

Technical specifications

Technical Assistance and Project Management Services for the Coordination and Operation of the PIXEurope Pilot Line at ICFO

Expedient number: 2025.SE.001

1. Introduction to the project

Within the framework of the European Chips Strategy, the so-called European Chips Act, the European Commission has announced the creation of PIXEurope, a new European pilot line for photonic chips that aims to offer cutting-edge technological platforms, transforming and transferring innovative and disruptive integrated photonics processes and technologies to accelerate their industrial adoption. The objective is the creation of European-owned/made technology in a sector of capital importance for technological sovereignty, and therefore for the creation and maintenance of the corresponding jobs in the Union.

The European Commission has selected this programme as its 5th pilot line and has chosen the proposal led by ICFO, the Institute of Photonic Sciences (based in Barcelona), to coordinate it at continental level. The pilot line consortium also involves participating entities from Austria, Belgium, Finland, France, Ireland, Italy, Poland, Portugal, the Netherlands and the United Kingdom. The pilot line is co-financed by the Ministry for Digital Transformation and the Civil Service of the Government of Spain and supported by the Generalitat of Catalonia.

Over the next 10 years and during the operational phase, the pilot line will boost the production capacity and innovation potential of European companies to a new level, allowing them to develop and manufacture prototypes of their products based on photonic chips. It will support research organizations in bridging the gap between the laboratory and the factory exploiting novel scientific results and accelerating the commercialization of this research, in particular by supporting the creation of new start-ups.

In particular, the pilot line will contribute to the design and development of an optimized manufacturing chain, involving end-users and industry partners for the evaluation of production processes to be transferred to industrial scale, with the ultimate aim of creating a unique European PICs ecosystem, with open access services to the user, establishing itself as the first fully integrated open access PICs pilot line in the world.

The Pilot Line includes three parallel and synergistic projects, all leading to the creation of PIXEurope Infrastructure: (i) The Joint Procurement (JP) that is purchasing, installation, acceptance of new equipment; (ii) The Setting up and development under the Horizon Europe (HE) program; (iii) The Operation and

Open Access under the Digital Europe Programme (DEP) programme. Each of these three projects have their own agreements, the JP Agreements (JPAs); The HE and DEP Grant Agreements (HE-GA and DEP-GA).

ICFO is a CERCA research center member of the Barcelona Institute of Science and Technology (BIST), founded in 2002 by the Generalitat of Catalonia and the Universitat Politècnica de Catalunya · Barcelona Tech.

2. Purpose of the Contract

The contract object is the Technical Assistance and Project Management Services for the Coordination and Operation of the PIXEurope Pilot Line at ICFO.

The contract object includes:

- Related with the **HE- and DEP-GAs**:
 - o Support of administrative management, and quality assurance of the project execution (Project management, Quality assurance and Risk management).
 - o Expert services related to dissemination, communication, and networking activities, events organization and Pilot Line promotion, including website, promotional materials and social media (Dissemination, Communication and Networking activities).
- Related with the **DEP-GA** project:
 - o Open Access and Gateway of the Pilot Line requires management of a much larger operation involving also other Research and Technology Organization (RTOs). ICFO will thus seek for a subcontractor with such experience to assist their staff, especially in the management flows of the single-entry point.

3. Scope of Work and Description of Services

The selected contractor shall assist ICFO in delivering the following services:

For both HE- and DEP- GAs

Support on the Strategic decision making

The contractor has to assist and advice in (i) articulate the path and desired outcomes of the overall project (ii) identify the actions required as the project progresses, and (iii) assess the results obtained. This assessment will be based on work-package (WP) leaders' inputs.

External Advisory Board coordination

An External Advisory Board (EAB) composed experts in PIC technologies and applications will be formed. The contractor must help organize and support the EAB meetings.

Project management, Quality assurance and Risk management

The management procedures facilitate effective and efficient implementation and reporting while complying with the contractual framework and best practices. The contractor shall support ICFO in: (i) Technical project follow-up and quality assurance; (ii) Exploitation and Innovation management; (iii) Risk contingency management; (iv) Resources management.

