

# The Evolving Role of Interventional Radiology

From its beginnings in the 1960s, interventional radiology (IR) has evolved and expanded rapidly, driven by technological and medical advances that have improved outcomes and increased the range of applications.[1,2] Today, across a growing spectrum of disciplines – including cardiology, radiology, neuroradiology, and oncology – more and more procedures are being performed in the IR suite. Image-guided, minimally invasive therapies are growing at a remarkable rate of 10.5 percent annually.[3]

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## Designing the interventional suite of the future

**A**s the range of applications has expanded, interventional radiology (IR) procedures have become more complex. The number of older, comorbid patients who can be treated with IR has also increased. These trends are driving another fundamental shift: After decades of being focused on procedural expertise, IR is expanding to include more comprehensive patient care both before and after interventional treatments.[1,2]

The evolving role of IR presents both enormous opportunities and pressing challenges to institutions looking to position themselves to meet future demand and remain competitive. One of the biggest challenges is designing IR suites with the capacity to meet today's needs and accommodate the demands of tomorrow. Experts point to five attributes that will be critical to success.

### 1. Efficiency

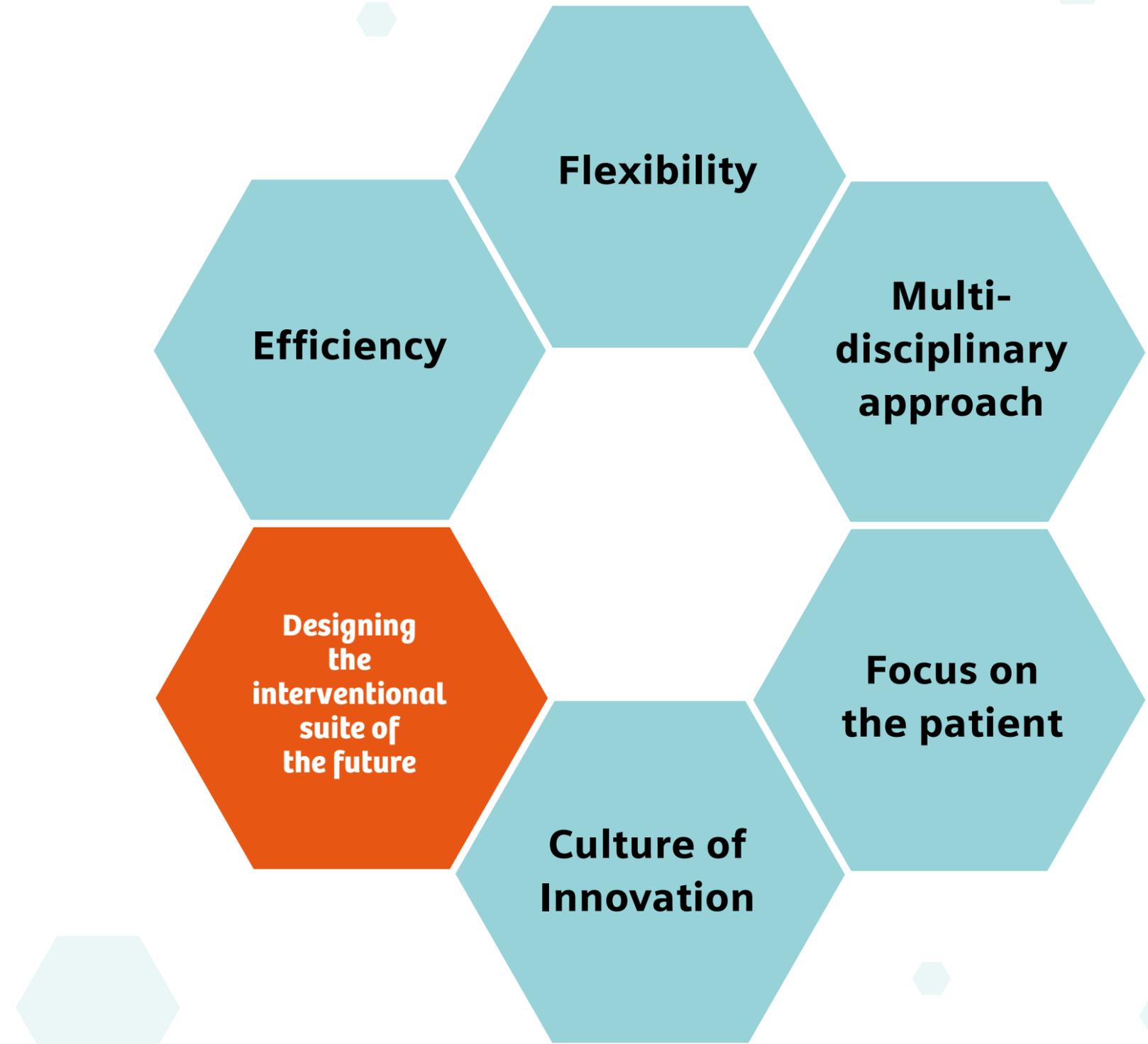
With more and more treatments migrating to IR, the ability to diagnose and treat patients efficiently will become increasingly critical. High patient volume is important to the bottom line, of course: Organizations that are able to expand minimally invasive, image-guided treatments can increase

