

TO DESIGN CHALLENGE-DRIVEN INNOVATION POLICIES FOR PROMOTING UNIVERSITY-INDUSTRY COLLABORATION

A Policy Learning Platform Peer Review

30th and 31st of January 2024

Final Report

São Miguel Island (Azores), Portugal, February 2024



Our background and motivation for conducting the Peer Review

The Azores are a nine-island archipelago, guided by rhythms and developments that are hardly collective due to their geographical discontinuity.

The Archipelago is a Portuguese region politically and administratively organized into an autonomous region and is situated in the central area of the North Atlantic, approximately 1500 km from mainland Portugal, 1450 km from North Africa and 3900 km from North America. In territorial terms, the Region occupies an area of about 2322 km² (around 2.5% of the Portuguese territorial surface).

The nine islands are distributed across three geographic groups. These groups include the western islands of Corvo and Flores, the central islands Terceira, Graciosa, Pico, Faial and São Jorge, as well as the eastern islands São Miguel and Santa Maria which were populated by the Portuguese from the 15th century onwards.

Being volcanic islands, which are in tectonic activity areas, their landscape is marked by mountain systems (Pico is the highest mountain in Portugal, with 2351 meters of altitude) and volcanic cones, with lagoons and valleys, which combine with flatter areas, coastal cliffs and dark sand beaches.

In terms of its population, in 2021, it had a total of 236,416 inhabitants, with a greater concentration on the islands of São Miguel (over 50%), Terceira, Faial and Pico.

From an economic point of view, the vast majority of the population is employed in the tertiary sector, with a greater incidence in public administration services, wholesale and retail trade, transport, accommodation and restaurants. Regional investment in tourism justifies the figures for some of these areas. This is followed by the secondary sector, emphasizing the agri-food and primary industries, with the dairy sector leading the way.

The Azores also offers opportunities for higher education at the University of the Azores, with its tripolar structure (São Miguel, Terceira and Faial)—the main research areas of the Azorean academy are related to agro-industry, marine biology and biodiversity.

Economic and social inequalities in the archipelago are often related to its territorial discontinuity and distance from the decision centers. The asymmetries in the development

processes in the nine different islands are reflected in several areas, including R&D&I, which poses unique challenges for policymaking. In addition, its Atlantic geographical location, despite giving it a geostrategic advantage, places the islands away from the significant economic and development circuits, including us on the so-called Outermost Regions.

The fact that the University of the Azores has centers on three islands (São Miguel, Terceira and Faial), distributing the various research areas thematically over these islands, is an attempt to mitigate the inequality in terms of the geographical scope of R&D centers. And in fact, the most significant volume of economic investment is focused on those three islands. However, the current connection between Academia and industries is insufficient to overcome the barriers to implement more complex innovation processes in several, or almost all, areas of regional specialization, as we can see by the Archipelago's evaluation in the late Regional Innovation Scoreboard results (2023).

Indeed, according to the latest data from that Scoreboard, the improvement was very little, as the Autonomous Region of the Azores is still (only) an emerging innovator region with low university-industry collaboration¹. This performance of the Regional Innovation System is related to the minor specialization of Small and medium-sized enterprises (SMEs), small use of R&D in products and services and low collaborative activities between companies and research centers. The Azorean University focuses mainly on fundamental research and only a few private companies are knowledge producers and innovation users. This generates an economic landscape of low competitiveness and resilience, highly permeable to national and international economic cycles and circumstances.

¹ https://research-and-innovation.ec.europa.eu/statistics/performance-indicators/european-innovation-scoreboard_en

