q3 2025 – Q3 2026	Project partners	Revised innovation support tools
Interregional Collaboration	Q4 2025 – Q4 2026	Project partners	5 cross-border projects; 4 exchanges

RIS3 Innovation Dashboard	Q1 2025 – Q2 2026	Project partners	Digital dashboard for ecosystem tracking
Skills for Green & Digital Transition	Q2 2025 – Q4 2026	Project partners	100 trained professionals; SME-skills alignment

IMPLEMENTATION LOGIC

The redesigned actions are **interlinked and mutually reinforcing**, creating a dynamic and adaptive pathway for strengthening North-Eastern Romania's innovation ecosystem.

Innovation collaboration is fostered through the establishment of **cooperation services and roadmaps** (Action 1), enabling SMEs, academia, clusters, and public actors to align efforts around RIS3 domains.

SME scaling, policy alignment, and international collaboration are supported together under a consolidated approach (Action 3), combining mentoring services, dialogue with policymakers, and interregional peer learning.

Capacity building and skills development are strengthened through **modular training programmes and recognition tools** (Actions 2 and 5), promoting practical RIS3 operationalization and future-proofing the workforce.

Governance and strategic foresight are enhanced through the development of a **basic RIS3 Innovation Dashboard** (Action 4), enabling real-time monitoring, learning loops, and evidence-based adaptation.

This integrated, project-level approach supports both:

The **transformation of the North-Eastern Romanian innovation ecosystem**, by building capacities, fostering collaboration, and promoting smart specialisation,

And the broader **SustainX mission**, which empowers moderate innovator regions through **inclusive, scalable, and mission-driven innovation strategies**, strengthening territorial resilience and European cohesion.

By embracing a **flexible, living document philosophy**, the Action Plan ensures that interventions remain aligned with stakeholder needs, emerging opportunities, and evolving European priorities.

KEY RECOMMENDATIONS

The analysis conducted within the **SustainX project**, supported by stakeholder consultations and policy mapping, has revealed key systemic and operational opportunities to strengthen the innovation ecosystem of **North-Eastern Romania** in line with the green and digital transitions.

The following recommendations are grouped into **four strategic pillars**, designed to guide **project partners, regional stakeholders, and policymakers** toward building a more connected, responsive, and inclusive innovation system.
Recommendations are formulated at **project level** and can be **expanded and adapted** as the Action Plan evolves.

1. Strengthening Innovation Governance and RIS3 Operationalisation

Facilitate the establishment of Regional RIS3 Dialogue Platforms, coordinated by North-East RDA, engaging academia, clusters, SMEs, and civil society in place-based discussions around RIS3 priorities.

Promote voluntary RIS3 alignment mechanisms across local innovation support structures, encouraging public authorities and intermediaries to reflect smart specialisation domains in their initiatives.

Support the introduction of flexible, thematic innovation funding calls, co-designed with ecosystem actors, focusing on sectors such as digital health, smart agriculture, and green energy.

Develop and pilot a basic RIS3 Innovation Dashboard to enable light-touch monitoring of regional innovation dynamics.

Encourage better coordination between regional and national funding frameworks, facilitating smoother access for SMEs and innovation actors.

2. Empowering SMEs for Scaling and Internationalisation

Design SME innovation mentoring and support services, focused on helping companies move from pilot to market, particularly in green and digital sectors.

Introduce Innovation Readiness Assessment tools to help SMEs identify gaps and opportunities for development aligned with RIS3 strategies.

Facilitate access to EU project participation opportunities through targeted guidance, networking events, and proposal writing support.

Promote a voluntary "RIS3 Recognition Badge" to highlight and reward innovation initiatives aligned with smart specialisation objectives.

3. Enhancing Skills and Talent Development in Strategic Domains

Co-develop modular upskilling pathways in areas such as AI, green innovation, digitalisation, and Industry 4.0, in partnership with universities, VET centres, and clusters.

Encourage university–industry collaboration on curriculum design, ensuring RIS3 priority sectors are better reflected in educational programmes.

Promote innovation fellowships and internships, offering early-career talent practical experience in SMEs, clusters, and research labs.

Support the emergence of innovation communities of practice in areas like digital transformation, health technologies, and sustainable agriculture, fostering mentoring and knowledge sharing.

