CIRCULAR RESEARCH FOUNDATION

Research for Territorial Transitions in the Euro-Mediterranean Region

PARTNER PRESENTATION

ATLANTIS

Advancing Trans-regional Aqua Networks for Technology and Innovative Synergies

Project Kick-off Meeting 7 October 2026 · Brussels
North Sweden European Office Brussels, Belgium

Co-funded by the European Union

ATLANTIS - This project is funded by the European Union under the Interregional Innovation Investments (I3) Instrument, Grant Agreement No. 101309814.

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ATLANTIS – Project Summary

From the marine challenge to interregional innovation and impact

THE CHALLENGE

"The marine world, a vast and complex frontier, is fundamental to Earth's biodiversity, climate stability, bio-ecosystem sustainability and human advancement."

THE TOOLS

"By leveraging recent advances in science and technology, specifically in robotics, sensor technologies, and artificial intelligence (AI)..."

ECONOMIC OPPORTUNITY

"Technological innovation in underwater automation is rapidly advancing in Europe and creating a big economic potential."

CULTURAL AND SOCIO-TECHNICAL PROBLEM

"These technologies can bring sustainability to marine-ecosystem development and change the way how humans interact with it."

GOVERNANCE PROBLEM

"However, the development and application of such technologies remain uneven across different regions in EU."

CAPACITY PROBLEM

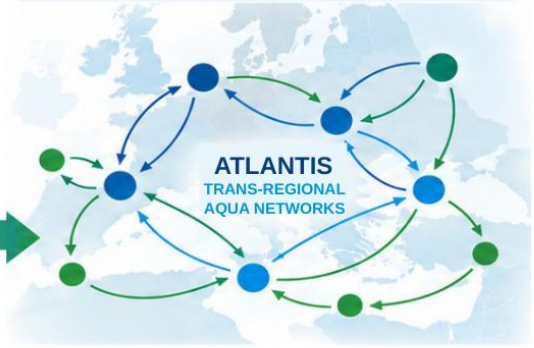
"Often with limited access to advanced demonstration and integration capabilities in Less Developed Regions and Transition Regions (LDR/TR)."

BUSINESS APPLICATIONS

"By carrying-out activities like high-precision environmental monitoring, infrastructure inspection, pollution detection, ecosystem restoration, etc. in aquatic environments."

THE SOLUTION: ATLANTIS

"ATLANTIS will establish interregional value chains and create innovation diffusion pathways between More Developed Region (MDR) and LDR/TR regions, while prioritizing the needs of the least-developed regions."



8 USE CASES AT TRL 7

"The project will identify and implement a portfolio of eight use cases; each demonstrated at Technology Readiness Level (TRL) 7."

INTERREGIONAL ECOSYSTEM

"The project will connect technology developers in MDR regions with SMEs, companies, research institutes and public authorities in LDR/TR regions, enabling these actors to acquire, adapt and operate TRL 7 underwater robotic solutions."

CRF IN ATLANTIS

"CRF focuses on the conditions that enable technological innovation to move beyond demonstration and become an adoptable, investable, governable and replicable regional capability."

- ADOPTABLE
- INVESTABLE
- GOVERNABLE
- REPLICABLE

FROM TECHNOLOGY DEMONSTRATION TO SUSTAINABLE REGIONAL CAPABILITIES

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ATLANTIS: from technological demonstration to regional capability

ATLANTIS – ***Advancing Trans-regional Aqua Networks for Technology and Innovative Synergies*** **–**addresses a double challenge.

On the one hand, underwater robotics, advanced sensors and artificial intelligence are rapidly expanding the technological possibilities available for environmental monitoring, infrastructure inspection, pollution detection, ecosystem restoration and other marine applications. On the other hand, access to the capabilities required to test, integrate and deploy these technologies remains uneven across European regions, particularly in Less Developed and Transition Regions.

