

Rennes, 9/17/2019

A new international standard for medical imaging

With the DICOM-RTV international standard, b<>com opens up possibilities for the health care market

The product of three-and-a-half years of research, the DICOM-RTV (for Real-Time Video) standard is a major achievement for the teams of the IRT b<>com and DICOM Standards Committee, and a big step in the e-Health market. This advance will make video accessible to a larger number of professionals in operating rooms, which will have concrete positive impacts on patients.

An international standard for tomorrow's operating rooms

Like jpeg for photos, DICOM is the global standard for medical imaging. What this means is that for example, no matter which radiologist is consulted, all images produced by the radiography equipment (ultrasound, scanners, MRIs, etc.) viewed on a computer will be in the same format: DICOM. DICOM is also recognized as a standard by the *Association française de normalisation* (AFNOR), the European Committee for Standardization (CEN), and the ISO.

Drafted by medical professionals (radiologists, surgeons, physicians, etc.) and suppliers (makers of radiology equipment, medical image servers, etc.), the DICOM-RTV standard is the extension of DICOM for real-time exchanges. Its main purpose is to make video in operating rooms, procedure rooms (treatment via catheters inserted into veins and arteries), and endoscopy rooms "agnostic", meaning that it is not dependent on a single manufacturer. The goal is to provide access to services that are currently too costly for hospitals. Thanks to DICOM-RTV, there will be more compatible equipment, offering the opportunity to choose between different device makers.



This is progress toward concrete positive consequences for both medical professionals and patients. For instance, an experienced surgeon can watch an operation previously performed by a junior colleague if there was a complication requiring a new procedure, to reduce the risk of error. A major advance, given that out of 8 million operations a year in France, more than 50,000** avoidable serious errors occurred.

Emmanuel Cordonnier, Director of e-Health at b<>com: *"France is world-famous for the quality of its medical education and research. The DICOM-RTV international standard is a new example of this. We're very proud that b<>com, a French research center based in Rennes, was the driving force behind these three-and-a-half years of research. This is a major step forward for e-Health. Much like the Internet does for computing, DICOM helps to create a consistent ecosystem that allows numerous independent players to provide applications, products, and services with high added value along the entire supply chain."*

Standardization: A fundamental issue



"To understand the importance of DICOM-RTV to the medical sector, consider how much of an impact the Internet had on the economy. Originally, the Internet was an IP standard, which was later supplemented by a myriad of adjacent standards: The web. The parallel is relevant to health care and DICOM," explains Emmanuel Cordonnier.

e-Health relates to the use of digital technology in health care, which results in more electronic devices being used in operating rooms. That's where DICOM standardization comes in. It makes it possible to specify the format of communications between the equipment used, the medical devices, and the health information systems. Without this shared exchange format, the systems would not be able to communicate with one another. DICOM-RTV goes even further and facilitates continuity of information. This is critical to the quality of care the patient receives.

"Over the course of my career, I've had the opportunity to help draft five international standards, and DICOM-RTV is the sixth. The earliest ones I worked on are now in routine use among medical professionals. DICOMweb, for instance, makes it easy to access images from patient records, and soon, from a DMP (French electronic record),"* adds Emmanuel Cordonnier.

Finally, with this new DICOM-RTV standard, b<>com has demonstrated the strength of its development policy, which is based on convergence between teams and research. Much of the IRT's expertise in standardization comes from its work as part of the Video Services Forum (VSF).

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* DICOM MIME Type (which defines the .dcm extension), WADO (predecessor to DICOMweb), DICOM MPEG (video exam exchanges), DICOM-RTV (real-time video), IHE XDS (used by French electronic medical records), and IHE XDR (for connected health devices)

** Link, association in defense of patients who suffered medical accidents, in 2015, based on World Health Organization data.

About b<>com

A technology pioneer and provider for companies that want to digitally boost their competitive edge, b<>com addresses several industries: culture & creation, digital infrastructures, health, defence and industry 4.0. Its laboratories bring together talented people from a variety of disciplines and cultures in areas like artificial intelligence, immersive video and audio, content protection, 5G networks, the Internet of Things, and cognitive technologies.

b<>com's researchers and engineers, drawn from the ranks of industry and academia, work at its Rennes campus and at its sites in Paris, Brest, and Lannion.

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