4. Fostering Ecosystem Collaboration and Interregional Learning

Support the creation of cooperation services and co-creation spaces, aligned with regional RIS3 missions, to strengthen SME-academia-public sector collaboration.

Facilitate structured interregional collaboration, including twinning activities, joint applications to Interreg and Horizon Europe, and peer learning exchanges.

Leverage existing regional assets (universities, DIHs, clusters) to foster open innovation environments for testing, piloting, and demonstration.

Promote active participation in European partnerships and missions, enhancing the region's visibility and integration into European innovation ecosystems.

Cross-Cutting Recommendation: Advancing Inclusive and Sustainable Innovation

Promote inclusivity and accessibility across innovation policies and support services, encouraging participation of rural SMEs, women-led startups, and underrepresented groups.

Integrate ESG (Environmental, Social, Governance) principles and circular economy approaches into innovation funding schemes, training programmes, and project evaluations.

Foster citizen engagement and social innovation initiatives, strengthening public trust and ensuring that innovation benefits a broad range of societal actors.

Coordination and Adaptation

These recommendations are **interdependent, flexible, and mutually reinforcing**.
When implemented in a coordinated, participatory, and learning-driven manner, they can help North-Eastern Romania transition from a fragmented innovation landscape toward a **resilient, inclusive, and smart specialisation-driven ecosystem**.
They also support the broader **SustainX ambition** of empowering moderate innovation regions across Europe by promoting scalable, place-based, and mission-oriented innovation pathways.

MONITORING & EVALUATION

The successful implementation and long-term impact of the North-Eastern Romania Action Plan under the SustainX project will depend on a robust, participatory, and adaptive Monitoring & Evaluation (M&E) framework. The purpose of this framework is not only to measure performance but to foster strategic foresight, enable evidence-based decision-making, and facilitate continuous learning and stakeholder engagement across governance levels.

Aligned with the SustainX methodology, the M&E system builds on Romania's RIS3 implementation architecture and introduces added value through real-time data tracking, feedback loops, and interregional comparison mechanisms.

M&E Governance and Institutional Architecture

The M&E process will be embedded within the existing multi-level innovation governance system in Romania and coordinated with the North-East Regional Development Agency (NE RDA). Responsibilities will be shared as follows:

- Ministry of Research, Innovation and Digitalization (MRID): Oversees national-level RIS3 implementation and ensures alignment with strategic documents such as the National Strategy for Research, Innovation and Smart Specialisation.
- North-East Regional Development Agency (NE RDA): Acts as regional coordinator for M&E activities, responsible for stakeholder engagement, data gathering, and reporting.
- TUIASI and Regional Research Centres: Support data analysis, policy evaluation, and foresight through research and technical expertise.
- Innovation intermediaries (DIHs, EEN Romania, clusters): Track action-level KPIs, gather SME-level impact data, and coordinate follow-up activities.
- SustainX Partner (ARC Fund): Provides methodological support and facilitates peer benchmarking and learning across SustainX regions.

A Regional M&E Task Force will be established, composed of representatives from the above institutions and ecosystem stakeholders, to ensure quality control, validation of findings, and adaptive management of the Action Plan.

Indicators and Data Collection Framework

The M&E system will follow a multi-tier KPI model aligned with the SMART objectives of the Action Plan and SustainX's Key Performance Indicators (KPIs). Indicators will be tracked with attention to sector (RIS3 domains), geography (urban/rural balance), and target group (SMEs, intermediaries, workforce, etc.).

KPI Category	Key Indicators	Data Sources	Frequency
Implementation Monitoring	- Actions initiated/completed - Platform and training deployment	NE RDA, Action Leads, Regional Councils	Quarterly
SME Innovation Impact	- Number of SMEs supported	DIHs, Clusters, SME surveys, EEN Romania	Biannually

	- Innovations scaled - EU project uptake		
RIS3 Alignment	- Share of projects aligned with RIS3 - RIS3 awareness	Project data, NE RDA surveys, regional funding metrics	Annually
Capacity-Building & Skills	- Number trained - Feedback on relevance and uptake	HEIs, VET providers, cluster reports	Biannually
Cross-Border Engagement	- Interregional partnerships - Peer exchanges held	Interreg, Horizon Europe, SustainX reporting	Annually
Governance & Policy Learning	- Policy revisions - M&E-based adaptations	NE RDA, MRID, RIS3 Working Groups	Annually

The forthcoming Regional RIS3 Dashboard (developed under Action 6) will be the main tool for visualizing this data and enabling interactive analysis.

