PARTICIPANT INFORMATION FOR PROPOSAL

TESELA

PARTICIPANT	
Legal name	TESELA, MATERIALES INNOVACIÓN Y PATRIMONIO S.L.
Short Name (to use for proposal)	TESELA
Website	https://teselainnova.com/en/
Participant Identification Code (PIC) Number: See: https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/how-to-participate/participant-register	*894338643*
Contact of Partner	Eugenio Navarro (CEO) eugenionavarro@teselainnova.com (+0034) 608 65 49 47 Gaspar Carrasco-Huertas (CTO) gasparcarrasco@teselainnova.com (+0034) 648 45 92 20 Cristina Porras-Alcalá (Project Manager) cristinaporras@teselainnova.com (+0034) 638 48 73 38
Date **Digital Signature**	04/12/2025

DESCRIPTION OF PARTICIPANT

TESELA, Materiales Innovación y Patrimonio S.L., abbreviated as **TESELA**, is an innovative, technology-based SME located within the **Sustainable Construction Cluster of Andalusia (Padul, Granada)**. The company was founded in 2015 as a **spin-off from the University of Granada** by professionals with extensive experience in both academic and industrial fields related to historical heritage and construction sectors.

From its inception, the company has been committed to **quality, environmental respect, and social responsibility**, considering **reliability, commitment, and a high level of service** as key factors for achieving success. Although TESELA is an independent SME, it maintains a strong relationship with the University of Granada through the participation of researchers and technical staff. It is officially recognized by the Regional Government of Andalusia as an **Accredited Andalusian Knowledge Agent**.

BUSINESS LINES

TESELA's business activity is structured into **four main areas**:

- Conducting **scientific preliminary studies** to diagnose heritage assets in Cultural and Creative Industries.
- **Development of advanced construction products and materials** tailored for different applications (e.g. limes, hydraulic binders, cements, additives, etc.) for the Building Sector.
- **Collaborative projects** with national or European **public funding**, focused on materials and raw resources.
- **Scientific and technical analysis** of materials and raw resources from mining and building sector.
- **Training courses** on construction materials, raw materials and cultural heritage.

OBJECTIVES

TESELA's main goal is to **consolidate itself as a national benchmark** in providing scientific and technical services related to construction and heritage conservation. To achieve this, the company follows a **business strategy based on constant innovation, specialized knowledge, and continuous improvement** of its internal processes.

In this regard, the company focuses daily on:

- **Optimizing the use of innovative raw materials** that provide more efficient and sustainable solutions.
- **Developing R&D&I (Research, Development, and Innovation) projects** to anticipate market needs and offer higher value-added services.
- **Diversifying its service portfolio** to adapt to various work environments, while ensuring compliance with technical, regulatory, and quality requirements.
- **Promoting collaboration with academic and scientific institutions** to enrich knowledge and ensure methodological rigor in every project undertaken.

Through this combination of efforts, TESELA seeks not only to maintain a **high level of competitiveness** but also to **contribute to the sustainable development** of the construction and heritage sectors, positioning itself as a **strategic partner** for both public and private organizations.

MISSION

TESELA's mission is to **offer specialized services** capable of effectively meeting client needs, always ensuring strict compliance with commitments and maintaining a **quality, market-oriented performance**.

Its **B2B (business-to-business)** model enables the establishment of solid relationships with other companies based on **trust, transparency, and professional integrity**.

This mission is built upon three fundamental pillars:

1. **Technical and scientific knowledge**, applied to creating tailored solutions for each client based on the most innovative technologies and raw materials available.
2. **Human capital**, composed of highly qualified professionals supported by scientific collaborators from renowned universities, whose expertise strengthens the company's capacity to tackle complex and demanding projects.
3. **Innovation orientation**, driving the creation of differentiated and sustainable services capable of responding to the current and future challenges of the construction and heritage sectors.

With this mission, TESELA defines itself not merely as a service provider, but as a **strategic partner** that accompanies its clients in the pursuit of **effective, innovative, and responsible solutions**, while contributing to the **technological development of the construction industry** and the **preservation of heritage at a national level**.

