



Dell AI Factory accelerates life-saving cancer treatment

Advancing pediatric oncology research at KITZ with Dell Technologies' AI and storage innovations to foster precision medicine and global collaboration.



Business needs

KITZ uses AI to transform childhood cancer diagnosis and treatment, relying on advanced computing and scalable infrastructure for AI, molecular diagnostics, and secure global research. This requires the organization to manage enormous, unstructured datasets while delivering timely treatment for aggressive pediatric cancers.

Business results



Reduces tumor analysis time by 60%.



Scales diagnostics from days to hours.



Boosts treatment precision and efficiency.



Improves pipeline for breakthrough therapies integrating AI and bioinformatics.

Solutions at a glance

- [Dell AI Factory](#)
 - [Dell PowerScale](#)
 - [Dell PowerEdge R-Series servers](#)



Reduces tumor analysis time by 60%

Pioneering pediatric cancer research

The Hopp Children's Cancer Center Heidelberg (KiTZ) is a leader in pediatric oncology research, addressing life-threatening childhood cancers. In collaboration with the German Cancer Research Center (DKFZ) and Heidelberg University, KiTZ advances molecular diagnostics, personalized treatments and global partnerships in the hope of one day eliminating childhood cancer.

Success requires infrastructure that can support the complex demands of modern cancer research. "Our biggest challenge is managing the sheer scale of data we generate," says Michael Hain, IT business manager. "The faster we can process it, the sooner we can deliver answers—and that can make all the difference."

Behind every breakthrough is a race against time and data

In collaboration with the German Cancer Research Center (DKFZ) and Heidelberg University, the Hopp Children's Cancer Center Heidelberg is committed to changing the outlook for children facing some of the world's most aggressive cancers. Every data point that is leveraged by AI could lead to a faster diagnosis, a more targeted treatment or a better chance of survival for a child.

But behind every breakthrough lies a growing challenge: the volume and complexity of information are staggering. And the speed at which that data is processed can directly impact a child's care.

"Our biggest challenge is managing massive datasets from molecular diagnostics, 3D imaging, and AI," says Hain. "The speed of data processing directly impacts children's lives by enabling timely, effective treatments."

Advancing pediatric care with scalable, AI-driven infrastructure

To overcome issues such as data overload, time-sensitivity and the need for AI integration, KiTZ collaborated with Dell Technologies to architect an infrastructure solution that accelerates their AI and research capabilities. Relying on Dell's AI Factory powered by Dell PowerScale for data storage and Dell PowerEdge R-Series servers equipped for AI and HPC workloads, KiTZ efficiently handles terabytes of sensitive and unstructured data, ensuring it is easily accessible to bioinformaticians working on life-saving therapies.

"We're now able to run processes in hours that used to take days," says Robert Autry, bioinformatics group leader. "Thanks to scalable storage and supporting real-time AI-enhanced diagnostics, we've dramatically improved patient outcomes and treatment planning." Uniting computing and AI in a seamless system has also fostered logistical collaboration, securely linking clinicians and researchers globally for parallel advancements.

One key strength of this infrastructure is its redundancy: downtime is non-existent. "We're not allowed to have downtime," asserts Hain. "Any delay directly impacts timely interventions for vulnerable pediatric patients. Dell's technology assures our reliability and compliance."

Real-time diagnostics, real-world change

Every moment matters. When a child is battling cancer, speed can make all the difference. That's why the center is harnessing AI, not just to analyze data, but to deliver life-saving answers faster when timing is critical. Beyond diagnostics, the infrastructure also supports seamless collaboration between researchers and clinicians worldwide, bringing global expertise to the bedside in real time.

Initiatives like INFORM INdividualized therapy FOR high-Risk childhood Malignancies) and the Molecular



Using Dell technology, we've been able to process highly complex cancer data faster and with greater precision.

Robert Autry
Bioinformatics Group Leader, KiTZ

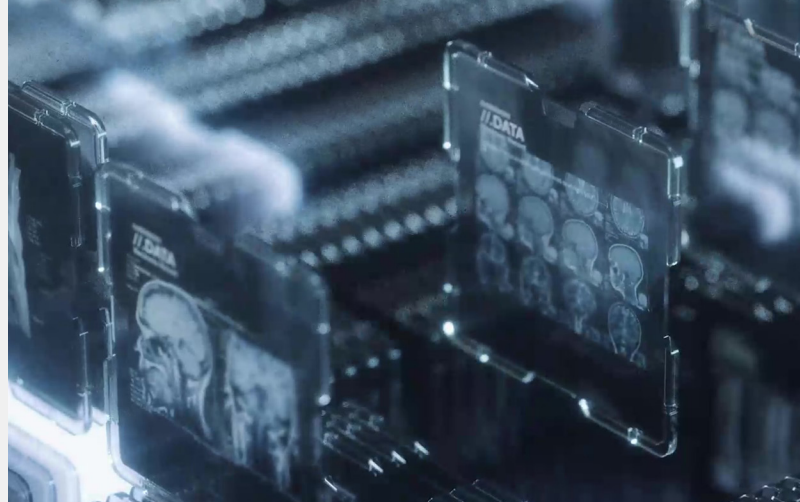




Leveraging Dell, we have reduced our tumor sequencing timeline from days to hours, transforming our ability to offer timely treatment to children.



Michael Hain
IT Business Manager, KiTZ



Neuropathology (MNP) Outreach Consortium are driving global progress in pediatric cancer care. INFORM focuses on tailoring treatments for children with relapsed cancers through genomic insights, while the MNP Outreach Consortium expands access to advanced diagnostic tools in underserved regions.

Recently, researchers at the KiTZ have begun leveraging AI-powered digital pathology to scan and interpret slides, detecting subtle cancer markers the human eye might miss. This leads to faster diagnoses, more targeted treatments, and better outcomes for children everywhere.

But the impact doesn't stop at the lab. Through a global data-sharing initiative, the center connects hospitals across continents, from Asia to Africa to South America, using Dell's infrastructure. With privacy-first design and federated analysis, these hospitals can contribute to and benefit from a growing pool of insights, while keeping patient data secure.

"Our outreach program uses AI to analyze and classify genetic data from hospitals around the world," says Hain. "In return, they receive real-time, actionable results, bridging the gap between need and access."

Collaboration shaping the future of pediatric oncology

With a vision for a cancer-free future, KiTZ is scaling its data storage capacity four to sixfold and further developing AI capabilities tailored to neural and genomic complexities. Plans include advancing large language models (LLMs) for molecular gene mapping and fostering federated data networks to encourage secure, efficient collaborations worldwide.

As Dell Technologies continues to support KiTZ's mission, the relationship exemplifies the power of combining human compassion with technological innovation. "Pediatric cancer is one of the most important challenges of our time," adds Autry. "With partners like Dell driving innovation, we are leaving no stone unturned in the mission to save children's lives."

KiTZ's relentless pursuit of advanced technology redefines what is possible in critical healthcare research, bringing hope to countless families.

"Dell Technologies allowed us to turn what seemed impossible just five years ago into an everyday reality," says Hain. "Our infrastructure improvements are directly connected to improved diagnostics and innovative cancer therapies. We're truly shaping the future of pediatric oncology."

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