European Commission

Assessment of smart specialisation

as a strategic framework for enhancing research and innovation capacities and for driving innovative and smart economic transformation in EU regions

Contract No 2024CE16BAT008

Case studies

Written by Prognos AG and CSIL
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Contents

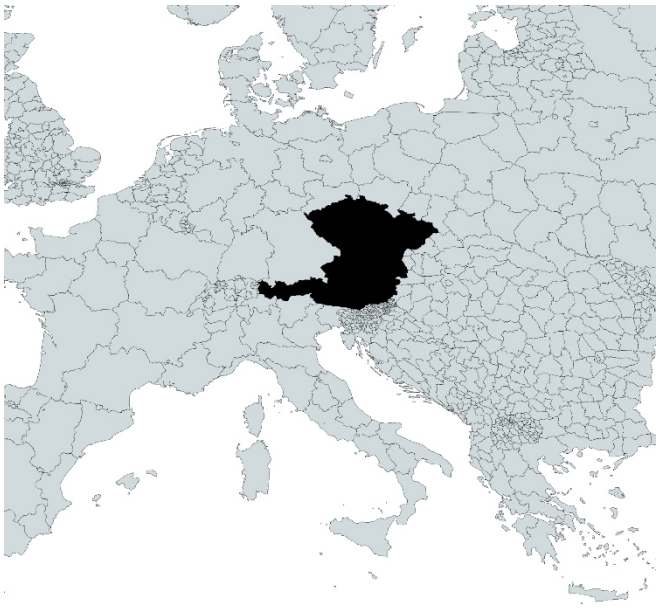
Priorities focused on ecosystem needs

The case of Czechia and Austria

Abstract
This case study analyses the role of ecosystem-oriented priorities within Smart Specialisation Strategies, focusing on the experiences of Czechia and Austria. While many S3 strategies refer to ecosystem needs and reflect them in high-level objectives that guide the overall strategic direction, the cases of Czechia and Austria illustrate an approach in which ecosystem needs are translated into selected operational priorities. The results of the study show that ecosystem priorities can be employed to support the development of foundational innovation conditions in contexts like Czechia, while in a more decentralised system like Austria, they provide a broad architecture for aligning regional actions. The findings underscore the importance of systemic coordination, as well as the value of designing priorities, funding calls and implementation instruments tailored to the local context and aligned with existing capacities and innovation needs.

Key insights

- Ecosystem-oriented priorities are included to address structural weaknesses, particularly in terms of skills and education needs, improve system-level coordination and enable cross-sectoral innovation.
- The Czech strategy integrates ecosystem priorities that support foundational innovation functions alongside sectoral and mission-driven priorities, reflecting a comprehensive policy approach.
- In Austria, ecosystem priorities are included in the national strategy, which provides strategic alignment and coherence across regions, while regions articulate their strategies through more specific and vertically focused priorities.
- The decision to include ecosystem needs as S3 priorities varies based on strategic intent, institutional preferences, and available resources. The two analysed cases show they can be successfully integrated into the S3 through both centralised and decentralised governance models, depending on the context.



This case study has been validated by the national managing authority of Austria and Czechia.

Task-specific assessment

Ecosystem-oriented priorities refer to strategic objectives that aim to strengthen the foundational components of research and innovation systems. Rather than focusing exclusively on sector-specific or technological areas, these priorities target systemic aspects such as skills development, public-private cooperation, innovation infrastructure, governance, and technology transfer. Their purpose is to create the necessary conditions that support a well-functioning cross-sectoral innovation ecosystem.

Survey data collected for this study reveal that the vast majority of respondents consider ecosystem support a key ambition of S3 strategies. However, a closer examination of the strategies adopted for the 2021-2027 period shows a more nuanced picture. While many strategies reflect ecosystem needs through high-level strategic goals that inform the overall orientation of priorities, only in a limited number of cases are these needs explicitly operationalised into dedicated priorities. Ecosystem-related priorities are found across diverse territorial contexts, national and regional, more and less developed, in both highly innovative and less innovative countries. The ecosystem-related priorities focus primarily on skills and education, economic development, innovation system enhancement, internationalisation, and collaboration among ecosystem actors.

An in-depth review of S3 documents found that several strategies appear to include ecosystem-oriented priorities as a response to foundational needs in the research and innovation system. In such cases, the priorities tend to address structural aspects such as research infrastructure, skills gaps, or coordination and governance challenges. These elements are often framed as preconditions for enabling sectoral specialisation.

Other strategies place emphasis on improving the internal functioning of the innovation ecosystem. The focus here is typically on enhancing interaction among research system components, through support for public-private collaboration, internationalisation, or better alignment between education, skills and R&I needs. These priorities suggest an intent to foster systemic connectivity and responsiveness.

In some documents, ecosystem priorities are linked to the objective of enabling cross-sectoral interactions among selected vertical domains. This framing supports innovation activities that span across distinct specialisation areas. In a few national strategies, including those of Austria and Ireland, ecosystem priorities are presented within a broader strategic framework at the national level. These frameworks aim to set general directions, allowing for the development of region-specific priorities within a coordinated structure.

Key success factors and challenges

To explore the role of ecosystem-oriented priorities in S3 strategies, this case study compares Czechia and Austria, two countries that have taken distinct approaches. Czechia placed strong emphasis on ecosystem priorities as a way to address foundational weaknesses in its innovation system, following a phased logic from horizontal to mission-oriented objectives. In contrast, Austria's national strategy serves as an umbrella framework, using broad horizontal priorities to align and support regionally defined specialisation areas, with an emphasis on systemic reinforcement through thematic investments. In the Czech case, the rationale for introducing ecosystem-oriented priorities is linked to the recognition that the national research and innovation environment is not yet fully mature. The strategy explicitly identifies the need to improve basic conditions such as research infrastructure, stakeholder engagement, institutional governance, and system-wide coordination before targeting specific sectors. The prioritisation process was grounded in a strong theoretical

framework inspired by economic geography and place-based policy, following a step-by-step, phased approach. This approach involves first addressing horizontal priorities, then progressing toward vertical domains, and ultimately aiming for cross-sectoral, mission-oriented objectives. The strategy illustrates an effort to use S3 not only as a tool for smart specialisation in innovation investments, but also as a mechanism to strengthen the innovation system as a whole. In Austria, ecosystem-oriented priorities are embedded within the national strategy, which serves as an umbrella framework guiding innovation policy at both the national and regional levels. It defines broad strategic priorities, such as strengthening research infrastructure, promoting internationalisation, supporting basic and applied research and aligning R&I efforts with climate goals. These priorities provide a shared reference for national and regional stakeholders. While regional strategies focus on identifying vertical sectors of R&I specialisation, the national strategy adopts a broader, thematic approach, focused on reinforcing the innovation ecosystem.

Sustainability & innovativeness of approaches

The Czech strategy demonstrates that ecosystem-oriented priorities can offer practical advantages, particularly in contexts where innovation ecosystems are developing. One key benefit is their role as an accessible and understandable entry point for stakeholders. According to the Managing Authority, companies and research institutions found it easier to engage with horizontal priorities in the early implementation phases.

This approach provides a foundational ground on which more targeted forms of specialisation can be progressively built. The share of funding allocated to ecosystem-related calls is intended to support the national research and innovation system, fostering horizontal development across sectors and actors. Vertical and mission-oriented calls then emerge as a complementary layer, building on this systemic foundation in a dynamic and evolutionary way.

Another feature was the establishment of a robust monitoring framework. A dedicated IT system allowed for systematic tracking of progress on ecosystem priorities, which, according to the Managing Authority, proved to be as effective as the monitoring mechanisms applied to sectoral domains.

Austria's approach offers an alternative pathway, characterised by a multi-level strategic framework. Rather than concentrating operational resources at the national level, Austria adopts a dialogue-based, platform-oriented governance model, where the national strategy appears to define broad systemic priorities across sectors and regional strategies seem to complement it by identifying specific areas of specialisation, shaped by the needs and strengths of local ecosystems. The existence of multiple strategic documents – at both national and regional levels – makes coordination mechanisms particularly important. A key instrument in this regard is the RTI pacts (Research, Technology and Innovation pacts), which are three-year implementation agreements developed under the national strategy. These pacts set out concrete measures, funding priorities and responsibilities across ministries and agencies, translating high-level strategic goals into operational actions. Coordination is further supported by permanent dialogue mechanisms, such as the ÖROK intergovernmental platform, which brings together federal, regional and local authorities. This platform plays a central role in ensuring alignment between regional and national strategies and maintaining coherence across different levels of governance.

Scalability and transferability of the learnings

The comparison between Czechia and Austria reveals that ecosystem-oriented priorities can be effectively integrated into S3 strategies through both centralised and decentralised governance models.

However, many regions choose not to include explicit ecosystem-related priorities in their S3 strategies. This is not because they neglect these areas, but as a strategic choice. In such cases, ecosystem needs may still be addressed through complementary instruments or policy frameworks. This highlights that the

transferability of ecosystem S3 priorities is primarily a matter of strategic intent and institutional preference.
The two cases analysed also show that the transferability of the approaches presented can depend on institutional capacity and governance structures.

The Czech model shows that ecosystem priorities can serve as a foundational entry point for developing innovation systems. This approach is especially valuable in contexts where sectoral specialisation is premature or fragmented. However, its comprehensive design, which includes horizontal, vertical, and mission-oriented priorities, requires robust coordination mechanisms, substantial administrative capacity and resources. As such, it may be less scalable in regions with limited financial and institutional resources.
The Austrian model, by contrast, demonstrates how ecosystem priorities can be embedded through distributed governance, supported by strong national–regional coordination. Its success hinges on a high degree of institutional trust, clear role definitions, and long-term dialogue mechanisms. This makes it well-suited to federal or multilevel systems.

Conclusion & lesson learnt

The analysis of Czechia and Austria reveals key insights into the integration of ecosystem-oriented priorities in S3 strategies. In both cases, ecosystem-oriented priorities form part of the selected set of priorities for implementation in the current programming period. In the majority of the other strategies, ecosystem needs are more commonly addressed through high-level objectives that help orient the overall direction of sectoral or cross-sectoral priorities. This suggests that many regions and countries recognise the importance of ecosystem development but may choose not to explicitly integrate it into their strategy for a variety of reasons, including strategic intent, institutional preference, and available resources.

The case of Czechia illustrates how horizontal priorities can play a central role in structuring the innovation strategy. By focusing first on foundational aspects such as infrastructure, skills and governance, the strategy enabled a gradual shift toward more targeted vertical and mission-oriented objectives. This approach supported stakeholder engagement, improved policy coordination and enhanced monitoring capacity. More broadly, the Czech case highlights how S3 can serve not only to identify specialisation areas but also to build innovation capacity where it is lacking. This is particularly evident in national strategies from countries with less mature R&I systems, where ecosystem priorities help lay the groundwork for future specialisation.

The case of Austria shows how ecosystem priorities can be addressed through a multi-level S3 governance. The national strategy focuses on broad, cross-cutting objectives relevant across regions, while regional strategies tend to define more specific, sector-oriented priorities. Rather than a strict alignment, this suggests a coexistence of strategic levels, where the national framework offers general orientation and regions pursue their own specialisation logics.

Background information on the case study regions[1]

Czechia

Population: 10,900,555
GDP: € 317.4 bn
European Innovation Scoreboard: Moderate innovator (98.7)
Insights from the analysis of the prioritisation approach: In the 2021–2027 programming period, the Czech Republic has adopted a more integrated and systemic approach to smart specialisation. The strategy goes beyond a purely sectoral logic, aiming to strengthen the innovation ecosystem while focusing on key specialisation domains. It combines horizontal priorities, such as skills, public research, digitalisation and business R&D, with vertical specialisations. These domains are defined through evidence-based analysis and refined via entrepreneurial discovery processes, resulting in a layered strategy where specialisation reflects the interplay between systemic enablers and evolving societal and industrial needs.

Austria

Population: 9,158,750
GDP: € 473.2 bn
European Innovation Scoreboard: Strong innovator (127.9)
Insights from the analysis of the prioritisation approach: Austria's national S3 is integrated into the broader Research, Technology and Innovation - RTI (*Forschung, Technologie und Innovation - FTI*) Strategy. Austria's prioritisation approach is structured around horizontal priorities, closely tied to EU objectives (green deal, participation in IPCEIs, excellent fundamental research, etc.) rather than focusing on specific technologies or sectors. Regions (*Länder*) align and integrate into this framework with more sector-oriented priorities in line with the regional specialisation profiles.

[1] Data sources are as follows: Population: Eurostat (2025): Population on 1 January by age group, sex and NUTS 3 region (last access 10.06.2025), GDP: Eurostat (2025): Gross domestic product (GDP) at current market prices by NUTS 3 region. (last access 10.06.2025), RIS: European Commission: (2023): Regional Innovation Scoreboard (last access 10.06.2025), Prioritisation approach: Prognos AG/CSIL (2025): Based on the analysis of S3 documents.

Balancing EU & regional objectives

The case of Lombardy, Austria and Lower Silesia

Abstract
The balance between EU and regional priorities has always shaped the formulation of S3 strategies. While not a new feature, this dual alignment has become more structured in the 2021–2027 programming period, as the European Commission has placed greater emphasis on broader strategic directions such as the green and digital industrial transitions. The central question today is not whether to balance these objectives, but rather how Member States and regions can effectively achieve this balance within their S3 frameworks. This is the central theme explored in this comparative case studies, which focuses on the experiences of Lombardy (Italy), Austria and its region Upper Austria, and Lower Silesia (Poland). The selection of these cases allows for a comparison between more and less developed territories, strong and emerging innovators as well as between regional and national S3 approaches.

Key insights

- Aligning with EU-level priorities, such as the twin transition and strategic autonomy, can facilitate coherence across funding instruments and foster synergies in supporting different, yet interconnected, sectors. It also enhances opportunities for complementarities between Cohesion Policy and other European programmes, like Horizon Europe. This approach was adopted in Lombardy, where regional priorities were defined starting from the “destinations” of the European Commission Horizon Europe - Pillar II (Global Challenges and European Industrial Competitiveness).
- S3 strategies that define priorities in a more overarching manner and subsequently fine-tune them over the course of the programming period demonstrate a great degree of flexibility. This adaptability allows for continuous alignment with evolving EU priorities, supported by regular updates and the development of complementary plans that enable regions to refine and adjust their strategic focus over time. This was exemplified by Lombardy and Austria, which implemented complementary plans, namely, the Biennial Work Programmes and the Research, Technology and Innovation (RTI) Pacts, respectively.
- While broad EU themes, such as digitalisation and the green transition, offer sufficient flexibility to be adapted to diverse regional contexts, more specific or high-tech-oriented initiatives, such as the promotion of the defence sector or strategic European technologies, may not always align with local capacities. This was the case, for example, in Upper Austria, where previous attempts to prioritise life science technologies faced misalignment with the region’s actual strengths.

This case study has been validated by the interviewed authorities of Austria and Lower Silesia. The interviewed authorities of Lombardy did not provide any comment.

Task-specific assessment

In the 2021-2027 programming period, Smart Specialisation Strategies (S3) have been increasingly shaped by EU-level strategic objectives, particularly those linked to the twin transitions – green and digital – as well as broader industrial transformation and economic resilience goals. This reflects a shift from S3 as a purely place-based innovation strategy towards a more integrated framework that responds simultaneously to regional specificities and overarching EU priorities. Key EU policy initiatives, including the Green Deal, the EU Digital Strategy, Horizon Europe's missions (notably under Pillar II societal challenges), have steered many regions to incorporate themes such as sustainability, digitalisation, circular economy, and industrial modernisation into their S3 priorities[2].

These EU-level goals have been operationally integrated into the S3 in various ways, as evidenced by the survey responses collected in the framework of this study. This alignment could take the form of newly introduced horizontal priorities, such as digitalisation or sustainability, that cut across sectors (e.g., in Lower Silesia). In others, existing sectoral domains have been restructured to better contribute to overarching societal challenges such as health & wellbeing, smart mobility, nutrition (e.g., in Lombardy). In some cases, explicit multi-level structuring mechanisms are used to reconcile high-level objectives deriving from EU strategies with more vertical, bottom-up priorities rooted in regional dynamics. This is the case of Austria, where a national-level strategy tends to mirror EU priorities more directly, while regional strategies or implementation plans reflect the specificities and capabilities of individual territories.

This adaptation is an ongoing process. More recent developments, such as the Strategic Technologies for Europe Platform (STEP) and the EU Competitiveness Compass, with its focus on defence and strategic autonomy, have further emphasised the importance of resilience and technological sovereignty. The analysis of S3 documents indicate that alignment between S3 priorities and STEP is already strong, with many strategies addressing technology areas that correspond to STEP domains even prior to the initiative's formal adoption. This case study explores how the S3 framework is being used to guide strategic focus toward areas where regional strengths intersect with STEP priorities. It also examines the challenges in this process.

Key success factors and challenges

In **Lombardy**, the process for setting up the S3 priorities begins with the identification of 27 macro-themes, directly inspired by the "destinations" of the European Commission Horizon Europe - Pillar II (Global Challenges and European Industrial Competitiveness). Notably, as highlighted by some interviewees, the multi-sectoral nature of these EU priorities also facilitates the creation of synergies across different sectors and technological domains, helping regions like Lombardy tackle cross-cutting challenges through coordinated action. The alignment of regional priorities with Horizon Europe's "destinations" was well received by industrial stakeholders, who recognised the potential to support the same innovation projects through different funding sources. In collaboration with regional stakeholders, particularly the Lombard Technology

[2] This is a broader observation that extends beyond the specific cases of Lower Silesia and Austria. Open-ended answers to the survey launched in the context of this study have revealed that 43 respondents (38% of the total number of respondents) from various countries (Austria, Belgium, Czech Republic, Germany, Greece, Spain, Finland, France, Ireland, and Italy) explicitly mentioned an increased focus on EU priorities such as the digital, green and industrial transitions. For more details, see the Final Report.

Clusters, the region then regularly validates and adapts these macro-themes to ensure their relevance to regional needs and strategic importance by means of Biennial Work Programmes (WPs). These act as strategic documents that operationalise the S3 priorities, translating them into concrete actions. The Entrepreneurial Discovery Process (EDP) that underpins the definition of the WPs is repeated every two years, ensuring that both the S3 priorities and the broader S3 framework are regularly updated. This approach maintains flexibility, enabling the integration of emerging needs and new opportunities arising from both local stakeholders (bottom-up) and higher-level initiatives and priorities (top-down). For example, Lombardy's S3 and ERDF strategic documents have recently been revised to incorporate the strategic technologies of the STEP initiative, which was not initially explicitely foreseen in earlier versions of the strategic documents. The revision process was relatively straightforward, as Lombardy's S3 priorities were already well aligned with the STEP, requiring only limited adjustments to integrate its objectives.

For the period 2021-2027, **Lower Silesia** has introduced horizontally defined smart specialisation priorities, which transcend traditional sectors to drive transformation across the entire Lower Silesian economy – "Green Deal", "Industry 4.0", and "Technology-enhanced living". These cross-sectoral priorities, which reflect broader transformations such as the twin transition, are aligned with funding opportunities under the National Recovery and Resilience Plan and the Just Transition Fund, thereby enhancing synergies across multiple funding sources.

In **Austria**, the national S3 priorities are defined around broad, horizontal themes aligned with EU objectives, such as the Green Deal and the Important Projects of Common European Interest (IPCEIs). These are complemented by regionally based priorities, developed through regional S3 plans, which focus more on specific sectors and reflect the unique specialisation profiles of each Land. Similarly to Lombardy, a key tool for translating the national strategy into operational action are the triennial FTI-Pakte (RTI Pacts). These "rolling" agreements define specific objectives, allocate funding, and set performance and financing frameworks for research institutions and other actors. Updated every three years, the RTI Pacts serve as a dynamic mechanism for regularly revising and adapting Austria's R&I and S3 priorities in light of new challenges, policy developments, and evaluation results. Each Pact reflects the prevailing national priorities of its time. For example, while the 2021-2023 Pact emphasised climate change and digitalisation, the 2024-2026 Pact incorporates responses to more recent challenges, such as the energy crisis, the war in Ukraine, supply chain disruptions, and inflation.

