Search for a local Partner for a Bilateral R&D Project

Programme	ESITIP joint call for R&D proposals in ICT
Search launched by	Spanish company
	√ Egyptian industrial partner
	Spanish academic partner (University/Tech. center)
	Egyptian academic partner

Remember that the minimum eligible consortium for ESITIP programme requires one Spanish company, one Egyptian industrial partner and one Egyptian academic partners. Only in PDP[1] projects, the Egyptian academic institution can be optional given certain circumstances (to be checked in the text of the call). Spanish academic institutions are welcome to participate as self-funded or subcontracted by the Spansih company if an agreement is achieved.

Organization (launching this search)	
Date of Request:	2/3/2025
Company name:	TechnoWelle Egypt
Contact person and title/ designation:	Yasmeen Farouk, Government and Universities Relations Manager
E-mail:	Yasmeen.farouk@techno-welle.com
Phone number:	+20 (2) 353 72688
Mobile number:	+20 1001547787
Website:	https://techno-welle.com/

SECTION 1: Description of the institution launching this search	
(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.)	
Business Sector	Automotive
Company mission or core functions	1. **Software Development**: ○ Design and develop **embedded software** for automotive systems, including **ECUs (Electronic Control Units)**, **ADAS (Advanced Driver Assistance Systems)**, and **infotainment systems**. ○ Create **real-time simulation and testing tools** for vehicle validation and homologation. 2. **Testing and Validation**: ○ Provide **HIL (Hardware-in-the-Loop)** and **SIL (Software-in-the-Loop)** testing solutions to validate

---

[1] Product Development Projects.

vehicle performance and compliance with safety and regulatory standards.
  - Conduct **functional safety testing** (ISO 26262) and **cybersecurity testing** (ISO/SAE 21434).
3. **Innovation and R&D**:
  - Focus on **AI-driven solutions** for autonomous driving, **predictive maintenance**, and **energy optimization**.
  - Develop **cloud-based platforms** for over-the-air (OTA) updates, vehicle diagnostics, and fleet management.
4. **Consulting and Support**:
  - Offer **technical consulting** to automotive manufacturers and suppliers on software architecture, system integration, and compliance.
  - Provide **training and support** for software tools and platforms.

Date of establishment	2021
Ownership (if public and traded, add stock exchange and ticker symbol)	100% Private owned
Total number of employees	10
Number of employees in R&D	3
Key products sold or services provided	- Auto HIL Master: Automotive Hardware in the loop test bench - Validly:ADAS Fusion Sensors KPIs Validation Software - MODSAR: Product Supporting the development of AUTOSAR SWCs - Safetime Checker: Concept Solution to validate ADAS's Safety backbone - ANNO2: Data Labeling & Annotation Web-based Platform
Company core technical competencies	Software, Automotive, AutoSAR, Safety, Security, AI, Cloud, HIL, FPGA

Key R&D programs and activities	1. **Real-Time Simulation and HIL Testing**:
	  - Build advanced **HIL test benches** for validating EV and autonomous driving systems.
	  - Develop **real-time simulation models** for vehicle dynamics, powertrains, and environmental conditions.
	2. **Autonomous Driving**:

	○ Research and develop **AI algorithms** for perception, decision-making, and control in autonomous vehicles. ○ Build **simulation environments** for testing autonomous driving systems in virtual scenarios.
Examples of accomplishments	○ Tier-1 supplier for premium OEMs like VW, BMW & Audi and for Tier-1 supplier: Vector, Magna and Continental. ○ Part of international technical consortium as active member in AutoSAR ○ Certifications: Automotive TiSAX, GDPR protection and ISO9001 ○ Founded three sites in two countries and working on founding our 4th site in a third country. ○ Established a stable multinational working environment (five nationalities working at the moment by TechnoWelle Worldwide).
Company strategic orientation	○ Innovation-Driven Growth. ○ Customer-Centric Approach. ○ Sustainability and Green Technologies. ○ Strategic Partnerships with automotive OEMs, Tier 1 suppliers, and technology providers. ○ Global Expansion. ○ Talent Development.

SECTION 2: Partner of Interest	
(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	Automotive industry, with a strong emphasis on **electric vehicles (EVs)**.
Core technological competencies and expertise	○ **EV Technologies**: Deep knowledge of **EV powertrains**, **battery management systems (BMS)**, **inverters**, and **electric motors**. ○ **Testing and Validation**: Expertise in **functional safety** (ISO 26262) and **automotive software processes** (ASPICE). Knowledge of **EV homologation requirements** and **testing standards**.
Other essential qualifications (e.g.: ownership, track records etc.)	None

If you have a list of companies with whom you are in contact or interested in contacting, please provide contact details	None
Other details or important information	None
Interested areas of collaboration	Co-develop a state-of-the-art HIL test bench for EVs, focusing on real-time simulation and validation.

