By plane, by train, by car. The head of GE HealthCare's Cardiovascular Ultrasound hits the road regularly, making stops in hospitals and clinics around the globe to visit customers.

"*This time I'm in Missouri,*" says General Manager Dagfinn Saetre, before beginning a several hour road trip in the United States. Saetre embraces any travel that leads to new insights and better problem-solving.

"*It's so important to get first-hand information from physicians. Not only get their words, but also see how they are using our equipment and understand what can be developed to provide even better service. They're really driving us forward.*"

Working alongside physicians and researchers has always been a hallmark of GE HealthCare's revolutionary Vivid brand, which is celebrating its 25th Anniversary. The business began in 1998 when GE Medical Systems acquired Diasonics Vingmed in Horten, Norway. Now after a quarter century of medical milestones, GE HealthCare is considered a global leader in cardiovascular ultrasound. Saetre has had a front row seat for all of it.

The Early Days

Before finding its home at GE HealthCare, Diasonics Vingmed was revered for its groundbreaking Doppler devices and highly respected in the ultrasound space. Yet, insiders say Vingmed struggled with operations and distribution. Despite some initial growing pains, GE HealthCare is credited with vastly improving the quality of products by implementing new processes and procedures, resulting in a significant jump in U.S. market share.

Saetre, who was a young engineer at the time, led the development of one of the first products, the Vivid 7. "*It turned out to be even bigger than we thought because we generated a new platform for almost everything ultrasound. In terms of ergonomics, the look, how you interacted with it, the software functionality, it was a big step forward and went beyond anything on the market*," he recalls.

Soon after, engineers created miniaturized portable versions, the Vivid i and Vivid q, which was the first miniaturized cardiovascular ultrasound. These PC-based systems paved the way for further progress and led to more pioneering developments in image processing, beamforming, and image display.

The Power of cSound

In 2015, GE HealthCare made an unprecedented leap with the introduction of cSound and a new generation of scanners. The software-based beamformer platform enabled another level of versatility, flexibility, and processing power in image acquisition, reconstruction, and visualization. The Vivid E95 Ultra Edition and Vivid S70N Ultra Edition[1] ultrasound systems were the first machines to be built around the revolutionary architecture. The latest version, cSound ADAPT[2], powers even more solutions today.

"*This has given us a fantastic innovation platform for image quality. If you want to change algorithms, it's a matter of changing a piece of software instead of implementing a new electronic board. We keep coming up with new ways of processing the images, new ways of doing beamforming, and that gives us new possibilities*," Saetre explains.

Accelerating Structural Heart Innovation

GE HealthCare has also been an important player in the rapidly evolving world of structural heart interventions. For the last decade, it's been expanding Vivid's cutting-edge tools to meet the growing demand for minimally invasive procedures.

"*TAVR was the first and then came transesophageal imaging—with 4D imaging increasing big time. Heart teams are relying on our equipment for superb visualization of anatomy and flow dynamics to confidently plan, guide, and assess complex procedures*," Saetre says.

The ability to treat more patients, who aren't suited for general anesthesia is also a driver, along with uncovering new ways to boost productivity and reduce the overall cost of care.

The latest breakthrough is small in size but could make a big impact in patient care and daily efficiency. The Vivid brand recently launched the world's first mini 4D TEE probe (9VD-T)[3], and it's already stirring a lot of interest in the field. The compact probe is suitable for a broad range of pediatric and interventional cardiology procedures, potentially eliminating the need for general anesthesia in adult patients.

An Intelligent Future

GE HealthCare's vision for the future also encompasses more advances in automation, artificial intelligence, and machine/deep learning. Under Saetre's leadership, creative engineers continue to add progressive tools that not only enhance image quality, but also reduce tedious tasks and inter-operator variability. Areas of focus include intelligent image optimization and computer-assisted image acquisition, image interpretation and computer assisted diagnostic support, and measurement simplification.

As Vivid celebrates 25 years of inspired innovations and impact, Saetre has no intention of taking his foot off the gas. No matter where he travels—the direction is always forward. "*Hospitals in every corner of the world have a Vivid. We've been part of a big change in enabling a better diagnosis and in recent years, help enabling new treatments for countless cardiac patients,*" Saetre reflects. "*That's quite something, but there's so much more to come.*"

> *"We keep coming up with new ways of processing the images, new ways of doing beamforming, and that gives us new possibilities".*
> Dagfinn Saetre