

The Next Step for AI in Medtech

From smart devices to systems that learn

By Bryan Gilpin, President, Suntra MedTech Solutions

There's one thing for certain we can say about AI in medtech today: we're out of the testing phase. Right now, there are thousands of AI-enabled medical devices in operation around the world. Regulatory approvals are being granted at a steadily increasing pace. After struggling to get its footing in its earliest days, AI is now a fixture in radiology, cardiology, pathology, and many other specialties.

This rapid implementation of AI in medtech is unquestionably good news, a clear sign of the innovation and resiliency that are essential for the continued growth of the industry. But it also poses a question, one that was asked years ago by the singer Peggy Lee: "Is that all there is?"

Or, as one of our clients put it more specifically,

"We've implemented intelligent algorithms and machine learning in our solutions, and we'll keep doing so, but AI seems like it's a much bigger phenomenon. What more should we be doing?"

AI is changing medtech

Asking this kind of question is essential because the way AI is used in medtech is in fact changing in very significant ways.

In the early days of AI usage in medicine, AI was synonymous with Machine Learning (ML). Its value in healthcare was task-specific and often framed in terms of its ability to replace the judgment of human experts, i.e., clinicians, trying to complete a specific task with a definitive assessment. This was true not just of AI in medtech, but AI generally. This

was the time when early enthusiasts celebrated AI's ability to win at chess or on the TV game show Jeopardy leveraging classic machine learning coupled with natural language processing. In fields such as imaging and cardiology, studies were undertaken to see who could do better at detecting abnormalities, the algorithm or the physician.

This "human versus AI" dynamic reflected both the technical strengths of machine learning for pattern detection, as well as the excitement over the prospect that AI-based automation would become more generalizable and introduce an era of better care at much greater scale.

What drives clinical judgement

Over time, however, it became clear that the "human versus AI" framing was limited and simplistic. Sure, the algorithm could interpret the radiology scan faster and with greater precision than some human experts. But patient care rarely depends on a single signal or dataset. When a practiced clinician makes a decision on patient care, it's informed by a slew of considerations ranging from the highly specific (e.g., an individual patient's history) to the often generalized and seemingly routine (e.g., the clinical workflow in a particular hospital.) And those decisions are often influenced in important ways by other clinicians, caregivers, and non-experts, such as family, friends and the patient himself.



This is what makes Peggy Lee and the “what’s next” question posed by our client so apt. Instead of focusing on displacing the expert, what’s next for AI in medtech is all about creating solutions that fit seamlessly into clinical workflows. Instead of replacing a single clinician’s judgement, effectively combining the network of care providers, diagnostics and therapies and augmenting them collectively to produce the best care aligned with the patient’s needs.

This has very practical implications for how medtech solutions are developed. While there will be plenty of opportunities in the years ahead for traditional approaches that focus on embedding machine learning algorithms directly within individual devices, there is a shrinking horizon for solutions that treat each device as an isolated source of intelligence for the sake of an individual task.

The value of systems that learn

Very simply, individual devices that can optimize their own signals, but cannot see the full clinical context are becoming less and less valuable. Basic economic principles are at work here. A standalone device that can help a clinician do one task a little better each time is unquestionably valuable. But connected systems that learn from each other and contribute to each other toward the common objective of better patient care are much more valuable. They can deliver better care/fewer mistakes across an entire system over an extended period of time, not just small improvements in one moment. Value keeps compounding.

At Suntra, we like to put it this way:

*“The future is no longer ‘AI inside the device,’
The future is ‘AI-enabled devices inside a
learning system.”*

We recently wrote a blog piece that talks about this changeover called **The Role of Data Intentionality**. It noted how more of our clients are shifting their business focus away from developing individual medical devices that generate ever more data and replacing them with multiple devices that can work together to drive collective clinical intelligence.

Again, as another of our clients put it,

*“More data from one device isn’t the goal
anymore. Better decisions across integrated
systems, devices and experts is.”*

A coordinated development program

When you accept that AI success in medtech comes from designing a well-governed learning system around the device, not simply equipping the device with an algorithm, it becomes clear that this requires a coordinated development program connecting data, devices, clinical partners and regulatory strategy.

This is exactly the kind of situation where Suntra excels: putting in place the technical, clinical, and organizational conditions that allow innovation to continuously emerge and improve over time.



Digital backbone

It starts with the digital backbone that makes ongoing learning possible:

- Building secure data pipelines and designing architectures that support connectivity across edge devices, cloud systems and clinical environments.
- Defining standard metadata so device signals are consistent and usable.
- Ensuring cybersecurity, interoperability and traceability so data can be trusted and used in regulated settings.



Surrounding capabilities

Then it becomes essential to build the capabilities around that backbone. This includes establishing partnerships with healthcare providers for data access and validation, creating processes for labeling and analyzing data, and integrating regulatory and clinical considerations into development. Not as an afterthought, but from the very start.



Organizational alignment

Finally, Suntra helps align the organization itself, bringing together product, engineering, clinical and quality teams under shared governance so decisions about data, models and updates are coordinated.

This is an exciting time in medtech, but also a challenging one. AI is giving us an opportunity to not simply address isolated issues but to look at how the entire system works and the steps that are needed to get devices, data, clinicians and workflows all connected in this new way of working.

Medtech was built on strong hardware engineering, defined regulatory pathways and incremental product improvements. That model didn't require deep, cross-functional integration.

Now it does.

The companies that get this right won't just be building better devices; they'll be redefining the future of healthcare.