VISION

TESELA's vision is to **provide society with the most sustainable, energy-efficient, and technologically advanced products on the market**. Furthermore, the company aspires to be **recognized as a leading reference** in **heritage rehabilitation and restoration**, and as a **technological partner** for all stakeholders involved in research, development, and consulting related to the construction materials sector.

The company aims to **generate its own technology and knowledge**, relying on **innovation as the driving force** to address current problems and future challenges.

VALUES

At TESELA, our values form the foundation of our identity and guide every action we take as a **benchmark company in sustainable construction and heritage conservation**. Since our establishment, we have maintained a firm commitment to **quality, innovation, and sustainability**, understanding that business growth must always go hand in hand with a **positive impact on society and the environment**.

Our main values are:

- **Commitment to quality**: We work with scientific and technical rigor to guarantee excellence in all our products and services. TESELA is certified as an **Innovative SME** and holds **ISO 9001:2015**, **ISO 14001:2015**, and **ISO 56001:2024** certifications, ensuring service quality.
- **Continuous innovation**: We promote research and development as drivers of growth and differentiation, creating solutions adapted to the current and future needs of the construction and heritage sectors.
- **Environmental respect**: We incorporate sustainable practices into each of our business lines, contributing to environmental preservation and responsible construction. Our environmental impact is measured and verified through the **Carbon Footprint Register** of the **Ministry for Ecological Transition and Demographic Challenge**.
- **Social responsibility**: We promote inclusion, equal opportunities, and collaboration with universities and research centers, fostering knowledge transfer and training new professionals for the technical and scientific workforce through our certification in gender equality opportunities.
- **Reliability and commitment**: We strictly fulfill our commitments, offering close, responsible, and client-oriented service.
- **Human capital and collaboration**: We value people as the cornerstone of our activity, promoting teamwork, cooperation, and professional growth.
- **Diversity and creativity**: We embrace diversity of perspectives as a source of enrichment, innovation, and continuous improvement.

INDUSTRIAL AND BUSINESS CAPACITY. TECHNICAL, PRODUCTION, AND MATERIAL RESOURCES

As a complement to its R&D and technical-scientific activities, TESELA has modern R&D facilities located at the Andalusian Sustainable Construction Center (CSA) in Padul (Granada). These facilities include a technical office and three dedicated laboratories, all equipped with state-of-the-art technology, described below:

- **R&D Laboratory for Hydraulic Binders.** Equipped with precision balances, mortar and concrete mixers, shaking tables, devices for setting time determination, compression and flexural testing presses, thermal conductivity measurement instruments, adhesion testing equipment, and foam generation systems, among others.
- **R&D Laboratory for Polymers and Additives.** Equipped with precision balances, pH meters, conductivity meters, pressure reactors with vacuum pumps, microwaves, laboratory refrigerators, and various glassware and consumables for experimental formulations and testing.
- **Thin Section Preparation Laboratory.** Equipped with a PetroThin sectioning machine, BALI 500 Mekano and metal disc cutters, as well as the necessary consumables (solvents, glass slides, etc.) for sample preparation processes.

TESELA's infrastructure provides the necessary technical support for research and experimental validation tasks. The company possesses high-resolution analytical instruments that allow precise identification and characterization of the physicochemical properties of materials. Thanks to this technological capacity, TESELA offers specialized scientific solutions in both heritage conservation and rehabilitation, as well as the development of traditional, sustainable, and advanced construction materials.

In addition to its own equipment, TESELA benefits from scientific support from the University of Granada and its technological centers, granting access to advanced analytical techniques. Among the methods employed are optical, confocal, and electron microscopy, X-ray diffraction and fluorescence, FTIR and RAMAN spectroscopy, chromatography, thermogravimetry, porosimetry, ultrasonic testing, and other assays that ensure the rigor and quality of the results.

KEY STAFF

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Eugenio NAVARRO-TORRES, Male, CEO / Senior Chemist, B.Sc. in Chemistry (University of Granada, Spain).