Data Management Plan and Digital Platform

A detailed plan will be prepared to define the archiving strategies to be followed within the project for all data collected and generated during the HE project. A detailed plan will be prepared to define the archiving strategies to be followed within the project for all data collected and generated during the DEP project. A first version of the Data Management Plan (DMP) will be delivered in the first months. This Task will further continuously monitor compliance with the DMP and continuously keep it updated. Any restrictions on data access will be clearly justified in terms of project goals. The contractor shall assist ICFO in developing the procedure and digital platform, that is software and interfaces for the data management plan for HE, DEP as well as JP agreements. This also includes recording and data management of projects with end-users, process flows, design kits, equipment installation, availability and use, supply chain, end-user interface and management, costs and performance, operation expenses and income, etc....

External Training Activities

This task focuses on developing training courses specifically on PIC Manufacturing using the specialised knowledge gained in setting up and operating the Pilot Line. The contractor will have assist and advice ICFO in the development of the courses, and be responsible for their organization and implementation, including courses on equipment operation at the relevant PIXEurope partner's site, especially for the transition from early-stage process development to production.

Dissemination, Communication and Networking Activities

The objective of this task is to ensure that the results of the project will be disseminated to the European research and industrial community, will target all important stakeholders, and will ensure on-going communication between the project partners on one side and the general public, the scientific community, technicians, experts, media, policymakers, industries, end-users on the other. The contractor shall provide support to: (i) Project website; (ii) Promotional materials; (iii) Social media activities; (iv) Publication of the results in relevant scientific and industrial journals, conferences proceedings

and magazines; (v) Clustering and networking with other initiatives and projects, including other Chips JU initiatives, and support in (vi) communication campaigns for other relevant stakeholders, for example, public at large.

Intellectual Property (IP) management

The aim is to provide reviews of the relevant IP developments, search and strategy, especially considering the collaboration with end-users and other partners of the Pilot Line. The contractor will advise and support all Ip tasks related to the project.

Exploitation Strategy and Innovation Roadmap

The task includes the definition and identification of the outcomes and exploitable results of the project, the exploitation/commercialization strategies, the definition of the list of customers and competitors, market barriers, Unique Selling Points, business cases, commercialization strategy and roadmap after the project end. The contractor must advice and assist ICFO and the partners on the development of all related tasks.

Collaborations

This task is focused on building its network and strengthening the European photonics and semiconductor ecosystem by forming synergistic collaborations with other key initiatives, including at European and national levels. The contractor must advice and assist ICFO and the partners on the development of all the collaborations with third parties that will take place.

For DEP-GA

Pilot Line Operations, Interoperability and Cost Model

This task will focus on establishing and optimizing the operation and interoperability of the distributed Pilot Line. The first important activity will be establishing the Gateway, which will act as the single contact point for users to engage with the Pilot Line. The Gateway will be established at ICFO's facility in Barcelona.

Once established, the Gateway team will prepare and document the procedures required to operate the distributed Pilot Line, including the services workflows, ensuring the entire technology supply chain, from chip design and fabrication to hybrid integration and packaging, testing and reliability, operates efficiently and seamlessly with on-boarding of end users and end user communications.

To achieve this, the Gateway will implement Customer Relation Management (CRM) and operation-performance monitoring software, connecting directly to the real-time work-in-progress monitoring.

The work-flow data requirements will be mapped and fed to WP4 for integration into the Digital Platform for real-time work-flow monitoring system within the first year. Initial requirements will be based on consortium experience from prior pilot lines and from partners active in WP9-HE demonstrators.

The contractor must advice and assist ICFO and the partners on the development of all these activities.

Open Access

This task will prepare key results from the project and make them available on an Open Access basis. These results include:

- Pilot Line Design Kits and the enabled services (chips, package and test design kits)
- Pilot Line open innovation for process development
- Pilot Line Equipment access (process, test and metrology equipment)
- Pilot Line Models (technology, process and test data analytics, and cost model analytics) TNO
- Pilot Line training materials and courses

The contractor must actively contribute to the development and operation of the Open Access, in particular the development, operation and maintenance of related software and interfaces and their interoperability between different partners' sites.