EVALUATION METHODOLOGY

The successful delivery and long-term impact of the **North-Eastern Romania Action Plan** under the **SustainX project** will be supported by a **robust, participatory, and adaptive Monitoring & Evaluation (M&E) framework**.
The M&E system is designed not only to measure progress but to foster **strategic foresight**, **evidence-based learning**, and **continuous stakeholder engagement**.

Aligned with SustainX's methodology, the M&E approach builds on Romania's RIS3 governance structures and introduces new mechanisms such as real-time tracking, feedback loops, and interregional benchmarking.

Monitoring and Evaluation Governance and Institutional Setup

The M&E process will be coordinated through existing and project-level structures:

- **Ministry of Research, Innovation and Digitalization (MRID):** Alignment with national RIS3 and strategic innovation frameworks.
- **North-East Regional Development Agency (NE RDA):** Regional M&E coordination, data gathering, stakeholder engagement, and reporting.
- **TUIASI and regional research institutions:** Technical support for data analysis, policy foresight, and impact evaluation.

- **Innovation intermediaries (e.g., DIHs, EEN Romania, clusters):** Action-level monitoring, SME feedback collection, ecosystem insights.
- **SustainX Partner (ARC Fund):** Methodological support, peer learning facilitation, and cross-region comparability.

A **Regional M&E Task Force** will be created, including project partners and ecosystem representatives, to oversee quality control, adaptive management, and continuous improvement.

Indicators and Data Collection

The M&E framework applies a **multi-tier KPI model** aligned with SMART objectives, with data disaggregated by sector (RIS3 domains), geography (urban/rural), and target group.

KPI Category	Key Indicators	Data Sources	Frequency
Implementation Monitoring	Actions launched, services deployed	NE RDA, Action Leads	Quarterly
SME Innovation Impact	SMEs supported, innovations scaled, EU project uptake	DIHs, Clusters, SME surveys	Biannually
RIS3 Alignment	Share of initiatives aligned with RIS3	Project data, regional reports	Annually
Skills Development	Number of individuals trained, relevance feedback	Universities, VETs, training evaluations	Biannually
Cross-Border Cooperation	Number of peer exchanges, interregional partnerships	Interreg, SustainX reports	Annually
Governance Learning	Policy feedback loops, strategic adaptations	NE RDA, RIS3 Working Groups	Annually

The **Regional RIS3 Dashboard** (developed under Action 4) will serve as the primary visualization tool for ongoing monitoring.

Evaluation Approach

Evaluation will take place across three complementary levels:

1. **Formative Evaluation (Mid-2025):**
   Assess early implementation progress, identify bottlenecks, and adjust strategies.
   - Methods: Stakeholder surveys, workshops, qualitative interviews.

2. **Summative Evaluation (End-2026):**
   Evaluate overall achievement of Action Plan objectives and long-term impact.
   - Methods: Theory of Change-based impact analysis.
3. **Peer-Based Comparative Evaluation:**
   Benchmark progress against other SustainX regions, identify transferable good practices.
   - Methods: SustainX peer learning reviews, cross-region analysis.

Feedback Loops and Adaptive Management

M&E will be **iterative and dynamic**, ensuring responsiveness to changing needs:

- **Quarterly Stakeholder Review Sessions** led by NE RDA.
- **Biannual Action Plan Implementation Reports**, shared with partners.
- **Integration of findings** into the RIS3 Governance Cycle to inform strategy revisions.

Sustainability of M&E Structures

To ensure continuity beyond the SustainX project:

- Regional capacity-building on M&E will be provided for NE RDA, municipalities, and innovation intermediaries.
- The RIS3 Dashboard will remain available as an open-access monitoring resource.
- Future funding options (ERDF, Horizon Europe, national innovation funds) will be explored to sustain and expand monitoring activities.

SUSTAINABILITY & TRANSFERABILITY

The **SustainX Action Plan for North-Eastern Romania** is designed as a **system-strengthening instrument**, focused on ensuring **institutional, operational, and financial sustainability** while promoting **transferability of good practices** across Europe.

