

AI creates new paths for faster cancer treatment discovery

Memorial Sloan Kettering Cancer Center accelerates analytical capabilities with AI-powered infrastructure.

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Business needs

In today's healthcare landscape, improving clinical outcomes depends on more precise diagnostics and the proven value of early detection, both key to delivering better patient care. Memorial Sloan Kettering Cancer Center (MSK) recognized the need for scalable, secure technology to accelerate research breakthroughs. Scalable computing power and seamless storage became essential to support AI-driven advancements in genomics, computational pathology, radiologic imaging, and data analysis, enabling faster insights and measurable patient outcomes.

Business results



Reduced research timelines by up to 30 times.



Processed 15+ petabytes of imaging data efficiently.



Supported over 6 million monthly computational jobs.



Accelerated the development of cancer treatment plans that achieved 100% remission in a groundbreaking colon cancer trial.



**Reduced research timelines
by up to 30 times.**

Driving research innovation with advanced computing

In the heart of New York City, where space is scarce and urgency is constant, Memorial Sloan Kettering Cancer Center (MSK) is transforming the future of cancer care. Known globally for its pioneering oncology research and patient-first mission, MSK is driven by a singular purpose: to end cancer for life.

But that mission requires quickly processing images and data, while integrating and streamlining systems and fragmented workflows. "Some of our workflows were still running on 20-year-old code," shares Jessica Audette, head of research technology management. "It became clear that a shift in our technology ecosystem was necessary to meet today's demands."

With data pouring in from genomics, digital pathology, radiologic imaging/PACS, and clinical trials, MSK needed a new high-performance computing cluster built to empower researchers with the speed, scale, and intelligence required to advance comprehensive cancer care.

Building a high-powered foundation for AI and HPC

MSK's new infrastructure, IRIS, the "Cluster of Discovery," was designed to handle the surge in AI workloads and massive data volumes with accelerated compute and scalable storage. MSK can now train AI models faster and analyze data with renewed precision. Researchers can collaborate more efficiently with predictive modeling

integrated into workflows. MSK's infrastructure ranks top 10 in the world on the IO500 benchmark.

This validates investment and unlocks new possibilities in cancer research including early cancer cell mutation detection to image-intensive data analysis, enabling researchers to collaborate more effectively, refine experimental models, and accelerate data review cycles.

"We're not just building a supercomputer," Audette says. "We're building a powerful bridge between data-driven research and life-saving patient care."

This transformation was powered by advanced technology, which provided the foundation for scalable AI-ready infrastructure. It enabled MSK to integrate advanced analytics, real-time collaboration, and predictive modeling into their workflows, turning raw data into life-saving insights.

Colon cancer trial showcases breakthrough success

One of MSK's most remarkable achievements came in a clinical trial for colorectal cancer. Using AI to identify mutations and design personalized treatment plans, researchers achieved a 100% remission rate among 42 patients.

It also demonstrates generational impact where three patients later had healthy babies. Emerging treatments let physicians bypass traditional options that can carry lasting harms, including fertility.

That's not just a statistic. Forty-two lives changed, and forty-two families were given hope and a future.

"Cancer is an ever-evolving set of diseases," Audette explains. "AI helps our researchers to accelerate discoveries and offer innovative solutions that directly link to patient survival."

This trial wasn't just a breakthrough; it was a beacon for precision medicine to reach more people.



The speed at which we process data today is nearly 30 times faster with AI, which opens groundbreaking possibilities in cancer research.

Jessica Audette

Head of Research Technology Management, Memorial Sloan Kettering Cancer Center



“ Our researchers are achieving outcomes faster, offering transformative hope through AI-driven research. ”

Jessica Audette

Head of Research Technology Management,
Memorial Sloan Kettering Cancer Center



Accelerating research timelines toward early detection

With the new infrastructure in place, MSK saw research timelines shrink dramatically. A PhD student completed their dissertation a full year early. Imaging data, with large file sizes, is no longer a challenge and is now a key catalyst for discovery.

MSK’s repository of over 15 petabytes of imaging data fuels AI models that detect cancer earlier, predict treatment outcomes, and guide clinical decisions with greater accuracy. By integrating genomics and image recognition, researchers now gain more precise diagnostic findings and improved clinical decision-making.

“The integration of imaging and datasets allows us to uncover unique insights,” Audette says. “It’s improving outcomes for patients worldwide.”

Toward a scalable and transformative future

MSK isn’t stopping here. With these technologies as a strategic infrastructure solution, they’re also exploring liquid cooling to overcome space and power constraints,

expanding predictive analytics, and pushing the boundaries of personalized medicine.

Audette puts it best: “Our researchers are tackling humanity’s greatest challenge. Integrating leading technologies into our (workflows) enables us to give hope to more people, with enhanced precision and speed.”

“ Our technology partners give us the reliable foundation we need to remain focused on what matters, our patients. ”

Jessica Audette

Head of Research Technology Management,
Memorial Sloan Kettering Cancer Center

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