Founder and Chief Executive Officer of TESELA S.L. Responsible for the company's R&D strategy and laboratory management. Mr. Navarro has extensive experience in the design, formulation and upscaling of advanced materials for the building sector, including mortars, coatings and lime-based materials. Within the project, he will oversee the R&D activities and ensure the economic supervision and technical coordination of TESELA's contributions.

https://www.linkedin.com/in/eugenio-navarro-torres

Gaspar CARRASCO-HUERTAS, Male, R&D Project Manager, Ph.D. in Chemistry (Industrial Doctorate, Autonomous University of Madrid, Spain).

Experienced researcher and project manager in advanced and sustainable materials. Dr. Carrasco-Huertas has coordinated and participated in national and European R&D projects related to innovative building materials and circular economy. Within the project, he will be responsible for the exploitation strategy and the translation of technical results into market-oriented outputs.

https://www.linkedin.com/in/gaspar-carrasco

Cristina PORRAS-ALCALÁ, Female, R&D Project Manager, Ph.D. in Organic Chemistry (University of Málaga, Spain).

Expert in the synthesis and characterization of organic and inorganic materials, with a strong background in applied chemistry for construction materials. Dr. Porras-Alcalá will oversee planning, coordination and supervision of the project activities, ensuring compliance with technical objectives and quality standards.

https://www.linkedin.com/in/cristinaporrasalcala/

Miriam ALGUACIL-NIEVAS, Female, Laboratory Technician, B.Sc. in Chemistry (University of Granada, Spain)

Specialized in quality control and laboratory testing of mortars and other construction materials. At TESELA, Ms. Alguacil is responsible for preparing and optimizing formulations of lime mortar prototypes, supporting the experimental validation and scale-up processes.

https://www.linkedin.com/in/miriam-alguacil/

Jorge Adolfo PORTA-IGUAL, Male, R&D Technician, Cultural Heritage, B.A. in Art History (University of Granada, Spain); M.Sc. in Science and Technology in Architectural Heritage (CiTPA, University of Granada, Spain).

Specialist in the intersection between heritage conservation and materials science. Mr. Porta Igual is currently R&D Technician in TESELA's Heritage Area, responsible for integrating conservation criteria and historical materials knowledge into innovative restoration solutions.

Carlos ESPINOSA-ENRÍQUEZ DE LUNA, Male, R&D Technician, Cultural Heritage, B.Sc. in Geology (University of Granada, Spain); M.Sc. in Science and Technology in Architectural Heritage (CiTPA, University of Granada, Spain).

Geologist and early-career researcher with solid laboratory and analytical skills. Mr. Espinosa has experience in mineralogical and geochemical characterization techniques (XRD, Rietveld refinement, ICP, EPMA, SEM, TEM, Raman, FTIR and PhreeqC modeling). He was member of the Research Introduction Group in Mineralogy (University of Granada), where he investigated carbonate nucleation processes in the presence of different ions. At TESELA, he contributes to experimental design, material characterization, and data analysis for heritage-related materials.

https://www.linkedin.com/in/carlos-espinosa

Nuria SANCHEZ-LIBRERO, Female, R&D Technician, Thin Section Laboratory, EQF level 5.

COLLABORATORS

Anna ARIZZI, Female, Assistant Professor, Ph.D. in Earth Sciences (University of Granada, Spain); M.Sc. in Chemistry (University of Messina, Italy)

Assistant Professor at the Department of Mineralogy and Petrology, University of Granada, specializing in the conservation and restoration of cultural heritage materials. She has authored 31 scientific articles, 1 book, 4 book chapters, and 37 conference papers (715 citations excluding self-citations; ORCID: 0000-0002-8996-0205; SCOPUS: 25821710100). Her expertise includes hydraulic lime production, design of new lime mortars for restoration, natural additives in mortars and sustainable building materials.

https://es.linkedin.com/in/anna-arizzi

PROJECTS OR ACTIVITIES

1. **EENERGY.** Training in Life Cycle Analysis (LCA) and Carbon Footprint in Construction. Call: SMP-COSME-2023-EENEE-01 - Enterprise Europe Network Energy Efficiency Action (2024–2025, TRL 8–9, 9.500 €, Partner). Practical training and demonstration on LCA methodology and carbon footprint assessment for sustainable building products.