The project responds to this gap by creating interregional innovation pathways between More Developed Regions and LDR/TR regions. Its eight use cases, demonstrated at TRL 7, provide the technological evidence base, but the wider ambition is to connect technology developers with SMEs, research organisations, companies and public authorities so that advanced solutions can be acquired, adapted and operated within different regional ecosystems. In this sense, ATLANTIS is not only a demonstration project: it is an experiment in the diffusion and territorialisation of technological capability.

This is the point at which CRF's contribution becomes distinctive. The central issue is not simply whether a technology reaches TRL 7, but whether the regional system is able to transform that technological result into a capability that can persist beyond the pilot. Drawing on the place-based systemic RTO model developed by CRF, this transition depends on four interconnected conditions: the solution must become adoptable, investable, governable and replicable. These conditions shift the focus from the technology alone to the wider socio-technical system in which technology, institutions, firms, finance, regulation and territorial demand interact.
For CRF, ATLANTIS therefore represents the interregional scale-up of a model previously tested at local level. The local experiment in Salento was based on building a capability node able to connect research, technological development, territorial demand and regional innovation policy.

Within ATLANTIS, the same logic is extended across different European ecosystems: technological solutions demonstrated in one context must be connected to the institutional, economic and policy conditions required for adoption in others.

CRF's principal contribution is consequently located in the capacity-building and regional uptake dimension of the project. Through its leadership on policy, sustainability, replication and clustering, and through continuous engagement with ERDF Managing Authorities and Smart Specialisation actors, CRF works on the mechanisms through which pilot evidence can be translated into regional innovation priorities, investment pathways and replication opportunities.

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ENABLING CONDITIONS FOR IMPACT

ADOPTABLE
Useful, accepted and integrated in real contexts

INVESTABLE
Attractive for public and private investment

GOVERNABLE
Aligned with policies, regulations and institutional capacity

REPLICABLE
Transferable to other regions and contexts

CULTURE OF THE SEA

Mindset · Organisation · Representation of Maritime Space

EUROPE ↔ SEA

- Policy vision
- Blue Economy
- Environmental protection
- Maritime infrastructure
- Strategic autonomy

FROM
SEA AS THE BORDER OF LAND
TO
LAND AS THE BORDER OF THE SEA

LOCAL COMMUNITIES ↔ SEA

- Identity and sense of place
- Local knowledge
- Economic practices (fishing, tourism, port activities)
- Cultural heritage
- Perception of opportunities
- Trust and acceptance

Geography alone does not create maritime capacity.
The sea must first be a shared cognitive and strategic space for communities, institutions and stakeholders.

SOCIO-TECHNICAL PROBLEM

ALIGNING TECHNOLOGY, POLICY AND TERRITORIAL CULTURE

"Technological innovation can only generate sustainable value when it is embedded in the cultural, institutional and socio-economic systems of the territories."

CRF EXPERTISE – CAPACITY BUILDING

FROM KNOWLEDGE TO IMPLEMENTATION

SYSTEM TRANSITIONS

- Strategic Niche Management
- Transition Pathways
- Tipping Points
- Regime Shifts
- Overcoming Lock-ins

Understanding and enabling socio-technical change

COMPLEX PROJECT SCALE-UP ENGINEERING

- Pilot → Demonstration → Deployment → Replication
- Requirements and validation
- Regulation and permitting
- From innovation to market and impact

Turning solutions into investable and scalable projects

DIGITAL INTEGRATION & SOCIO-TECHNICAL ARCHITECTURES

- Digital Twins
- Data architectures and interoperability
- Multi-agent systems
- Decision support tools
- Integrating technology, data and stakeholders

Connecting technology, people and decisions

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Enabling Conditions for Impact: from Technology to Territorial Capability

For CRF, the central question in ATLANTIS is not whether advanced underwater technologies can be demonstrated, but whether they can become embedded regional capabilities. This requires moving beyond the technological dimension alone and considering the wider socio-technical conditions through which innovation is adopted, financed, governed and replicated. The four conditions highlighted in the slide — adoptable, investable, governable and replicable — therefore describe properties of the regional innovation system as much as properties of the technology itself.

