

< Press Release >

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VIDEO IMAGES OF AN OPERATING ROOM, SYNCHRONIZED IN REAL TIME: A WORLD-FIRST ACHIEVEMENT BY B<>COM AND RENNES UNIVERSITY HOSPITAL

On January 16, 2019, a medical and paramedical team from Rennes University Hospital (CHU de Rennes) carried out the first-ever series of surgeries using their high-tech solution that retransmits images of the equipment used in the operating room, perfectly synchronized and in real time. Initiated by the [b<>com](#) Institute of Technological Research, tested and then implemented in close cooperation with the care and technical teams at CHU de Rennes, this new international standard for real-time streaming video management is a major advance that will aid in numerous upcoming developments in surgery.



Combined real-time imaging: Time-saving and greater accuracy serve the patient better

The product of research into decreasingly invasive operating techniques, image-guided surgery is changing dramatically. The CHU de Rennes operating room where Dr. Sébastien Vincendeau conducts prostate surgeries normally requires a team surrounded with equipment that provides video images of the operation (ultrasound, endoscope video, room camera), allowing the surgeon access to all the information he needs for the procedure to go as it should.

But the challenge today is how to increase manual precision and provide more accurate information, in a way that is perfectly synchronized with the operators. That's why b<>com, which since its formation has been working on innovative medical imaging solutions, created software to synchronize the images of the equipment used for high-precision guidance of surgical procedures. The solution also handles the transmission of those video streams and the configuration of the equipment over an IP network, under a new interoperability standard called DICOM-RTV.

Deployed in a urology operating room, this system was successfully used by the surgical team during the operations on Wednesday, January 16. It makes it possible to combine and synchronize the images from the two video sources used simultaneously during surgery, in real time. For the occasion, this innovative solution was deployed in parallel with the existing equipment, after having been tested multiple times on a simulator before being used in an actual situation. **The use of streaming video management in DICOM-RTV format in an actual situation to allow streams to be synchronized in real time is a world-first.**

A decisive step towards the operating room of the future

This technology now offers great opportunities for teaching and research, and in the course of developing new tools for the operating room of tomorrow.

First, the potential to replay sequences from different video sources perfectly synchronized with the physiological/medical data acquired during surgery is just one major benefit of this technology. For the CHU, its teaching and training applications will be critical.

Dr. Sébastien Vincendeau states that because the university hospital is “one of the leaders in prostate surgery in France, the medical team is working on numerous training modules to share its expertise. Real-time synchronization of images and physiological/medical data is fundamental to teaching our students.”

“The medical video-over-IP technology developed by our laboratory is the first in the world to use the new DICOM-RTV standard at full scale. Image-guided surgery will become more accurate owing to Augmented Reality solutions, which require very precise time synchronization between multiple video sources, which determines how accurate the surgeons’ hands can be. The new standard created with our academic, clinical, and industrial partners will encourage the spread of our original technologies,” explains **Emmanuel Cordonnier, Director of e-health at b<>com.**

Rennes University Hospital and b<>com: A partnership for patient-focused innovation

Besides care, teaching, and research, one of the essential missions of the CHU de Rennes is to promote innovation. To do so, it relies on close collaborations with particularly dynamic academic and economic partners in the Rennes ecosystem in digital health technology, which are also members of b<>com: Université de Rennes 1, Inserm, and Inria. The CHU has been an associate academic member of the IRT b<>com since 2014, and its research teams are involved in the fields of medical imaging, pre-and post-operative imaging, data hosting, and developing 3D visualization tools.

For this world premiere, the teams at b<>com’s [Connected Medicine](#) laboratory provided key components of the integrated, controlled operating room, based on the new surgical video-over-IP standard. Collaborative work between the teams at b<>com and the hospital then made it possible to conduct the first closed experiments before testing the new video standard in an actual setting. This experiment reflects the ambitions of the CHU de Rennes in the field of health technology innovation, and portends new possibilities that the operating rooms of the future Surgical and Interventional Center will offer as part of its #NouveauCHURennes project.

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About b<>com

Created in late 2012, the b<>com Technology Research Institute is a tech provider and an innovation accelerator for every business that uses digital to increase its competitiveness. b<>com brings together multi-cultural disciplines and talents in augmented reality, virtual reality, and immersive media formats, in the fields of applied artificial intelligence, cybersecurity, 5G networks, Internet of Things, cognitive technologies, and e-health. Thanks to its world-class engineering team, its technology platforms and its unique mix of scientific and industrial knowhow, b<>com offers its clients technology solutions that give them invaluable competitive edge.
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About the CHU de Rennes

A key institution in the GHT Haute Bretagne and ranked among the 9 leading French health care providers in France*, Rennes University Hospital (CHU de Rennes) boasts more than 1830 beds. In 2017, the institution cared for 131,940 hospitalized patients, provided 528,207 consultations (physicians, surgery, and obstetrics/gynecology), and nearly 113,918 emergency room admissions. Its total budget is €733 million. Besides a wide range of top-quality clinical services covering all healthcare needs, the CHU has cutting-edge technology dedicated to diagnostics and interventional medicine. It offers the population of Rennes and Brittany the best health care there is, including treatments not commonly available, and employs 9155 professionals, including 840 senior physicians. The CHU is involved in 14 hybrid research units and belongs to two official academic-hospital partnership federations. With its #NouveauCHURennes renewal project, the institution is seeking to centralize all of its medical, surgical, and obstetric activities at a single site in order to better meet its missions of care, teaching, research, prevention, and innovation.