

## CALL FOR GRANT APPLICATIONS

(AE2026-0149)

INESC TEC is now accepting grant applications to award 1 Research Grant (BI) within the scope of the Multiannual Funding of R&D Units 2025-2029, with the reference UID/50014/2025, Funded by national funds through the Portuguese Foundation for Science and Technology (FCT), I.P.

### 1. GRANT DESCRIPTION

**Type of grant:** Research Grant (BI)

**General scientific area:** COMPUTER SCIENCE

**Scientific subarea:** Informatics

**Area of Work:** Distributed Systems

**Grant duration:** 6 months, starting on 2026-07-01, with the possibility of being renewed until the end of the project.

**Scientific advisor:** Ana Nunes Alonso

**Workplace:** Braga

**Maintenance stipend:** € 1359.64, [according to the table of monthly maintenance stipend for FCT grants](#), paid via bank transfer. Grant holders may be awarded potential supplements, according to a quarterly evaluation process (Articles 19, 21 and 22 of the [Regulations for Grants of INESC TEC](#) and Annex II), up to a maximum limit of 50% of the monthly maintenance stipend.

INESC TEC supports costs with registration, enrolment or tuition fees, during the grant duration, under the terms established in the internal document: [Payment of Tuition fees to grant holders](#).

The grant holder will benefit from health insurance, supported by INESC TEC.

### 2. OBJECTIVES:

This grant which supports large scale data analysis, considering diverse data sources. Objectives are to:

- Broaden knowledge in this grant's specific scientific area beyond the state-of-the-art;
- Identify and select appropriate methodology for the work at hand;
- Develop research skills by applying the selected methodology;
- Critically assess the conducted research and its results.

### 3. BRIEF PRESENTATION OF THE WORK PROGRAMME AND TRAINING:

The growing adoption of data space architectures in industrial and scientific contexts raises new challenges in terms of interoperability and efficient access to data distributed across multiple autonomous participants. Domains such as healthcare, energy, and manufacturing generate increasing volumes of heterogeneous data, whose controlled sharing between organizations is essential to enable federated analytics, process optimization, and informed decision-making. Initiatives such as International Data Spaces (IDS) and GAIA-X have been establishing reference frameworks for this sovereign data sharing, defining connector models, access control, and metadata management. In this context, the use of SQL as a unified query language over heterogeneous data sources

emerges as a promising approach to simplify federated access to information, while maintaining the sovereignty and compliance guarantees required by these architectures. The planned activities include:

- Study and prototyping of abstraction layers for the execution of federated SQL queries over heterogeneous data sources interconnected by IDS connectors.
- Analysis of distributed query execution capabilities, considering the data sovereignty requirements and access control models defined by the IDS and GAIA-X frameworks.
- Exploration of query optimization strategies in contexts where data resides in autonomous nodes with distinct sharing policies, minimizing unnecessary data transfer and maximizing local processing (query pushdown).
- Investigation of metadata registration and publication mechanisms based on the IDS Information Model and GAIA-X catalogues, within the scope of the data discovery problem.
- Development of techniques for automatic schema discovery in heterogeneous data representations.
- Study of approaches for inferring the query capabilities available at each data space participant, supporting the dynamic formulation of distributed queries.
- Implementation of a functional prototype integrating a federated SQL query execution engine with data discovery capabilities using IDS and/or GAIA-X connectors.
- Evaluation of the prototype's performance and scalability in representative scenarios of industrial and scientific data infrastructures.
- Dissemination of results through publications in leading conferences and journals in the areas of distributed databases, data architectures, and federated computing.
- Writing a doctoral thesis in the context of the developed work.
- Writing an activity report regarding the grant.

#### 4. REQUIRED PROFILE:

##### Admission requirements:

- Enrollment in a PhD program in Computer Science or a related field.  
The awarding of the fellowship is dependent on the applicants' enrolment in study cycle or non-award courses of Higher Education Institutions.

