

Eurostars: Hungarian medical robotics SME seeks partners for endoscopic spine surgery robot

Summary

Profile type

Research & Development Request Hungary

Company's country

POD reference

RDRHU20260703005

Profile status

PUBLISHED

Type of partnership

Research and development cooperation agreement

Targeted countries

• All countries

Contact Person

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Term of validity

3 Jul 2026**3 Jul 2027**

Last update

3 Jul 2026

General Information

Short summary

A Hungarian medical robotics SME is developing Lumbotix, a robotic assistance system for endoscopic lumbar spine surgery. The project aims to advance from lab-tested prototype stage towards TRL 6. Partners are sought in surgical navigation, precision surgical instruments and cadaver-based validation for a potential Eurostars/Eureka R&D project.

Full description

Spine surgery increasingly relies on technologies that can improve precision, reproducibility and workflow safety. Robotic assistance and image-guided surgical solutions can support surgeons in performing complex procedures in a more standardised way, potentially improving access to high-quality specialised care.

A Hungarian medical robotics small and medium-sized enterprise is developing Lumbotix, a robotic assistance system for endoscopic lumbar spine surgery. The project is based on proprietary surgical know-how and aims to translate selected surgical steps into measurable spatial directions, controlled movements and quantitative parameters.

The technology is currently at laboratory-tested prototype stage, estimated at Technology Readiness Level 4. The next development phase aims to advance the system towards Technology Readiness Level 6 through further technical development, navigation and imaging integration, robot-compatible precision surgical instruments, safety and usability testing, and cadaver-based demonstration in an anatomically relevant environment.

The current project team combines clinical spine surgery expertise, proprietary surgical know-how and robotic system development experience. A working laboratory prototype has been developed and tested, and technical documentation and test results are available for confidential partner discussions.

The planned cooperation is intended to be submitted as an international research and development project under the Eurostars / Eureka framework, subject to final consortium structure and partner eligibility. Eurostars / Eureka supports international market-oriented research and development cooperation involving innovative small and medium-sized enterprises. The project is currently in the partner search and concept development phase. The expected project duration is approximately 24–36 months. The target submission is the next suitable Eurostars / Eureka call, to be confirmed after partner selection.

The consortium is seeking partners with expertise in one or more of the following areas:

- surgical navigation, neuronavigation, image-guided surgery, image fusion, three-dimensional patient registration or intraoperative imaging;
- precision medical device development, robot-compatible surgical instruments, minimally invasive or endoscopic surgical tools;
- cadaver-based validation, preclinical testing, clinical workflow assessment, usability feedback or surgical training environments.
- The selected partner is expected to contribute to the technical development, integration, testing or validation of the robotic assistance system, depending on its area of expertise. Detailed technical information can be shared under appropriate confidentiality arrangements.
- Expressions of interest are welcome until 31/July/2026

Demonstration video: <https://youtu.be/eZsykeyMHKw>

Advantages and innovations

The innovation lies in combining robotic assistance, surgical know-how, image-guided workflow and robot-compatible precision instruments for endoscopic lumbar spine surgery.

Key advantages:

- supports more precise and reproducible surgical movements;
- translates selected surgical steps into measurable spatial directions and controlled parameters;
- may reduce variability between surgeons and healthcare settings;
- supports workflow safety in complex minimally invasive spine procedures;
- enables future integration with surgical navigation, image fusion and three-dimensional patient localisation;
- prepares the ground for cadaver-based validation and later regulatory development.

Compared to many existing surgical support solutions, the project focuses on the robot-assisted execution of selected endoscopic lumbar spine surgery steps, rather than only planning, visualisation or passive navigation. The expected benefit is a more standardised and scalable approach to high-quality specialised spine care.

Technical specification or expertise sought

The project is seeking partners with technical and/or clinical expertise in one or more of the following areas:

Surgical navigation and imaging integration

Partners with experience in surgical navigation, neuronavigation, image-guided surgery, image fusion, three-dimensional patient registration, magnetic resonance imaging / computed tomography-based planning, intraoperative imaging or fluoroscopy-supported workflows. The partner is expected to support the development or adaptation of the navigation component and its integration into the robotic surgical workflow.

Precision medical device and surgical instrument development

Partners experienced in the design, development and testing of precision medical devices, minimally invasive surgical instruments, endoscopic tools, robotic surgical tools, mechatronic systems or robot-compatible instrument interfaces. The partner may contribute to the development of dedicated tools for robot-assisted endoscopic lumbar spine surgery.