This interpretation is consistent with the systemic RTO model developed by CRF. A technology becomes adoptable when firms, institutions and users can integrate it into real operational contexts; investable when its technical and economic performance can be translated into credible investment and procurement pathways; governable when it is compatible with regulatory frameworks, institutional responsibilities and regional policy priorities; and replicable when the knowledge, organisational arrangements and capabilities developed in one context can be transferred and adapted to other regions. These four dimensions are therefore different expressions of the same capability-conversion process analysed in the CRF research framework.

The cultural dimension represented in the slide is equally important. CRF treats culture not as an external or secondary variable, but as part of the socio-technical architecture of transition. In the marine context, this means that geography alone does not generate maritime capability. Coastal territories may possess physical proximity to the sea without having developed the institutional, economic and cognitive frameworks required to recognise it as a space for innovation, investment and strategic development. The transition from seeing the *sea as the border of the land* to seeing the *land as the border of the sea* represents this shift in collective framing.

This is why CRF places the relationship between technology, policy and territorial culture at the centre of its contribution to ATLANTIS. In socio-technical transition theory, technological change becomes durable only when it is accompanied by changes in institutions, actor networks, expectations, regulation and practices. The same logic applies to interregional innovation: a solution demonstrated in one region cannot simply be transferred mechanically to another. It must be re-embedded in a different institutional, economic and cultural environment.

CRF brings three complementary capability domains to this process. System Transitions provide the analytical framework for understanding niches, transition pathways, lock-ins, tipping points and regime shifts. Complex Project Scale-Up Engineering addresses the passage from pilot and demonstration to deployment, investment and replication. Digital Integration and Socio-Technical Architectures provide the means to connect technologies, data, institutions, stakeholders and decision processes through interoperable digital structures, digital twins and decision-support systems.

Within ATLANTIS, these capabilities converge in a single objective: to ensure that technological innovation does not stop at demonstration, but becomes a durable and transferable regional capacity. This is the conceptual basis for CRF's role in the project's capacity-building, S3 and regional-uptake activities, and it provides the bridge to the next slide, where this logic is translated into the actual project structure and CRF's position within it.

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Project structure and CRF role

WP1

Project Management and Coordination

Lead: LTU

M1 – M36

T1.1 (C)	M1 – M36
T1.2 (C)	M1 – M36

Overall coordination, quality assurance, risk management and communication across all WPs

SOCIO-TECHNICAL / BUSINESS / GOVERNANCE LAYER

From knowledge and innovation to uptake, investment and impact

D2.3 | M10
CRF Lead
Regulatory, Ethics and Data Protection Requirements with HSE Envelopes and Mission Rules

D5.2 | M36
Lead: PIKEI
Interregional Investment Roadmap v1.0 (prepared by CRF with PIKEI)

D6.4 / D6.5 / D6.6 | M12 / M24 / M36 · CRF Lead
Three-year engagement with ERDF Authorities

D6.7 | M34 · CRF Lead
Policy Recommendations and Regulatory Uptake Report

WP2

Requirements and Value Chain Analysis

M1 – M12 **Lead: LTU**

T2.1 (C)	M1 – M12
T2.3 (C)	M1 – M12
T2.4 (C)	M1 – M9
T2.5 (L)	M1 – M12

WP5

Business, Investment and Community Engagement

M4 – M36 **Lead: LTU**

T5.2 (C)	M6 – M36

WP6

Dissemination, Communication and Exploitation

M1 – M36 **Lead: RELAB**

T6.1 (C)	M1 – M36
T6.2 (C)	M9 – M33
T6.3 (L)	M15 – M33

WP3

Technology Development and System Integration

M2 – M24 **Lead: DTU**

T3.4 (C)	M4 – M24
T3.5 (C)	M10 – M24

WP4

Demonstration and Use-Case Pilots

M6 – M36 **Lead: SAV**

T4.6 (L)	M9 – M36

CRF task roles: C = Contributor · L = Lead

TECHNOLOGY / INFRASTRUCTURE / TESTBEDS LAYER

From technology development to demonstration and validation

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CRF in ATLANTIS: connecting pilot evidence with regional uptake, S3 and replication

