



SARAS

SMART AUTONOMOUS ROBOTIC ASSISTANT SURGEON

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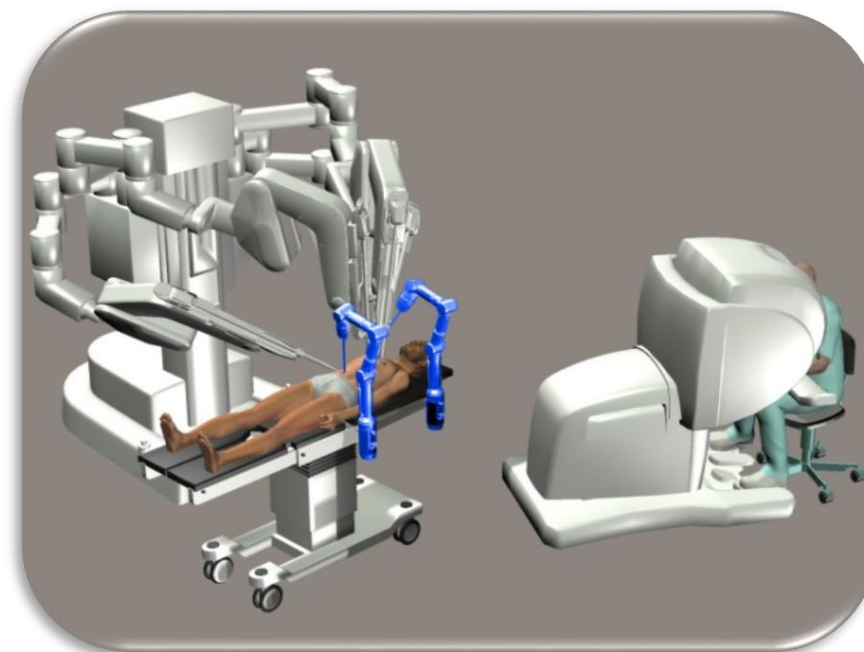
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AMBITION/OBJECTIVES

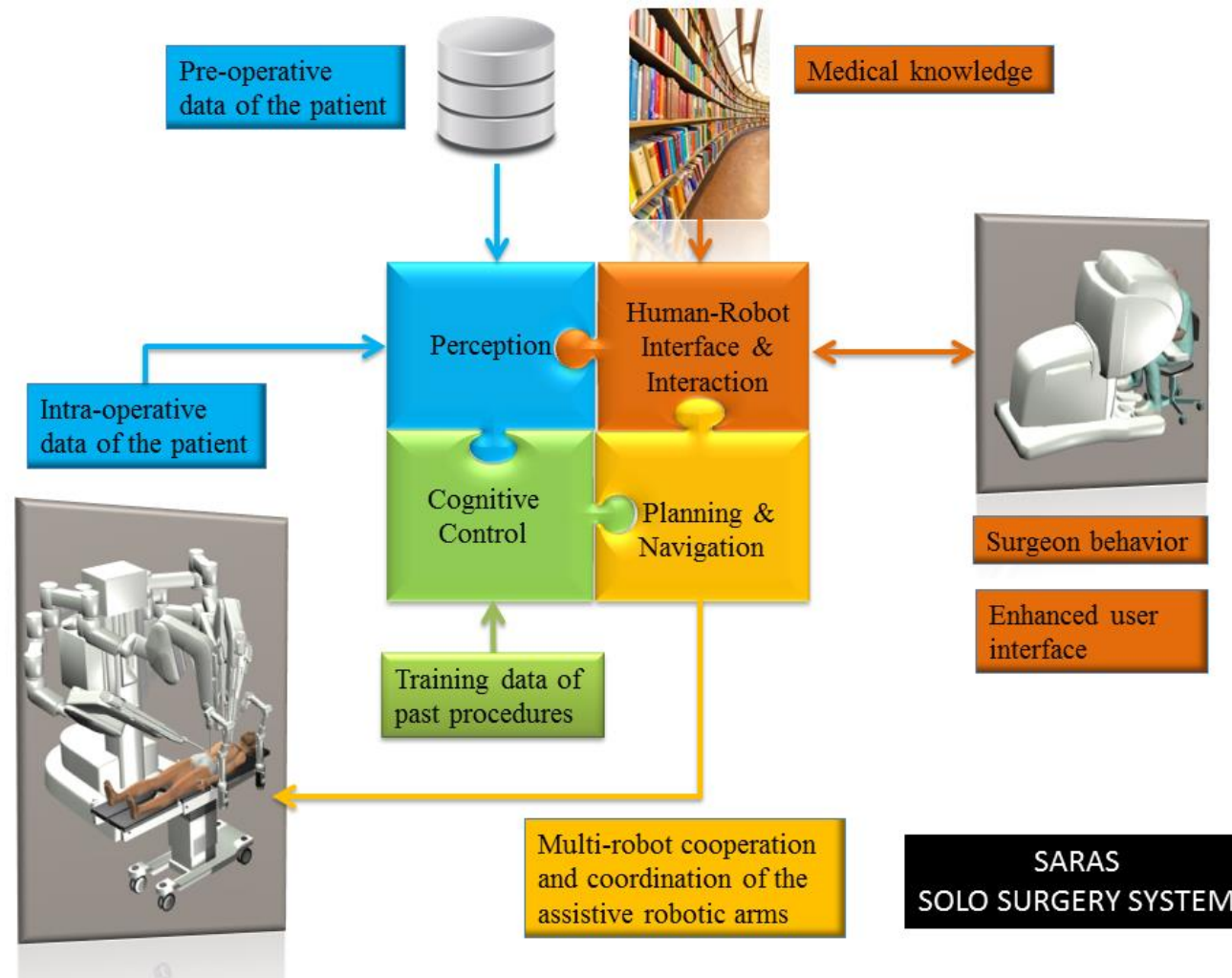
The goal of SARAS is to develop the next-generation of surgical robotic systems that will allow a single surgeon to execute Robotic Minimally Invasive Surgery (R-MIS)

→ **Robotic assistant surgeon for solo-surgery system**

- Objective 1.
Translation of **medical knowledge** into an engineering formalism easy to be interpreted by the autonomous system.
- Objective 2.
Design of a **perception module** able to infer the status of the procedure and the actions performed by the main surgeon.
- Objective 3.
Design of a **cognitive control module** which makes decisions about the robot future actions.



APPROACH



IMPACT

SARAS platform is designed to both complement any existing and future surgical robotic system (either teleoperated or not), and to be used alone for traditional laparoscopic operations performed in solo surgery mode.

- **IMPACT 1: Decrease the cost per procedure**, thus increasing the value of each surgical robot unit for hospitals that already have it.
- **IMPACT 2: Increase surgeon awareness** during laparoscopic operations, thanks to the information exchanged through the new generation multimodal user interface. Moreover, SARAS will pave the way to the creation of ad hoc training **curricula for junior surgeons** in standard and robotic laparoscopy and for senior surgeons in robotic laparoscopy
- **IMPACT 3: Working prototypes of the SARAS platforms will boost the creation of a European network for developing autonomous devices** working with teleoperated robots.

