DELL Technologies

Generative AI Opens a New Frontier for Healthcare and Life Science

Enhance the patient care journey with Dell AI Factory with NVIDIA

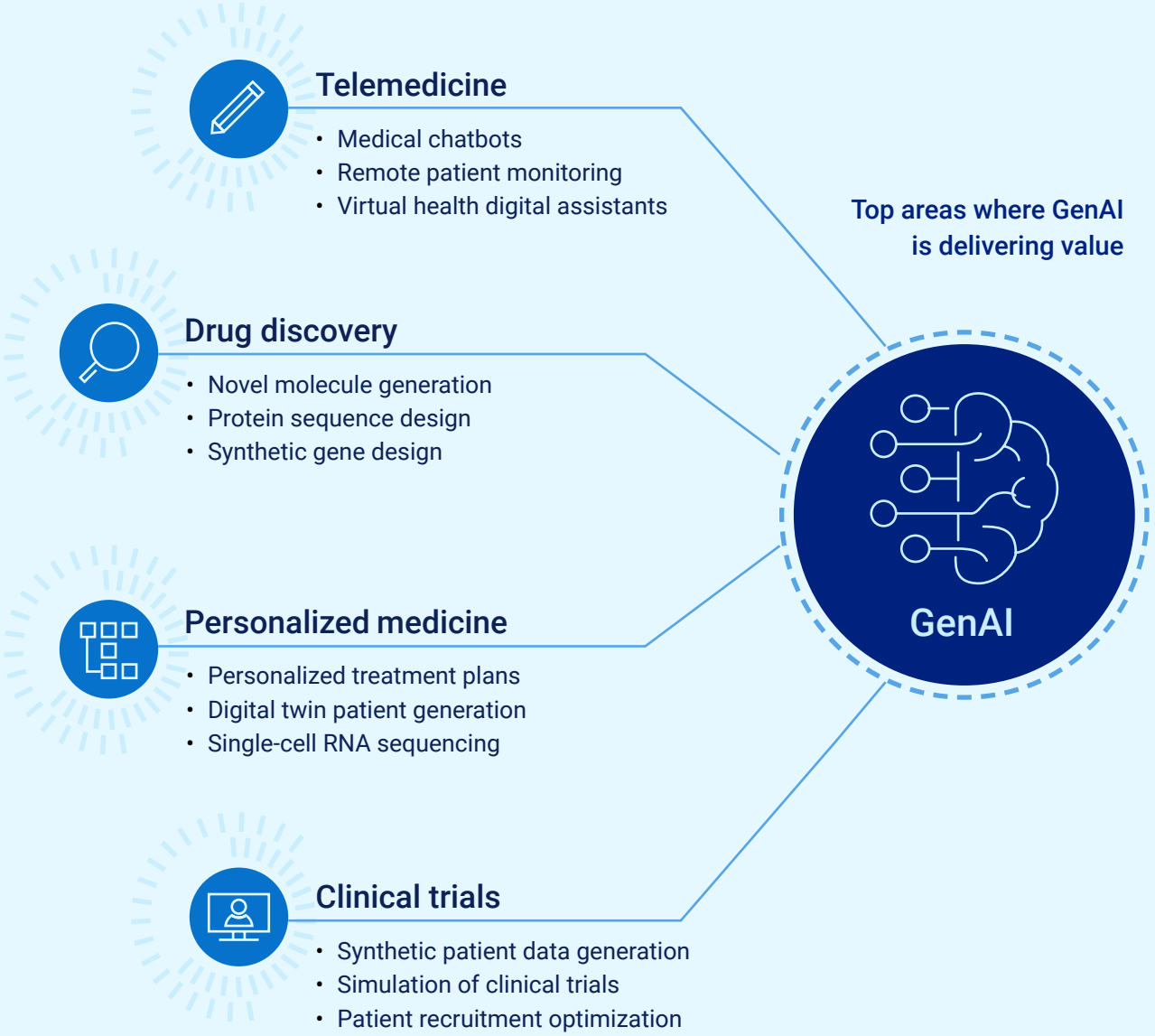
Read On

NVIDIA

The evolution of AI in healthcare

As healthcare organizations focus on the road ahead, they face challenges such as changing patient expectations for virtual care, new clinical and business realities, the need to keep staff safe and bringing back nonurgent clinical services.