In short, interviews indicate that the alignment with EU-level priorities can facilitate coherence across funding instruments and enhance opportunities for synergies, particularly with centrally managed programmes such as Horizon Europe. Moreover, because EU-level priorities are often multi-sectoral, they provide a useful framework for identifying and leveraging synergies across sectors and technological fields at the regional level.

The cases analysed also show that iterative mechanisms, such as biannual or triennial plans, support adaptability to shifting priorities, while aligning overarching EU goals with region-specific specialisation. These mechanisms allow regions to maintain broad, long-term strategic directions, while regularly adjusting priorities based on ongoing consultation with local stakeholders, including industry actors. This approach helps ensure that S3 strategies remain dynamic, context-relevant, and responsive to change, without losing sight of their transformative ambitions.

Maintaining territorial relevance remains a key challenge. Broad EU themes, such as digitalisation and the green transition, offer sufficient flexibility to be adapted to diverse regional contexts. However, more specific or high-tech oriented EU initiatives may not always align with local capacities.

In **Upper Austria**, for instance, past efforts to prioritise life sciences — a prominent EU focus at the time — had limited success, due to a lack of critical mass in both industrial and research capabilities. This illustrates the risk of adopting EU priorities focused on specific technologies in a top-down manner without a strong regional grounding.

Sustainability & innovativeness of approaches

The analysed cases demonstrate a sustainable governance model by combining two complementary levels of priority-setting: one anchored in EU overarching priorities and another tailored to regional contexts through Entrepreneurial Discovery Processes (EDP). This dual-track approach allows regions to remain aligned with evolving European strategic directions, such as the Green Deal, digitalisation, or STEP, while simultaneously translating them into place-based priorities that reflect local capabilities, stakeholder needs, and specialisation profiles. The regular updating of priorities through iterative mechanisms (e.g. biennial or triennial planning) ensures flexibility and long-term relevance, allowing strategies to respond to both emerging challenges and local transformations.

In terms of innovativeness, these governance structures also stand out for their ability to foster cross-sectoral integration and stakeholder-driven adaptation. Mechanisms like Lombardy's Biennial Work Programmes or Austria's RTI Pacts exemplify how innovation policy can be institutionalised in a way that is both agile and participatory, turning policy documents into living instruments. This dynamic model not only strengthens coherence across funding streams but also increases the capacity of regions to co-shape European innovation trajectories from the ground up.

Scalability and transferability of the learnings

The experiences analysed suggest that the scalability and transferability of these approaches are strongly influenced by the nature of EU priorities. When EU priorities are broad and cross-sectoral, such as the green and digital transitions or smart manufacturing, it is generally easier for regions to align and contribute, regardless of their specific sectoral strengths. In contrast, when EU priorities are narrower and more sector-specific (as suggested by the example of life sciences mentioned by Upper Austria's interviewees), alignment becomes more challenging and may favour regions with existing capabilities in those areas. Other regions, particularly those with less established ecosystems in the targeted sectors, may need to undertake more thorough diagnostic exercises to assess their current and potential capacities before defining how they can contribute.

The practice of applying two levels of priority-setting (one focused on high-level EU priorities and another on context-specific, place-based priorities) proves to be a scalable and adaptable model. It works effectively both in multi-level governance systems, where national and regional strategies coexist (as seen in Austria), and within individual regions (as in Lombardy and Lower Silesia). This layered approach facilitates wider adoption, offering a flexible structure that can accommodate different institutional settings, governance models, and levels of regional development.

Conclusion & lesson learnt

Aligning S3 strategies with EU-level priorities can enhance strategic coherence and improve access to complementary funding streams. However, the success of this alignment depends on how well EU priorities resonate with regional capabilities, industrial structures, and R&I ecosystems. A flexible and iterative approach that combines high-level strategic alignment with strong territorial anchoring through the Entrepreneurial Discovery Process is essential to maintain relevance over time. Moreover, selective and context-sensitive integration of EU priorities, rather than their wholesale adoption, allows regions to remain responsive to EU challenges while preserving the place-based character of S3.

Background information on the case study regions[3]

Lombardy

Population: 10,012,054
GDP: € 490.1 bn
Regional Innovation Scoreboard: Moderate innovator (105.7)
Insights from the analysis of the prioritisation approach: the region has shifted from a vertical, sector-based prioritisation approach (adopted during the 2014-2020 period) to a more horizontal and dynamic approach built around "innovation ecosystems". These ecosystems are structured around societal challenges and transformational priorities, such as digitalisation, sustainability, nutrition, connectivity, etc. rather than predefined economic sectors. Under this approach, sectors are no longer defined as standalone specialisations but are embedded within multiple ecosystems based on their contribution to societal needs and EU transformational goals.

Lower Silesia

Population: 2,805,463
GDP: € 62.2bn
Regional Innovation Scoreboard: Emerging innovator (75.2)
Insights from the analysis of the prioritisation approach: the S3 retains previously defined vertical sectoral priorities (e.g., Automotive & aerospace, medicine, etc.) from earlier programming periods while introducing broader horizontal specialisation areas (e.g., Green Deal and Industry 4.0) that provide support not only for R&D and intersectoral implementations but also contribute to the growth and further development of the established sectoral specialisations.

Austria

Population: 9,158,750
GDP: € 473.2 bn
European Innovation Scoreboard: Strong innovator (127.9)
Insights from the analysis of the prioritisation approach: Austria's national S3 is integrated into the broader Research, Technology and Innovation (Forschung, Technologie und Innovation - FTI) Strategy. Austria's prioritisation approach is structured around horizontal priorities, closely tied to EU objectives (green deal, participation in IPCEIs, excellent fundamental research, etc.) rather than focusing on specific technologies or sectors. Regions (Länder) align and integrate into this framework with more sector-oriented priorities in line with the regional specialisation profiles.

[3] Data sources are as follows: Population: Eurostat (2025): Population on 1 January by age group, sex and NUTS 3 region (last access 10.06.2025), GDP: Eurostat (2025): Gross domestic product (GDP) at current market prices by NUTS 3 region. (last access 10.06.2025), RIS: European Commission: (2023): Regional Innovation Scoreboard (last access 10.06.2025), Prioritisation approach: Prognos AG/CSIL (2025): Based on the analysis of S3 documents.

S3 as a framework to support investments for SME support, digitisation, and STEP

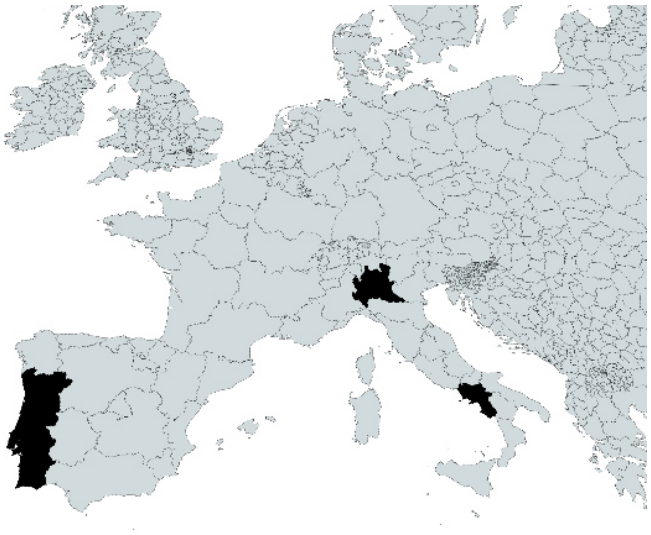
The case of Campania, Lombardy, and Portugal (including Norte)

Abstract
This case study investigates the strategic use of the Smart Specialisation Strategy (S3) framework to support investments for industrial transformation, particularly in the fields of Small and Medium Enterprises (SME) competitiveness, digitalisation, and strategic technologies (STEP). While it draws on comparative data across EU regions to provide a general overview, particular attention is given to the policy mechanisms and implementation approaches adopted in three distinct territorial contexts: Campania, Lombardy, and Portugal, considering both national and Norte regional perspectives. The assessment explores the extent to which S3 is used beyond its original role as an enabling condition for R&I investments and how it contributes to broader industrial policy objectives. The analysis draws on a structured policy inventory on ERDF programmes, triangulated with stakeholder insights and survey data, to assess mechanisms of integration and implementation across relevant Specific Objectives (SO) — particularly SO 1.2 (digitalisation), SO 1.3 (SME competitiveness), and SOs 1.6 and 2.9 (STEP).

Key insights

- In **Campania,** S3 priorities align with industrial ecosystems and show strong integration between innovation and industrial transformation goals. ERDF investments integrate S3 by linking R&D support, SME competitiveness, and capacity building to promote structural transformation and sustainable business development.
- In **Lombardy**, ERDF investments are guided by S3 through a flexible approach: informal alignment mechanisms for the digitalisation of SMEs (such as digital competence self-assessments required to access the funding), while preferential scoring and differentiated funding intensities are used for supporting S3-aligned investments for SME competitiveness. To ensure continuity with R&I priorities while creating concrete pathways for industrial transition, stricter eligibility criteria are adopted for STEP-related investments.
- In **Portugal**, the national ERDF programme strategically uses S3 by committing approximately 75% of the programme's budget to operations aligned with S3 priorities. The alignment of S3 and ERDF is also achieved through a combined support mechanism that merges R&I and productive investment within a single instrument.
- In **Norte (Portugal)**, the regional ERDF programme applies a structured process to align SME competitiveness investments with S3 priorities and address past challenges in fund absorption. Calls for proposals include S3-based selection and eligibility criteria, while performance indicators are used to monitor strategic alignment over time.

This case study has been validated by the interviewed authorities of Portugal and Campania. The interviewed authorities of Lombardy did not provide any comment



Task-specific assessment

Industrial transformation refers to the profound changes reshaping production systems, value chains, and business models in response to global technological shifts, environmental challenges, and evolving market demands. The need for industrial transformation is territorially differentiated due to variations in regional economic structures, innovation capacities, industrial specialisation, and labour market dynamics. S3 has become a key policy framework to help regions navigate this process by focusing Research and Innovation (R&I) investments on areas of strategic potential. By aligning European Regional Development Fund (ERDF) resources, alongside other EU and national funding, with place-based priorities, S3 aims to strengthen regional resilience and competitiveness.

This case study examines how S3 is used strategically not only to guide R&I investments but also to support broader industrial transformation objectives. It focuses on three key policy areas: SME competitiveness, digitalisation, and Strategic Technologies for Europe Platform (STEP). The analysis explores how S3 is applied beyond its original role as an enabling condition for R&I (under SOs 1.1 and 1.4) and the extent to which it supports broader industrial policy objectives. The study draws on three main sources:

- a desk review of 183 national and regional ERDF programmes, focusing on S3 references in non-mandatory SOs;
- an EU-wide survey capturing practical uses of the S3 framework;
- four targeted interviews with managing authorities and S3 coordination bodies in Lombardy, Norte and Portugal, and a written interview with Campania managing authority.

While the EU-wide analysis sheds light on overarching mechanisms for aligning S3 with industrial transformation policy goals, the focus on specific regional and national cases provides insights into how these mechanisms are implemented in practice under diverse regional contexts.

Overall, the EU-wide analysis of ERDF programming documents and survey data reveals that S3 are increasingly employed as a strategic tool beyond their traditional R&I focus. References to S3 appear in over half of the programmes outside SOs 1.1 and 1.4, particularly under objectives such as STEP (SO 1.6) and SME competitiveness (SO 1.3), where S3 is often used to ensure strategic coherence or as a preferential criterion for project selection. Thematic alignment between S3 priority areas and STEP technology domains further underscores S3's potential to support industrial transformation, even when not explicitly cited. Survey evidence corroborates these findings, indicating widespread and varied use of S3 in guiding investments across multiple policy areas.

Key success factors and challenges

All three cases analysed (Campania, Lombardy, and Portugal) demonstrate active efforts to align ERDF investments in SME competitiveness (SO 1.3), digitalisation (SO 1.2), and STEP-related priorities (SOs 1.6 and 2.9) with S3 strategies. However, they adopt different mechanisms to do so, which also vary across the policy cycle.

In Campania, the alignment of ERDF investments for SME competitiveness, digitalisation, and STEP is addressed through a set of measures that correspond to different stages of the policy cycle. First, S3 priorities are defined by assessing the broader digital and green transformation needs of the region's industrial ecosystems. Roadmaps and action plans are then used to outline operational steps, thematic areas, and indicative timelines for the implementation of S3 priorities. During the design and launch of funding calls, alignment is supported through the inclusion of preferential conditions for S3-aligned investments in selection criteria and the use of targeted calls for projects contributing to identified S3 domains. In the implementation and monitoring phase, programme-level performance indicators

are used to assess the degree of alignment between funded projects and S3 priorities over time.

In Lombardy, strategic alignment between S3 and industrial transformation goals is pursued through a flexible design. Under SO 1.3 (SME competitiveness), preferential scoring and differentiated funding intensities reward projects that align with S3 priorities. For SO 1.2 (Digitalisation), projects had no formal requirement to align with S3 priorities. However, access to funding was conditional on SMEs carrying out a self-assessment of their internal digital competencies, including workforce skills. This mechanism effectively ensured alignment with S3 objectives, even with no binding obligation. For the STEP initiatives (SOs 1.6 and 2.9), Lombardy chose to align the calls with its S3 priorities, following a logic of continuity with existing R&I investment trajectories. Since the region's S3 priorities were already closely aligned with STEP-related technologies, this facilitated integration between the two frameworks. This alignment also allowed them to enhance specific thematic calls, such as those for the circular economy, and drive greater investment into research infrastructure.

Portugal applies a multi-level approach to S3 implementation, with coordination between national and regional strategies. At the national level, under SO 1.3 (SME competitiveness), S3 alignment is used as a selection criterion, weighted at 30% of the total merit score, to prioritise strategically relevant projects. Given that SO 1.3 accounts for approximately 45% of the programme's budget and SO 1.1 (representing 30% of the budget) is subject to the S3 enabling condition, around 75% of the programme's resources are allocated through procedures in which alignment with the S3 plays a role in project evaluation and selection, either as a formal requirement or as a preferential criterion. While STEP has not yet been formally integrated into the national Portuguese Programme for Innovation and Digital Transition (COMPETE 2030), a programme modification request has been submitted to enable the launch of dedicated calls. At the regional level, the Norte region has adopted a structured process to ensure alignment between SME competitiveness investments and S3 priorities and address previous challenges in fund adoption. Calls for proposals explicitly reward coherence with S3 priorities, together with explicit use of selection criteria and, in some cases, eligibility conditions, to ensure that funding is directed toward strategic S3 priorities. Moreover, like in Campania, performance indicators have been introduced to track the degree of strategic alignment of funded projects.

While mechanisms for aligning S3 with industrial transformation investments are in place, challenges persist in managing procedural burdens, coordinating across multiple governance levels, and ensuring clear administrative processes.

In Campania, the main challenges related to broadening the S3 framework to encompass industrial transformation require careful balancing, as this shift demands enhanced inter-institutional coordination, stronger impact assessment capacities, and more integrated monitoring of interventions. With regard to the STEP objectives, key issues include a persistent infrastructure and skills gap between coastal/metropolitan areas and inland regions, the need to strengthen vertical technological value chains—especially in territories with lower industrial density—and significant asymmetries in the project design capacities of local actors.

In Lombardy, the use of S3 as a reference framework for areas such as digitalisation and STEP requires enterprises to demonstrate continuity with regional R&I priorities. While this strengthens the strategic coherence of investments, interviewees noted that it may also increase the procedural burden.

In Portugal, a primary challenge has been the identification of overly broad S3 priority areas, making it difficult to make strategic choices that lead to the concentration of R&I investments in projects that meaningfully contribute to the strategy's objectives. The planned integration of STEP is seen as an opportunity to refine

priorities in a more granular and operational way.

In Norte, challenges stem primarily from the complexity of multi-level governance, which complicates coordination between national and regional programmes. A key difficulty in using S3 to support industrial transformation lies in the misalignment between strategic priorities and the structure of the funding system. While regional S3 strategies are designed to support a broad spectrum of firms, the financial architecture remains segmented: regional programmes typically target smaller firms, whereas national programmes such as COMPETE 2030 focus on medium and large companies. This fragmentation creates a disconnect between the ambition of regional strategies and the instruments available for their implementation. As a result, regional authorities are often required to adjust their strategic priorities to fit the structure of the funding system rather than aligning funding with clearly defined regional needs.

Sustainability & innovativeness of approaches

The approaches adopted by Campania, Lombardy, and Portugal illustrate different innovative mechanisms to link the S3 framework with productive investments. In Portugal, a key innovation is the introduction of a new instrument, IDI — Investigação, Desenvolvimento e Inovação — which integrates R&D and productive investment within a single call. This allows for a seamless funding pipeline supporting the full innovation lifecycle from research to market deployment, enhancing policy coherence and outcome orientation. In Lombardy, beneficiaries of STEP investments are selected by following the same criteria applied to R&D investments to ensure continuity of funding. In addition, a venture capital fund targeting innovative startups is explicitly linked to S3 priorities. In this way, it seeks to diversify the pool of STEP beneficiaries, which, given the typology of investments, might be a type of investment that fits more large enterprises. In Campania, the chosen approach blends capacity-building instruments, including digital skills development and access to advanced services from universities and research centres, with productive investments and support for new enterprise creation. This integrated model aims to strengthen firms' innovation capabilities while fostering entrepreneurship and facilitating knowledge transfer into market-oriented, sustainable business solutions.

In terms of sustainability, mechanisms have been put in place in Portugal (at the national level) to ensure that future STEP instruments are developed in response to stakeholder needs and, in Norte, to safeguard policy objectives by maintaining a clear focus on the most promising projects. Portugal's planned approach to STEP integration provides a forward-looking example. The national Entrepreneurial Discovery Process is expected to be refined to clearly link stakeholder-identified areas of specialisation to STEP-related technologies so that future investment priorities are focused and include stakeholder participation. This prospective alignment will be supported by planned capacity-building measures aimed at increasing stakeholder awareness of the link between the S3 strategy and the STEP framework. These efforts are intended to enable more informed and effective participation in priority setting, ensuring that future ERDF calls reflect both strategic relevance and stakeholder ownership. In Norte, sustainability is reflected in the way the region has embedded S3 into the operational programming cycle as a mandatory reference point, with explicit use of selection criteria and, in some cases, eligible conditions to ensure that funding is directed toward strategic S3 priorities. This approach mitigates the risk of fund dispersion and supports long-term alignment between planning and implementation.

Scalability and transferability of the learnings

The selection approaches adopted across Lombardy, Portugal (national), and the Norte region highlight a range of practices that are transferable depending on administrative capacity, governance structure, and policy objectives. In Lombardy, Campania, and Portugal (national level), S3 alignment is embedded as a selection criterion, through preferential scoring or weighted merit components,

rather than as a rigid eligibility condition, offering flexibility while still steering investments towards strategic S3 priorities. Norte follows a more structured model, using selection and eligibility criteria tied to S3, which ensures a tighter link between planning and implementation.

Portugal (national level), Lombardy and Campania offer complementary examples of integrated approaches that link R&I support with business transformation. In all three cases, strategic alignment between R&D, productive investment, and capacity building is pursued to strengthen the innovation-to-market pathway and promote structural change at the firm level. Portugal formalises this integration through combined support mechanisms that merge R&D and productive investment within a single instrument.

Campania achieves similar objectives through coordinated actions across different funding priorities. Lombardy, in turn, achieves integration by aligning selection criteria between STEP-related investments and R&I calls. These approaches offer transferable lessons for regions aiming to enhance coherence between technological development, entrepreneurship, and organisational upgrading within ERDF programming.

