

**Search for a Spanish Partner for a  
Bilateral R&D Project**

| Organization                              |  |
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| Date of Request:                          | 14 <sup>th</sup> of June, 2023   |
| Company name:                             | TBD  |
| Contact person and title/<br>designation: | Dr. Brahim AISSA (Senior Scientist), Dr. Alessandro SINOPOLI (Scientist), Dr. Veronica BERMUDEZ BENITO (Senior Research Director)  |
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| Website:                                  | <a href="https://www.hbku.edu.qa/en/qeeri">https://www.hbku.edu.qa/en/qeeri</a>  |

**SECTION 1: Entity launching the partner search (i.e., the Company registered in Qatar).**

*(Please give brief / to the point explanations. For more explanation on any point below, you may add a short paragraph as an annexure, with this document.)*

|  |   |
|--|---|
| Sectors  | Energy, Underground Mine, Oil and Gas, Health, Resource Sustainability, Digital Technology.   |
| Entity mission or core functions                                       | R&D activities or commercialization in the mentioned sectors  |
| Date of establishment  | Not specified   |
| Ownership (if public and traded, add stock exchange and ticker symbol) | Any company registered in Qatar and Spain with R&D activities fit with this call.   |
| Total number of employees  | Not specified   |
| Number of employees in R&D   | Not specified   |
| Key products sold or services provided.                                | RFID-Enabled Gas Sensors. Gas Detection Systems. Customized Sensor Solutions. Installation and Integration Services. Training and Support. Electronic devices. Advanced sensing. Communications Devices.  |
| Entity core technical competences                                      | <ul style="list-style-type: none"> <li>- A good understanding of sensor technology.</li> <li>- Expertise in integrating gas sensors into comprehensive gas detection systems.</li> <li>- An understanding of the unique environmental factors present in underground settings and confined environment.</li> <li>- Data analysis and interpretation.</li> <li>- Safety and Compliance Standards.</li> <li>- Expertise in RFID technology.</li> <li>- Expertise in MIMO technology is a plus.</li> <li>- Competences in system integration.</li> </ul> |
| Key R&D programs and activities  | <b>Gas Sensor R&amp;D Programs:</b> Development of advanced gas sensing   |

|                               |   |
|-------------------------------|---|
|                               | <p>technologies for improved detection accuracy and selectivity. Research on miniaturized and wireless gas sensors for portable and wearable applications. Investigation of gas sensor arrays and data fusion techniques to enhance gas identification capabilities. R&amp;D efforts to develop gas sensors that are resilient to environmental factors, such as humidity and temperature variations.</p> <p><b>RFID R&amp;D Programs:</b> Development of RFID systems with enhanced range, accuracy. Research on RFID antenna design and optimization for improved performance in harsh and confined environments. Investigation of energy harvesting techniques for self-powered RFID systems. R&amp;D efforts to improve RFID tag miniaturization and adaptability to the studied environment.</p> <p><b>MIMO Technology R&amp;D Programs:</b> Research on advanced MIMO signal processing techniques for increased data rates and improved reliability.</p> |
| Examples of accomplishments   | <p>As this is relatively a low TRL research program, examples of accomplishments are not mandatory and are rather limited to a proof of principle or prototyping.</p> <p>Examples include <b>Gas Leakage Detection with RFID:</b> Development of RFID-based gas leakage detection systems that can remotely monitor and detect the presence of dangerous gases in real-time.</p> <p><b>Integration of gas sensors with RFID tags,</b> allowing for continuous monitoring of gas levels and alerts in case of leaks or abnormal gas concentrations.</p> <p><b>Implementation of RFID-enabled gas detection systems in industrial settings,</b> such as chemical plants or manufacturing facilities.</p> <p><b>Integration of RFID-enabled gas sensors with MIMO-based communication</b> infrastructure to facilitate seamless data transmission and centralized monitoring.</p>  |
| Company strategic orientation | <p>Specialization in Oil and Gas, Underground Gas Detection or related area. Technological Excellence. Customized Solutions. Safety and Compliance. Industry Partnerships</p>   |

