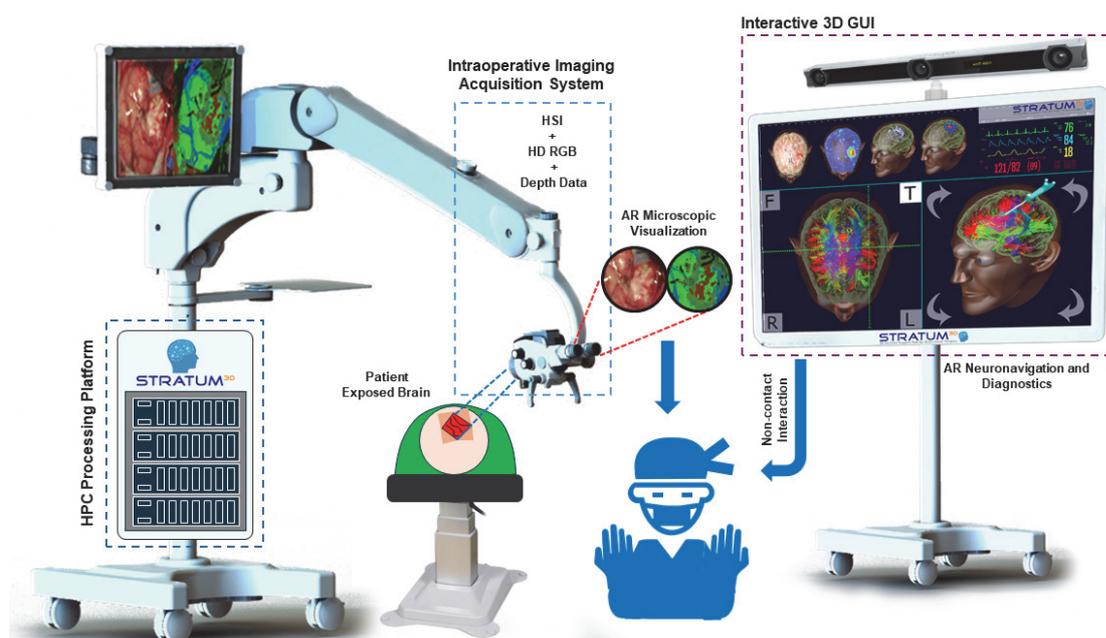


## STRATUM PROJECT OBJECTIVES (2023-2028)

**STRATUM will develop a 3D Decision Support Tool for brain surgery guidance and diagnostics (reaching TRL7) based on multimodal data processing using Artificial Intelligence (AI) algorithms,** integrated as an energy-efficient Point-of-Care computing tool. The system will be developed following a co-creation methodology involving key stakeholders and end-users.

The STRATUM tool will exploit the **interdisciplinary expertise of the 12 international partners** in the Consortium, being developed following a co-creation methodology involving key stakeholders and end-users. The tool will integrate at least the following **features**:

- **Hyperspectral Imaging (HSI) system.** HSI will be used as an image guidance and diagnostic mean. In addition, High-Definition video imaging and depth data will be also integrated in the tool, providing high spatial resolution information and depth information to generate 3D brain surface reconstructions that will offer accurate surgical guidance.
- **Intraoperative Augmented Reality Neuronavigation** based on pre-operative data, such as Magnetic Resonance Imaging (MRI) or Computed Tomography (CT), combined with HSI data. Brain shifts and deformations will be addressed in the loop to provide accurate intraoperative neuronavigation information. This will be shown to the surgeon via an interactive easy-to-use and non-contact 3D graphical user interface, where a 3D model of the patient's brain combined with the diagnostic results of the algorithms will be shown to the surgeon.
- **Intraoperative Neurophysiological Monitoring and life support systems.** The integration of these data within the new tool will provide valuable feedback to neurosurgeons about the status of the surgery and the patient during the surgical procedure.
- **High-Performance Computing platforms** that will integrate, combine and interpret all the previously mentioned sources of data through innovative and robust AI algorithms, providing quick detailed, accurate and highly personalised diagnostics to drive brain surgeries in real-time.



## STRATUM Overall Concept

Optimized integration and processing of available and new emerging data sources would help surgeons to make **time-efficient** and **correct tissue removal decisions**. This would **maximize the degree of resection** while **minimising the risk of neurological deficits**. Moreover, time-efficient surgical procedures not only benefit patients directly by **minimizing anaesthesia time and risks** such as postoperative infections, but also indirectly by **optimizing healthcare resources**.

Visit the project page on [CORDIS](#), the European Commission's primary public repository for EU-funded research projects.

## Project Figures

- **Name:** 3D Decision Support Tool for Brain Tumor Surgery
- **Acronym:** STRATUM
- **Grant Agreement ID:** 101137416
- **Start Date:** 1 December 2023
- **End Date:** 30 November 2028
- **Coordinator:** University of Las Palmas de Gran Canaria (**ULPGC**)
- **Consortium:** 12 partners from 6 countries
- **Total Cost:** € 10,714,691.25
- **EU Contribution:** € 9,990,566.25