Specific R&D contribution sought	1. **Real-Time Simulation**:
	   ○ Expertise in developing real-time simulation models for EV powertrains, batteries, and charging systems.
	2. **Hardware Integration**:
	   ○ Contribution to the design and integration of custom hardware components for the HIL test bench.
	3. **Software Development**:
	   ○ Development of software tools for model-based testing, data acquisition, and analysis.
	4. **Testing and Validation**:
	   ○ Support in conducting rigorous testing and validation of EV systems to ensure compliance with regulatory standards.

SECTION 3: Additional information about the possible collaboration
(Please feel free to share any information you want about the possible project/s in which you would like to collaborate with an institution in the other country. I.e: possible projects, main objectives, technological area, TRL to be achieved)

Name: **Yasmeen Farouk Bakry** Date: **2/3/2025** Signature:	Seal:

Agenda

1. TechnoWelle's Profile

2. Problem Formulation/Description

3. Specification of Spanish Partner
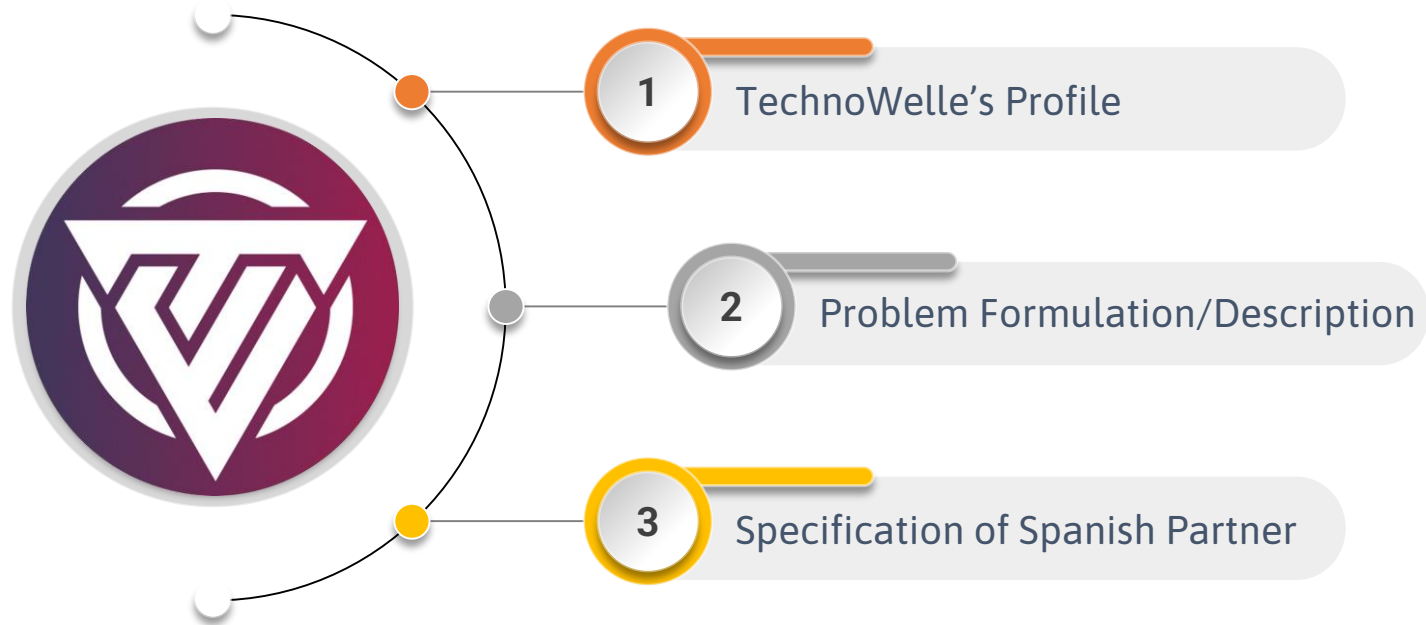
TechnoWelle's Profile

TechnoWelle is an automotive software company.

We are currently growing a research center in Cairo.

Our team is based in Darmstadt near Frankfurt.