2. **SUN.RICE.** Sustainable Building Block from Rice Processing Waste and Alkali-Activated Materials. *Call:* IN TRANSIT - 1st Open Call for SMEs Circular Transformation Scheme to DEVELOP (2023–2024, TRL 8–9, 98.000 €, Partner). Circular economy building materials using agro-industrial residues and alkali-activated binders.

3. **ASSEMBLEND.** Ultra-lightweight Cellular Concrete and Geopolymer-Based Mineral Foams for Facade Panels. Call: ICLIMABUILT - 1st Open Call for SMEs in Innovation of Building Product (H2020-EU.2.1.3 - Advanced Materials) (2024–2025, TRL 6–7, 150.000€, Partner). Development of lightweight, energy-efficient sandwich panels using sustainable concrete and geopolymer foams.

4. **HERIT4AGES.** User-Centric and Data-Driven Retrofitting Solutions for Energy-Efficient Cultural Heritage. *Call:* HORIZON-CL5-2022-D4-02-03 - Sustainable and resource-efficient solutions for inclusive, low-emission cultural heritage (2023–2027, TRL 5–6, 5.000.000 €, Partner). Innovative retrofitting solutions for heritage buildings with low-emission, sustainable materials and energy efficiency monitoring.

5. **MORFEO.** Mortars and Functional Concretes from Electric Arc Furnace Slags. Call: Proyecto colaboración público-privada AEI - Agencia Estatal de Investigación (2025–on going, TRL 5–6, 1.019.918 €, Coordinator). Development of sustainable cementitious materials from recycled slags, applying circular economy principles and evaluating environmental impacts through LCA.

6. **C-SHIELD**. High-performance cementitious materials doped with recycled aggregates: A new approach to neutron shielding materials in radioactive facilities. Call: ReMade@ARI - REcyclable MAterials DEvelopment at Analytical Research Infrastructures (2024–2025, TRL 4–5, Access to synchrotron facility at Grenoble, Coordinator). Development of sustainable cementitious materials for neutron shielding, tested using advanced synchrotron techniques.

7. **MOSAIC.** Ultra-High-Performance Materials for Hydraulic Tiles: Innovation in Art Craft for Urban Environments. Call: FRIEND CCI 1st Call - COSME-SMP-2021-CLUSTER (2023–2024, TRL 8–9, 50.000 €, Coordinator). Development of UHPC materials for hydraulic tiles, integrating craftsmanship innovation and urban design applications.

8. **HERIFIX3D**. Reinforced Lime-Based Mortars with Natural Fibre Combined with 3D Additive Process for Heritage Repairing Applications. Call: DREAM 1st Call - SMP-COSME-2021-CLUSTER-01 (2023–2024, TRL 8–9, 30.000 €, Coordinator). Development of 3D printable lime mortars reinforced with natural fibers for sustainable heritage restoration.

9. **TExBINDERS.** Development of Lime Ecomortars Doped with Recycled Textile Fibers for Heritage. Call: xBUILD-EU 1st Call (2023–2024, TRL 8–9, 20.000 €, Coordinator). Formulation of sustainable lime-based mortars incorporating recycled textile fibers for energy-efficient and circular restoration solutions.

10. **LIM3PRINT**. Additive Manufacturing of Lime-Based Mortars for Architectural Heritage. Call: CREATHRIV-EU 1st Call: SMP-COSME-2021-CLUSTER-01 (2023–2024, TRL 8–9, 20.000 €, Coordinator). 3D printing of lime-based mortars for heritage conservation and restoration.

11. **av-AI-lable**. UHPC Concrete Materials Selection by AI and ML. Call: StairwAI 3rd Open Call: H2020-ICT-2020-2 (2023, TRL 4, 10.000 €, Coordinator). Application of artificial intelligence and machine learning to optimize UHPC concrete material selection.