The process of designing the future implementation of STEP in Portugal presents several transferable features for other Member States with similar multilevel-governance settings. At the national level, STEP is being used as a focusing mechanism to sharpen broad S3 priorities by concentrating investments on a limited number of critical technologies. The decision to centralise STEP implementation under the COMPETE 2030 programme offers a model for achieving scale and strategic concentration through national-level coordination. At the same time, the approach allows regional strategies to align thematically with STEP technologies, ensuring complementarity without duplication and focusing more on regionally-based SMEs. In the Norte region, the use of thematic platforms under SO 1.4 to identify alignment criteria and prepare future calls provides a decentralised, capacity-driven example of how regions with limited autonomy can support EU-level objectives through structured governance.

Conclusion & lesson learnt

The case study shows a strategic use of S3 to guide ERDF investments in SME support, digitalisation, and STEP across EU regions.

The specific cases analysed illustrate different approaches to aligning ERDF investments for industrial transformation with the S3 framework in different regional and national contexts and policy settings.

The evidence indicates that S3 can function as a strategic reference point beyond its formal regulatory role. Effective implementation relies on maintaining consistency between strategic priorities and operational tools. Where these mechanisms are well established, they can contribute to more focused investments and stronger links between innovation policy and industrial transformation.

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Background information on the case study regions[4]

Campania

Population: 5,593,906
GDP: €130.265 bn
Regional Innovation Scoreboard: Moderate Innovator (81.0)
Insights from the analysis of the prioritisation approach: Mix of priorities related to industrial transformation, societal challenges, and sector-specific priorities.

Lombardy

Population: 10,012,054
GDP: €490.132 bn
Regional Innovation Scoreboard: Moderate Innovator (105.7)
Insights from the analysis of the prioritisation approach: Mix of priorities related to industrial transformation and societal challenges.

Portugal

Population: 10,421,117
GDP: €267.923 bn
European Innovation Scoreboard: Moderate Innovator (91.8)
Insights from the analysis of the prioritisation approach: Mix of priorities related to industrial transformation and societal challenges.

Norte

Population: 3,601,434
GDP: € 78.659 bn
Regional Innovation Scoreboard: Moderate Innovator (93.1)
Insights from the analysis of the prioritisation approach: Mix of priorities related to industrial transformation and societal challenges.

[4] Data sources are as follows: Population: Eurostat (2025): Population on 1 January by age group, sex and NUTS 3 region (last access 10.06.2025), GDP: Eurostat (2025): Gross domestic product (GDP) at current market prices by NUTS 3 region. (last access 10.06.2025), RIS: European Commission: (2023): Regional Innovation Scoreboard (last access 10.06.2025), Prioritisation approach: Prognos AG/CSIL (2025): Based on the analysis of S3 documents.

Alignment between S3 and TJTPs

The case of Wallonia and Lower Silesia

Abstract
This case study explores how S3 and Territorial Just Transition Plans (TJTPs) can be aligned to foster industrial transformation in a coherent way. It examines how two transition regions, i.e. Wallonia (Belgium) and Lower Silesia (Poland), have ensured that their TJTPs align with the priorities and objectives outlined in their respecive S3s, particularly in areas such as innovation, research and decarbonisation. Despite their differences in innovation capabilities (according to the Regional Innovation Scoreboard, Wallonia is classified as a strong innovator while Lower Silesia an emerging innovator) both regions face similar challenges in aligning S3 and TJTP. These challenges mainly relate to the governance and strategic focus of the authorities managing these two programmes.

Key insights

- In **Wallonia**, the S3 was conceived as an overarching strategic framework for regional innovation and industrial policy, with both ERDF and Just Transition Funds investments explicitly tied to its priorities. Alignment between S3 and TJTP is mandatory for R&I investments under the TJTP, which must fall within defined S3 priorities.
- In **Lower Silesia,** the inclusion of S3 priorities in the TJTP was driven by the anticipated availability of EU funding and by the specific challenges faced by the Wałbrzych region (the region targeted by the TJTP). The TJTP document includes a section on synergies with the S3. Alignment between the two programmes is operationalised through preferential selection criteria for S3-related projects in TJTP funding calls.
- In **both regions**, S3 is recognised as a key strategic tool for guiding R&I investments. However, the full potential of this alignment is constrained by limited strategic coordination and fragmented governance structures between the S3 and TJTP frameworks.

This case study has been validated by the interviewed authorities of Wallonia and Lower Silesia.

Task-specific assessment

Territorial Just Transition Plans were designed to support regions and communities heavily reliant on carbon-intensive industries, facilitating their transition to a sustainable, green economy while ensuring social and economic equity. These documents describe the situation of the targeted regions and communities and how the relevant Managing Authorities (MAs) plan to use the Just Transition Fund (JTF) to support them. A total of 73 TJTP documents were drafted in 2021: the documents include plans for the economic diversification and transition related to 100 distinct territories across Europe, generally sub-regional areas.

This analysis investigates how the S3 is applied beyond its original role as an enabling condition for R&I, to support the sustainable development and economic transition outlined in the TJTPs. In addition to the target interviews with the TJTPs' Managing Authorities and S3 coordination bodies of Wallonia and Lower Silesia regions, a desk review of the 100 plans related to the corresponding territories was conducted and an EU-wide survey capturing practical uses of the S3 framework was analysed. The details of these additional analyses are presented in the main report of the study. Here it is worth underlining that overall, 80% of the TJTPs either explicitly mention S3 alignment or target sectors closely related to S3 priorities. This alignment is carried on both within and beyond the research and innovation area, through governance mechanisms and selection criteria. Finally, note that governance fragmentation emerges as the most cited challenge, together with the lack of a shared strategic vision.

Key success factors and challenges

The in-depth analyses of Wallonia and Lower Silesia offer insights on how their respective TJTPs were aligned with the S3 in practice. Both regions, while maintaining their own peculiarities, share both the main success factors and challenges.

In **Wallonia**, the S3 was conceived as a pre-existing strategic framework for regional innovation and industrial policy. The S3 was seen as a facilitator for the development of the TJTP, as it provided guidance on priority sectors and investment directions. This was possible because the S3 had already been finalised before the TJTP drafting process began. Alignment between the two was further facilitated by the horizontal, multi-sectoral nature of the S3 priorities relating to the green transition. In practical terms, in Wallonia, alignment between S3 and TJTP is mandatory for R&I investments under the TJTP, which must fall within S3 priority areas. Specifically, two research measures in the TJTP require alignment with Smart Specialisation, focusing on three of the five S3 innovation areas (circular materials; agile/safe design and Industry 4.0; sustainable energy systems, and sustainable habitats).

In **Lower Silesia** the specific needs and challenges of the Wałbrzych province (i.e., the territory targeted by the TJTP) were taken into account during the development of the S3. In particular, the inclusion of horizontal priorities linked to the Green Deal was partly driven by the anticipated availability of EU funding and priorities, including the TJTP, as well as the specific challenges of the Wałbrzych region. This, combined with the collaboration between the S3 coordination unit and the TJTPs Managing Authority during the drafting of the plan, was a key success factor in ensuring alignment between the two programmes. In practical terms, the TJTP document includes a section on synergies with the S3, and its detailed objectives are linked to decarbonisation goals. The strategic objectives of the S3 are considered aligned with those of the TJTP.

These cases show that the S3 can serve as a strategic foundation for developing TJTPs, by providing clear guidance on investment priorities and sectors. At the same time, alignment can also be reinforced in the opposite direction, as shown in the Lower Silesian case, where the TJTP's territorial focus was taken into consideration during the design of the S3.

In Wallonia, the responsibilities for the S3 and the TJTP were held by two different teams, which caused some challenges. The TJTP was informed by the S3, which

was drafted before. In particular the TJTP was drafted in collaboration with the Public Service of Wallonia for Economics, Employment and Research, which includes the team responsible for the S3. However this consultation happened mostly during the initial drafting of the TJTP. According to the S3 team, this coordination had a relatively limited depth, and found that the TJTP lacked a comprehensive evaluation of the strategic aspects of the S3 and its overall contribution to the regional ecosystem. The S3 team also raised doubt over the efficacy of the TJTP as an instrument fit for the application of the S3, due to its narrow geographical focus. This remark can be applied beyond Wallonia, since the subregional focus is a core feature of the TJTP across the board. From the perspective of the TJTP team, coordination with the S3 was assessed much more positively, as documented by a dedicated section in the TJTP and involvement of S3-related staff in practical steps (e.g., projects selection) during the lifetime of the strategy.

In Lower Silesia, there is an administrative separation between the S3 coordination unit and the TJTP implementation unit, which limits the direct involvement of the S3 team in the execution of the TJTP. According to the interviewed stakeholders, the group overseeing the TJTP focuses mainly on allocating funds, with less emphasis on achieving the strategic objectives set out in the S3. While the region sees the TJTP as an opportunity to support the transition of the post-coal area in line with EU Green Deal goals, stronger integration with the S3 would help ensure that investments also contribute to long-term innovation-driven transformation for the region.

The two cases highlight the importance of ensuring coordination between the S3 and TJTP governance structures to achieve a more coherent and effective alignment that takes into account and addresses the needs and interests of all key stakeholders.

Sustainability & innovativeness of approaches

The sustainability of the approaches in both Wallonia and Lower Silesia lies in the strategic coherence achieved when TJTP goals are fully embedded within the broader S3 framework. This alignment ensures that TJTPs are not stand-alone instruments, but instead act as synergistic tools that contribute to the long-term objectives of S3, particularly in the areas of green innovation and place-based transformation. While TJTPs maintain a narrower territorial and sectoral focus, their integration into the regional S3 vision supports policy continuity and reinforces R&I-led development pathways.

In terms of innovativeness, both cases show adaptive governance: regional actors anticipated EU priorities and funding instruments and adjusted their strategies accordingly, enabling more aligned interventions. However, more efforts are needed to foster ongoing coordination between the two governance structures to ensure that strategic alignment fully translates into coherent implementation.

Scalability and transferability of the learnings

The experiences from Wallonia and Lower Silesia demonstrate that aligning S3 and TJTPs can be facilitated by early integration. However, the scalability and transferability of these practices across regions depend on several factors, including governance structures, coordination, policy agenda/calendar (i.e., alignment between the dates of the different strategies), and the capacity for strategic integration. Survey results and case study interviews reveal that one of the key barriers to full alignment is governance fragmentation. In Lower Silesia, even if the alignment process was supported by coordination between S3 and TJTP teams, challenges remained due to administrative separations and limited consultation during programme implementation. The same can be said for Wallonia, where, despite the presence of S3 teams' members in administrative coordination meetings of the TJTP, the alignment is perceived as limited by some stakeholders.

These case studies underscore the importance of tailored governance models and the need for continuous collaboration, from strategy design to implementation, to effectively align S3 and TJTPs.

Conclusion & lesson learnt

The analysis presented in this case study highlights that while the S3 is being actively integrated into many TJTPs, significant obstacles remain in achieving full strategic alignment between the two programmes. The alignment with TJTPs generally occurs through project selection criteria tied to S3 priorities as well as thorugh a collaboration between TJTPs MAs and S3 teams, mainly in the drafting phase. However, the partial governance fragmentation between the bodies responsible for these two programmes limits the ability to fully exploit S3 strategic potential.

The examples of Wallonia and Lower Silesia show that alignment is possible when clear selection criteria and shared objectives are established. Such alignment can contribute to more coherent and impactful industrial transformation. However, the geographically limited scope of TJTPs does not always easily align with the broader, region-wide transformation vision underpinning the S3. At the same time, TJTPs' focus on EU Green Deal objectives creates a strong basis for thematic alignment where S3 priorities are similarly oriented.

Ultimately, while TJTPs are not substitutes for regional innovation policy, they can serve as targeted instruments within a wider S3 framework, provided that coordination is strengthened and strategic alignment is pursued from design through implementation.

Background information on the case study regions[5]

Wallonia

Population: 3,713,856
GDP: € 136.8 bn
Regional Innovation Scoreboard: Strong Innovator (113.5)
Insights from the analysis of the prioritisation approach: mix multi-sectoral priorities related to industrial transformations and societal challenges.

Lower Silesia

Population: 2,805,463
GDP: € 62.2 bn
Regional Innovation Scoreboard: Emerging Innovator (69.4)
Insights from the analysis of the prioritisation approach: mix of multi-sectoral priorities related to industrial transformations and sector/technology specific priorities.

[5] Data sources are as follows: Population: Eurostat (2025): Population on 1 January by age group, sex and NUTS 3 region (last access 10.06.2025), GDP: Eurostat (2025): Gross domestic product (GDP) at current market prices by NUTS 3 region. (last access 10.06.2025), RIS: European Commission: (2023): Regional Innovation Scoreboard (last access 10.06.2025), Prioritisation approach: Prognos AG/CSIL (2025): Based on the analysis of S3 documents.

S3 linked to ecosystems transition pathways.

The case of Campania

Abstract
This case study explores the relationship between Smart Specialisation Strategies (S3) and the ecosystem transition pathways promoted by the European Commission's DG GROW, which aims to guide the green and digital transitions while enhancing the industrial competitiveness and resilience of different industrial ecosystems. The analysis focuses on the region of Campania, the only European region to have explicitly linked its regional innovation ecosystems to the 14 industrial ecosystems defined by the EU Industrial Strategy in its S3.

Key Insights

- **Campania** uniquely integrates the 14 EU Industrial Ecosystems into its S3 framework, demonstrating a proactive approach to aligning regional priorities with EU-level industrial transformation goals.
- Campania's strategy employs dynamic innovation ecosystems that evolve over time through entrepreneurial discovery processes, ensuring adaptability to industry and technology trends and ongoing alignment with EU Transition Pathways.
- The active engagement of regional stakeholders in the innovation process fosters co-creation, strengthening Campania's competitive position by leveraging local strengths and facilitating effective alignment with EU industrial strategies.
- Although currently unique to Campania, the thematic alignment between the S3 strategies and EU Transition Pathways suggests potential for scalability and transferability to other regions, encouraging further integration and peer learning.
- The use of industry pledges within Ecosystem Transition Pathways emphasizes long-term sustainability by identifying specific needs and informing ERDF-funded interventions, thus aligning funding decisions with industry demands.

This case study has been validated by the interviewed authorities of Campania.

Task-specific assessment

The set of 14 EU Industrial Ecosystems' Transition Pathways, developed under the revised EU 2020 Industrial Strategy,[6] provides a key reference framework for guiding industrial transformation across European value chains. These pathways are detailed policy documents resulting from public consultations with public and private actors operating in each of the industrial ecosystems and have been developed between 2021 and 2025. They aim to steer the green and digital transitions while enhancing the competitiveness and resilience of each industrial ecosystem through the identification of key actions, enabling conditions, and expected outcomes. **The Transition Pathways are ecosystem-based instruments that were not designed with a territorial lens**; they do not establish regional priorities or explicitly address place-based specificities.

S3, by contrast, offer a place-based policy framework that mobilises local assets, engages regional stakeholders, and directs investment towards identified innovation priorities. **Linking the Transition Pathways with S3 could help territorialise EU-level objectives**, making them more actionable and relevant in diverse regional contexts. Such alignment could enable more targeted interventions that reflect local strengths and development needs, thereby supporting more effective implementation of the green and digital transitions, fostering stronger integration into European value chains, and enhancing the competitiveness and resilience of regional industrial ecosystems in line with broader EU industrial policy goals.

This case study explores the integration of Transition Pathways into regional policy through an in-depth analysis of the S3 and ERDF programme documents. It specifically focused on the Campania region (Italy). Campania represents a particularly relevant example, as it explicitly aligns its 2021-2027 S3 with the objective of industrial transformation, using the 14 EU industrial ecosystems and the associated Transition Pathways as reference frameworks for defining regional priorities. The study draws on desk research, textual analysis of strategic and programme documents, and a written interview.

Key success factors and challenges

As part of the S3 document analysis, we carried out a systematic textual review to examine the S3 priority areas selected by each Member State/region in the 2021-2027 period. The results show that 85 strategies (out of 171) include at least one priority related to digital transformation, while 94 address green transformation. Nonetheless, explicit references to "ecosystem transition pathways" are rare: we found that only one strategy (Campania) mentions the term directly.

Campania's S3 for 2021-2027 has redefined its innovation priorities compared to the previous programming period, shifting significantly from traditional sectoral areas to an explicit ecosystem approach. This change represents a paradigm shift aimed at promoting interconnected networks of actors capable of collaborating to develop innovative solutions and leveraging local assets. The updated S3 identifies nine thematic innovation ecosystems and one transversal ecosystem for enabling technologies, each intentionally framed within the EU Industrial Policy focused on the green and digital transition. Each regional ecosystem is explicitly aligned with one or more of the 14 EU industrial ecosystems (groups of related industries and technologies) identified by the revised EU Industrial Strategy.

According to the managing authority, the revised prioritisation approach represents a fundamental shift in the region's innovation strategy—moving from a sector-based model to a systemic vision of industrial transformation. The objective is to build interconnected networks of enterprises, universities, research centres, public authorities, and civil society, working

[6] COM (2021) 350 final. Updating the 2020 New Industrial Strategy: Building a stronger Single Market for Europe's recovery. https://commission.europa.eu/document/download/9ab0244c-6ca3-4b11-bef9-422c7eb34f39_en?filename=communication-industrial-strategy-update-2020_en.pdf&prefLang=it

together to develop knowledge, skills, and innovative solutions. By leveraging local strengths, this collaborative ecosystem aims to enhance Campania's competitive position at both national and international levels.

Sustainability & innovativeness of approaches

The integration of the EU Transition Pathways into Campania's S3 reflects a deliberate effort to align regional innovation policy with the long-term objectives of EU industrial and sustainability strategies.

The innovativeness of the approach is also grounded in the fact that these innovation ecosystems are not defined in a static way. They are designed to evolve over time based on future foresight and input from businesses and other stakeholders through the entrepreneurial discovery processes. This dynamic structure should ensure that Campania's innovation priorities can adapt to industry and technology trends. At the same time, it facilitates ongoing alignment with the EU transition pathways, which themselves are conceived as evolving frameworks to be regularly updated through stakeholder collaboration.

The long-term sustainability of this approach is closely tied to the design of the Ecosystem Transition Pathways, which involve dedicated calls for industry pledges, i.e. voluntary commitments from companies and other stakeholders to take action in support of the green and digital transitions. These commitments often highlight specific needs and investment areas, such as skills development, technology adoption, or infrastructure upgrades. As such, they can provide inputs for identifying concrete challenges that could be supported through ERDF programmes.

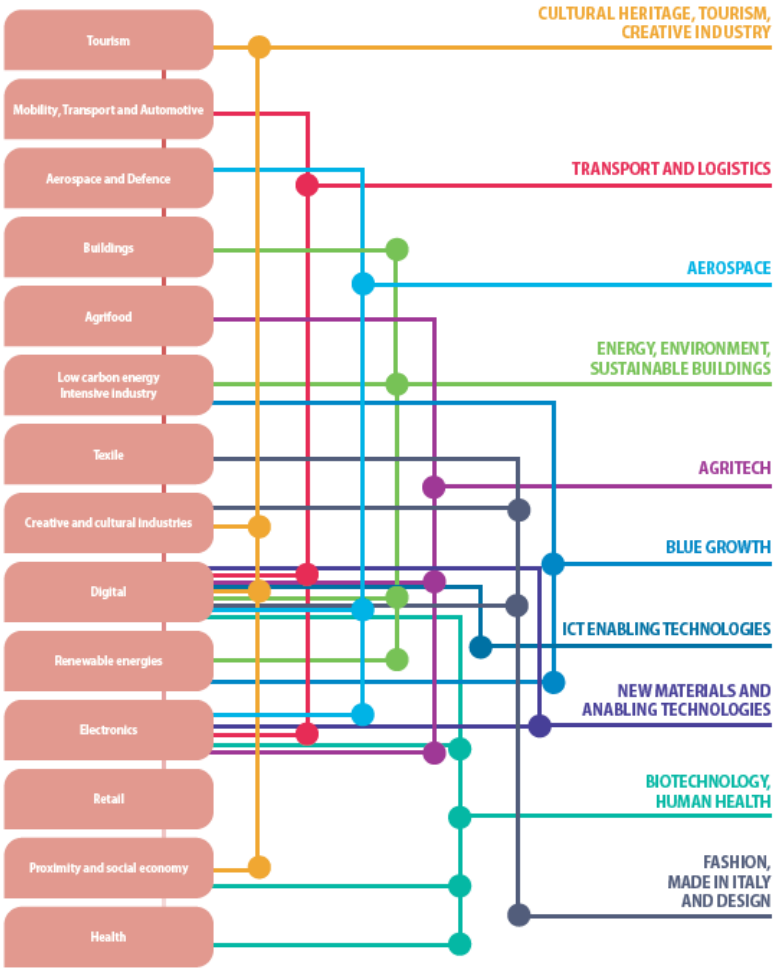
This creates opportunities for alignment at the stage of defining strategic priorities and during the implementation phase, where funding decisions can be more effectively tailored to meet the needs expressed by the industry. To fully realise this potential, it is essential to establish a shared governance structure within the region/Member State, involving both innovation and industrial policy actors. Such a structure would be key to establishing the necessary linkages between regional priorities and the EU-level industrial ecosystem approach.