Cairo, Egypt | AI & Labeling Center

Building B5 – Smart Village, KM28 Cairo-Alex Desert Road, 12577, Cairo, Egypt,

Darmstadt, Germany | Headquarters

Hilpertstraße 27, 64295 Darmstadt, Germany

TechnoWelle's Projects

Front ADAS Camera
Develop Safety AutoSAR component, SW Architecting & SW Testing

ADCU / HCP2
Support an overall solution architecting activities, evaluating different technologies (RoS2/Adaptive AutoSAR) , integration concepts for multiple technologies

LiDAR Sensor
Overall Safety ISO26262 Architecting , AutoSAR Development & QNX drivers development

Fully Digital Cluster
System End-2-End Architecting for Mobile Online Services , Architecture artifacts automatic generation tool development

HV Inverter
Develop basic SW concepts in a classical AutoSAR

ConMod Middleware
Develop a Vehicle abstraction layer using JNI to map the Java server for connectivity services with C++ environment

TechnoWelle
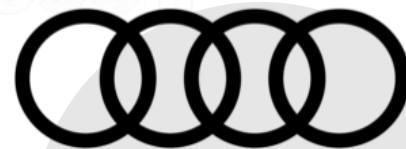
4

TechnoWelle's Products

MODSAR

ANNO²

VALIDLY

Safetime Checker

Auto HIL Master Overview

Modular and Scalable
Test bench

Custom Sensor Simulations
- FPGA-driven
- Nano-second accurate

Multiple Automotive Protocols
- CAN / LIN
- Ethernet / DoIP

CI/CD Ready
- Jenkins Plugin
- Github Actions

Friendly Test Scripts
- Structured
- Reusable in SIL/HIL

Multiple Form factors
- R&D Compact device
- EOL Testing Rack

AUTO HIL MASTER

TechnoWelle

# Automotive sector Positioning

Problem Formulation

The automotive industry is undergoing a significant transformation with the rapid adoption of electric vehicles (EVs).

EVs have complex systems, including powertrains, battery management systems (BMS), inverters, and charging systems, which require **rigorous testing and validation to ensure safety, reliability, and compliance with regulations.**

Traditional testing methods are often time-consuming, costly, and limited in their ability to simulate real-world conditions.

GO GREEN NO POLLUTE EFFICIENCY SAVE MONEY FAST
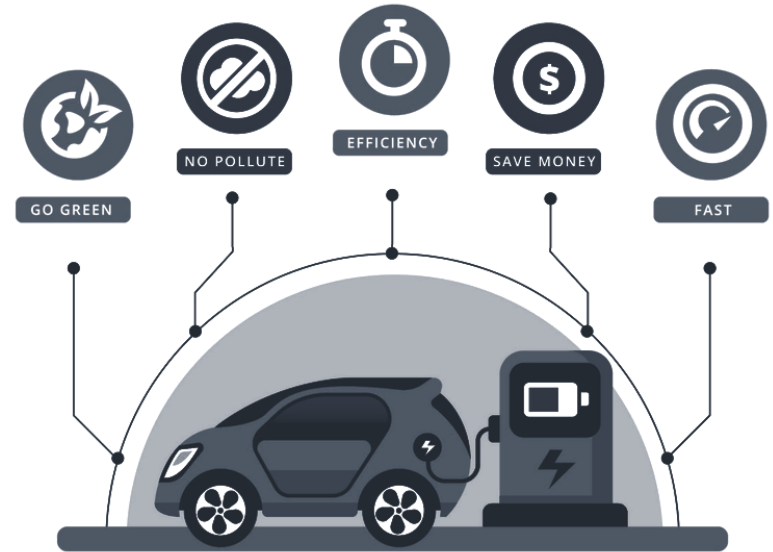
Problem Statement

There is a growing need for an advanced Hardware-in-the-Loop (HIL) test bench specifically designed for EVs. This test bench should:

1. Accurately simulate real-world driving conditions and environmental factors.

1. Validate the performance of EV components and systems in a controlled environment.

1. Ensure compliance with safety standards (e.g., ISO 26262) and homologation requirements.

1. Reduce development time and costs by enabling early detection of issues.

Specification of Spanish Partner

Automotive industry, with a strong emphasis on **electric vehicles (EVs)**

EV Technologies:
Deep knowledge of EV powertrains, battery management systems (BMS), inverters, and electric motors.

Testing and Validation:
Expertise in functional safety (ISO 26262) and automotive software processes (ASPICE). Knowledge of EV homologation requirements and testing standards.

Contact Us

Yasmeen Farouk,
Government and Universities
Relations Manager

Yasmeen.farouk@techno-welle.com
+20 (2) 353 72688
+20 1001547787
https://techno-welle.com/

Thank You!