4. Documents to deliver (HE- and DEP-GAs)

The contractor will support ICFO and the relevant leading partners in preparing deliverables – several of them multiple updates over the projects period - related to the tasks described above, including but not limited to:

- Project Management Handbook
- Intermediate Progress Reports
- Data Management Plan
- Dissemination and Communication planning and performance
- End-user Engagement

- Pilot Line maturity evaluation framework
- Operations, Interoperability and Training report
- Cost and Life Cycles Model
- Pilot Line Open Access
- Pilot Line Gateway and Operational Procedures
- Database of materials and related suppliers

5. Minimum Technical Requirements

Bidders must demonstrate recent and verifiable experience in the technical and operational management of complex European research and innovation projects involving multiple international partners. Specifically, they must have led or played a key coordination role in at least three multi-partner R&D&E projects funded under Horizon 2020, Horizon Europe, or the Digital Europe Programme within the past seven years.

The contractor must also have experience supporting distributed research infrastructures with multiple operational sites and open access to third-party users. This includes knowledge of workflow interoperability, service integration, and stakeholder engagement models.

Expertise in photonics is required, preferably related to Photonic Integrated Circuits (PICs), with demonstrated capacity to support innovation strategies in the field.

The bidder shall also have experience in data governance and in the deployment or use of digital platforms that support coordination, user access, and reporting in multi-partner infrastructures, in compliance with EU data protection regulations.

To be admitted to the procedure, bidders must propose a core team of at least three professionals who collectively provide a full time and continuous service and bring the following competencies:

- Coordination and management of multi-partner R&D&E projects
- Financial or data management in engineering or pilot line environments
- Technical background in photonics or semiconductors
- Operational experience with software tools for infrastructure and user management

The contractor must ensure team continuity during the duration of the project. CVs and roles of the proposed professionals shall be included in the technical offer and will form part of the evaluation process.

6. Place of the service

The services may be delivered remotely and/or from the contractor's own premises. However, the contractor shall attend in-person coordination meetings, workshops, or project events at ICFO headquarters in Castelldefels or at other locations designated by the project partners, whenever required depending on the nature of the tasks involved.

7. Service quality and Performance indicators

The quality and performance of the services provided under this contract shall be assessed on the basis of objective, verifiable indicators aligned with the standards of Horizon Europe and Digital Europe infrastructure projects. The contractor shall meet the following technical and procedural performance benchmarks:

- Percentage of deliverables submitted on time and accepted without need for major revision (target $\geq 90\%$).
- Compliance rate with the structure, content and format required by the Grant Agreements (HE-GA and DEP-GA) for all technical reports and project documentation.
- Availability of dedicated project staff during critical phases, including response time to ICFO queries or requests (target ≤ 3 working days).
- Contribution to the implementation of project management tools and processes, including tracking systems for milestones, risks, and resource allocation.
- Operational readiness and functionality of digital coordination and data management platform, including user support mechanisms (target: system operational within 6 weeks of contract start).
- Successful facilitation and documentation of at least two project-wide coordination meetings and two External Advisory Board meetings per year, including agenda preparation, minutes, and follow-up.

- Active support in the preparation of project reviews by the European Commission or external auditors, including timely delivery of requested documentation and evidences.

Stakeholder satisfaction based on structured feedback from ICFO and consortium partners (target average score ≥ 4 out of 5 in internal evaluation surveys).

8. Technical obligations of the company

The contractor shall guarantee the availability of suitably qualified staff throughout the duration of the service, ensuring continuity of the core team during key phases of project execution.

All activities carried out under this contract must comply with the applicable rules and guidelines established by the European Commission for HE and DEP projects, particularly regarding project management, financial control, and dissemination.

The contractor must observe full confidentiality regarding any sensitive information or data accessed during the performance of the services, and must comply with the General Data Protection Regulation (GDPR) and any relevant national or institutional data protection policies.

9. No employment relationship with ICFO

The personnel of the contractor that provides services within the framework of this contract will not have any employment relationship with ICFO, they will depend only and exclusively on the contractor, which will assume the status of employer. The company must comply with the rights and obligations derived from the current provisions on labor, Social Security, health and safety and hygiene at work, referring to its own personnel under its charge, who will not acquire any employment relationship with ICFO.

Castelldefels, on the date of signature.

Valerio Pruneri

ICREA Professor, ICFO Group Leader and Director of the pilot line