

InSimo, in partnership with IHU Strasbourg, starts the development of simulation modules for learning new interventional endoscopy techniques

Strasbourg, 25th June 2021

The Strasbourg based company InSimo, specialising in the development of simulation software for medical and surgical training, is proud to announce the **launch of the ENSIST project** (Endoscopic Simulation for Surgical Training), supported by the Region Grand Est, for the development of simulation modules dedicated to **learning new surgical techniques using endoscopy approach**.

The rise of new, less invasive techniques

The new surgical techniques favor less and less invasive approaches that guarantee safety and comfort to patients during and after surgery. In the field of digestive surgery, the endoscopic approach is now used to perform multiple surgeries. These practices are still under-exploited, in particular because they are too long and difficult to master, which is why **suitable training tools are necessary to accelerate their generalisation**.

Among these procedures, two techniques are particularly interesting for their innovative aspect and the number of surgery they represent:

- **ESD** (Endoscopic Submucosal Dissection), a technique allowing to completely remove certain cancerous lesions of the digestive system
- **ESG** (Endoscopic Sleeve Gastroplasty), an endoscopic treatment for obesity used to reduce the size of the stomach without an incision. These two endoscopic procedures are particularly complex and difficult to learn and teach

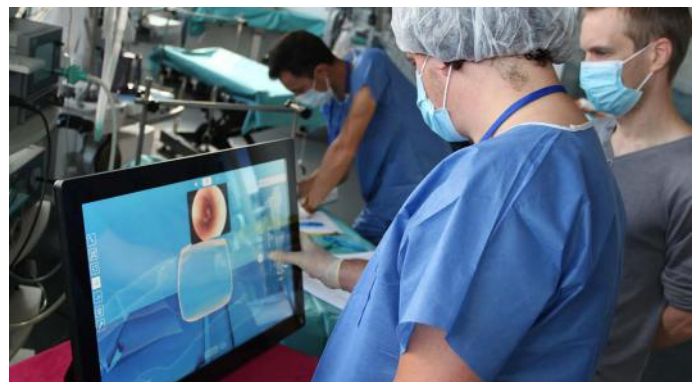
InSimo's modules will offer a realistic and interactive biomechanical simulation, that can be coupled with a hardware console to reproduce the gesture and sensations of the procedure

The ENSIST project

Learning through simulation has become a crucial component in training in endoscopic surgery. However, current simulation solutions lack the realism necessary to achieve a full level of competence. Most of them focus on the diagnostic aspect of the endoscopic examination, but do not allow the learning of new interventional endoscopy techniques, a segment on which InSimo wants to position itself. Indeed, patient-specific simulation developed at InSimo enables the implementation of many different patient cases and various pathologies. **It is therefore really interesting for an effective practice of complex interventional endoscopic procedures.**

As part of the ENSIST project, InSimo proposes to develop simulation modules for ESD and ESG training. InSimo will provide interactive **biomechanical simulation of the organs** involved in these interventions to create virtual clinical cases with patient data coming from medical imaging. The surgical interactions for all navigation and interventional gestures will be simulated in order to **reproduce the procedures as a whole**. The simulation can be coupled with a hardware console to **reproduce the gestures and the haptic sensations of a real surgery**. The learning of these surgical gestures will be integrated into **exercises with specific educational purposes**.

The ambition of the ENSIST project is to develop a simulator that will become a standard for training in advanced techniques of interventional endoscopy



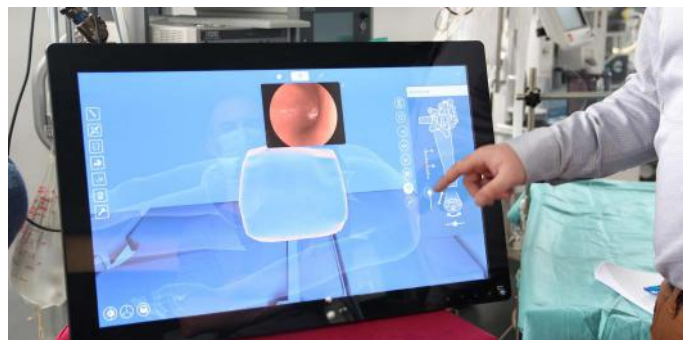
A project part of the company's strategy

The ENSIST project fits perfectly into InSimo's current developments, which aims at the **convergence of generic simulation for gesture training with the patient-specific simulation for surgical planning**. The ultimate goal is a simulator allowing the surgeon to perform the **virtual rehearsal of the complete procedure** on the anatomy of his patient and the ENSIST project represents a further step towards this ambition.

The simulator will combine preoperative planning modules with full surgical simulation to cover the entire patient-specific learning continuum, **from preparation to postoperative debriefing**. The planning modules will complete the existing offer of InSimo's diSplay Learning surgical planning simulator.

In addition, they will be **available online** for better accessibility, and will participate in the creation of a shared educational content platform between InSimo's various simulation offers (in particular the doSplay U/S online ultrasound simulator). Extensions of these modules are also intended to be deployed on simulators dedicated to the practice of gesture, such as the **EndoSim simulator from the Swedish company Surgical Science**, a well-established player on the simulation market, and a partner of the project.

This collaboration constitutes a major asset from a commercial standpoint due to the **presence of several hundred Surgical Science simulators around the world** and their distribution network capable of offering new products all over the planet.



A new collaboration between InSimo and IHU Strasbourg, supported by the Region Grand Est

The simulation modules will be **developed with IHU Strasbourg** (Institute of Image-Guided Surgery). ENSIST strengthens the collaboration that InSimo and IHU Strasbourg have maintained for several years with the ambition of developing a close and lasting partnership.

As part of the project, InSimo will benefit from the contribution of IHU medical experts who will support development from defining the needs to the first training, and will validate the educational value of the simulator. Thanks to this partnership, InSimo will distribute educational content approved by healthcare professionals, tested in real conditions.

The development of the two simulation modules will be overseen by **Lee Swanström**, Director of Innovation at IHU and Professor **Silvana Perretta**, Director of Education Programs at IHU who will validate the medical and educational specifications of the simulator.

In addition, thanks to this partnership, InSimo will be able to count on the support of IHU resources for the management of preclinical and clinical research. **A study will be carried out to validate the patient-specific simulation of the stomach's distortion** and verify that the theory behind the behaviour of the organ simulated by InSimo matches the reality that the surgeon finds in his patient. This validation represents a further step towards patient-specific clinical planning software for decision support that would allow the surgeon to plan and repeat his operation on a virtual twin of his patient.

In 2020, the Region Grand Est and BPI France showed their support for the ENSIST project since it was awarded by the R&D&I subvention which helps collaborative R&D and innovation projects. **A major support for a project costing over 1 million euros.**

InSimo's modules will allow generic simulation for gesture learning, with patient-specific simulation of the surgical planning, for a complete training

ABOUT



InSimo is a startup located in Strasbourg, France, specializing in the development of medical and surgical simulation software, on virtual models with high-fidelity behaviours
<http://www.insimo.com/>



The Institute of Image-Guided Surgery of Strasbourg develops innovative surgery to deliver personalized patient care, combining the most advanced minimally invasive techniques and the latest medical imaging methods.

<https://www.ihu-strasbourg.eu/en/>

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Surgical Science is a leading supplier of virtual reality simulators for medical training. Our simulators for laparoscopy and endoscopy are used by medical training centers and institutes worldwide for practice, validation and certification of students, surgeons, and medical doctors. - <https://surgicalscience.com>