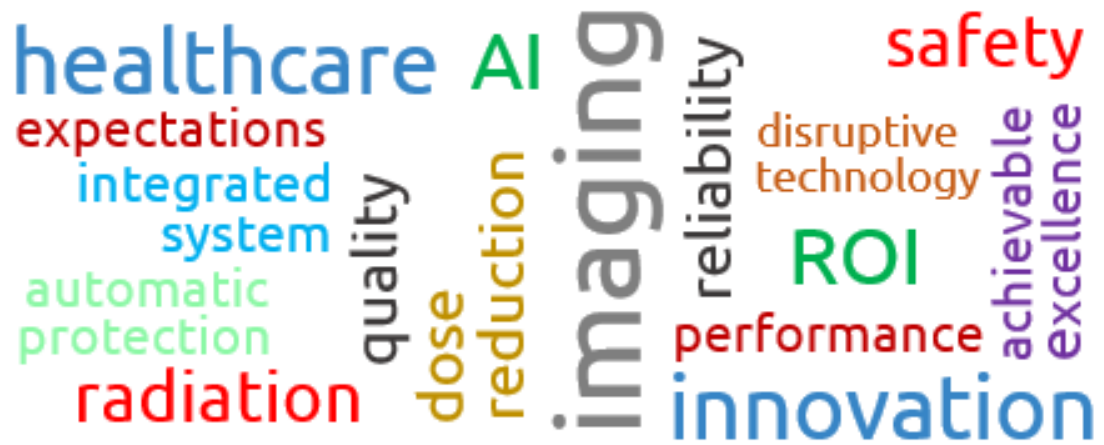


# Innovations in Interventional Imaging

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The technology of interventional X-ray systems has evolved. There was a time when not every system used pulsed fluoro. That technology is now standard – as it should be. The same with flat panels. It's inconceivable to think of a cutting-edge system without flat panel technology. Today, the same should be said of AI ROI image-guided technology and the radiation reduction and protection it provides. This is a technology that every hospital, physician, and patient should demand.

Innovation has been the lifeblood of our economy. Innovation is at the heart of progress and through innovation comes improved processes and advanced technology. This is no less the case for interventional imaging. Interventional imaging extends the reach of human vision and enables greater patient care. Innovation in interventional imaging has revolutionized healthcare around the world.

As critical as innovation is, it is not always universally adopted or even adopted quickly. In an article for [MIT Technology Review](#), Michael DeGusta noted that it took the telephone 64 years to achieve 40% consumer adoption. 64 years before 40% of consumers had a phone. Electricity took 45 years, computers 23, and the internet 13. Healthcare is no different.

When pulsed fluoro was introduced, it was revolutionary. Instead of a constant beam of X-ray energy, pulsed fluoro technology provided an innovation that reduced radiation exposure by ~65% from non-pulsed systems. Still, pulsed fluoro was not immediately universally adopted.

Such is often the case with innovation – even when new technology provides dramatic results. Like pulsed fluoro before, AI ROI technology is proven to provide dramatic results in reducing radiation exposure – in reducing dose. But also like pulsed fluoro before, AI ROI technology has yet to be universally adopted. Currently, Omega Medical Imaging is the only manufacturer of interventional systems that incorporates this advanced technology into their systems.

Omega systems use AI ROI image-guided technology that automatically defines, tracks, and collimates to the ROI (region of interest). The secondary collimation of non-AI systems – either designed-in or with add-on devices – is controlled manually. During a procedure, the ROI must be manually adjusted and maintained. AI technology provides a hands-free solution – one that truly collimates the area outside of the ROI and goes beyond just filtering.

Artificial intelligence, or AI, is another game-changing technology that promises much in medical imaging. AI can process a massive number of medical images and automatically recognize radiographic characteristics. In a 2018 [article](#), Jeffrey Golden, MD stated that AI can

improve productivity by identifying features of interest in images before a human clinician reviews the data.

But is AI's potential to improve healthcare limited to image analysis? No. AI can do much more. AI can, for instance, determine and control certain aspects of medical procedures, freeing the physician to focus on what's most important – the patient and the outcome – and not be preoccupied with processes that can be managed by artificial intelligence.

A great example of such a process is the establishment and control of the ROI during an interventional procedure. Like identifying features of interest in images in radiology, a region of interest can be learned and controlled by AI – thus allowing the interventionalist to focus more on their work, more on their patient.

Current interventional cases are done using a full field of view (FOV), disregarding the physician's actual ROI. This exposes the patient to more radiation and, therefore, the staff to additional scatter radiation. [AI-enabled technology](#) can detect where in the anatomy an interventionalist is focused and automatically collimate to that ROI. This reduces radiation exposure to the patient and everyone in the room – physician and staff included.

AI image-guided ROI systems are [proven to be safer](#) than non-AI systems and are quickly becoming the new standard of care for interventional imaging. AI provides an automatic, hands-free solution to radiation reduction – delivering the benefit of consistent and repeatable radiation reduction beyond what conventional, non-AI systems can provide while providing superior image quality with no change in existing workflow.

Conventional systems have long used now-standard technology like beam hardening and filtration, pulsed fluoro and cine, and the finest in X-ray tubes and sensors. These are technologies that most use today – in some form or another.

Omega took the best of conventional interventional systems and then made a quantum leap forward in technology. The result is the creation of a new imaging modality – one that dramatically reduces radiation exposure to patients and staff while delivering the superior image quality demanded during interventional procedures.

Omega breaks away from traditional systems with innovative technology – technology that no one else has. As the only company in the world to offer this technology, Omega has created a new standard of radiation protection – a new standard of care.

Medical imaging has come a long way from the first days of fuzzy monochrome X-rays. What new innovations and new technologies are on the horizon? We can absolutely expect continued improvements in not only the techniques used in interventional imaging, but also in the devices and technology used to generate those images. The key to these innovations is in the adoption. How early do manufacturers incorporate new technology into their systems and how much do physicians and patients demand – or even expect – innovation?

Technologies like pulsed fluoro were slow to be universally adopted. This was true even though the benefits were clear. AI ROI technology is proven to provide dramatic results in reducing radiation exposure. AI can automatically control an ROI for hands-free radiation reduction for everyone during a procedure. Despite this, this technology is still not universally adopted.

If disruptive technologies like the telephone and electricity took decades to be adopted, how long will it take for lifesaving innovations in interventional imaging? Maybe AI and ROI can be more like the internet and can be embraced in 13 years and not 64. Maybe.

Until then, the interventional systems designed and built by Omega will continue to provide the best technology and the latest innovations in interventional imaging. Patient care is at our core, and we are committed to improving patient outcomes and establishing a new standard in radiation safety and imaging excellence.



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