Scalability and transferability of the learnings

The analysis carried out across the S3 documents highlighted that there is already a strong thematic overlap between the strategies and the Transition pathways, particularly through the shared focus on the twin transition and interventions aimed at strengthening the competitiveness of value chains.

The approach adopted by Campania demonstrates that it is possible to further integrate the EU Industrial Ecosystem Pathways into the S3 by linking regional specialisation priorities to the industrial ecosystems most relevant to the region. So far, this approach appears to be unique to Campania, likely because both the S3 and the Transition Pathways were developed during the same period. However, given the natural alignment between the two, it can be expected that more interlinkages will emerge in the future.

Figure 1: Links between the ten innovation ecosystems covered by the S3 and the 14 EU industrial ecosystems.



Source: S3 documents of Campania.

Conclusion & lesson learnt

While the priorities identified across the S3 show a thematic overlap between the objectives of the EU Industrial Transformation Pathways, only one strategy makes an explicit and direct reference to them.

The case of Campania illustrates how S3 can reference the 14 EU Industrial Ecosystems and the corresponding Transition Pathways to support industrial transformation objectives. The approach builds on dynamic innovation ecosystems - explicitly connected to groups of EU industrial ecosystems - that are designed to evolve over time through stakeholder co-creation processes. Such adaptability also enables regional strategies to remain aligned with the evolving EU Transition Pathways. This model may also facilitate the identification of specific local needs and inform the design and implementation of ERDF-funded interventions.

Although the approach adopted in Campania remains relatively uncommon at this stage, the thematic alignment observed across many S3 documents suggests that similar integrations may become more frequent. Further analysis and peer learning could support the transferability of such practices where appropriate.

Background information on the case study regions[7]

Campania:

Population: 5,593,906
GDP: €130.265 bn
Regional Innovation Scoreboard: Moderate Innovator (81.0)
Insights from the analysis of the prioritisation approach: Mix of priorities related to industrial transformations, societal challenges, and sector-specific priorities

[7] Data sources are as follows: Population: Eurostat (2025): Population on 1 January by age group, sex and NUTS 3 region (last access 10.06.2025), GDP: Eurostat (2025): Gross domestic product (GDP) at current market prices by NUTS 3 region. (last access 10.06.2025), RIS: European Commission: (2023): Regional Innovation Scoreboard (last access 10.06.2025), Prioritisation approach: Prognos AG/CSIL (2025): Based on the analysis of S3 documents.

S3 multi-level governance

The cases of Austria (including Upper Austria) and Greece (including Crete)

Abstract
This analysis explores the multilevel governance structures and coordination mechanisms within the S3 of Austria and Greece, focusing on the successful integration of national and regional policies. It examines how Austria and Greece align policy actions through distinctive governance models that accommodate regional specificities while maintaining national coherence. Austria's approach integrates federal and state strategies, utilizing RTI (Research, Technology and Innovation) pacts for policy adaptability, while Greece employs a dual-level governance system, engaging regional branches for localized strategy implementation. The study highlights scalability and transferability potential, providing insights for other regions seeking to balance national oversight with regional autonomy.

Key insights

- Austria's integration of federal and state strategies offers a balanced approach, while Greece's dual-level governance provides flexibility across heterogeneous regions.
- Crete’s governance structure emphasizes strong regional engagement and alignment with national and EU priorities, demonstrating the importance of integrating local stakeholder input.
- Austria's and Upper Austria's strategies showcase the benefits of dynamic evaluations and stakeholder consultations in maintaining relevance and adapting to local needs.
- The structured implementation of regional strategies in Greece, especially through EDPs, and Austria's thematic and operational strategies offer scalable models for other regions and MS with diverse capacities.
- Robust coordination mechanisms and stakeholder involvement are crucial across all regions, underscoring the importance of inclusive processes to address local specificities while achieving broader strategic objectives.

This case study has been validated by the interviewed authorities of Greece, Crete, Austria and Upper Austria.

Task-specific assessment

Effective multilevel governance — coordinating across governance levels (EU, national, regional, and sub-regional) and across sectors and multiple stakeholder groups — is crucial for the successful design and implementation of S3, ensuring the alignment of policy actions within S3 processes. This case study aims to provide a comprehensive understanding of the characteristics and functioning of multilevel governance in S3 in Austria and Greece.

Key success factors and challenges

Greece and Austria both implement Smart Specialisation Strategies (S3) through multi-level governance frameworks that actively involve the European Union, national, regional, and sub-regional levels, alongside a wide range of stakeholder groups across these levels. These different governance levels play integral roles in the conception, design, and implementation of S3 strategies. However, the specific governance structures in each country reflect their unique administrative and institutional contexts, illustrating the diversity of multi-level governance arrangements across the EU.

The European Union plays a foundational and guiding role in the development of S3 strategies in Austria and Greece. The EU sets the overarching policy framework and strategic objectives and broad priorities for S3, such as green, digital, and inclusive transitions and expects national and regional S3 strategies to align with these goals. EU objectives are systematically integrated into Austrian and Greek strategies, with the EU's vision shaping research and innovation agendas. This integration is described as a structured, multi-level process, ensuring that EU priorities are embedded in national and regional policy frameworks while allowing for adaptation to local contexts.

As you can see in the figure below, **Greece** employs a **mixed national-regional S3 governance model**, with a national strategy coordinated by the Ministry of Economy and Finance and 13 regional branches, each with its own S3 intervention. The governance processes within both the national and regional levels are further differentiated into three tiers: the strategic (including S3 planning), the coordination (involving monitoring), and the implementation tiers. At the national level, a Council for National Smart Specialisation Strategy provides strategic direction (strategic tier), while a dedicated unit of the Ministry of Economy and Finance (MON ESEE) oversees the design, programming, monitoring, and coordination (coordination tier) of the national S3 strategy. At implementation tier, there are the relevant management and implementation bodies.

At the **regional level**, each region has a dedicated S3 body responsible for management, coordination, and implementation of the S3, and an advisory body: the Regional Council for Research and Innovation (PSEK). As illustrated by the case of Crete, the strategic tier integrates entities such as the Regional Governor and the Regional Council for Research and Innovation of Crete (PSEK-K), while the coordinating tier includes the Regional Economy Development and Openness Directorate and the Innovation Business Observatory (IBO) operating within the General Directorate of Development Planning of the Region of Crete. At the implementation tier, the Managing Authority for the Program Crete oversees the administration of S3 implementation funds.

The **collaboration between levels** is facilitated by a National S3 Coordination Network with representatives from the 13 regional branches, regular meetings, and the Council for Monitoring Development Interventions. Alignment between regional, national, and EU priorities is achieved through joint planning, peer-to-peer learning, and structured consultation processes.

Stakeholder engagement is central, with the EDP at both national and regional levels involving the "Quadruple Helix", including enterprises (often via associations or chambers), universities, public authorities, and civil society. Engagement mechanisms include contribution to position papers, open workshops, public consultations, and monitoring committees. While direct participation from SMEs remains a challenge, this is addressed by involving representative associations and offering multiple engagement formats.

Austria, like Greece, adopts a **mixed national–regional governance model that integrates federal and state-level S3 strategies**. The national Research, Technology, and Innovation (RTI) strategy provides the overarching framework, which is complemented by thematic strategies (such as Green Transformation, Circular Economy, and Bioeconomy). These strategies cascade down to Austria's nine federal states, each of which develops its own S3-aligned regional innovation strategy. Central to the coordination and steering of the RTI strategy at the federal level is the RTI Task Force, composed of high-level representatives from several ministries: the Federal Chancellery, the Federal Ministry of Finance, the Federal Ministry of Education, the Federal Ministry of Women, Science and Research, the Federal Ministry for Economy, Energy and Tourism, and the Federal Minister for Innovation, Mobility and Infrastructure. The RTI strategy is operationalized through rolling three-year RTI pacts, which set out detailed measures. Coordination between federal and state levels is achieved through formal structures, such as the RTI Task Force, regular intergovernmental meetings, and the platform Austrian Conference on Spatial Planning (ÖROK), which includes federal, state, and municipal representatives as well as various other societal and economic stakeholders.

In **Upper Austria**, the S3 strategy – branded as UpperVision 2030 – is developed and implemented by the Department of Economic Affairs and Research and the Upper Austria Regional Agency, with strong involvement from local stakeholders, including societal partners and universities. Stakeholder engagement and broad consultations are not limited to the initial design phase but is continuous, with annual reviews and rolling updates to the strategy. The regional strategy serves as an umbrella for all regional funding and development programs, including those using EU funds, and is closely coordinated with national and EU priorities through regular meetings and cooperation with federal ministries and funding agencies. The governance structure includes strategic and operational groups, annual retreats, advisory panels, and cluster networks, all of which support both formal and informal coordination and stakeholder engagement.

In addition to national and regional programmes, Smart Specialisation Strategies are also reflected in territorially relevant **European Territorial Cooperation** (ETC) programmes under shared management – such as Interreg Austria–Czechia 2021–2027. Due to their cross-border nature, these programmes are purposefully only partially embedded in national coordination mechanisms. Nevertheless, they generate clear qualitative benefits: cross-border synergies, enhanced stakeholder cooperation, and the diffusion of innovative practices contribute to the implementation of place-based regional development measures within the S3 framework

Across all cases, responsibilities are distributed according to the subsidiarity principle: the federal or national level provides strategic direction and funding, while the regional and local levels adapt and implement strategies to fit local needs. Collaboration is ensured through a combination of formal mechanisms (task forces, councils, committees, working groups, and regular meetings) and informal mechanisms (ongoing dialogue and networking). The most effective coordination mechanisms are those that foster regular, structured dialogue and include all relevant actors, such as the S3 coordination network in Greece and the cluster networks in Upper Austria.

Multi-level governance arrangements foster policy coherence and have generally facilitated the identification

and implementation of transformative investments by allowing for flexibility, continuous adjustment, and regional adaptation. In Austria and Upper Austria, the dialogic, non-hierarchical approach fosters innovation and responsiveness, while in Greece and Crete, the introduction of EDPs and regional councils has built new capacity for innovation, especially in less developed regions.

Nevertheless, **challenges remain**, including the complexity of governance structures and processes, differences in regional capacities, and the need for flexibility versus coherence. **Austria** faces a challenge in aligning federal programs with the needs of diverse states, ensuring regional strategies align with national goals without losing sight of local specificities, especially in funding allocations and thematic focus areas. A notable challenge in **Greece** has been the variable innovation and institutional capacities across regions. Regions, lacking significant institutional support and sometimes even lacking universities or innovation infrastructure, struggle to fully participate in S3 processes, and require substantial capacity-building support from the national level. Other challenges in Greece include procedural delays due to multi-layered complex governance structures and the risk of national strategies overshadowing local needs.

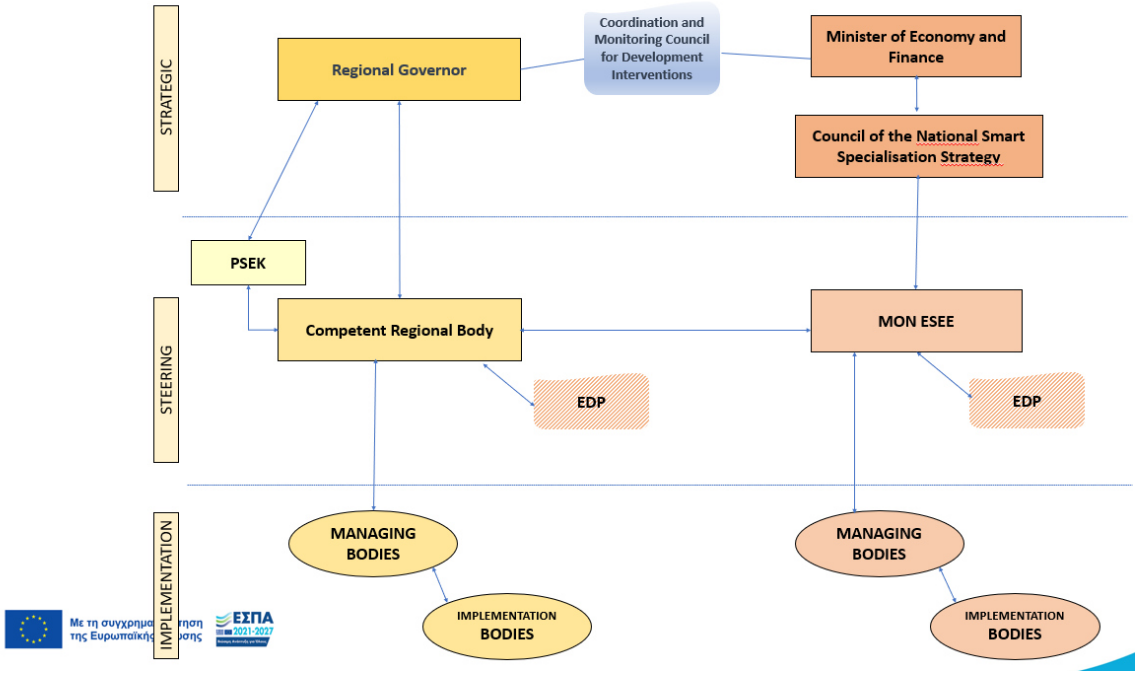
Both Austria and Greece emphasize the need for more streamlined and flexible EU guidance, better alignment of legal and strategic frameworks, and improved mechanisms for stakeholder engagement. Suggestions for improvement include maintaining flexibility in EU guidelines to allow contextual adaptation, strengthening platforms for dialogue, ensuring legal and strategic coherence, and further encouraging the involvement of all quadruple helix actors through diverse engagement mechanisms.

Conclusion & lesson learnt

The case study demonstrates how Greece and Austria have each successfully structured and implemented multi-level governance systems to coordinate their S3 processes, with governance models and coordination mechanisms tailored to their specific regional contexts. Austria stands out for its mature, dialogic, and flexible multi-level governance, characterized by strong cooperation between federal and regional authorities, continuous stakeholder engagement, and the capacity to adapt strategies as circumstances evolve. Greece, meanwhile, has established a structured, multi-level governance system for S3, achieving notable progress in stakeholder engagement and regional capacity-building, but still faces ongoing challenges related to regional capacity gaps and coordination.

In both countries, the effectiveness of multi-level governance in S3 relies on regular, structured dialogue; frameworks that are clear yet adaptable; robust stakeholder involvement; and mechanisms that support continuous learning and adjustment. Nevertheless, aligning priorities across governance levels, ensuring meaningful stakeholder participation, and managing the complexity of coordination remain significant challenges. These are addressed through a combination of formal structures and informal networks, but there is a persistent call for more flexible and context-sensitive guidance from the EU to better accommodate diverse national and regional realities.

Figure 2: Multi-Level governance structure of the Greek S3 Strategy



Source: Ministry of Economy and Finance, Greece (2025)

Background information on the case study regions[8]

Austria

Population: 9,158,750
GDP: € 473.2 bn
European Innovation Scoreboard: Strong Innovator (127.9)
Insights from the analysis of the prioritisation approach: Austria's national S3 is integrated into the broader Research, Technology and Innovation (Forschung, Technologie und Innovation - FTI) Strategy. Austria's prioritisation approach is structured around horizontal priorities, closely tied to EU objectives (green deal, participation in IPCEIs, excellent fundamental research, etc.) rather than focusing on specific technologies or sectors. Regions (Länder) align and integrate into this framework with more sector-oriented priorities in line with the regional specialisation profiles.

Greece

Population: 10,400,720
GDP: € 225.2 bn
European Innovation Scoreboard: Moderate Innovator (85.3)
Insights from the analysis of the prioritisation approach: Greece's S3 prioritisation approach reflects a comprehensive effort to modernise its economy by leveraging traditional sectors and emerging technologies. By combining priorities like agriculture, tourism, and trade with digital technologies, sustainable energy, and health, the strategy aims to drive balanced growth, foster innovation, and enhance resilience across key value chains.

Crete

Population: 622,491
GDP: € 11.5 bn
Regional Innovation Scoreboard: Moderate Innovator (89.4)
Insights from the analysis of the prioritisation approach: Crete's S3 leverages the island's unique strengths to drive innovation and sustainable development. It focuses on enhancing agro-food and sustainable agriculture, advancing health and life sciences, promoting digital technologies, and implementing circular economy practices to protect the environment. Additionally, Crete capitalizes on its rich cultural heritage to foster innovation in tourism and creative industries, aiming to balance economic growth with environmental responsibility.

Upper Austria

Population: 1,530,349
GDP: € 81.8 bn
European Innovation Scoreboard: Strong Innovator (114.9)
Insights from the analysis of the prioritisation approach: Upper Austria's S3 builds on regional strengths to foster innovation and sustainable growth. By prioritizing advanced manufacturing and Industry 4.0, renewable energy and efficiency, health technologies, digitalisation, and the circular economy, the region aims to enhance competitiveness while promoting environmental responsibility and improved public well-being.

[8] Data sources are as follows: Population: Eurostat (2025): Population on 1 January by age group, sex and NUTS 3 region (last access 10.06.2025), GDP: Eurostat (2025): Gross domestic product (GDP) at current market prices by NUTS 3 region. (last access 10.06.2025), RIS: European Commission: (2023): Regional Innovation Scoreboard (last access 10.06.2025), Prioritisation approach: Prognos AG/CSIL (2025): Based on the analysis of S3 documents.

Coordination of multiple funding sources

The case of Baden Württemberg

Abstract
Baden-Württemberg's strategic coordination of multiple funding sources for its Smart Specialisation Strategy (S3) exemplifies an innovative approach to driving regional innovation and economic development. By effectively integrating diverse funding streams—including EU, national, regional, and significant private funding—the region maximizes its research and development (R&D) impact. Key to this success is a dual funding strategy combining top-down and bottom-up initiatives, continuous stakeholder engagement, and adaptive program design. Despite challenges like timing mismatches and resource competition, Baden-Württemberg's commitment to strategic alignment and a resilient innovation ecosystem serves as a model for other regions.

Key insights

- Baden-Württemberg effectively utilizes a mix of funding sources, including European Regional Development Fund (ERDF), Horizon Europe, and substantial contributions from national, regional, and private investments.
- The region aligns funding streams through mechanisms like sequential funding and joint programming to address gaps and prevent duplication, ensuring resources target high-impact projects.
- A balanced approach of top-down directive funding and bottom-up regional strategies, exemplified by the RegioWIN competition, allows for flexibility and responsiveness to regional specificities.
- Continuous dialogue and broad stakeholder participation ensure that local needs are integrated into strategic decisions, maintaining a responsive and inclusive innovation strategy.
- Baden-Württemberg's S3 is described as a "breathing" strategy, regularly updated to reflect technological, economic, and geopolitical shifts, ensuring its ongoing relevance and impact.
- Key challenges include timing mismatches between funding levels and the risk of centralization undermining regional strategies. Solutions focus on enhancing dialogue, aligning funding timelines, and advocating for innovation amid resource competition.