Regional Innovation Scoreboard 2023		
Innovation Area	Performance	
	Azores	Madeira
Percentage population aged 25-34 having completed tertiary education	Bottom Low Performers	Top Moderate Performers
Percentage population aged 25-64 participating in lifelong learning	Middle Moderate Performers	Top Moderate Performers
population	Middle Moderate Performers	Middle Moderate Performers
Scientific publications among the top 10% most cited publications worldwide as percentage of total scientific publications of the region	Bottom Moderate Performers	Top Moderate Performers
Individuals who have above basic overall digital skills	Bottom Strong Performers	Middle Strong Performers
R&D Expenditure in the public sector as percentage of GDP	Bottom Low Performers	Bottom Low Performers
R&D expenditure in the business sector as a percentage of GDP	Bottom Low Performers	Middle Low Performers
Non-R&D innovation expenditures per person employed (SMEs)	Bottom Low Performers	Top Low Performers
SMEs introducing product innovations as percentage of SMEs	Bottom Moderate Performers	Top Low Performers
SMEs introducing business process innovations as percentage of SMEs	Middle Moderate Performers	Middle Moderate Performers
Innovative SMEs collaborating with others as percentage of SMEs	Bottom Moderate Performers	Middle Low Performers
Public-Private co-publications per million population	Bottom Moderate Performers	Middle Low Performers
PCT patent applications per billion regional GDP	Bottom Low Performers	Bottom Low Performers
Trademark applications per billion regional GDP	Middle Low Performers	Bottom High Performers
Design applications per billion regional GDP	Bottom Moderate Performers	Middle Strong Performers
Employment in knowledge-intensive activities as percentage of total employment	Bottom Low Performers	Bottom Low Performers
Employment in innovative SMEs as percentage of total employment	Middle Moderate Performers	Bottom Moderate Performers
Sales of new-to-market and new-to-enterprise innovations in SMEs as percentage of turnover	Top High Performers	Middle Strong Performers

https://research-and-innovation.ec.europa.eu/statistics/performance-indicators/regional-innovation-scoreboard_en

From the R&D point of view, the first Azorean S3 strategy (2014-2020) framed and guided the development of policy actions aimed to increase SMEs' innovation capacities and university-industry collaboration. "Transfer +"², for instance, was a governmental strategy initiative that attempted to produce guidelines for the financing of RD&I projects, but lacked maturity, as it was initiated at the beginning of the business R&D implementation process. Also, for this reason, conclusions about the outcomes of its execution are incipient, as the existing monitoring system, at the time, does not allow them to be drawn.

Another action policy in this regard was the Operational Program "Azores 2020" and its business-led RD&I financing axis.

² <https://jo.azores.gov.pt/#/ato/9f9fcb54-9e89-45af-b268-0fd0470f41ab>

Effectively, around 24 publicly funded projects (+- 230 000€/each) were supported by the Operational Program “Azores 2020 in previous years. With a total investment around 5.55 M€, those 24 business-led RD&I projects were distributed by the previous S3 main priority areas as follows:

-Agriculture and Agroindustry comprised 58% of the total projects (14), with a substantial investment of 3.2 million euros.

-Tourism, representing 25% of the projects (6), attracted an investment of 1.42 million euros.

-Sea and Fisheries accounted for 13% of the projects (3) and constituted 12% of the investment, totaling 0.65 million euros.

- Cross-sector projects, spanning various areas, made up 4% of the projects (1) and contributed to 5% of the investment, amounting to 0.28 million euros.

PO Azores 2020: 24 Business-led RD&I Projects (5.55 Million Euro Investment)			
S3 Areas (2020-2024)	N.º of projects	% of projects	Million € Investment
Agriculture and agroindustry	14	58%	3.5 Million €
Tourism	6	25%	1.42 Million €
Sea and Fisheries	3	13%	0.65 Million €
Cross-sector projects	1	4%	0.28 Million €

However, these projects needed a clearer focus or strategy that could boost a more effective technology and knowledge transfer between academia and private companies. The lack of focus and strategy was due to insufficient planning on the writing proposal stage and innovation-driven mindset of the companies and researchers involved.

The current Azorean S3 strategy (2022-2027), in addition to the previous Strategic Areas, added new priority areas: Health and Space and Data Science. Thus, this new Strategy presents five priority areas, which are intersected by five other cross-cutting areas:

- Priority areas:

* Agriculture and agroindustry

* Sea and blue growth

* Tourism and heritage

* Space and data science

* Health

- Cross-cutting areas:

* Territory, resources, and the circular economy

* Environment and climate action

* Digital transformation and the 4.0 economy

* Quality of life and social development

* Atlantic dynamics and geo-strategy

The intersection between the priority and cross-sectoral areas originates transformative activities and lines of action that focus on the regional strategic challenges to be addressed.

This new S3 strategy (2022-2027) wants to implement transformative processes in R&D&I which will rely on open-call projects, funded by the Operational Program “Azores 2030”, Horizon Europe and the regional government’s budget. However, some of these potential projects could benefit from a specific challenge-oriented vision and result in a more effective presentation of results in a complex reality to manage in research and innovation. There is a need to ensure a more focused R&I, allowing to retrieve higher impact from projects.