Artificial intelligence (AI) and generative AI (GenAI) can help meet some of these challenges by automating operational processes, improving productivity and enhancing patient interactions. Organizations can also help drive differentiation with more personalized experiences and expanded treatments and services.



Making the patient journey better

Areas of impact for healthcare organizations

Deliver better patient experiences

Engage patients with personalized interactions and improve health outcomes.

Lower costs, boost productivity

Leverage technology and automation to reduce burnout, address staffing shortages and boost productivity.

Personalize treatments

Create personalized treatment plans that are more effective and have fewer side effects.

Faster drug discovery

Accelerate the time it takes to bring new treatments to market.

Case study: Northwestern Medicine is saving lives with AI

Improving patient outcomes and boosting the efficiency of healthcare delivery

Northwestern Medicine saw that AI could help caregivers assist patients and accelerate healthcare delivery. Dell Technologies helped them follow a unified approach that encompassed the organization's own data instead of providing another specialized software tool.

Automated Radiology Interpretation and Evaluation System (ARIES) is the first GenAI tool built on this solution. It reviews radiology images in a rapid first pass, quickly providing radiologists with diagnostic findings and anomalies that would normally require hours of review. GenAI also creates the first draft of labor-intensive radiology reports so radiologists can finalize them quickly and dedicate more time to read additional reports.

Up to 40%
productivity improvement in reviewing radiology images

Saves lives
by flagging conditions requiring immediate attention

Elevates
the safety, quality and consistency of healthcare

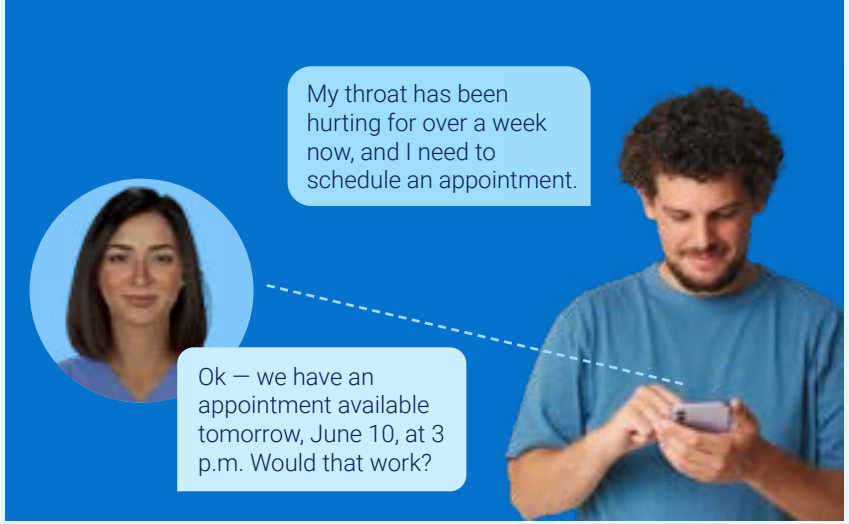
Read the Story

> GenAI and AI offer a tremendous opportunity to **help us take better care** of our patients and **give time back to care providers.**
>
> Dr. Mozziyar Etemadi, Clinical Director of Advanced Technologies, Northwestern Medicine

Digital assistants

Deliver engaging and personalized patient experiences

Digital assistants powered by GenAI can interact with patients using natural language speech and text in the patient's own language. They can understand intent and context, and respond using natural facial expressions and body language. These personalized interactions delivered across multiple communication channels — including websites, mobile apps and in-person displays and kiosks — improve patient engagement and outcomes.