This case study has been validated by the interviewed authorities of Baden Württemberg.

Task-specific assessment

Funding coordination plays a fundamental role in supporting the governance of Smart Specialisation Strategies (S3) by ensuring that financial resources are effectively allocated and align policy objectives and priorities across policy domains and at different governance levels. The objective of this case study is to examine funding coordination from multiple sources in S3 in Baden Württemberg. Indeed, Baden Württemberg's approach showcases a well-integrated use of diverse funding sources, from various levels – EU, national, regional, and private – to support S3 objectives and drive innovation.

Key success factors and challenges

The coordination of funding sources is a central pillar of Baden-Württemberg's Smart Specialisation Strategy (S3), ensuring both strategic alignment and a diversified funding portfolio. By effectively combining and managing multiple funding streams, the region maximizes impact, leverages synergies between programs and supports a broader range of initiatives in pursuit of its innovation goals. Key funding sources include the European Regional Development Fund (ERDF), Horizon Europe and other EU instruments, complemented by substantial national and regional funding, while private investment plays a critical role, comprising 85% of the region's R&D expenditure. This diversified funding portfolio underscores the region's commitment to maintaining a dynamic and resilient innovation ecosystem, with total annual R&D investment reaching about €5 billion, of which a modest €290 million is provided by ERDF over a seven-year period.

Complementarity and gap-filling are essential components in the strategic alignment of multiple funding sources, ensuring resources are targeted where they are most needed, and duplication is avoided. All ERDF-funded projects must align with the state's S3 strategy, which acts as an overarching framework for innovation policy. Even though ERDF is a small share of the overall funding, the S3's influence extends to other funding streams by setting strategic priorities. This alignment is facilitated through a blend of sequential funding and joint programming. Regional funding programmes are designed to complement federal and EU initiatives, addressing gaps where federal schemes do not reach, particularly in supporting application-oriented R&D in companies, startups, accelerators, regional research organisations and SMEs. The ERDF funding targets selective "model" projects with strong potential for leverage and broader impact, supporting those that can serve as catalysts for innovation in other areas underpinned by additional funding instruments. It prioritizes activities at high Technology Readiness Levels (TRLs) aiming to accelerate commercialisation, diffusion and trigger larger waves of innovation through scalability.

Within it's ERDF programme Baden-Württemberg's adopts a **dual funding strategy combining top-down and bottom-up approaches under the Smart Specialisation Strategy (S3)**. Top-down funding lines are initiated by the Ministry of Economic Affairs, along with other ministries such as the Ministry of Science, Research and the Arts, the Ministry for the Environment, Climate and Energy Sector, and the Ministry of Food, Rural Affairs and Consumer Protection. These funding lines target S3 innovation priorities and competitively award funds to projects aligned with those priorities. In parallel, the bottom-up regional approach—exemplified by the RegioWIN competition—invites regions in Baden-Württemberg to develop and submit their own development strategies and project proposals, which are then evaluated for ERDF funding.

Strategic alignment of funding sources is achieved through continuous, dialogue-based coordination supported by formal mechanisms. Central to this process is the Federal-State Synergy Working Group (SYNBLAG), led by the Federal Ministry of Education and

Research (BMBF). This working group serves as the primary platform for enhancing the connection between structural funds and Horizon Europe, thereby fostering greater synergy between national and European funding streams. In addition, the allocation of ERDF within Germany is managed through two institutionalized distribution committees. The Conference of Economic Ministers is responsible for decisions regarding the leading regions, while the Conference of Eastern State Prime Ministers focuses on transition regions.

Stakeholder participation and coordination are characterized by a well-balanced interplay between national direction and regional autonomy, with broad stakeholder engagement. The national government provides overarching strategic frameworks for the coordination of both EU and domestic funding, but implementation is largely decentralized. Rather than micromanaging, the federal government empowers regions like Baden-Württemberg to adapt their instruments and initiatives. Within the regions, authorities such as the Ministry of Economic Affairs in Baden-Württemberg take the lead in designing and implementing the S3 strategy and coordinating innovation policy across different ministries.

These regional bodies also play a crucial role in **engaging a wide spectrum of stakeholders.** Stakeholder participation is broad and inclusive, involving large companies, small and medium-sized enterprises (SMEs), research institutes, and intermediary organizations. While financial incentives from funding programs certainly encourage engagement, much of the engagement – especially among SMEs and research institutes – is driven by intrinsic motivation and a commitment to advancing regional innovation. Large corporations, though typically less dependent on S3-linked funding, remain actively involved through strategic dialogues and partnerships, reflecting their significant economic influence and capacity to drive innovation at scale.

A cornerstone of this approach is the **use of diverse and ongoing dialogue formats with regional stakeholders.** Throughout processes such as the SWOT analysis for the development of the S3 strategy, a variety of forums-such as strategic dialogues, industry dialogues and skills and training dialogues - facilitate a constant exchange of views, helping to identify priorities and develop shared goals for innovation in Baden-Württemberg. As a result, S3 emerges as a condensation of the current, retrospective, and forward-looking consensus among all involved stakeholders, reflecting a dynamic and inclusive process where stakeholders are continually engaged.

Furthermore, **flexibility and adaptability in the design and implementation of the S3 strategy are key contributors to its success.** The S3 in Baden-Württemberg is described as a **"breathing" strategy**. It is a living strategy regularly updated and remains responsive to new technological, economic, and geopolitical developments, rather than being a static document.

Despite notable successes in coordinating funding sources for innovation, significant challenges persist. One of the primary difficulties is timing and synchronization: asynchronous planning cycles between different funding levels – particularly between national frameworks and EU programs like Horizon Europe – make it challenging to achieve true synergy and effective alignment. The complexity of S3 multi-level governance further complicates coordination efforts. Navigating federal structures and ensuring alignment across sub-regional, regional, national, and EU levels require constant adaptation. While formal working groups, such as the Federal-State Synergy Working Group, provide valuable platforms for dialogue, their practical impact on day-to-day coordination can be limited. Another key concern is the risk of centralization. If innovation funding becomes overly centralized – whether through national programs or merged EU funds – there is a danger of undermining the regional, place-based approach that is fundamental to the Smart Specialisation Strategy (S3). Maintaining the flexibility and responsiveness of regional strategies is crucial to addressing local needs and harnessing unique regional strengths. Finally, resource competition poses an ongoing challenge. Innovation funding

must continuously compete with other public priorities, such as healthcare, education, and infrastructure. This competition necessitates sustained advocacy and strategic communication to ensure that innovation remains a central focus of public investments.

Conclusion and lesson learnt

In conclusion, Baden-Württemberg's approach to coordinating multiple funding sources for S3 demonstrates the importance of a strategically aligned and regionally tailored strategy underpinned by broad stakeholder engagement and adaptive program design. While formal coordination mechanisms play a central role, the main factors underpinning success are ongoing dialogue, a clear strategic framework, and the ability to complement rather than duplicate other funding streams.

Background information on the case study regions[9]

Baden Württemberg

Population: 11,230,740
GDP: €622.1 bn
Regional Innovation Scoreboard: Innovation Leader (137)[10]

Insights from the analysis of the prioritisation approach: Baden-Württemberg's S3 applies a strong evidence-based and entrepreneurial discovery-driven approach, grounded in robust stakeholder engagement and advanced foresight exercises. With a focus on digitalisation, AI, and Industry 4.0, it aims to lead in innovation and industrial transformation, while parallel priorities in health, resource efficiency, bioeconomy, and sustainable mobility ensure a balanced pursuit of economic growth and environmental responsibility.

[9] Data sources are as follows: Population: Eurostat (2025): Population on 1 January by age group, sex and NUTS 3 region (last access 10.06.2025), GDP: Eurostat (2025): Gross domestic product (GDP) at current market prices by NUTS 3 region. (last access 10.06.2025), RIS: European Commission: (2023): Regional Innovation Scoreboard (last access 10.06.2025), Prioritisation approach: Prognos AG/CSIL (2025): Based on the analysis of S3 documents.

[10] RII average of the NUTS 2 regions Freiburg, Stuttgart, Kalsruhe, Tübingen and Schwaben.

Capacity building, measures to enhance the capabilities of key actors to initiate and implement S3-aligned investment projects

The cases of Basque Country Catalonia and Portugal (including Norte)

Abstract
This analysis examines capacity-building initiatives within the Smart Specialisation Strategies (S3) of the Basque Country, Catalonia, and Portugal (including Norte). Each of the cases has uniquely tailored its approach to meet local needs while addressing broader systemic challenges, exemplifying diverse strategies for enhancing stakeholder engagement and governance. The study highlights strategic shifts, innovative governance models, and the integration of academic insights into policy frameworks as key components that strengthen institutional capabilities. By aligning local and national strategic priorities, these cases showcase scalable and transferable models for effective capacity building in S3 governance, offering valuable lessons for other regions seeking to foster innovation ecosystems.

Key insights

- The Basque Country, Catalonia, and Portugal (including Norte) each employ distinct models for capacity building, emphasizing centralized governance, stakeholder engagement, and regional-national strategy alignment respectively.
- Catalonia's Opportunities Discovery Mechanism, through innovation camps and transformative innovation initiatives and shared agendas, promote collaboration and innovation, empowering local actors to address territorial challenges effectively, the Basque Country centralizes innovation efforts for cohesive governance, while Portugal and the Norte region coordinate the alignment between national and regional strategies
- These initiatives still face challenges like sustainability and resource constraints, highlighting the need for strategic alignment and stakeholder engagement for long-term success.
- Successful capacity building in S3 relies on flexibility, inclusivity, and alignment of local and national objectives, fostering sustainable and adaptable innovation ecosystems

This case study has been validated by the interviewed authorities of Catalonia, Portugal (including Norte) and the Basque Country.

Task-specific assessment

Capacity building is an important enabler of effective S3 governance, supporting vertical and horizontal coordination and stakeholder engagement. It contributes to the enhancement of skills, knowledge, resources, and institutional capabilities of various stakeholders across governance levels and policy sectors to plan, design, implement, monitor and coordinate S3 strategies. This case study provides a comprehensive overview of the capacity-building mechanisms and practices implemented for S3 governance in the Basque Country, Catalonia, and Portugal (including a focus on the Norte region). The cases of Portugal and the Norte region illustrate the alignments between the national and regional level measures.

Key success factors and challenges

In examining the capacity-building measures within the Smart Specialisation Strategies (S3) of the Basque Country, Catalonia and Portugal (Norte), it becomes apparent how these regions have tailored their approaches to suit unique local contexts and needs, while also dealing with larger systemic challenges.

The **Basque Country** has implemented a range of capacity-building initiatives to strengthen the institutional capacity of organizations involved in S3 governance. These capacity-building initiatives emphasize workshops and dedicated training programs, organised by the Basque Innovation Agency (Innobasque), in collaborations with other organisations such as the Manchester Institute of Innovation Research and Orkestra (the Basque Institute of Competitiveness, University of Deusto). These initiaves focus on training for better evaluation of research, development and innovation (R&D&I) instruments and promoting innovative experimentation in public programs and policies for those with responsibilities in science, technology, and innovation policy. For instance, the Basque Innovation Agency organized evaluation workshops in collaboration with the Manchester Institute of Innovation Research, aiming to improve the assessment methods of R&D&I instruments. Public officials and policymakers have also participated in international forums and interregional actions, including networks like the European Forum for Studies of Policies for Research and Innovation (Eu-SPRI),Partners for Regional Innovation and Interreg Europe projects (e.g., MANUMIX), to exchange best practices and strengthen innovation management capabilities. Such efforts illustrate a proactive approach to addressing the evolving needs within the innovation landscape, equipping officials with the necessary skills to manage the multifaceted challenges of S3 governance.

Capacity-building initiatives have targeted not just public officials but also a broad range of stakeholders, including businesses, academia, and civil society. A central element of the Basque strategy is the formation of pilot groups within various government departments.

These groups, comprising representatives from public administration, academia, and industry, facilitate project development and strategic collaborations, ensuring a holistic approach to implementing the S3 framework and ongoing stakeholder engagement in the Entrepreneurial Discovery Process (EDP).

Overtime the engament of SMEs has increased. Accordingly, events linked to the steering groups have been sponsored to raise awareness about the S3 strategy and the policy instruments available to SMEs. Since 2021, a total of 67 such events have been held, attracting 1,009 participants. Nonetheless, these steering groups have now reached the end of their lifecycle and will no longer be used.

A new Department for Science, Universities and Innovation, as the direct recipient of ERDF funding, has been established to

take a coordinating role. This represents a significant strategic shift aimed at centralizing and enhancing innovation efforts. This structural reorganization seeks to strengthen institutional capacity by integrating innovation policies and initiatives, which were previously scattered across various departments. In addition, this new department is responsible for managing the Innovation Fund, which is intended to support strategic, high-profile, and large-scale innovation projects.

Capacity-building for S3 governance in **Catalonia** has been closely linked to the process of implementing the S3 strategy itself**,** particularly around the EDP. There is an emphasis on learning through participation in projects and through collaboration across departments and organizations.

Catalonia has focused on strengthening the institutional capacity of organizations involved in S3 governance. Capacity-building is led by a dedicated team within the Government of Catalonia, which coordinates training sessions and workshops. Partnerships with academic organisations, such as INGENIO, help integrate scientific insights into strategic frameworks and develop tailored training and advisory services for policymakers and public officials.

Catalonia's approach to capacity-building extends well beyond the public sector, aiming to empower all S3 stakeholders—businesses, academia, and civil society—to contribute meaningfully to decision-making and the EDP. Despite managing a relatively modest budget for smart specialization, Catalonia places great emphasis on stakeholder engagement and transformative innovation processes through the Opportunity Discovery Mechanism. The Innovation Camp model, which brings together various stakeholders to tackle place-based challenges, exemplifies this approach, fostering a shared vision of the future and collaborative action plans. A dedicated team within the Government of Catalonia, funded by ERDF, plays a pivotal role in identifying territorial challenges and coordinating the response to them. Training and workshops are integral to this mechanism, empowering stakeholders to understand and address complex challenges collaboratively.

Portugal has developed a multi-level approach to capacity building in support of S3, targeting both public actors and other stakeholders such as businesses, academia, and civil society. These efforts are pursued through coordinated activities at both the national and regional levels, particularly by National Innovation Agency (ANI) and regional authorities. The ANI is responsible for capacity building at the national level but also monitors and coordinates with regional entities to develop an integrated vision for S3 implementation.

At the national level, ANI is responsible for leading capacity-building measures to strengthen institutional capabilities for S3 governance. Initiatives under the Technical Assistance Programme focuses on improving the operationalisation and multilevel coordination of S3 strategies. Training programs are offered in cooperation with higher education organisations, covering topics such as public policy evaluation. Further activities include international study visits to exchange best practices and the development of a Centralised Innovation Data Infrastructure for developing monitoring capacities.

In parallel, regional authorities, for instance, in the **Norte** region, the Norte Regional Authority, are also actively investing in institutional capacity. The region has launched a new instrument under its ERDF programme – Specific Objective 1.4 – focused on capacity building for S3. This provides financial support for both strategic and implementation-related activities.

In addition both national and regional actors have implemented capacity building to foster stakeholder engagement and support for the EDP. ANI organises EDP sessions focusing on the six national priority domains, and preceded by preparatory workshops that provide stakeholders with relevant background knowledge and strategic orientation. Furthermore, national platforms such as the Technical Commission and the national S3 Forum facilitate knowledge exchange and

policy learning among regional and national actors.

Across the regions, capacity building for S3 governance faces several key challenges. In the Basque Country, the major challenge is the significant restructuring of governance arrangements triggered by the recent creation of the new department focusing on science, education, and innovation. This has created a need to integrate previously separate responsibilities and redefine governance structures in S3. Another main challenge is the sustainability of its pilot group model, which, having reached maturity, is being phased out, raising questions about long-term continuity. In Catalonia, limited financial resources from the ERDF constrain the scope of capacity-building initiatives, making it challenging to provide sustained support for institutional development and stakeholder engagement in S3 governance. In Portugal, both at the national level and in the Norte region, challenges include mobilizing the ecosystem to implement projects—especially in less developed areas such as digital—and ensuring effective alignment between national and regional strategies.

Conclusion & lessons learnt

In conclusion, the capacity-building approaches within the Smart Specialisation Strategies (S3) of the Basque Country, Catalonia, and Portugal (Norte) highlight the diverse yet effective ways in which regions can tailor their strategies to meet local specificities while addressing broader systemic goals. The Basque Country, by centralizing efforts and establishing robust training programs, demonstrates the advantages of integrating dispersed initiatives into a cohesive framework. Catalonia's emphasis on stakeholder engagement through the Opportunities Discovery Mechanism, transformative innovation initiatives and Shared Agendas showcases the effectiveness of place-based, collaborative strategies that foster stakeholder involvement. Meanwhile, Portugal's alignment of national and regional strategies – as illustrated in the case of Norte – offers a comprehensive model for building capacities across governance levels, integrating national objectives with regional needs.

The key lessons learned from these cases emphasize the importance of stakeholder engagement, flexibility, and the ability to tailor capacity building approaches to both local contexts and overarching policy goals.

Background information on the case study regions[11]

Basque Country

Population: 2,227,684
GDP: € 87.9 bn
Regional Innovation Scoreboard: Strong Innovator (119.1)
Insights from the analysis of the prioritisation approach: The Basque Country's S3 prioritisation approach reflects a balanced strategy that aligns regional strengths with global challenges. By focusing on cleaner energy, smart industry, and eco-innovation, it supports a sustainable industrial transformation, while priorities like healthy food, creative industries, and sustainable cities highlight a commitment to social well-being and urban resilience.

Portugal

Population: 10,421,117
GDP: € 529.9 bn
European Innovation Scoreboard: Moderate Innovator (91.8)
Insights from the analysis of the prioritisation approach: Portugal's S3 prioritisation approach demonstrates a comprehensive vision that integrates technological advancement with environmental and social sustainability. The focus on digital and green transitions is complemented by strategic investments in natural assets, health and biotechnology, and advanced production systems, while also valuing culture and societal development through creativity and heritage.

Catalonia

Population: 8,012,231
GDP: € 281.8 bn
Regional Innovation Scoreboard: Strong Innovator (114.9)
Insights from the analysis of the prioritisation approach: Catalonia's S3 prioritisation approach embraces a systemic perspective, promoting sustainability, inclusiveness, and resilience across key societal domains. The priorities reflect a strong commitment to transforming core systems—such as energy, food, mobility, and healthcare—while fostering cultural integration, education, and industrial competitiveness in a holistic and future-oriented manner.

Norte

Population: 3,601,434
GDP: € 78.659 bn
Regional Innovation Scoreboard: Moderate Innovator (93.1)
Insights from the analysis of the prioritisation approach: Norte's S3 prioritisation approach showcases a diversified and ambitious strategy, bridging advanced production and mobility industries with strong emphasis on life sciences, agri-food, and sea economy. By also valuing

[11] Data sources are as follows: Population: Eurostat (2025): Population on 1 January by age group, sex and NUTS 3 region (last access 10.06.2025), GDP: Eurostat (2025): Gross domestic product (GDP) at current market prices by NUTS 3 region. (last access 10.06.2025), RIS: European Commission: (2023): Regional Innovation Scoreboard (last access 10.06.2025), Prioritisation approach: Prognos AG/CSIL (2025): Based on the analysis of S3 documents.

culture, symbolic capital, and human development, it promotes a balanced model of innovation-driven growth rooted in territorial identity and sustainability.

National S3 covering reforms

The cases of Croatia and Slovakia

Abstract
This case study investigates the approaches to reforms in Smart Specialisation Strategy (S3) at the national level. Reforms can refer to wide ranges of interventions, including legislative changes but also adjustments to administrative procedures, introduction of incentives, etc. While reforms are not explicitly emphasised in the current S3 framework, they can contribute to improvements in the performance of the national ecosystems and in fine boost the implementation of S3-related investments. In spite of this potential, overarching evidence tends to suggest that there are important heterogeneities in how authorities tackle reforms in the context of their S3. Drawing from the examples of two national S3 (Croatia and Slovakia), this case explores the actual linkages between reforms and S3, and discusses the potential for more explicit linkages between these aspects in the future.