## SECTION 2: Spanish Company Profile

*(Please provide a brief summary of the prospective partner company or organization. This summary may address some or all of the points below)*

|   |   |
|---|---|
| Profile of ideal technology partner           | Any company with R&D activities in the field of Energy, Underground Mine, Oil and Gas, Health, Resource Sustainability, Digital Technology.   |
| Core technological competencies and expertise | <p>Same as above:</p> <ul style="list-style-type: none"> <li>- A good understanding of sensor technology.</li> <li>- Expertise in integrating gas sensors into comprehensive gas detection systems.</li> <li>- An understanding of the unique environmental factors present in underground settings and confined environment.</li> <li>- Data analysis and interpretation.</li> <li>- Safety and Compliance Standards.</li> <li>- Expertise in RFID technology.</li> <li>- Expertise in MIMO technology is a plus.</li> <li>- Competences in system integration.</li> </ul> |
| Other essential qualifications                | <b>Not specified in the call</b>  |

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|--|--|
| (e.g.: ownership, track records etc.)  |  |
| If you have a list of companies with whom you are in contact or interested in contacting, please provide contact details.                  | NA   |
| If you are interested in collaboration: please specify details and other important information you want to share with a potential company. | Please see the paragraph below   |
| Interested areas of collaboration  | R&D in the field of nanomaterials for gas sensing, RFID integrating sensing capability, MIMO technology.   |
| Specific R&D contribution you are seeking/offering.  | <p><b>Material deposition; Optimization; Advanced Characterization; Integration; Testing in controlled environment.</b></p> <p>Conducting research with a Spanish partner in the areas of collaboration mentioned above. More specifically, the main challenges we want to address through this collaboration are the integration of CNT and graphene decorated with metal nanoparticles to develop a novel generation of RFID for the development of a sensor node for toxic gases detection, and breathing-gas-content estimation, in addition to their stabilization in harsh environments and their integration with MIMO technology to increase the reliability and throughput.</p> |

**This is the link of this Call:**

<https://connect.qrdi.org.qa/innovation/p/opportunities/p/30>

**Details of our request:**

We are looking for Spanish and Qatari companies to submit an R&D proposal within the framework of the QSIP call attached in the link above.

QEERI will act as a subcontractor for the Qatari-side company and partner with the Spanish company.

More specifically

- The Qatar Spain Innovation program (QSIP) is funded by CDTI in Spain and QRDI in Qatar.
- The collaborative projects aim to enhance the competitiveness and market access of Spanish and Qatari companies.
- Awarded projects will be funded by QRDI in Qatar and CDTI in Spain.
- The call is open for all R&D areas, with priority going to energy, health, resource sustainability and digital technology. More specifically, specific market needs and socio-economic challenges that are of interest to both Spain and Qatar nations and projects that lead to the development or substantial improvement of products, processes or services have an additional degree of priority.
- The grant is for 1-3 years.
- Application must involve at least one qualified participant from Spain and one from Qatar. Both must be companies registered in Spain (for the Spanish side) and Qatar (for the Qatari Side), respectively, and must be independent from each other.
- QEERI will participate as subcontractor for these companies and conduct research within its premises.

- Both companies (and QEERI) must have adequate technical and financial capacity to undertake the project and the resources to deploy or commercialize the project after its completion.
- Proposals must be submitted to CDTI (Spanish side) and QRDI (Qatari side), by 7th September 2023.
- The Qatari and Spanish co-applicants must submit **one joint project proposal (QEERI will provide it once the two companies are identified)**.
- The Application Form must be signed by the authorized signatories of the co-applicant companies (with their names and designations shown).
- In addition to the Application Form, co-applicants must submit a draft Consortium Agreement in English whereby the co-applicants should agree on the ownership, access rights and exploitation of intellectual property generated during the cooperation, to be submitted to CDTI and QRDI (for the submission as such, an unsigned draft version of the agreement can be provided (Annex 2).
- In Qatar, companies must submit: (i) A funding proposal (Annex 3).

Signature

Name: Dr. Brahim AISSA

Date: 14<sup>th</sup> of June 2023

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*Brahim Aissa*

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