SUSTAINABILITY

a) Institutional Sustainability

- Embedded in Romania's RIS3 strategy, national RDI priorities, and the North-East Regional Development Plan.
- Supported by decentralized, multi-actor governance involving NE RDA, TUIASI, clusters, DIHs, and SMEs.
- Aligned with ongoing RIS3 governance reforms and regional innovation structures.

b) Financial Sustainability

- Linked to multiple funding streams: ERDF, NRRP, Horizon Europe, Digital Europe, Interreg.
- Modular support schemes (e.g., cooperation services, SME mentoring, dashboard maintenance) designed for integration into existing and future funding frameworks.
- Stakeholders trained in funding acquisition to enhance local resource mobilization.

c) Operational Sustainability

- Key tools like the RIS3 Dashboard, collaboration services, and training pathways integrated into regional innovation operations.
- M&E systems embedded into RIS3 cycles for evidence-based planning and adaptive governance.

TRANSFERABILITY

The Action Plan provides scalable models and methodologies relevant for other moderate innovator regions:

- **Cooperation Services and Roadmaps:** A lightweight, adaptable model for multi-actor collaboration in RIS3 domains.
- **Modular Capacity Building:** Practical, non-formal RIS3 training pathways easily replicable across ecosystems.
- **Data-Driven Governance:** The RIS3 Dashboard offers a replicable monitoring tool combining foresight and participatory assessment.
- **Participatory Policy and Funding Alignment:** Dialogues and workshops for adjusting support measures to RIS3 goals.

Knowledge Sharing and Ecosystem Scaling

- Active participation in **SustainX peer learning sessions** and **interregional exchanges**.
- Development and dissemination of **toolkits, guides, and methodologies**.
- Hosting of a potential **SustainX Knowledge Transfer Workshop** in Iași or Piatra Neamț to support regional scaling across the Carpathian and Danube areas.

CONCLUSION

The **North-Eastern Romania Action Plan**, developed within the **SustainX project**, presents a **strategic and practical roadmap** for empowering the region's innovation ecosystem through **place-based**, **RIS3-aligned**, and **future-oriented interventions**.

Building on **regional strengths**—such as academic excellence (TUIASI), emerging clusters, and increasing EU project participation—the Action Plan directly addresses persistent

challenges: fragmented collaboration, SME scaling barriers, skills gaps, and limited strategic alignment.

Through **five interlinked, realistic actions**, the Plan aims to:

- Support SME innovation scaling and EU engagement,
- Foster cross-sector collaboration via cooperation services,
- Strengthen workforce capabilities through targeted skills training,
- Enhance governance through RIS3 monitoring and strategic foresight,
- Promote interregional learning and transferability across Europe.

Above all, the Action Plan **activates a collaborative innovation ecosystem**, aligning stakeholders around shared missions and strengthening the region's resilience, adaptability, and strategic agility.

It also makes a **valuable contribution to SustainX's European mission**: bridging innovation gaps across territories, empowering moderate innovator regions, and fostering inclusive, sustainable innovation-driven growth.

Moving forward, the success of the Action Plan will rely on:

- **Continued institutional commitment and political support**,
- **Strategic alignment with European green and digital agendas**,
- **Dynamic, feedback-driven implementation** ensuring responsiveness to emerging opportunities.

The **North-Eastern Romania Action Plan** stands as a replicable example of **context-sensitive, evidence-driven transformation**—laying the foundation for a greener, smarter, and more cohesive European innovation landscape.

ANNEX I.

REGION-SPECIFIC CHALLENGES IDENTIFIED

The North-East Region is one of Romania's largest and most populous areas, encompassing six counties (Bacău, Botoșani, Iași, Neamț, Suceava, Vaslui). Despite its dynamic academic landscape and natural resource wealth, it remains one of the least developed regions in the EU. Socio-economic disparities, infrastructural gaps, and underutilized innovation potential are major barriers to sustainable and inclusive growth. Below are three key challenges identified within the region.

1. STRUCTURAL WEAKNESSES IN INDUSTRIAL AND AGRICULTURAL SECTORS LIMIT DIGITAL UPTAKE

The region's economy is strongly oriented toward traditional sectors, particularly low-tech manufacturing and agriculture. While there is growing interest in modernization, digital transformation remains slow, especially among SMEs.

- Limited digital infrastructure in rural areas hinders smart farming and remote monitoring solutions.
- Low Industry 4.0 adoption among manufacturers due to cost concerns and lack of know-how.
- Low digital skills among older workers restrict the integration of digital processes in business operations.