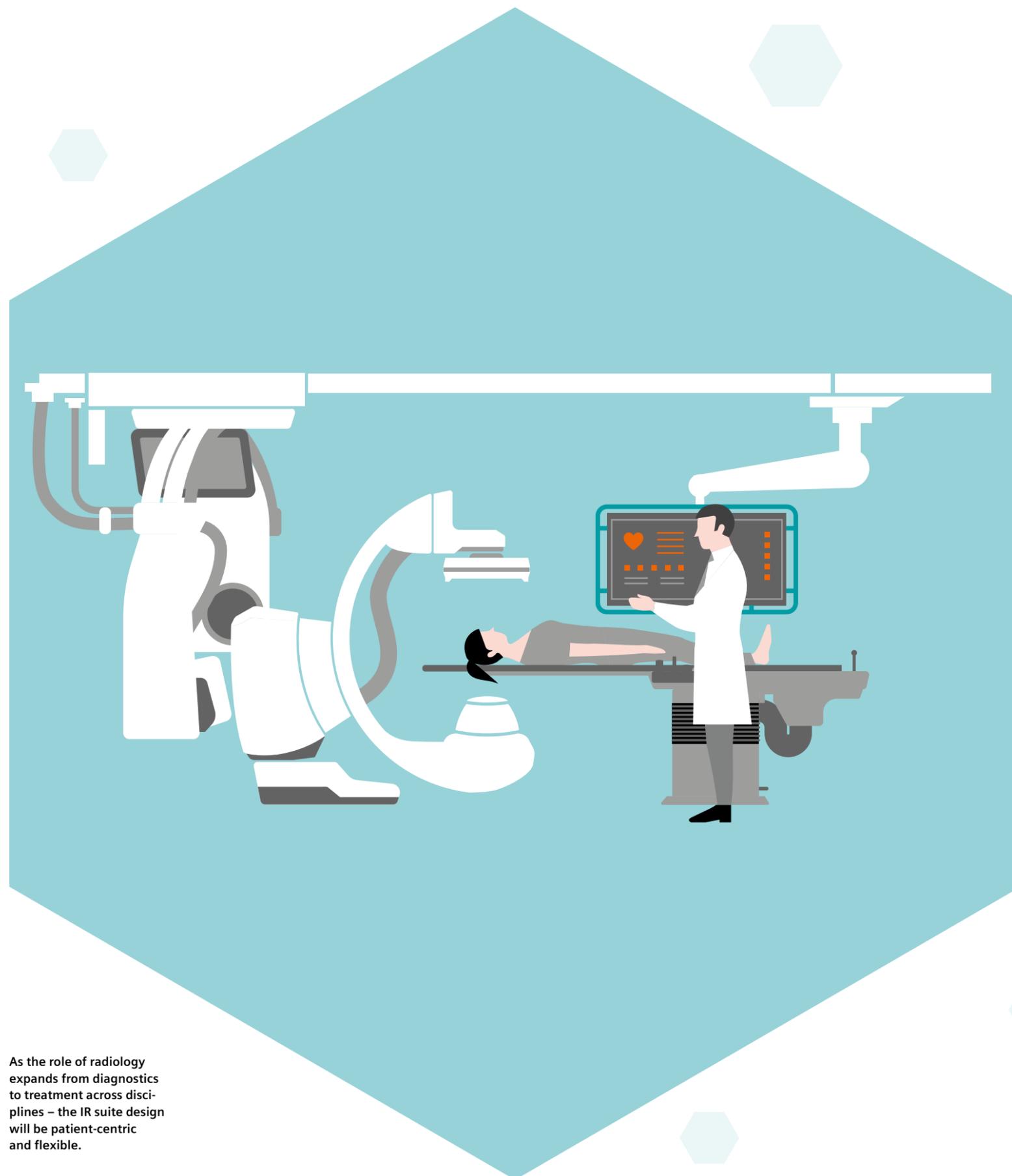
referrals and reduce costs associated with hospital stays and high-dependency care. Efficiency is also key to better outcomes. In the case of thrombectomies, for example – one type of neurological procedure being done with IR – quick diagnosis and treatment is essential to preserving brain tissue.