So, to address this specific place-based challenge, through innovation policies geared towards particular challenges, the Azores requested the expertise of Peers to determine whether a regional (mini)mission-oriented policy, that eventually establishes common ground between these potential regional missions, the Azores S3 priority areas and EU

Missions, could set a concrete and feasible line of action that will foster this transfer of knowledge and promote the Academy-Industry collaboration.

To be more specific, we aimed to obtain answers to the following questions:

- What is holding us back? – We want to understand which difficulties prevent a better performance in terms of knowledge transfer between the University and companies/industries.
- How can we overcome these difficulties? – We need to increase the alignment of research carried out at the University with the needs of the market and business context and involve industry in financing R&D investments.
- How to define the most efficient challenges for promoting innovation between these sectors? – We intend to boost innovation through this cooperation and leverage the Regional Innovation System.
- How to guide the use of public funds? – We intend to guide the application of public funds to ensure their efficient application in this process.

List of Participants

Peers		
First and last name	Organisation	Position
Balzhan Orazbayeva	UIIN, The Netherlands	Manager Strategic Initiatives
Beata Kviatek	Centre of Expertise Energy / Energy Transition Centre ENTRANCE of Hanze University of Applied Sciences Groningen, Groningen, The Netherlands	Project Leader UNLOCK / Jean Monnet Chair in Sustainable EU Economy / Senior Researcher
Christine Chang	Helsinki-Uusimaa Regional Council	Senior Advisor
Luisa Henriques	Foundation for Science and Technology, Lisbon and Tagus Valley, Portugal	Senior advisor to the board and policy analyst
Markus Dettenhofer	Czech University of Life Sciences Prague, Czech Republic	Program manager
Ricard Esparza Masana	Autonomous University of Barcelona, Catalunya, ES	Professor

Interreg Europe		
First and last name	Organisation	Position
Ana Mihaljevic	Interreg Europe	Policy Officer
Marc Pattinson	Policy Learning Platform	Thematic Expert Smarter Europe
Arnault Morisson	Policy Learning Platform	Thematic Expert Smarter Europe

Beneficiary organisation and stakeholders		
First and last name	Organisation	Position
Flávio Tiago	DRCT - RAA	Director
Fábio Vieira	DRCT - RAA	Head of Division
Ana Cristina Moscatel	DRCT - RAA	Public Officer
João Gregório	DRCT - RAA	Public Officer
Francisco Pinto	DRCT - RAA	Public Officer
Jorge Pereira	DRCT - RAA	Public Officer
Sara Pavão	DRCT - RAA	Public Officer
Maria Vale	DRCT - RAA	Public Officer
Margarida Teixeira	DRCT - RAA	Public Officer
Carolina Tavares	DRCT - RAA	Public Officer
Artur Gil	University of the Azores	Vice-Rector for Science, Innovation, and Knowledge Transfer
Simão Neves	Chamber of Commerce and Industry of Ponta Delgada	Bairro Digital Project Coordinator
Duarte Pimentel	Terinov - Science and Technology Park Terceira Island	CEO
Teresa Ferreira	Nonagon - Terinov - Science and Technology Park São Miguel Island	CEO
João Carlos Nunes	INOVA - Institute of Technological Innovation of the Azores	Scientific Director
Duarte Cota	EMA Espaço	Member of the Azores Mission Structure for Space
Maria Manuela Lima	University of the Azores	Full Professor / Senior Investigator
Margarida Martins	Marques – Innovation and Environment	Scientific Director
Nuno Miranda	Marques	Public relations
Guilherme Silva	Finançor	Director of Innovation and Development
Madalena Pacheco	EDA	Director of Information and Communications Systems
Duarte Mendonça	Biotechnology Centre of Azores (CBA)	Director
Duarte Toubarro	Biotechnology Centre of Azores (CBA)	Investigator
Miguel Miranda	AirCentre – Atlantic International Research Centre	Executive Administrator
Carlos Picanço	Futurismo	
Laura Gonzalez	Futurismo/UAc	Researcher

Policy Recommendations

Previous preparatory and introductory meetings were held between the PLP, the Beneficiary Organization and the Peers to ensure that the sessions would occur without any setbacks.

The sessions itself were divided into two distinctive parts: the first part, which took place on the first day, included a contextualization presentation by the organizing entity, brief presentations by the invited stakeholders and brief presentations from the peers concerning the Peer Review thematic; the second part, which took place on the second day, consisted of a morning work-session between the Peers, the Beneficiary Organization and the PLP and an afternoon share-session of the draft conclusions of the Peer Review with all the participants. All participants were actively involved in the discussions and greatly contributed to the result recommendations presented by the PLP.