Key insights

- National approaches to integrating reforms into S3 vary, with differing focuses and modes of interactions with other relevant strategies.
- Croatia sees the S3 as its umbrella strategy regarding Research Development and Innovation. In this context, reforms are explicitly integrated into the S3, and aim at improving the entire research and innovation ecosystem (not restricted to S3-specific issues).
- Slovakia explicitly recognises the importance of reforms to support the investments in its S3. However, its national RDI Strategy is the key document designing and implementing reforms, which can then benefit S3 investments. The S3's priority is really the attention to prioritisation.
- The existing S3 framework offers flexibility regarding how reforms are tackled, but the tracking of progress is less comprehensive than for other processes (e.g., contribution to broad policy objectives). Moreover, there is no uniform support among stakeholders for linking S3 reforms to milestones and targets in a strict, RRF-like model.

This case study has been validated by the interviewed authorities of Croatia. The interviewed authorities of Slovakia did not provide any comment..

Task-specific assessment

In general, Smart Specialisation Strategies (S3) are primarily focused on defining priorities for RDI investments, and steering ERDF funding towards them. However, the implementation and actual performance of such investments depend not only on funding, but also on the presence of adequate conditions in the innovation and industrial ecosystem.

The current framework of the ERDF explicitly recognises the importance of the ecosystems under which the S3 operate, through a dedicated fulfilment criterion of the S3 enabling condition (Criterion 5 "Actions necessary to improve national or regional research and innovation systems"[12]). In practice, it can imply the design and implementation of reforms to strengthen these ecosystems, and in fine, to boost the efficiency of investments related to the S3. However, there is limited evidence at this stage on how reforms are linked to the S3 in practice.

Reforms can refer to any changes in the way the ecosystems operate, in order to improve their performance. As a result, it is not restricted to changes in regulatory or legislative provisions, but also include adjustments in administrative processes, organisational or governance changes, plans and strategies, (tax) incentives, etc. Reforms can address one or several of the multiple components of an ecosystem (e.g., business environment, education system, …).

This case study explores how national S3 dealt with reforms in practice, capitalising on the experience of two countries with similar characteristics, namely Croatia and Slovakia. The analysis draws from a combination of sources, including a desk review of S3 documents, a database of reforms mentioned in a sample of S3 (including Croatia and Slovakia)[13], interviews with national stakeholders from the two countries, as well as a survey to EU stakeholders.

According to the qualitative database of reforms present in the S3, Croatia included 32 reforms, including a series of regulatory reviews and adjustments linked to the S3 priorities (such as Smart and clean energy and Smart and green transport), so that technological progress can better emerge. The strategy explicitly raises the issue of the regulation of micro-networks for instance. In Slovakia, 38 reforms are present in the S3, with a notable emphasis on its Education and Research System, for instance through adaptation to its curricula (e.g., reform on the Development of new professional multidisciplinary courses responding to global trends). Governance reforms are common in both S3, with specific adjustments (such as the Technology Centre for Smart and Green Mobility in Croatia) or broader changes in the RDI governance. For instance, Slovakia included a full reorganisation of its RDI management system, implying a continuous Entrepreneurial Discovery Process, the emergence of a centralised Secretariat to engage with the different stakeholders, etc. Croatia also envisages a continuation of its Entrepreneurial Discovery Process.

Key success factors and challenges

Overarching approaches towards reforms in the S3

Croatia sees the S3 as its umbrella strategy regarding Research Development and Innovation. The country carried out a major analytical survey, workshop consultations and benefited from a World Bank report in 2018-2019, which enabled it to identify priority reforms. In this context, reforms are explicitly integrated into the S3, and aim at improving the entire research and innovation ecosystem (not restricted to S3-specific issues). For instance, the S3

[12] See, e.g., https://www.agenziacoesione.gov.it/wp-content/uploads/2020/03/Enabling_condition_for_smart_specialisation.pdf
[13] This database was developed in the context of the study, see Chapter 3.5 in Prognos AG/CSIL (2025)

included a notable Reform of the framework for the development of researchers' careers. Collaborations between Ministries (notably of the Economy and Science, Education and Youth) ensured the inclusion of relevant reforms in the S3.

In this context, the reforms cited by the Croat S3 can be considered as catalysed by the strategy. It implies that the S3 designed/planned, or at least explicitly pushed the implementation of the reforms.

Slovakia explicitly recognises the importance of reforms to support the investments in its S3, and mentions several of them in a way that credibly connects the proposed changes with implementation on the ground. For instance, the Slovak S3 discusses a reform to formalise the role of clusters in RDI activities (e.g., legislation to allow them to increase their international activities, clarify their roles…). However, the S3 is not the key document to plan and push for reforms, this role being taken by the national RDI Strategy. Nevertheless, the reforms planned in this context are recognised by the S3 and can be expected to be beneficial to investments on S3 priorities.

In Slovakia, as the role of the S3 in reforms is less central than in Croatia, included reforms are either contextually cited as background for the S3, or have on enabling effect on S3 investments (i.e., reforms that can improve the ecosystem in a way that serves the implementation of S3 investments, without being initiated by the S3).

Success factors and challenges

The two countries benefited from the flexibility of the existing framework regarding reforms to incorporate them to different extent in their S3. Exchanges with interviewees globally supported the benefits of this flexibility.

Given the wide diversity of roles taken by the S3 in the different policy contexts, it may be challenging to adopt a one-size-fits-all approach to reforms. Some interviewees such as Slovakia's stakeholders stressed that the S3 should be primarily thought of as a prioritisation effort, and that there are better ways/documents to plan, design or push for reforms.

Some stakeholders, such as Croatia's interviewees, noted that external encouragement and support can be a positive force to support the development of adequate reforms.

The monitoring of reforms and their impacts was challenging, owing to different factors, such as the fragmentation of responsible bodies/authorities and the time needed for effects to materialise. However, the interviewees (notably in Croatia) were positive about the expected effects of the reforms mentioned in their S3.

Comparison with reforms in the RRF context

When discussing potential models for an integration of reforms into the S3, some respondents, such as Croatia stakeholders, noted ample benefits of the Resilience and Recovery Facility model, including high responsibility for stakeholders, provision of incentives to implement reforms (links to payments…) but doubted the application of such a model in the S3 context.

Overall, some benefits of milestones and targets for reforms were recognised (notably the incentive provided in the RRF context), but there were doubts regarding the applicability of a similar approach to the S3 context. In Croatia for instance, reforms were linked to interventions in both the S3 and RRF context, with specific indicators assigned to them. However, the approach to define a precise time period to fulfil indicators was considered not applicable in the case of the S3 when compared to the RRF. Indeed, the S3 has a more flexible approach, allowing adaptation to emerging situations.

Conclusion & lesson learnt

Variations in Integration of Reforms into S3

The role of reforms in existing S3 differ significantly at the national level, as documented by the examples of Croatia and Slovakia. This variation includes aspects such as the degree of emphasis on reforms and interactions with other strategic documents

Variations in the targets of reforms mentioned in the S3

The two analysed S3 mention reforms targeting a wide range of components of the ecosystem, consistent with a broad approach and diversity of aspects that can be covered at the national levels. Business Environment and Education and Research Systems are dominant issues nevertheless.

Flexibility of the existing framework

The existing framework allows the national stakeholders to adjust how they integrate reforms in their S3. Indeed, despite some similarities, Croatia and Slovakia were able to develop distinct approaches to deal with reforms in their S3.

Milestones and Targets for reforms

There is a limited appetite among the interviewed stakeholders in the two countries for a model where reforms would be connected to milestones and targets (as in RRF) in the context of S3. This can be explained by the importance of flexibility, the existence of better frameworks to deal with reforms and potential challenges/risks of indicators for such purposes.

Background information on the case study regions[14]

Croatia

Population: 3,861,967
GDP: € 85.6 bn
European Innovation Scoreboard: Emerging Innovator (69.6)
Insights from the analysis of the prioritisation approach: Primarily sectoral/technology-specific S3 priorities, combined with some priorities focusing on multi-sectoral transformations or societal challenges (e.g., digitalisation).

Slovakia

Population: 5,424,687
GDP: € 131.0 bn
European Innovation Scoreboard: Emerging Innovator (65.6)

Insights from the analysis of the prioritisation approach: Combination of S3 priorities focusing on the improvement of the innovation ecosystem and priorities related to multi-sectoral societal challenges.

[14] Data sources are as follows: Population: Eurostat (2025): Population on 1 January by age group, sex and NUTS 3 region (last access 10.06.2025), GDP: Eurostat (2025): Gross domestic product (GDP) at current market prices by NUTS 3 region. (last access 10.06.2025), RIS: European Commission: (2023): Regional Innovation Scoreboard (last access 10.06.2025), Prioritisation approach: Prognos AG/CSIL (2025): Based on the analysis of S3 documents.

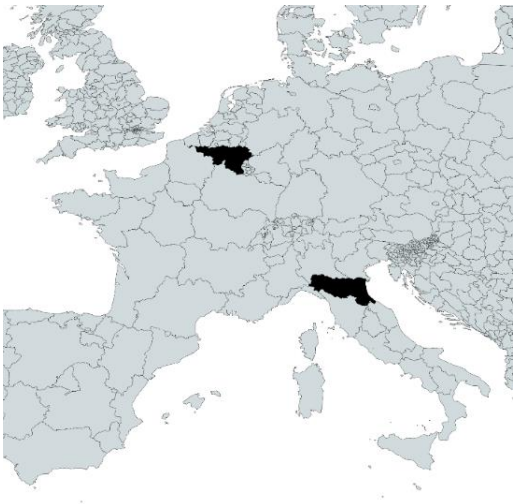
Regional S3 covering reforms

The cases of Emilia-Romagna and Wallonia

Abstract
This case study investigates the approaches to reforms in Smart Specialisation Strategy (S3) at the regional level. Reforms can refer to wide ranges of interventions, including legislative changes but also administrative changes, procedures adjustments, incentives, etc. While reforms are not explicitly emphasised in the current S3 framework, they can contribute to improvements in the performance of the ecosystems and to boosting the implementation of S3-related investments. In spite of this potential, overarching evidence tends to suggest that there are important heterogeneities in how authorities tackle reforms in the context of their S3. Drawing from the examples of two regional S3 (Emilia-Romagna and Wallonia), this case explores the actual linkages between reforms and S3, and discusses the potential for more explicit linkages between these aspects in the future.

Key insights

- In **Wallonia**, S3 is primarily seen as a strategic framework oriented towards reforms. Most of the reforms are explicitly acknowledged as distinct from, and complementary to investments.
- Reforms mostly address governance issues. Their objectives are to rationalize and ensure coherences between different policy support schemes and programmes.
- The S3 is seen as an opportunity to take an experimental approach to reform the regional policy mix and the S3 governance.
- Other reforms are identified to improve other components of the ecosystem (e.g., support to internationalisation).
- In **Emilia-Romagna** there is no sharp distinction between “reforms” and “investments”. Both are seen as an integral part of the S3 strategy and contribute to the “way of doing things” that is specific to the region. Through its “modus operandi” the region promotes an integrated, participatory, and bottom-up approach to policy making.
- The S3 is an opportunity to carry out reforms in the governance sphere that promote networking and clustering. The objective is to achieve maximum flexibility making possible fast adjustments to changing needs and circumstances.
- This is possible thanks to a high level of administrative capacity and efficient governance mechanisms (vertical and horizontal coordination of stakeholders).



This case study has been validated by the interviewed authorities of Wallonia and Emilia-Romagna.

Task-specific assessment

S3 are primarily aimed at setting priorities for RDI investments and guiding the allocation of ERDF resources accordingly. However, the success of these investments depends not only on funding but also on the strength of the surrounding innovation and industrial ecosystems. Reforms that enhance these ecosystems can significantly improve the effectiveness of S3 investments.

These reforms involve any changes that improve how the ecosystem functions. They are not limited to regulatory or legislative amendments, but can also include adjustments to administrative processes, changes in governance or organisational structures, new strategies and plans, or the introduction of incentives—such as tax benefits. Reforms can target one or several components of an ecosystem, such as the business environment, research and education system, or innovation support services.

S3 designed at the regional level are expected to focus on local business conditions and specific governance challenges, including the governance frameworks unique to S3. This case study aims to explore the existing connections between S3 and reforms, and to assess opportunities for strengthening these links in the future—particularly using milestones and targets (M&T).

Key success factors and challenges (comparative analysis)

The two regions under study featured different approaches to how reforms are considered in the S3 context.

The mobilisation of reforms depends on the role and positioning of the S3 in the regional policy mix. In Wallonia, the S3 is a strategic framework de facto endorsing the role of a regional innovation strategy. One of its objectives is to improve the overall efficiency of the system of support schemes. The S3 generally does not impulse the adoption of new reforms but rather coordinates and boosts the implementation of existing ones in areas such as research support, internationalisation, SME support, training. In a few cases, the S3 initiates reforms (e.g., hospitals can be supported for their participation in RDI projects).

In Emilia-Romagna, the S3 is also a sort of umbrella strategy deeply integrated within the regional policy mix in a very interconnected policy setting, where there are little boundaries between policies, strategies and stakeholders. For example, the S3 is strongly interlinked with the “Pact for Climate and Jobs”. In this context, the mission of the S3 is to help steer (spontaneous) processes of change in the regional innovation/industrial ecosystem, seen as an evolving context that needs to constantly adapt to changes and new conditions. The S3 is instrumental in making possible these continuous evolutions by mobilising reforms (according to the definition for this study) that promote networking and organisational changes. However, such reforms are implicitly defined as such, they are rather considered to be “modus operandi”, corresponding to the specific way of implementing policies characterising the regional approach, based on consultation, participation of stakeholders, co-definition of instruments and policies, etc. In particular, clusters together with hubs and forums and other networks are seen as main vehicles for implementing the S3 (see below). Differently from the Wallon case, these reforms are developed organically, within the S3.

Components of the regional innovation/industrial ecosystem. In Wallonia, reforms concern mostly governance (reform of the policy mix for efficiency purpose to coordinate many actors and initiatives). In a different manner, the same “component” of the regional innovation and industrial

ecosystem – governance – is targeted in the S3 of Emilia-Romania.

Mode of delivery In Wallonia, an experimental approach to reforms is adopted which relies less on laws and regulation and more on organisational change and informal arrangements. This makes possible more flexible and agile responses to changes. In Emilia-Romagna, reforms are formalised at the political level, but not in operational terms. This too makes change very fast if the political sphere decides to back a reform. There is a rare example of a measure on cluster that was eventually enshrined in law (regional law n.7 2002 on RDI).

Milestones and targets as incentives In Wallonia, the S3 is a reference framework to coordinate strategies, policies and reforms, but it does not contemplate formal obligations (and rewards) to engage into reforms. In Emilia- Romagna too there is little intention to set milestones and targets. While other programmes have M&T, they would not fit the adaptive approach to incremental changes adopted by the S3. M&T within S3 would be too difficult to identify & quantify.

Institutional competence appears to be relevant in explaining the two regions' approach to reforms. In Wallonia, most of the competence belongs to the regional level as opposed to the federal level. Emilia-Romagna benefits from significant competence in the RDI area too.

Challenges In Wallonia, the bottom up and experimental approach adopted has not dramatically improved visibility contrary to the objective. In Emilia-Romagna, a possible drawback of the regional approach to S3 is the risk of overlaps between numerous different actors. However, the advantage in terms of creativity and innovation arising from increased interactions between different stakeholders outweigh the possible risks. In the end, much depends on the level of administrative capacity and depth of social capital in the regional innovation/industrial ecosystem, which are the true conditions determining the level of engagement of local policy makers in favour of reforms.

Conclusion & lesson learnt

The mobilisation of reforms depends on the role of the S3 in the regional policy mix. It can be very variable. Even in the cases of the two regions reviewed, which share a number of similarities in their approach to reforms (e.g., focus on governance in the context of an "umbrella" S3), there are notable differences, especially concerning whether reforms are external to the S3 (Wallonia) or whether reforms are endogenously promoted (Emilia-Romagna). Also, in Wallonia, the objective is in terms of efficiency (how to streamline the provision of support and bring coherence to the different programmes and policies). In Emilia-Romagna, the objective is to make possible flexible and responsive processes of adaptation and change.

Administrative capacity is key to make the most of reforms to improve the regional innovation/industrial ecosystem. The experimental approach to S3 and reforms engaged in Wallonia would not be possible without the necessary administrative resources. Similarly, the organic approach developed in Emilia-Romagna relies on the sophistication of the regional innovation ecosystem in terms of network density and the high levels of administrative capacity.

Milestones and Targets are not viewed as practicable solutions to monitor and incentivize the implementation of reforms. Stakeholders consulted consider that they would add complexity and be burdensome and that they would not be adapted to account for the adaptative approach to processes of changes (Emilia-Romagna) and experimental dimension (Wallonia).

Background information on the case study regions[15]

Emilia-Romagna

Population: 4,451,938
GDP: €192,6 bn
Regional Innovation Scoreboard: Strong Innovator (109, 8)
Insights from the analysis of reforms The S3 document includes reference to reforms in the governance component of the ecosystem with different measures aiming at networking (e.g., creation of hubs). Other reforms concern strengthening capability targeting skills and the education and research system. Reforms are a mix of enabling (adopted at the national level) and catalysed (adopted within the S3) types.

Wallonia

Population: 3,713,856
GDP: € 136.8 bn
Regional Innovation Scoreboard: Strong Innovator (113.5)
Insights from the analysis of reforms The S3 documents include "reforms of the policy mix", including reforms of Support to research, Support to SMEs, reform of Pôles de Compétitivité and clusters, reform of training. It also foresees specific reforms to support internationalization and Europeanisation of beneficiaries within priority areas. These reforms are generally initiated outside the S3 framework but they are given a new impetus by the S3.

[15] Data sources are as follows: Population: Eurostat (2025): Population on 1 January by age group, sex and NUTS 3 region (last access 10.06.2025), GDP: Eurostat (2025): Gross domestic product (GDP) at current market prices by NUTS 3 region. (last access 10.06.2025), RIS: European Commission: (2023): Regional Innovation Scoreboard (last access 10.06.2025), Prioritisation approach: Prognos AG/CSIL (2025): Based on the analysis of S3 documents.

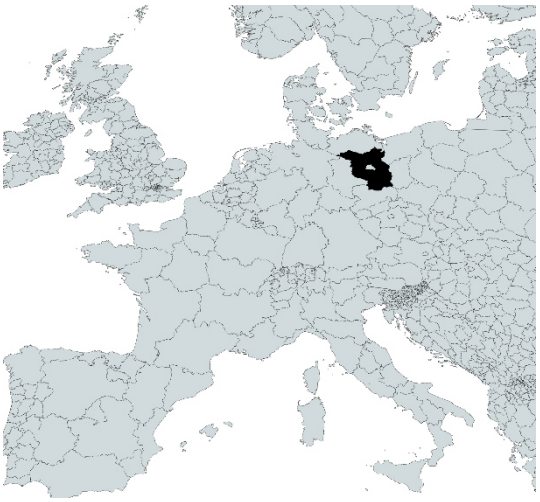
Use of national/ regional ERDF funding to support interregional innovation investments (advanced TRLs)

The case of Brandenburg the Innovation Express Scheme

Abstract
This case study investigates the strategic use of national and regional ERDF resources to advance interregional innovation investments at higher Technology Readiness Levels (TRLs). By facilitating cross-regional collaboration, European Regional Development Funds play a crucial role in scaling up innovations and expediting market deployment, thereby enhancing regional innovation ecosystems and bridging gaps between research and commercialization across Europe. The study highlights successful implementations of projects like Innovation Express and their role in fostering cohesive interregional partnerships. It identifies both the opportunities these collaborative efforts present and the challenges, such as administrative barriers and the reluctance of regions to allow cross-border fund utilization, despite there being no legal obstacles.