##### Preference factors:

- Comprehensive knowledge in permission management mechanisms, such as XACML;
- Comprehensive knowledge of permission management in distributed settings;
- Prior experience with federated query processing frameworks or engines.

##### Minimum requirements:

- Knowledgeable in Distributed Systems;
- Comprehensive knowledge of IDS and GAIA-X ecosystems, namely of connectors, demonstrated through academic or professional projects;
- At least 1 article published in peer-reviewed conferences or journals.

#### 5. EVALUATION OF APPLICATIONS AND SELECTION PROCESS:

**Selection criteria and corresponding valuation:** the first phase comprises the Academic Evaluation (AC), based on the criteria referred to in Article 12 of the [Regulations for Grants of INESC TEC](#), while the second phase comprehends the Individual Interview (EI). All factors are evaluated on a scale of 0 to 100, taking into account the applicants' merit, suitability and conformity with the preference factors.

The weight of the AC factors are as follows: Academic Qualifications (FA, 50%), Scientific Publications (PC, 10%), Experience (EX, 30%) and Motivation Letter (CM, 10%).

Candidates who score less than 50 points in the AC average will be considered excluded on absolute merit. The top five candidates approved on absolute merit will be qualified for the individual interview. The Final Grade (CF) is obtained by the weighted average of AC (80%) and EI (20%).

## DISABILITY INCENTIVE

Candidates who present a degree of disability equal to or greater than 90% will benefit from an incentive (20) in the score of the CV Assessment.

Candidates who present a degree of disability equal to or greater than 60% and less than 90% will also benefit from an incentive (10) in the score of the CV Assessment.

Said score may, in these cases, exceed 100 points.

Candidates must demonstrate the degree of disability during the application, namely through the submission of the Multi-Purpose Medical Certificate of Disability, issued in accordance with Decree-Law no. 202/96, of October 23 currently in effect.

Candidates must declare, in the application form, the type of disability used throughout the selection process, in order to proceed with the required adaptations.

## The Selection Jury is composed of the following members:

President of the Jury: Ana Nunes Alonso

Full member: José Orlando Pereira

Full member: Fábio André Coelho

Substitute member: João Tiago Paulo

**Release of results and prior hearing:** the results of the selection process, as well as the terms and procedures for prior hearing, will be released to the applicants by email, under the terms referred to in Article 13 of the Regulations for Studentships and Fellowships of INESC TEC.

## 6. FORMALISATION OF APPLICATIONS:

### Application Documents:

1. Motivation letter;
2. Curriculum Vitae (must include the list of previous fellowships, their type, beginning and end dates, funding entities and host institutions);
3. Certificate or diploma degree;
4. Proof of enrollment in a degree awarding study cycle or in a non degree awarding Higher Education program.
  - The proof of enrollment may be presented just during the grant hiring stage.
5. Signed declaration stating the infringement of the grant holder's duties (article 14, no. 4)
6. Documental evidence to support the country of residence, residence permit or other legally equivalent document, in cases where the applicant is a foreigner or non-resident in Portugal - valid until the beginning of the grant.
7. Other supporting documents relevant to the final assessment.

Failure to deliver the required documents within the 90-day period after the date of the notice of the conditional awarding of the grant implies its cancellation.

**Application period:** From 2026-05-21 to 2026-06-03

**Submission of applications:** the application will be formalised by submitting the form available in the *Work With Us* section of INESC TEC website.

## 7. BINDING LEGISLATION AND REGULATION

The hiring process shall comply with the current legislation regarding the Research Grant Holder Statute, approved by Law no. 40/2004 of August 18, in its current wording, as well as by the [Regulations for Grants of INESC TEC](#) and for [FCT Grants Regulation in force](#).

For more information, please check the [Regulations for Grants of INESC TEC](#) and relevant annexes at [www.inesctec.pt/bolsas](http://www.inesctec.pt/bolsas)

