HORIZON EUROPE PARTNER SEARCH FORM

Call Topic(s): HORIZON-CL4-2026-01-MATERIALS-PRODUCTION-01: Advanced manufacturing for key products (including use of advanced or secondary raw materials) (IA) (Made in Europe) (IA)

Project Type: Innovation Action (IA)

Are you working with any other partners on this topic?: At this stage, we are in early discussions and have confirmed one partner: Pulsar Solutions s.r.o. (Czech Republic) – a company specialized in digital solutions, AI and data-driven manufacturing processes. We are currently exploring additional partnerships with research organisations (RTOs, universities) and industrial Tier-1 suppliers in the automotive sector.

EXPERTISE/COMMITMENT OFFERED

Form of Participation in a Horizon Europe Project: I offer my expertise to participate as a Partner in a Horizon Europe Project

Description of Researcher/Research Team Expertise: Although MECASYS is an SME primarily focused on industrial applications, we have built a strong in-house engineering and development team with expertise in precision machining, process optimisation, and applied R&D collaborations. Our team combines mechanical engineers, electrical systems specialists, PLC programmers, CAD/CAM specialists, and quality assurance experts, who work with advanced tools such as SolidWorks, Autodesk Fusion, and 3D CMM measurement systems with micron-level tolerances. MECASYS has extensive experience in designing and delivering prototypes, fixtures, gauges, and special-purpose equipment for international clients in automotive, aerospace, mechatronics and industrial automation. We have participated in EU-funded innovation projects as an industrial partner, providing pilot environments for validation and close-to-market testing. Our research collaborations include the University of Žilina (Slovakia) and the Kaunas University of Technology (Lithuania), ensuring access to academic expertise and experimental facilities. The company's R&D orientation is focused on: Application-driven research in precision machining and validation of advanced manufacturing technologies. Integration of digital tools and data monitoring in cooperation with partners such as Pulsar Solutions (CZ). Industrial validation and demonstration at TRL 6–7, supporting the transfer of research results to market-ready solutions. Design, development and integration of automated

industrial stations tailored to customer requirements, aiming to streamline and optimise manufacturing processes. With over 19 years of industry experience, international exports, and a highly skilled technical team, MECASYS provides applied research expertise and testbed capacity that is essential for consortia aiming to demonstrate new advanced manufacturing solutions in real industrial settings.

Keywords Specifying Your Expertise: Manufacturing expertise High-precision CNC machining (5-axis milling, 10-axis turning, EDM) Fixtures, gauges and precision assemblies Structural units for automated production lines Industrial metrology (3D CMM, micron-level tolerances) Advanced manufacturing & digitalisation Hybrid manufacturing validation (machining + digital integration) Industrial pilot lines and TRL 6–7 demonstration Digital twin for manufacturing processes (with Pulsar Solutions) Data-driven quality control and traceability Application domains Automotive lightweight components Aerospace and defence precision parts Opto-mechanical and mechatronic components Industrial automation equipment Cross-cutting expertise Applied R&D collaboration with universities (Research Centre UNIZA, Kaunas University of Technology) Certification and quality management (ISO 9001/14001/45001 Industrial validation and exploitation pathways for advanced manufacturing solutions

Activity Offered: Demonstration, Technology

Involvement Proposed/Added-Value to Consortia: MECASYS is an SME with more than 19 years of experience in high-precision CNC machining and custom manufacturing for demanding sectors such as automotive, mechanical engineering, precision mechatronics, and industrial automation. With over 33,600 machining hours per year and advanced capabilities in 5-axis milling, 10-axis turning, and EDM technologies, we provide strong industrial capacity for validation and demonstration of advanced manufacturing technologies at TRL 7. We can actively contribute to: Pilot and demonstration activities in real production environments, ensuring validation under industrial conditions. Integration of manufacturing chains with high-precision machining, metrology and quality assurance. Data-driven quality monitoring and digital twins in cooperation with Pulsar Solutions (CZ). Industrial use-cases in automotive lightweight parts, aerospace components, and precision opto-mechanical units. Exploitation and business modelling, leveraging our experience in applied R&D, international exports, and certification processes (ISO 9001/14001/45001; AS9100 in preparation). MECASYS has established collaboration with University of Žilina (Slovakia) and Kaunas University of Technology (Lithuania), ensuring strong academic and RTO links. As an SME with an international client base and proven industrial know-how, we bring the ability to validate advanced manufacturing solutions in real-life industrial settings and align them with European strategic value chains.