The gap in digitalization contributes to low productivity, reduced competitiveness, and limited resilience against climate and market shocks.

2. FRAGMENTED GREEN TRANSITION AND LOW UPTAKE OF SUSTAINABLE TECHNOLOGIES

Although national and regional strategies emphasize sustainability, the North-East Region continues to lag in terms of green innovation and environmental modernization. Key barriers include:

- Underinvestment in renewable energy infrastructure, especially in biomass and solar sectors.

- Limited awareness and incentives for circular economy practices among local businesses.

- Weak inter-municipal cooperation on energy efficiency and sustainable urban development.

As a result, opportunities for low-carbon transition, resource efficiency, and green entrepreneurship are underexploited, particularly outside larger cities like Iași.

3. HIGH POVERTY AND DEMOGRAPHIC PRESSURES IMPACT INNOVATION AND HUMAN CAPITAL

The region faces persistent socio-economic challenges, including:

- High rates of poverty and social exclusion, especially in rural and Roma communities.

- Youth outmigration and brain drain, as skilled workers leave for Western Europe or larger Romanian cities.

- Aging population and shrinking rural labor force, reducing the talent pool for green and digital industries.

These demographic dynamics not only weaken innovation ecosystems but also undermine the long-term sustainability of regional development efforts. Disadvantaged groups often remain excluded from re-skilling programs or innovation networks.

To unlock its innovation potential, the North-East Region must stimulate digital transformation across traditional sectors, attract investment in green technologies, and prioritize inclusive development to retain and activate local talent. The SustainX program can support these efforts through interregional collaboration, capacity-building, and access to best practices for resilient and just transitions.

ANNEX II.

NORTH-EASTERN ROMANIA REGIONAL INNOVATION ROADMAP (MID-2025 – END-2026)

The **North-Eastern Romania Regional Innovation Roadmap** provides a **practical, time-sensitive framework** for delivering the SustainX Action Plan during the period from **mid-2025 to end-2026**.
It translates regional challenges, stakeholder input, and RIS3 priorities into a **sequenced, achievable portfolio of interventions**, aligned with both **national strategic objectives** and **EU-level policies**, including the **European Green Deal**, the **Digital Decade Strategy**, and **Horizon Europe Missions**.

The roadmap is structured around **five mutually reinforcing pillars**:

- **Empowering SMEs** through mentoring, funding guidance, and innovation scaling support;
- **Fostering cross-sector collaboration** via cooperation services and thematic roadmaps;
- **Building future-proof skills** for the green and digital transitions;
- **Enhancing innovation governance** with evidence-based tools like the RIS3 Dashboard;
- **Strengthening EU integration and interregional learning** through peer exchanges and project partnerships.

Each milestone is tied to:

- **Tangible outputs** (e.g., cooperation services, training cohorts, innovation dashboard),
- **Identified lead actors** (TUIASI, NE RDA, clusters, intermediaries),
- **Clear linkage to SustainX KPIs**, ensuring structured monitoring and accountability.

The approach is **modular, adaptive, and participatory**, enabling real-time learning and adjustment during implementation.

Roadmap Timeline (Mid-2025 – End-2026)

Timeframe	Strategic Milestone	Key Actions / Outputs	Lead Actors	SustainX KPIs
Q2 2025	Governance and Coordination Launch	Activate RIS3 Coordination Platform;	Project partners; Other stakeholders: Regional policymakers, clusters	KPI1, KPI3