Preclinical and cadaver-based validation

Clinical, academic or specialised validation partners with access to cadaver laboratories, surgical training environments or preclinical testing infrastructure. The partner is expected to support cadaver-based demonstration, usability assessment, workflow feedback and preliminary technical validation.

Regulatory and medical device development expertise

Partners with expertise in Medical Device Regulation, conformity assessment preparation, clinical evidence planning, risk management, usability engineering and preparation for later CE marking may also be relevant.

The exact role of the partner will be defined jointly during consortium development, depending on its expertise and funding eligibility.

Stage of development

Lab tested

IPR Status

IPR applied but not yet granted

IPR Notes

Sustainable Development goals

- **Goal 3: Good Health and Well-being**
- **Goal 9: Industry, Innovation and Infrastructure**

IPR Notes

Partner Sought

Expected role of the partner

The project is seeking industrial, clinical, academic or research partners with expertise in one or more of the following areas:

- Surgical navigation / imaging integration partner

Type of partner sought: innovative small and medium-sized enterprise, research organisation, university or clinical technology group.

Specific area of activity: surgical navigation, neuronavigation, image-guided surgery, image fusion, three-dimensional patient registration, magnetic resonance imaging or computed tomography-based planning, intraoperative imaging or fluoroscopy-supported workflows.

Expected role: support the development, adaptation and integration of the navigation component into the robotic surgical workflow; contribute to anatomical localisation, patient positioning and image-guided workflow design for endoscopic lumbar spine surgery.

- Precision medical device / surgical instrument development partner

Type of partner sought: innovative small and medium-sized enterprise, engineering company, medical device developer, research and development organisation or university laboratory.

Specific area of activity: precision medical device development, minimally invasive surgical instruments, endoscopic tools, robotic surgical tools, mechatronics, robot-compatible instrument interfaces or surgical instrument testing.

Expected role: contribute to the design, development and testing of robot-compatible surgical instruments and tool interfaces for selected endoscopic lumbar spine surgery steps.

- Preclinical / cadaver-based validation partner

Type of partner sought: clinical centre, university, anatomical institute, surgical training centre or specialised validation organisation.

Specific area of activity: cadaver-based validation, preclinical testing, surgical training, clinical workflow assessment, usability testing, spine surgery, neurosurgery or orthopaedic surgery.

Expected role: support cadaver-based demonstration, usability feedback, workflow assessment and preliminary technical validation in an anatomically relevant environment.

- Regulatory / medical device certification partner

Type of partner sought: regulatory expert organisation, HealthTech accelerator, medical device consultancy, research organisation or innovation support organisation.

Specific area of activity: Medical Device Regulation, conformity assessment preparation, clinical evidence planning, risk management, usability engineering and preparation for later European conformity marking.

Expected role: support the project's regulatory roadmap, medical device development strategy and preparation for later certification steps.

The selected partner or partners are expected to participate in the joint definition of the work plan, technical tasks, validation approach and potential Eurostars / Eureka research and development proposal. The final role will be defined according to partner expertise, consortium structure and national funding eligibility.

Type of partnership

Research and development cooperation agreement

Type and size of the partner

- SME <=10

Call Details

Framework program

Eureka

Call title and identifier

Eurostars-3 Call 11
Eurostars Call 11 for projects – deadline September 2026

Submission and evaluation scheme

Single-stage submission scheme. Applications are submitted through the Eurostars platform by the call deadline and evaluated after the call closure.

Anticipated project budget

EUR 500,000–1,000,000

Coordinator required

No

Deadline for EoI

31 Jul 2026

Deadline of the call

10 Sep 2026

Project duration in weeks

156

Web link to the call

<https://www.eurekanetwork.org/programmes-and-calls/eurostars/eurostars-call-for-projects-september-2026/>

Project title and acronym

Lumbotix – Robotic Assistance System for Endoscopic Lumbar Spine Surgery

Dissemination

Technology keywords

- **06001017 - Surgery**
- **06001013 - Medical Technology / Biomedical Engineering**
- **01001001 - Automation, Robotics Control Systems**

Market keywords

- **05004006 - Surgical instrumentation and equipment**



Targeted countries

- **All countries**

Sector groups involved

- **Digital**
- **Health**