Key insights

- The Innovation Express Scheme illustrates how regional funding schemes can be synchronized to promote cross-border collaboration, with each partner drawing on local mechanisms to secure financing.
- Brandenburg demonstrates the importance of adaptive governance structures and intermediary roles in coordinating funding and ensuring alignment with regional S3.
- The strategic utilization of ERDF funds by Brandenburg facilitates sustainable innovation ecosystems by allowing partners to leverage diverse regional strengths and expertise, enhancing innovation capacity and resilience.
- The successes seen in the Alpine space and Brandenburg underscore the potential scalability of these approaches, encouraging other regions to adapt similar strategies.
- Challenges include administrative and regulatory barriers such as state aid rules, which complicate the synchronization of efforts across borders. Fostering environments that embrace open funding policies and empowering intermediaries can help in this regard.
- Effective interregional innovation investments rely on adaptive governance, proactive intermediary involvement, and minimized bureaucratic obstacles.



This case study has been validated by the interviewed authorities of Brandenburg and of the Innovation Express Scheme.

Task-specific assessment

This case study focus on the use of national and regional ERDF resources to support interregional innovation investments at advanced Technology Readiness Levels (TRLs). By promoting cross-regional collaboration, these funds are instrumental in scaling up innovations and speeding up market deployment, thereby strengthening regional innovation ecosystems and bridging research and commercialization gaps across European territories.

Key success factors and challenges (comparative analysis)

The Innovation Express call, as implemented under interregional initiatives such as the INNOBIOVC project, demonstrates the potential of synchronizing regional funding schemes to promote cross-border cooperation. This model leverages existing funding programs to support collaborative projects, allowing each partner to secure financing through their local mechanisms. A vital success factor is the adaptability of regional funding programs like Bavaria's bio-economy scale-up initiative, which utilizes ERDF funds to boost interregional collaboration.

Brandenburg's participation in interregional projects like the Phoenix Calls and Innovation Express highlights the importance of established networks and strong intermediary roles in funding coordination. These intermediaries bridge the gap between regional funds and international cooperation, ensuring projects align with regional S3 strategies while staying within funding rules.
However, challenges persist. The reluctance to allow ERDF funds to cross borders, as noted in several regions, complicates the unification of efforts across countries, despite there being no legal obstacles and it is more a question of political willingness, as regulations like CPR 63(4) permit such cross-border financial collaborations.. Additionally, complex administrative and regulatory barriers, including state aid rules, often hinder seamless fund integration. The need for precise coordination and harmonization of program rules remains a significant challenge, particularly concerning cumulative funding, as it involves navigating the complexities and differences between various regional and EU-level funding frameworks.

Sustainability & innovativeness of approaches

Brandenburg's approach, which incorporates synchronized calls and strategic utilization of ERDF funds, highlights both the challenges and the potential for efficient development in fostering innovation ecosystems. While the synchronization of funding calls presents a critical obstacle, as described, this approach also exemplifies how resource management can effectively support long-term innovation through strategic alignment and collaboration. By allowing each partner to operate under their funding frameworks, projects benefit from diverse regional strengths and expertise, enhancing overall resilience and innovation capacity. This method, seen in initiatives like Berlin and Brandenburg's shared efforts, promotes a cohesive environment for advancing TRLs in interregional contexts.

Moreover, the inclusion of clauses in funding agreements, which welcome foreign partners as non-financed participants, provides a flexible framework that encourages wide-ranging collaborations without the complexity of direct foreign financing. This innovative governance model fosters a broader community for innovation, aligning local projects with international goals.

Scalability and transferability of the learnings

The scalable nature of these approaches lies in their potential to be adapted and adopted by other regions seeking to enhance interregional cooperation. The synchronization of funding schemes sets a

precedent for how regions can collaborate strategically without needing entirely new resources or frameworks. Lessons from the Alpine space and Brandenburg confirm that existing programs can be refined and utilized effectively for broad, cross-border partnerships.
However, the transferability of these lessons requires regions to overcome administrative hurdles and embrace more open funding policies. Encouraging a mindset shift among program managers to value interregional cooperation is essential for wider adoption. Moreover, ensuring that businesses and research entities are motivated and capable of engaging in these expanded networks further supports the transferability of this model.

Conclusion & lesson learnt

Effective use of national and regional ERDF funding to support interregional innovation investments relies on adaptive governance structures, clear communication frameworks, and proactive intermediary involvement. Regions like Brandenburg and Bavaria exemplify how synchronized calls and collaborative agreements can successfully utilize ERDF resources to advance TRLs across borders.
Key lessons highlight the importance of minimizing bureaucratic obstacles, enhancing program visibility, and ensuring alignment with strategic goals. Empowering intermediaries to facilitate these processes and acknowledging the value of shared innovation strategies are crucial for advancing this collaborative approach. Going forward, fostering environments conducive to such cooperation, and simplifying funding schemes can significantly elevate the role of ERDF in supporting interregional innovation.

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Background information on the case study regions[16]

Brandenburg

Population: 2,554,464
GDP: €98.5 bn
Regional Innovation Scoreboard: Innovation Leader (111.6)
Insights from the analysis of the prioritisation approach: Brandenburg's prioritisation approach under its strategy innoBB 2025 reflects a targeted focus on high-tech and future-oriented sectors. By prioritising energy technology, optics and photonics, and ICT, alongside strong support for healthcare and mobility-related industries, the region positions itself at the intersection of innovation, sustainability, and regional competitiveness

[16] Data sources are as follows: Population: Eurostat (2025): Population on 1 January by age group, sex and NUTS 3 region (last access 10.06.2025), GDP: Eurostat (2025): Gross domestic product (GDP) at current market prices by NUTS 3 region. (last access 10.06.2025), RIS: European Commission: (2023): Regional Innovation Scoreboard (last access 10.06.2025), Prioritisation approach: Prognos AG/CSIL (2025): Based on the analysis of S3 documents.

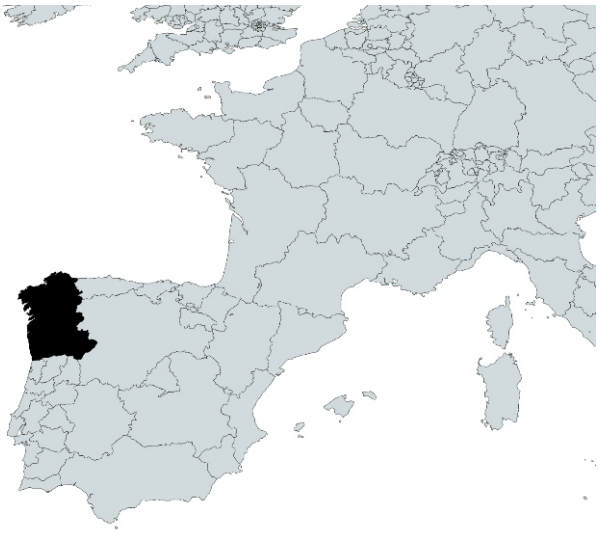
S3 fostering interregional investments

The case of the Joint Investment Plan Galicia and Norte

Abstract
This case study examines the successful implementation of joint Smart Specialisation Strategy measures aimed at fostering interregional cooperation between **Galicia**, Spain, and **Norte**, Portugal. Through the Joint Investment Plan, these regions have established a collaborative framework that integrates cross-border dynamics into policy design to enhance innovation, focusing on shared research and innovation goals. This model of regional integration not only underscores significant achievements in cooperative governance but also addresses inherent challenges in sustainability, resource allocation, and governance consistency. The findings suggest that while cultural and historical ties facilitate collaboration, differences in governance structures and economic backgrounds pose ongoing challenges. This study provides valuable lessons for other regions aiming to enhance interregional and cross-border cooperation, contributing to robust and interconnected regional economies across the European Union.

Key insights

- The Joint Investment Plan epitomizes effective cross-border cooperation by aligning regional innovation goals through coordinated S3 that reflect both regions' priorities.
- The initiative's multidimensional governance framework combines political and technical approaches, facilitating sustainable development and shared priorities. However, variations in governance models between the regions can affect the consistency of its application.
- The collaboration could serve as a scalable model for other regions, showing how entities can optimize resources and achieve shared goals, particularly where cultural and linguistic ties exist. Political commitment is crucial, alongside the need to align with European frameworks like Horizon Europe.
- Challenges such as governance disparities and different economic backgrounds may create political concerns and affect collaboration. The partnership underscores the need for dynamic adaptation to reduce these disparities.
- The Galicia-Norte partnership reveals that strong cultural connections, robust governance structures, and strategic alignment are vital for sustaining interregional cooperation. Moving forward, continuous dialogue and flexibility are essential to overcoming remaining governance challenges and enhancing collaborative efforts.



This case study has been validated by the interviewed authorities of Norte and Galicia.

Task-specific assessment

This case study explores successful implementations of joint S3 measures aimed at fostering interregional cooperation, with a focus on the Joint Investment Plan between Galicia, Spain, and Norte, Portugal. Our objective is to understand how S3 can effectively integrate interregional and cross-border dynamics into policy design to enhance collaborative innovation. By examining strategies such as financing interregional innovation through mainstream programs and developing cross-border S3 initiatives, the study showcases how the Galicia-Norte plan serves as a critical mechanism for cross-border collaboration focused on shared Research and Innovation (R&I) goals. This model of regional integration highlights both cooperative successes and inherent challenges in governance and resource allocation. Through these examples, we draw lessons for other regions seeking to strengthen interregional and cross-border cooperation, contributing to more robust and interconnected regional economies across the EU.

Key success factors and challenges (comparative analysis)

The success of the Joint Investment Plan between **Galicia** and **Norte** lies in its sustained political commitment, alignment of strategic objectives, and strong stakeholder involvement A mature governance structure supports the Joint Investment Plan through the European Group of Territorial Cooperation Galicia-North of Portugal (GNP-EGTC). Key implementing bodies like Galicia Innovation Agency (GAIN) in Galicia and the Regional Coordination and Development Commission in Norte play a central role in driving the plan forward and in implementing the cross-border smart specialisation strategy in the priority areas of cooperation (Health and well-being; Agri-food; Industry, Mobility and Energy; Tourism or Creative Industries; Resources and Economy of the Sea). However, challenges persist, most notably differences in governance models, with Portugal operating a centralised system and Spain a decentralised one. These structural asymmetries can lead to difficulties in joint decision-making and uneven capacities in implementation. Moreover, limitations in available cross-border funding and differing administrative frameworks make it challenging to fully harmonise action across both sides of the border.

Sustainability & innovativeness of approaches

The Galicia–Norte Joint Investment Plan stands out for its innovative and sustainable approach to cross-border innovation and is anchored in a long-term vision of sustainable regional development, with the Cross-border Smart Specialisation Strategy (RIS3T) seeking alignment with European programmes and initiatives such as Horizon Europe or national European Regional Development Fund programmes (ERDF) programmes. The partnership features a multi-level governance model that includes both political and technical representation and is reinforced by a Cross-Border Innovation Council and a newly established Joint Financial Committee. These bodies, which represent a concrete governance innovation, coordinate funding strategies and develop joint instruments for supporting collaborative R&I projects. A particularly innovative component of this initiative is the joint financing instrument, designed to facilitate joint investments in demonstration projects using ERDF funds and to address the disparities in governance structures and resource capacities. This instrument integrates various funding streams to enhance resource allocation's quality and impact, directly supporting collaborative innovation efforts. By promoting green and digital transitions, the collaboration aligns closely with broader European objectives, reinforcing the regions' positioning within EU value chains. However, ensuring long-term sustainability remains a challenge, particularly given differences in resource availability, administrative capacity, and governance models between the two regions.

Scalability and transferability of the learnings

The Galicia–Norte Joint Investment Plan provides a valuable model for interregional and cross-border collaboration that could be adapted in other contexts. Its multi-level governance structure, shared funding mechanisms, and stakeholder mobilisation offer practical tools for regional partnerships seeking to deepen cooperation. The joint financing instrument, which facilitates joint investment in collaborative projects, is particularly promising in terms of scalability. However, replicability depends on enabling conditions such as the continuity of political commitment, administrative flexibility, and alignment of innovation strategies.
Furthermore, shared cultural and linguistic ties between Galicia and Norte have undoubtedly eased collaboration—a factor that may not be present in other cross-border contexts. Differences in political autonomy and financial capacity also present barriers, as economic disparities can lead to political concerns and challenge equal partnership. Still, the approach demonstrates that with the right framework, these challenges can be navigated effectively.

Conclusion & lesson learnt

The case of Galicia-Norte exemplifies an effective model of cross-border cooperation and illustrates the full potential of interregional and cross-border S3 integration, highlighting the power of cultural, linguistic, and historical ties in facilitating sustained political commitment and strategic alignment. This partnership, within the Euroregion framework, effectively leverages the shared strengths of both regions to enhance regional innovation and development. The RIS3T and the Joint Investment Plan underscore a commitment to fostering innovation through coordinated strategic initiatives and joint investments that align with regional and European objectives. These efforts have resulted in increased stakeholder engagement and a higher critical mass in sectors with scientific and entrepreneurial potential.

Lessons learned from this collaboration emphasize the importance of the continuity of political commitment and stakeholder mobilization in maintaining and enhancing interregional collaborations. The ability to seamlessly integrate efforts, despite structural and governance differences, shows the adaptability required for successful cross-border partnerships.

Moving forward, addressing challenges such as governance disparities and aligning varying administrative processes remain crucial. These challenges highlight the need for continued dialogue and flexibility in collaboration frameworks. The success of Galicia and Norte offers a blueprint for other regions, emphasizing that shared cultural context, robust governance structures, political commitment, and strategic alignment are key components in fostering effective interregional cooperation.

Background information on the case study regions[17]

Galicia

Population: 2,705,833
GDP: 77.356 bn
Regional Innovation Scoreboard: Moderate Innovator (87.5)
Insights from the analysis of the prioritisation approach: Galicia's S3 prioritisation approach adopts a streamlined and human-centred vision, placing digitalisation, sustainability, and a focus on people at its core. This reflects a commitment to harnessing technology and innovation to drive inclusive and environmentally responsible regional development.

Norte

Population: 3,601,434
GDP: € 78.659 bn
Regional Innovation Scoreboard: Moderate Innovator (93.1)
Insights from the analysis of the prioritisation approach: Norte's S3 prioritisation approach showcases a diversified and ambitious strategy, bridging advanced production and mobility industries with strong emphasis on life sciences, agri-food, and sea economy. By also valuing culture, symbolic capital, and human development, it promotes a balanced model of innovation-driven growth rooted in territorial identity and sustainability.

[17] Data sources are as follows: Population: Eurostat (2025): Population on 1 January by age group, sex and NUTS 3 region (last access 10.06.2025), GDP: Eurostat (2025): Gross domestic product (GDP) at current market prices by NUTS 3 region. (last access 10.06.2025), RIS: European Commission: (2023): Regional Innovation Scoreboard (last access 10.06.2025), Prioritisation approach: Prognos AG/CSIL (2025): Based on the analysis of S3 documents.

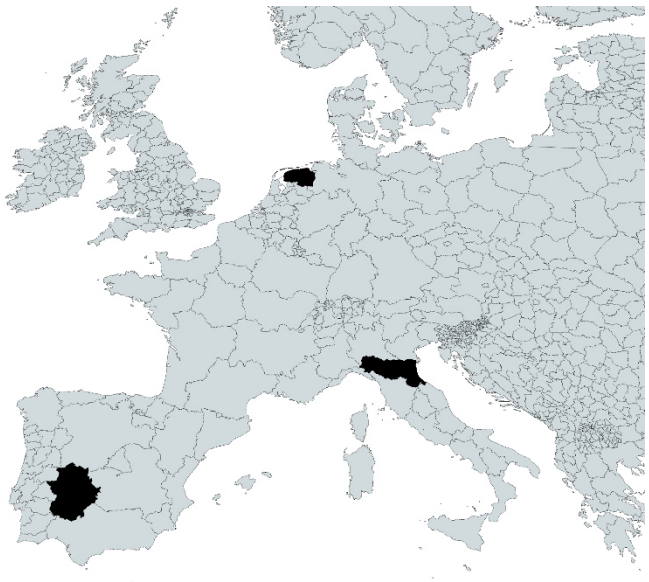
M&E-Models: S3 Open Platforms

The case of Email-Romagna, Extremadura and Northern Netherlands

Abstract
Open Platforms are a new tool in the S3 strategies to promote access to monitoring data and increase transparency. The Case Study aims to shed light on illustrative M&E models that incorporate open platforms. The aim of the assessment is to derive lessons learned on the rationale behind the Open Platforms of the M&E models and to identify key success factors and challenges. Each of the three region offers unique approaches, successes, challenges, and lessons applicable to the development of M&E models using open platforms. The case study primarily relies on 2-3 in-depth, semi-structured interviews with key stakeholders in each region. The findings from these interviews are further enriched through desk research and literature reviews, ensuring a comprehensive analysis.

Key insights

- Each of the three regions offers unique approaches, success factors, challenges and lessons applicable to the development of M&E models using open platforms.
- The implementation of open platforms showcases key success factors such as open data transparency, strong stakeholder collaboration and adaptability to evolving needs, all of which enhance trust, accountability and user engagement.
- Challenges include the technical and financial demands of building and maintaining these open platforms, issues with data comprehensiveness and accessibility and the need for sustained stakeholder engagement to ensure relevance and coherence across decentralized systems.
- For successful implementation and scalability, developing robust governance structures, ensuring sustainable funding and maintaining flexibility in response to local needs are essential components.
- These insights collectively highlight the potential for cross-regional learning in enhancing the effectiveness of S3 initiatives through open platforms



This case study has been validated by the interviewed authorities of Extremadura, Northern Netherlands and Emilia-Romagna.

Task-specific assessment

Effective monitoring and evaluation (M&E) models are key to steer, control and, if necessary, to adapt the implementation of S3 strategies. Monitoring models encompass all sorts of activities relating to collecting and processing information about the achievement of expected results and the degree of implementation of policy measures (strategy controlling). In contrast, the evaluation of the S3 needs to follow the overall aim of evaluating the implementation and achievement of the strategy's objectives (strategy review) as well its impact on the respective region. Following its theory of change, the evaluation should investigate the changes and effects associated with the S3 (assessment of the effectiveness of the policy intervention logic). In addition, and based on these assessments, improvement opportunities should be formulated for the further development of the respective S3, thereby establishing a solid foundation for its continuation or updating.

Key success factors and challenges

The implementation of an open platform like "**Monitoraggio S3**" in tracking regional research and innovation efforts presents several key success factors and challenges. Among the **success factors**, the platform's commitment to **open data transparency** enhances trust and accountability by making data publicly accessible. It offers a comprehensive view of all publicly funded research, transcending limitations of projects financed solely by structural funds. Critical to its effectiveness is the **active collaboration with regional stakeholders**, including clusters and innovation centers, ensuring that the platform meets local needs and gains user buy-in. The **platform's adaptability**, evolving through stakeholder feedback, and the strategic outsourcing of technical expertise further underscore its innovative approach, allowing the system to remain relevant and technologically advanced. Its emphasis on broad strategic objectives rather than rigid milestones allows for flexibility and adaptability.

Conversely, **challenges** include the technical demands of **building and maintaining such a platform**, which can strain resources and necessitate external technical support. The exclusion of broader indicators, like the Regional Competitiveness Index, could limit the platform's comprehensiveness, while ensuring that data remains both accessible and interpretable is an ongoing challenge. Furthermore, balancing resource allocation between maintaining the platform and managing existing projects, as well as sustaining stakeholder engagement to ensure the platform reflects evolving needs, requires **continuous effort and strategic focus**.

The Northern Netherlands' approach ("**Innovation Monitor**") to smart specialisation and innovation monitoring is marked by both commendable **success factors** and significant **challenges**. A **regional coordination** level facilitates collaboration between provinces and stakeholders, contributing to the effectiveness of initiatives such as the Innovation Monitor. Despite the decentralized structure posing challenges due to data fragmentation and integration inadequacies, the innovative survey mechanism allows the monitor to adapt to emerging priorities (**adaptive mechanism**).