12. **CALSILAM I & II.** Additive Manufacturing of CSH Scaffolds. Call: H2020-INNOSUP-01-2018-2020 METABUILDING GROW 2nd Call and SEED 1st Call (2022–2023, TRL 6, 60.000 € + €5.000 €, Coordinator). Development of calcium silicate hydrate scaffolds via additive manufacturing for construction applications.

13. **REVOLUM.** Control of Dimensional Variation in Lime Mortars for Heritage Works. Call: FEDER/CDTI – PID-CDTI: IDI 20210041 (2020–2022, TRL 8–9, 212.850 €, Coordinator). Research on minimizing shrinkage and dimensional changes in lime mortars for heritage restoration.

14. **ECOCEL**. Advanced and Safe Materials and Processes Based on Circular Economy Applied to Olive Oil By-Products for Food Packaging and Sustainable Construction. Call: PROYECTO DE INVESTIGACIÓN Y

DESARROLLO EN COOPERACIÓN - FEDER/CDTI (2025–2028, TRL 5–6, 1.146.770€, Partner). Development of sustainable construction materials and packaging using agro-industrial by-products.

15. **Industrial Doctorate.** Development of High-Performance Cementitious Materials for Radiation Shielding in Specialized Facilities. Call: Industrial Doctorates - Agencia Estatal de Investigación (2024–2028, TRL 6–7, 250.042€, Partner: University of Granada, Department of Analytical Chemistry). Research and development of advanced cementitious materials for radiation shielding applications in specialized infrastructures.

Achievements relevant

1. **Advanced Alternative Binder Formulations (e.g., Carbon Capture, Utilization and Storage (CCUS & CCS) materials, geopolymers, etc.).** Developed proprietary low-carbon binders with optimized mechanical and thermal performance for sustainable construction applications.
2. **Thermal Conductivity Measurement Protocols for Cementitious Materials.** Standardized procedures for evaluating thermal behavior of innovative cement-based and geopolymer mortars under laboratory and field conditions.
3. **Life Cycle Assessment (LCA) Framework for Construction Materials.** Comprehensive LCA datasets and calculation workflows for cementitious materials, including carbon footprint, energy use and environmental impact metrics.
4. **TESELA European Seal** (EUIPO, Reg. 07/09/2022, No. 018659879), which allows the certification of materials for heritage use based on a standardized methodology.

AFFILIATED ENTITIES / ASSOCIATED PARTNERS

TESELA maintains a close collaboration with the University of Granada through the RNM179 Research Group “Mineralogy and Geochemistry of Sedimentary and Metamorphic Media,” based in the Department of Mineralogy and Petrology at the University of Granada. The group is directed by Full Professor G. Cultrone and comprises 27 members, including 20 PhD holders and 7 early-stage researchers. Among the eight research lines developed by RNM179, the line focused on “analysis and conservation of ornamental materials used in built heritage, testing and weathering of materials, and design and analysis of mortars” is conducted by the sub-group “Study and Conservation of Building Materials in Architectural Heritage,” established in 1988, of which Prof. A. Arizzi is a member. The research activities of this sub-group include both laboratory and in-situ studies of natural and artificial construction materials.

In particular, the group has been developing for more than two decades a research line on the chemical-mineralogical and textural characteristics of mineral raw materials, focusing on the study of how the components of mortars influence their final physical and mechanical properties. Dr. Arizzi has been actively researching this field for over 10 years, as evidenced by her numerous and significant publications. In addition to participating as a team member in various projects (regional, national, and one European) on lime-based mortars, Dr. Arizzi is currently Principal Investigator of the project “Manufacture and Suitability of Natural Hydraulic Limes as Binders for Sustainable Construction and Restoration” funded by the State Plan for Scientific and Technical Research and Innovation 2020, through the Spanish State Research Agency of the Ministry of Science and Innovation (grant awarded: €139,500; start date: 01/09/2021; duration: 3 years).

The RNM179 group has extensive experience in both fundamental and applied research on construction materials, contributing to the development of sustainable and high-performance mortars, and provides valuable expertise for national and international collaborative projects in the field of heritage conservation and sustainable construction.