		Establish M&E Task Force		
Q3–Q4 2025	Launch of Cooperation Services and Roadmaps	Develop 3 cooperation services in Digital Health, Circular Agri-Food, Smart Manufacturing	Project partners; Other stakeholders: Cluster organisations, SME networks, innovation intermediaries	KPI2.1–2.3
Q3 2025–Q2 2026	Delivery of RIS3-Aligned Capacity Building	Train 80–100 SMEs and intermediaries; Distribute RIS3 alignment tools and badges	Project partners; Other stakeholders: Regional DIHs, universities, business support organisations	KPI3.1–3.3, KPI5.1
Q3 2025–Q4 2026	SME Scaling and Interregional Collaboration	Mentor 20+ SMEs; Organize policy dialogues; Host 3–4 peer exchanges	Project partners; Other stakeholders: SME associations, cluster networks, public authorities, EU project offices	KPI1.1–1.3, KPI4.1–4.3
Q3 2025–Q2 2026	RIS3 Monitoring and Dashboard Deployment	Develop and operationalize RIS3 Dashboard for evidence-based governance	Project partners; Other stakeholders: National Institute of Statistics, regional innovation bodies	KPI6
Q4 2025–Q4 2026	Green and Digital Skills Development	Upskill 100–120 individuals in AI, circular economy, robotics, digital health; Launch skills roadmaps	Project partners; Other stakeholders: VET Centres, universities, business organisations	KPI5.1–5.3
Q4 2026	Final Evaluation and Knowledge Transfer	Conduct summative evaluation; Publish good practices and regional innovation blueprints	Project partners; Other stakeholders: NE RDA, cluster representatives	KPI6

Implementation Guidance

1. Governance and Coordination

- **Regional RIS3 Coordination Platform** led by NE RDA will guide strategic alignment and stakeholder engagement.
- **M&E Task Force** (TUIASI, NE RDA, MRID, clusters, intermediaries) will ensure KPI tracking, evidence-based adjustments, and cross-sector coordination.
- These bodies will oversee risk management, course correction, and integration into RIS3 strategic planning cycles.

2. Work Package Structure

Each strategic milestone will be implemented as a **modular work package** with:

- Clearly defined deliverables and timelines,
- Assigned lead and supporting organizations,
- Integration of financing streams (ERDF, NRRP, Horizon Europe, Digital Europe),
- Monitoring and reporting checkpoints to ensure flexibility and accountability.

3. Digital Tools and Dashboard Deployment

- The **RIS3 Innovation Dashboard** will serve as a real-time monitoring, analysis, and decision-support tool.
- Gantt charts and milestone trackers will visualize progress and facilitate course corrections.
- If feasible, dashboard foresight modules (scenarios for 2030 innovation development) will be piloted.

4. Interregional Learning and Peer Exchange

- Active participation in **SustainX interregional activities** (peer reviews, twinning visits, project labs) is prioritized.
- Outputs such as training materials, dashboards, and pilot action blueprints will be shared with other regions.
- Cross-regional validation will support continuous improvement and mutual learning.

5. Annual Review and Adaptive Management

- **Annual strategic reviews** (Q4 each year) will be conducted by the RIS3 Coordination Platform.
- KPIs will be assessed, new needs or bottlenecks identified, and the roadmap adapted accordingly.
- These reviews will ensure alignment with national strategies, funding cycles, and SustainX evaluation milestones.

Quarterly internal updates and biannual learning workshops are also recommended to maintain momentum and stakeholder ownership.

By following this roadmap, **North-Eastern Romania** is positioned to transition from a **fragmented innovation environment** to a **coordinated, future-ready ecosystem** — contributing actively to Romania's S3 implementation and to **Europe's green, digital, and inclusive innovation transition**.

The roadmap offers a **flexible but structured approach**, ensuring that the SustainX Action Plan results in tangible, scalable, and impactful change.

*SustainX Key Performance Indicators (KPIs)

- KPI1: Number of SMEs supported through innovation scaling programs.
- KPI1.1: Number of innovation vouchers distributed to SMEs.
- KPI1.2: Number of SMEs receiving mentoring support.
- KPI1.3: Number of SMEs accessing testbeds or pilot facilities.
- KPI2.1: Number of cross-sectoral RIS3 platforms operationalized.
- KPI2.2: Number of joint pilot projects launched through these platforms.
- KPI2.3: Level of stakeholder engagement in cross-sectoral platforms.
- KPI3: Number of regional funding instruments aligned with RIS3 priorities.
- KPI3.1: Number of SMEs and intermediaries trained on RIS3 priorities.
- KPI3.2: Number of innovation management training sessions conducted.
- KPI3.3: Number of EU project participation workshops held.
- KPI4.1: Number of regional peer exchanges organized.
- KPI4.2: Number of consortium-building labs conducted.
- KPI4.3: Number of cross-border collaborations initiated.
- KPI5.1: Number of individuals upskilled in green and digital skills.
- KPI5.2: Number of training programs developed for green and digital skills.
- KPI5.3: Level of satisfaction among participants in upskilling programs.
- KPI6: Number of policy instruments adapted based on M&E findings.