Thanks to improved imaging, many patients with suspected stroke can be diagnosed and treated in the IR suite, reducing time-to-thrombectomy by 34 minutes on average by using the angio-only approach.[4] Across the full range of IR procedures, standardized case flows – dedicated sequences of system settings for each diagnostic and interventional step – will play a growing role in streamlining IR procedures and ensuring consistent outcomes. These powerful tools have the potential to transform the way care is delivered. Customized case flows can be shared with other colleagues, supporting best practices, ensuring more consistent outcomes and documentation, and reducing training time for new staff.

### 2. Flexibility

Flexibility will become even more important in the future as procedures from across a range of disciplines transition to the IR suite. Advanced imaging tools are being designed to accommodate a wide range of procedures and practitioners





As the role of radiology expands from diagnostics to treatment across disciplines – the IR suite design will be patient-centric and flexible.

seamlessly, bringing all the information physicians need from imaging studies to medical histories together in user-friendly formats. The same standardized workflows that ensure consistent results must also be designed to be flexible enough to be adapted to individual patients and physician preferences. The IR suite of the future will utilize flexible, context-based case flows that allow physicians to create and save their own personal preferences.

### 3. A multidisciplinary approach

The angio lab of the past is fast becoming a multidisciplinary interventional suite where cardiologists, interventional radiologists, neuroradiologists, oncologists, and other specialists perform a growing number of procedures. In addition to cardiovascular and vascular interventions, for example, IR is increasingly being used to perform percutaneous thermal ablation of tumors (such as renal cell and hepatocellular carcinomas) and percutaneous sclerotherapy for low-flow venous and lymphatic malformations of the head and neck. New applications of IR are certain to follow. That means the IR suite of tomorrow will increasingly need to accommodate the requirements of very different specialists. Imaging and interventional tools must be designed to adapt rapidly to the positioning needs of both cardiologists and neuroradiologists, so that both disciplines can share the lab without any compromises. From a business perspective, a broader procedure mix will improve utilization of interventional tools and amortize costs more rapidly. But making minimally invasive IR procedures available across disciplines also means that patient outcomes are likely to improve.

### 4. Focus on the patient

Patient satisfaction will become increasingly crucial to competitive success and better outcomes. Many of the technological advances that are improving procedural efficiency also impact the patient experience. More efficient workflows, for example – including “one stop” diagnosis and interventional treatment – mean that patients can be diagnosed and treated much more rapidly, minimizing stress and discomfort. Imaging equipment designed to adjust and accommodate a wide range of patients comfortably will also improve the patient experience. As IR is used increasingly for complex treatments of patients with multiple comorbidities, the IR suite of the future will also need to be designed

to support comprehensive clinical care, from preprocedural workups to follow-up care and ongoing engagement with patients. It will increasingly be seen as one part of a continuum of care on a patient’s journey.

### 5. A culture of innovation

Technological and medical advances will continue to transform IR. The introduction of robotic vascular inventions, for example, will give physicians even more precise control to guide catheters, guidewires, balloons, or stent implants via integrated imaging. Robotic control also allows physicians to control procedures remotely, reducing their exposure to radiation. Interventional radiologists, perhaps more than any other specialists, understand the critical importance of advanced technologies like these, wisely used. An IR culture that is committed to evaluating and incorporating the latest advances will be positioned to continuously improve patient outcomes, reduce waste and errors, improve efficiency, expand the scope of its services, maintain top morale, as well as attract and retain the best staff.

### Preparing for tomorrow

No one can predict the future. But if there’s one lesson from the past, it’s that technological innovation and medical advances will open up new opportunities for diagnosing and treating a growing range of conditions using the tools of interventional radiology. By positioning themselves at the leading edge of innovation, institutions can design IR suites flexible enough to meet the demands of the future – improving efficiency, boosting productivity, and ensuring the best patient care. ●

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