The recommendations and good practices comprised the following guidelines:

- Need for dialogue to reduce fragmentation between industry, university, research centers, institutes, and intermediaries to get a common understanding of challenges, opportunities, and improve alignment.
- Enhancing collaboration through online platforms, which can promote matchmaking opportunities, access to challenges and roadmap for actions aligned with S3 priorities and thematic working groups.
- Connecting with other universities and research institutes (mainland, European, and international – United States and Canada) to achieve critical mass in some research areas aligned with S3 priorities.
- Establish a common space to build a learning community where the regional actors and university scientists can co-create and design solutions to challenges.
- Provide incentives for universities and research centers collaboration through the implementation of specific policy tools (soft, regulatory, financial, formal, or informal).

- Promote challenge-driven approaches through the involvement of students as challenge-solvers and/or consultants (Hackathons, “educational living labs”, innovation inducement prizes, challenge prizes ...).
- Promote the formation of industrial doctorates and/or other educational instruments that can foster the development of skills and expertise needed to meet local needs and challenges.
- Define a roadmap with a mission-oriented approach that can be on different levels (street, village, city, island(s)), mini-missions-to experiment with policies involving university-industry collaboration with action plans and regular follow-ups.
- Leverage on European networks to give you visibility, a voice, and funding opportunities. Public funds are pivotal for leveraging private, European and international funds.

From the second day’s session arose several brainstorming themes/areas for mission-based approaches. The Peers selected three of them in their recommendations, as followed:

- Mission brainstorming – reduce education dropouts bellow EU average.
- Mission brainstorming – Smart Islands
- Mission brainstorming – Fab Island(s): Producing everything consumed by 2054

Possible Calendar of Implementation

To design challenge-driven innovation policies for promoting university-industry collaboration A PLP Peer Review São Miguel Island (Azores, Portugal), 30th and 31st of January 2024														
Calendar of implementation of the proposed recommendations														
Applicability [1]	Recommendations	month 1 (04.2024)	month 2	month 3	month 4	month 5	month 6	month 7	month 8	month 9	month 10	month 11	month 12	Comments
Very likely to be applied	Dialogue to reduce fragmentation, get a common understanding and improve alignment													2 calls funded by the OP Azores 2030: - Mapping regional R&D - Preparing regional missions
Very likely to be applied	Enhance collaboration through online platforms													Launching the Research and Innovation Portal
Rather seen as not applicable at the moment	Connect with other universities and research institutes to achieve critical mass													
Very likely to be applied	Establish a common space to build a learning community where regional actors can co-create and design solutions													Launching the Research and Innovation Community of the Azores
Very likely to be applied	Provide incentives for university and research centers collaboration through the implementation of specific policy tools													1 call funded by the OP Azores 2030: - Innovation Voucher ----- Implementation of the project "Entrepreneurship for scientists"
Very likely to be applied	Promote challenge-driven approaches through the involvement of students as challenge-solvers and/or consultants													- Prizes
Very likely to be applied	Promote the formation of industrial doctorates													1 call funded by the OP Azores 2030: - Doctoral programmes in industries
Very likely to be applied	Define a roadmap with a mission-oriented approach to experiment with policies involving university-industry collaboration													Dependent on call results (Recommendation n.º1)
Depends on specific political decisions/conditions	Leverage on European networks to give us visibility and funding opportunities													Dependent on political conditions
Depends on specific political decisions/conditions	Mission Brainstorming - Reduce education drop-outs below EU average													Dependent on political conditions
Depends on specific political decisions/conditions	Mission Brainstorming - Smart Islands													Dependent on political conditions
Depends on specific political decisions/conditions	Mission Brainstorming - Fab Island(s): Producing everything consumed by 2054 in the city													Dependent on political conditions

Conclusions

The Peer Review session was considered a relevant event by the beneficiary entity and all stakeholders who participated in it, proving to be an important step in the process of implementing an innovative process of knowledge transfer between the university and the local business and industrial fabric.

The work processes, discussion of topics and sharing of experiences between all those involved allowed a correct schematization of the existing or likely to be created added value, as well as exposing the weaknesses that shape the existing system.

The ideas, recommendations and working networks generated during the event demonstrated that the Azores could start a process of innovation in this relationship between Academia and industry.

The beneficiary entity also considered and appreciated the adequate team of peers chosen to the event and appreciates all the support from the PLP team in all the process.

Ponta Delgada, April 18th, 2024.