PROFILE OF PARTNER SOUGHT

Role: Technology Development, Research, Dissemination, Demonstration

Country / Region: Leading Countries, Widening Countries

Expertise Required: We are looking for complementary partners with strong research and innovation capacity to join the consortium: Research and Technology Organisations (RTOs) / Universities with advanced expertise in hybrid manufacturing, surface engineering, and digital twins, capable of coordinating large Innovation Actions and supporting TRL 5→7 scale-up. Automotive Tier-1 suppliers (lightweight components, e-mobility applications) and aerospace/defence manufacturers able to provide industrial use-cases and market validation. Digitalisation partners with a proven track record in data interoperability, AI-based process optimisation, and in-line testing to complement MECASYS and Pulsar Solutions in developing industrial digital twins. Sustainability experts to integrate life cycle assessment, resource efficiency and circularity aspects into the project. Standardisation bodies and SSH partners to align project results with European standards, skills requirements and societal needs.

PREVIOUS EXPERIENCE

Short Introduction of Key Areas of your previous Research/Innovation projects: MECASYS has been actively engaged in applied R&D initiatives and international collaborations, focusing on advanced manufacturing, digitalisation, and industrial validation. Our recent projects include: SMART MACHINING (Programme Slovakia – ERDF) Development of innovative solutions for precision CNC machining and intelligent production processes in collaboration with the University of Žilina. Focus on building R&D capacity, technology transfer, digitalisation, automation, and strengthening industrial-academic cooperation. SmartHeatTIPS (EUREKA Network Projects) Development and commercialisation of a smart welding module for plastic components using thermal heating tip technology. The project advanced the technology from TRL4 to TRL6 and validated it in real manufacturing environments. MECASYS contributed to project preparation, industrial validation, business modelling, and cooperation with Czech partner Proks Group. AUGMENT4COST (Eurostars) Development of an AI-based solution for automated quotation generation in industrial manufacturing. The project integrates explainable AI, user-friendly interfaces, and validation in the MECASYS production

environment. MECASYS contributed to requirements definition, data architecture, industrial validation, and exploitation planning, in cooperation with Pulsar Solutions (CZ), Kaunas University of Technology KTU (Lithuania), DTS Solutions (Lithuania)

Have you previously participated in a Framework Programme (FP) European project?: Yes

Describe briefly your role in the project and activities performed: (Partner – Industrial validation SME) – MECASYS will act as an industrial partner providing pilot validation environments for advanced manufacturing processes at TRL 7. Our role includes testing and demonstrating hybrid machining and precision manufacturing solutions, integrating CNC processes with digital monitoring and quality control, and validating use-cases in automotive lightweight components, aerospace parts, and opto-mechanical assemblies. We will also contribute to exploitation activities by assessing cost-efficiency, productivity improvements, and market uptake of the developed technologies. Areas of expertise demonstrated across these projects: High-precision machining and industrial validation of advanced manufacturing solutions. Collaboration with universities and RTOs to integrate digital tools, automation, and AI. Experience in project preparation, partner coordination, financial planning, and exploitation strategies. Strong focus on TRL advancement and bridging research outcomes with industrial applications.

CONTACT DATA

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RESEARCH AREAS OF INTEREST

Pillar 2: Global Challenges & European Industrial Competitiveness: Cluster 4: Digital, Industry & Space

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CONSENT TO INFORMATION SHARING

I agree with the publication of my contact data: Yes