However, the complexities of **maintaining a cohesive monitoring system** and the decentralized structure present ongoing challenges, mainly the overarching fragmentation, which makes data collection scattered across various organizations and regions, with initiatives not fully integrated, risking to undermine the ongoing coherence and effectiveness of innovation monitoring (**cohesive governance framework**). Additionally, securing **long-term funding** is challenging, affecting the continuity and expansion of these initiatives.

The case of **Extremadura** in relation to open platforms suggest a long-term development of a digital tool that has changed, overcoming many difficulties over the years, to provide its users the best possible insights on Extremadura´s performance. Concerning the **success factors**, the open platform allows a better understanding of the indicator and information flows, while the paltform manages to nourish itself from different sources of data such as the european framework programme. At the same time, the open platform has resulted as the best option to gather an immense amount of information in a single place (**data consolidation**). This can be translated in **good access to every source of needed information**, which has turned very democratic, as anyones interested in it can download excel tables and infromation from it (full access to the data under the LinkedOpenData publication method, allowing its exploitation and reuse in accordance with open government requirements). Consequently, it is a very valuable asset to the Junta of Extremadura.

The start was challenging, as it was difficult to find a way to monitor or evaluate the degree of the deployment of the regional specialisation pattern with the common set of indicators. Data arrived with a **considerable lag in time**, which consequently slowed the working pace. The development of the monitoring tool allowed to overcome this problem by integrating data and enabling their visualization and exploitation. On the other hands, the **challenges** that they had to overcome concern the difficulty of developing the tool without fully knowing the (future) requirements of S3. Additionally, **maintaining the platform** was also demanding.

The implementation of open platforms showcases key success factors such as **open data transparency**, strong **stakeholder collaboration** and **adaptability to evolving needs**, all of which enhance trust, accountability and user engagement. In contrast, challenges include the **technical and financial demands** of building and maintaining these platforms, issues with **data comprehensiveness and accessibility** and the need for **sustained stakeholder engagement** to ensure relevance and coherence across decentralized systems.

Sustainability & innovativeness of approaches

The open platform “Monitoraggio S3" exemplifies sustainability and innovativeness in its approach. Indeed, the platform itself represents an innovative **shift from traditional reporting to open data dissemination**, allowing a broader audience to access real-time data. Incorporating stakeholder feedback in the platform's evolution shows a forward-thinking approach, tailoring the system to meet user needs effectively. Outsourcing technical expertise ensures the platform's design and operations are cutting-edge, without straining internal resources.

The use of the Northern Netherlands Innovation Monitor exemplifies a sustainable approach by consistently gathering data on the innovation characteristics of SMEs. This initiative reflects an innovative approach, as it includes a dynamic survey mechanism that continuously adapts to emerging priorities. By involving regional stakeholders, such as development agencies and employer federations, the region ensures the monitor remains relevant and comprehensive. However, the fragmented nature of data collection and the lack of a unified monitoring system challenge the sustainability of these efforts, as resources are often limited and funding consistency remains an issue.

Observatorio RIS3 de Extremadura is a good example of sustainability and innovativeness. The mix of data accessibility and internet openness implies a shift from traditional reporting as well as it democratizes data access of the interested parties. It incorporates a team behind it at the R&D Observatory of the Region of Extremadura that is constantly looking after its efficiency, with the support of external experts that guarantee the highest quality. It is not only useful to gather the results from the S3, but it also helps the regional government of the Region of Extremadura to make better informed decisions.

In terms of sustainability, this platform has shown that it is ambitious. On the one hand,

there is a constant check by the R&D Observatory technicians, with the support of external experts, regarding the platform's wellbeing and proper functioning. On the other hand, periodic remodelling and update of the Platform is taking place with the intention to make the platform even more accessible, more democratic and easier to work with.

Conclusion & lesson learnt

Scalability and transferability of the learnings

The open platform model used in **Emilia-Romagna** can be scaled to include additional regions or sectors by adjusting the indicators to suit specific local needs while maintaining a flexible infrastructure for data collection and analysis. Furthermore, expansion is possible to **integrate additional data sources**, such as RCI and Regional Innovation Scoreboard indicators, enhancing its comprehensiveness.
The collaborative approach to development, involving regional stakeholders, sets a precedent for other regions aiming to implement similar platforms. By demonstrating the successful co-creation and alignment of data priorities, this model provides a framework that can be adapted to accommodate different regional contexts and development objectives.

The **Northern Netherlands** has laid a strong groundwork that offers substantial scalability potential. By adopting a cooperative model among provinces and key local stakeholders, it provides a blueprint for a collaborative regional innovation strategy. The methodologies developed, particularly the Innovation Monitor's adaptive survey system and its collaborative data-sharing protocols, offer valuable lessons for similar regions aiming to enhance their innovation monitoring frameworks. However, the transferability of these learnings is constrained by systemic challenges. The absence of a formal regional governance or a cohesive framework that aligns disparate initiatives into a single strategic vision limits the extent to which these innovations can be effectively scaled or replicated elsewhere. Addressing these structural gaps is pivotal for fully realizing the scalability and transferability potential of the Northern Netherlands' approach, offering a more cohesive and coordinated model of regional innovation strategy that other regions could emulate.

Extremadura open platform´s scalability is shown by the current process (re-structuring the open platform). The intention behind this process is to make the platform more accesible and intuitive. Additionally, the platform is already very manageable, thanks to the control panel of indicators, which allows the user to understand the starting point and the progression of the chosen indicators. What we can learn from Extremadura, this is the trasnferability of Extremadura's experience, should overall focus on the issues they had at the beginnign with the late arrival and management of the data and information they required. A higher flow of this assets would have made the process smoother. Additonally, concentrating on the open platform, the biggest imput this platform has to offer is the improvement in the understanding of the information and data, and the easy access it offers for users.

The **Case Studies** show that each region faces unique challenges that offer valuable lessons for others. For a successful implementation and scalability, developing **robust governance structures**, sustained stakeholder engagement, **ensuring sustainable funding** and **maintaining flexibility and transparency** in response to local needs are essential components. These insights collectively highlight the potential for cross-regional learning in enhancing the effectiveness of S3 initiatives through open platforms.

Background information on the case study regions[18]

Emilia-Romagna

Population: 4,451,938
GDP: €192.6 bn
Regional Innovation Scoreboard: Strong Innovator (109.8)
Insights from the analysis of the prioritisation approach: Emilia-Romagna's S3 prioritisation approach stands out for its breadth and integration, addressing economic, environmental, social, and cultural dimensions. With a focus ranging from advanced manufacturing and digitalisation to well-being, inclusion, and regional identity, the strategy promotes a holistic model of innovation that leverages local strengths to drive sustainable and cohesive territorial development
Link to open platform: https://monitoraggios3.art-er.it

Extremadura

Population: 1,054,681
GDP: €24.9 bn
Regional Innovation Scoreboard: Emerging Innovator (70.5)
Insights from the analysis of the prioritisation approach: Extremadura's S3 prioritisation approach reflects a strong alignment with its regional assets and development potential. By focusing on agri-food, renewable energy, and digital transformation, alongside health and cultural industries, the strategy fosters sustainable growth that is rooted in local strengths while embracing innovation and social well-being
Link to open platform: http://observatorio.ris3extremadura.es/#/

Northern Netherlands

Population: 1,707,380
GDP: €84.8bn
Regional Innovation Scoreboard: Strong Innovator (118.2[19])
Insights from the analysis of the prioritisation approach: The Northern Netherlands' S3 prioritisation approach highlights a forward-looking and sustainability-driven vision. By focusing on circular economy, renewable energy, digital transformation, and positive health, the region promotes a model of innovation that supports ecological balance, technological progress, and the well-being of its population.

Link to open platform: https://www.snn.nl/noord-nederlandse-innovatiemonitor

[18] Data sources are as follows: Population: Eurostat (2025): Population on 1 January by age group, sex and NUTS 3 region (last access 10.06.2025), GDP: Eurostat (2025): Gross domestic product (GDP) at current market prices by NUTS 3 region. (last access 10.06.2025), RIS: European Commission: (2023): Regional Innovation Scoreboard (last access 10.06.2025), Prioritisation approach: Prognos AG/CSIL (2025): Based on the analysis of S3 documents.

[19] RIS average of Groningen, Friesland and Drenthe

M&E-Models: Performance-based measurements

The case of Hungary, Croatia and Slovakia

Abstract
This case study examines the establishment of performance-based M&E models of Smart Specialization Strategies (S3) in Croatia, Hungary and Slovakia. It highlights the importance of effective governance structures, stakeholder involvement and theoretical frameworks in developing systems of milestones and targets. Comparative analysis shows common challenges and offers insights on enhancing coordination, data management and alignment of objectives across various policy domains.

Key insights

- The case study underscores the critical role of coordinated governance and stakeholder engagement in elaborating performance-based S3 M&E systems.
- Challenges such as decentralised data management and aligning monitoring for diverse funding sources with strategic objectives must be addressed.
- Utilising theoretical frameworks like the Theory of Change, active stakeholder involvement and close coordination across units of government can facilitate the formulation and monitoring of concrete, relevant and interlinked indicators as well as milestones and targets, thereby enabling continuous reflection and adaptive management in S3 implementation.

This case study has been validated by the interviewed authorities of Hungary and Croatia. The interviewed authorities of Slovakia did not provide any comment.

Task-specific assessment

Effective monitoring and evaluation (M&E) models are key to steer, control and, if necessary, to adapt the implementation of S3 strategies. Monitoring models encompass all sorts of activities relating to collecting and processing information about the achievement of expected results and the degree of implementation of policy measures (strategy controlling). In contrast, the evaluation of the S3 needs to follow the overall aim of evaluating the implementation and achievement of the strategy's objectives (strategy review) as well its impact on the respective region. Following its theory of change, the evaluation should investigate the changes and effects associated with the S3 (assessment of the effectiveness of the policy intervention logic). In addition, and based on these assessments, improvement opportunities should be formulated for the further development of the respective S3, thereby establishing a solid foundation for its continuation or updating.

Key success factors and challenges (comparative analysis)

In **Croatia**, the S3's milestones and targets set intermediate (to be reached 2024) and final objectives (2029) for the strategy period.[20] They focus on outcome and result indicators like the number of international research collaboration projects but also the adoption of specific laws, for example on quality assurance in science and higher education. The milestones and targets were chosen in a process enacted through the S3's special management structure involving the Ministry of Science, the Ministry of Economy and the National Innovation Council (**structured management framework**). They were developed on the basis of the EDP and stakeholder consultations, analytical reports and a Theory of Change framework to link progammes and objectives to activities and indicators (**comprehensive stakeholder consultation**). Milestones are primarily used for monitoring purposes to ensure activities are on track, while targets are tied to evaluation and to assess the outcomes and impacts after implementation.

The performance-based system's impact depends on the continued functioning of the management structure during the implementation phase. A recent report[21] by the Zagreb Institute for Economics (EIZ) based on a stakeholder round table concerns about challenges related to the "**dual authority**" between the Ministry of Economy and the Ministry of Science, Education and Youth. While these opinions were not quantitatively backed with data, the expert suggested that resolving these challenges is crucial for ensuring institutional stability in the management and monitoring of Croatia's S3 implementation. Additionally, the expert highlighted the need to further consolidate institutional monitoring know-how and to improve data quality, analysis, harmonization, and revision to effectively implement the outlined M&T system[22].

Hungary's S3 serves as an umbrella strategy for three policy areas: R&D, digitisation and SMEs (**strategic integration**). Target values have been defined for result indicators across priority areas and horizontal fields. By contrast, no

[20] Ministry of Science, Education and Youth (2023): Strategija pametne specijalizacije do 2029. Available under: https://mzom.gov.hr/UserDocsImages//dokumenti/EUfondovi/PKK-2021-2027//S3-do-2029-Tekst-VRH-2023-7-2-2025.pdf (last access 28.04.2025).

[21] EIZ (2025): Smart Specialization Strategies in Croatia: Experiences and the Way Forward Conference Recommendations. Available under: https://westernbalkans-infohub.eu/wp-content/uploads/2025/02/Strategije-pametne-specijalizacije-EN-preporuke.pdf (last access 28.04.2025).

[22] For a more evidence-based overview of documented challenges in S3 monitoring and evaluation, please refer to the Ex-Post Evaluation of Croatia's S3 (2016–2020) conducted by the World Bank.

milestones have been defined as interim targets and the system focuses on result indicators so far, while output targets are still to be developed.

The National Research, Development and Innovation Office, the S3 coordinating institution, is only directly responsible for the strategic area of R&D. This governance arrangement led to a partial definition of specific milestones and targets for the R&D part of the S3 only, not extending to digitisation and SMEs. Extending the S3 monitoring system to these areas was also identified as a key challenge in the S3 document for 2021-2027.[23]

Efforts are undertaken to expand the S3 framework also to national funds but are complicated by the non-sectoral, horizontal nature of national innovation policy (**non-sectoral governance structure**). This challenge extends into M&E as the S3 indicators were closely aligned with the indicator system of the national innovation funds. Consequently, they were not well aligned with the priority-based S3 framework (**data alignment issues**). The new S3 for 2021-2027 defines indicators designed to measure the progress in S3 priorities. In essence, the Hungarian case exemplifies a difficulty that many S3 processes have to confront: to integrate all innovation-relevant funding streams into its purview while also sticking to its distinct S3 structure and building its capacities to gather the necessary data.

In the case of **Slovakia**, the definition of milestones and targets are not fully formalised yet for the S3. A list of **KPIs had been drafted**, but approval by the working groups within each S3 domain were still pending. These KPIs are on a macro-level still at the moment (focussing on patents, macro-economic indicators, number of students, etc.) but a discussion is ongoing on how to calibrate the measured indicators to track relevant progress more closely. The National RDI Strategy already includes milestones and targets related to reforms. While not being linked to the S3 directly, they cover relevant elements – for example the funding for the State Academy of Science or a reform of capital expenditure taxes. So far, monitoring of the S3 in general is limited to EU funding and does not cover other budgetary sources yet (**limited monitoring scope**).

VAIA, the country's research and innovation authority, aims to expand the S3's coverage to other innovation-related activities of ministries. As lined out in the S3 document, the monitoring system has to be coordinated with all ministries with relevant policy responsibilities.[24] The challenge is to aggregate the data from such a decentralised system in a consistent and efficient way (**decentralised data management**). A centralised data platform, as suggested in Slovakia's S3 document, could be an important tool to handle the decentralised structure of policy responsibilities and enable a continuous performance-based system of monitoring and evaluation.

Comparative analysis of approaches

While the S3 approach is barely 15 years old, the idea of integrating it more closely with performance-based monitoring and evaluation is gaining traction recently. Croatia, Hungary and Slovakia expose some of the challenges in this process and point to some ways to tackle them.

Inter-ministerial coordination: All three countries emphasize the need for coordinated management structures to oversee the implementation of their S3 strategies. Croatia's management involves multiple ministries, similar to Hungary's integration of R&D, digitalisation and SMEs under one umbrella and Slovakia's efforts to link different ministries' indicator systems. While the institutional set-ups and strategies differ in detail, all three countries

[23] National Research, Development and Innovation Office (2021): National Smart Specialisation Strategy 2021-2027. Available under: https://nkfih.gov.hu/hivatalrol/nemzeti-intelligens/nemzeti-intelligens-szakosodasi-strategia-2021-2027 (last access: 28.04.2025).

[24] Ministry of Investment, Regional Development and Informatization of the Slovak Republic (2021): Draft Research and Innovation Strategy for Smart Specialisation of the Slovak Republic 2021-2027. Available under: https://mirri.gov.sk/wp-content/uploads/2018/10/Research-and-innovation-strategy-for-smart-specialisation-of-the-Slovak-Republic-2021-2027.pdf (last access: 28.04.2025).

face challenges in the coordination of different ministries and policy areas to form a coherent S3 governance and M&E framework to implement a performance-based approach. In Croatia, S3 indicators are developed in coordination among all ministries to mitigate different interpretations of the same indicators. The Theory of Change (ToC) has been developed for all interventions, enabling the continuation of project activities through different stages of TRL managed by various ministries.

Stakeholder involvement: Another common theme across these countries is the importance of stakeholder engagement, which enhances buy-in and relevance of the strategies. However, overarching challenges across these countries include the need for cohesive data management systems, aligning various funding streams with S3 objectives and enhancing inter-ministerial collaboration. Addressing these challenges while leveraging the established milestones and targets is critical for fostering performance-based M&E framework.

Theoretical frameworks: The three countries work with different forms of theoretical frameworks to define relevant indicators and set milestones and targets. The use of Theory of Change for programme design or intervention logic for project design provides a framework for linking strategic S3 objectives with measurable milestones and targets, thereby aiding in tracking progress.

Conclusion & lesson learnt

The three cases covered here show, collectively, the close connection of S3 governance and S3 monitoring and evaluation.

1. Coordination of governance frameworks, indicator systems and IT databases need to go hand-in-hand. Setting up a common data platform can be a good project to establish collaborative processes and align (innovation) visions.
2. Stakeholder involvement is key to get a realistic picture of both which targets are ambitious but reachable and which steps are necessary to get there and should consequently be part of the M&T framework.
3. Theoretical frameworks like a Theory of Change can guide this process and provide a template for developing well-adapted, interlinked milestone and target systems.

Many of the challenges experienced in Croatia, Hungary and Slovakia when developing their S3 M&E systems further towards performance-based M&T approaches are relevant for the numerous countries and regions struggling to define and utilise milestones and targets productively.

In a way, the journey is part of the reward. Designing a good system of milestones and targets requires good interministerial coordination, close coordination with stakeholders and theoretical frameworks, indicator systems and data platforms. Going through this process takes some effort but it provides spillovers of added value in all these areas.

In the end, defining milestones and targets is based on the ability to design a well-grounded and concrete vision of development. It is the flipside of setting priorities as it draws up a credible and verifiable pathway of implementation.

The presented case study provides examples of three countries that set out for this endeavor and discovered new challenges and techniques to tackle them. In this sense, the efforts to develop an M&T system are as much an ongoing journey as the M&T themselves. As such, the process and the product are serving as continuous instances of reflection, deliberation and development.

Background information on the case study regions[25]

Croatia

Population: 3,861,967
GDP: € 85.6 bn
European Innovation Scoreboard: Emerging Innovator (76.6)
Insights into the performance-based M&E approach: Croatia's S3 emphasizes multi-ministerial coordination to achieve set milestones and targets by 2024 and 2029, respectively. Challenges include dual authority between ministries and the need for improved data quality and institutional stability for effective monitoring and evaluation.

Hungary

Population: 9,584,627
GDP: € 206.2 bn
European Innovation Scoreboard: Emerging Innovator (77.6)
Insights into the performance-based M&E approach: Hungary's S3 operates as an umbrella strategy for R&D, digitization and SMEs. While it has established result indicators, it lacks defined milestones. Key challenges include integrating diverse funding sources while enhancing its monitoring system to better capture S3 priorities across sectors.

Slovakia

Population: 5,424,687
GDP: € 131.0 bn
European Innovation Scoreboard: Emerging Innovator (71,6)
Insights into the performance-based M&E approach: Slovakia's S3 framework is still formalizing its milestones and targets. Current monitoring is limited, focusing mostly on EU funding. Efforts to coordinate data from decentralized ministries face challenges, emphasizing the need for a centralized platform to support effective monitoring and evaluation.

[25] Data sources are as follows: Population: Eurostat (2025): Population on 1 January by age group, sex and NUTS 3 region (last access 10.06.2025), GDP: Eurostat (2025): Gross domestic product (GDP) at current market prices by NUTS 3 region. (last access 10.06.2025), RIS: European Commission: (2023): Regional Innovation Scoreboard (last access 10.06.2025), Prioritisation approach: Prognos AG/CSIL (2025): Based on the analysis of S3 documents.

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