The project structure shows how CRF's role in ATLANTIS is distributed across different work packages, but its strategic centre lies in the socio-technical, policy and regional-capacity layer, rather than in the technological development layer alone. The main contribution is to connect what happens in the pilots with the conditions required for those results to be absorbed by regional innovation systems, particularly in Less Developed and Transition Regions.

This role is concentrated above all in WP6, where CRF leads T6.3 – Policy, Sustainability, Replication and Clustering. Through this task and the related engagement with ERDF Managing Authorities, Smart Specialisation bodies, regulators and regional institutions, the project results are progressively linked to regional priorities, S3 strategies, investment instruments, regulatory frameworks and future deployment opportunities. The objective is not simply dissemination, but the construction of an institutional pathway through which technological evidence can enter regional policy and innovation programming.

This is directly consistent with the systemic RTO model developed by CRF. The role of the intermediary is not exhausted by technology transfer; it consists in translating project results into regional capability. In this perspective, S3 is not treated as an external policy framework to which the project must merely align. It becomes one of the principal mechanisms through which technological evidence, territorial needs, firms, public authorities and future investment can be connected within a regional development trajectory.

The other CRF activities in ATLANTIS support this central function. In WP4, CRF leads the evaluation of impact, scalability and replication, converting pilot results into evidence on whether solutions can operate beyond the original demonstration context. In WP5, the work on SME support and the Interregional Investment Roadmap helps translate replication potential into investment and market pathways. Upstream activities in WP2 provide the initial understanding of stakeholders, value chains, S3 priorities, regulatory conditions and territorial requirements.

These contributions should therefore be read as parts of a single transition pathway rather than as separate technical tasks.

The pathway begins with understanding territorial requirements and regional innovation conditions, passes through technological demonstration and evidence generation, and culminates in replication, investment and policy uptake. CRF's function is to maintain continuity along this pathway, ensuring that the project does not stop at a successful pilot but develops the conditions for wider regional adoption.

The model is particularly relevant to the interregional logic of ATLANTIS. The project connects More Developed Regions, where advanced technologies and demonstration capabilities are more readily available, with LDR/TR regions, where the central challenge is often the ability to absorb, adapt and institutionalise those capabilities. CRF's capacity-building role is therefore aimed at strengthening the interfaces through which technologies can enter different regional ecosystems and become part of their innovation trajectories.

In this sense, the central CRF pathway within ATLANTIS can be expressed as:

territorial needs and S3 priorities → pilot evidence → scalability and replication → investment pathways → ERDF and policy uptake

This is the operational translation of the model presented in the previous slide: **making innovation not only technically successful, but adoptable, investable, governable and replicable across regions.**

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CONCLUSIONS

ATLANTIS provides CRF with the opportunity to extend to interregional scale a capacity-building model previously developed through place-based experimentation. The project combines advanced technological demonstration with the wider challenge of ensuring that innovation can be absorbed, financed, governed and replicated within heterogeneous regional ecosystems.

Within this framework, CRF contributes primarily to the translation of technological results into regional capability, connecting pilot evidence with Smart Specialisation Strategies, ERDF authorities, investment pathways and policy uptake. Its role is therefore consistent with the systemic RTO model developed through CRF's previous research: technological innovation generates durable territorial value only when it becomes embedded in the institutional, economic and socio-technical architecture of the regions in which it is deployed.

ATLANTIS thus represents a transition from local capability building to interregional capability orchestration, and from technological demonstration to the construction of adoptable, investable, governable and replicable regional capacities.

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