Accelerate healthcare delivery

- **Streamline scheduling and check-in:** Let patients manage and check in for appointments without human involvement.
- **Improve the hospital room experience:** Interact with lonely, bored or frightened patients, and act as an intermediary with the healthcare team.
- **Reduce the time and cost of onboarding employees:** Answer common questions, deliver relevant information and guide new hires through administrative tasks.

Reshape the clinical trial experience

- Improve patient recruiting and adoption rates.
- Accelerate cohort data gathering and recording.
- Answer simple questions throughout the trial in different languages.

Content creation

Customize responses for your unique needs

When you connect AI and GenAI systems to your domain-specific data, employees can generate responses that are both more accurate and more contextually relevant.

Input data — format agnostic

Public

- Web sourcing, if allowed
- Knowledge articles
- Financial filings and reports
- Microsoft Word, Powerpoint, Excel, PDF

Internal private

- Annual reports
- Internal knowledge
- ServiceNow
- Microsoft Teams
- Salesforce
- Microsoft Word, Powerpoint, Excel, PDF

Restricted

- Legal documents
- Health records
- Banking records
- Microsoft Word, Powerpoint, Excel, PDF

Easily integrate with a wide range of data and information sources to create dynamic, personalized experiences for your end users.

- Enable more precise and trustworthy answers based on your own data.
- Rapidly ingest new data into the database.
- Data quality and fit is the key to success.

Empower your entire organization

Improve and maintain operational standards around clinical and procedural documentation by giving employees simple access to information at their fingertips.

Simplify information retrieval from extensive databases by providing intuitive and contextually relevant responses to plain language queries.

Rapidly research and summarize regulatory compliance documents to identify and understand changes and impacts.

Create synthetic patient data for digital twins across a variety of systems and processes to simulate changes and ideas with realistic representative patient data.

Digital twins

Virtual simulations enhance decision-making

Digital twins simulate biological systems, organs and individual patients, allowing clinicians to analyze treatment choices and options. They have great potential in healthcare management, delivery, treatment, prevention and well-being maintenance. For instance, a digital twin with a patient's medical history and DNA could be used to test treatments virtually before real-world implementation.

Personalized healthcare

- **Create more comprehensive and cost-effective patient plans:** Perform millions of simulations to determine the best therapy option based on genetic background and medical history.
- **Test and develop new treatments and medications more quickly and efficiently:** Further personalize care by accelerating time to insights to identify new ways to treat patients and manage diseases.
- **Better understand patient needs and predict potential issues:** Analyze de-identified data sourced from monitoring systems and electronic health records to update the digital twins with real-time clinical data.

Use cases

- **Disease modeling:** Create a virtual replica of a disease's progression, transmission and response to interventions to develop targeted therapies or public health strategies.
- **Patient population modeling:** Create virtual representations of patient populations based on real-world data to simulate various scenarios, treatments and outcomes for personalized and public health strategies.
- **Surgery process modeling:** Simulate surgical procedures using real-time data and advanced algorithms to optimize pre-operative planning, intra-operative decision-making and post-operative care.
- **Clinical trial modeling:** Facilitate precise recruitment into clinical trials, assess the potential efficacy and safety of treatments, optimize trial design and predict outcomes.

Computer vision

Improve patient outcomes with sensor and visual data

Computer vision will reshape how we diagnose diseases and monitor patient health. Its application in healthcare promises to have significant impact by enhancing diagnostics, patient monitoring and even medical training and procedures.

Enhancing patient care

- **Automated operating rooms:** Doctors and nurses can use AI to eliminate repetitive and error-prone manual tasks while AI-based visual sensors can document surgical procedures without human intervention.
- **Patient identification:** Facial recognition solutions can reduce patient misidentifications that lead to delivering the wrong treatment and/or medications.
- **Enhanced safety and quality:** AI-enabled event detection can help limit patient room incidents and alert personnel to reduce response times. AI-enabled pattern recognition can help enforce handwashing compliance and other quality control functions.

Operational use cases

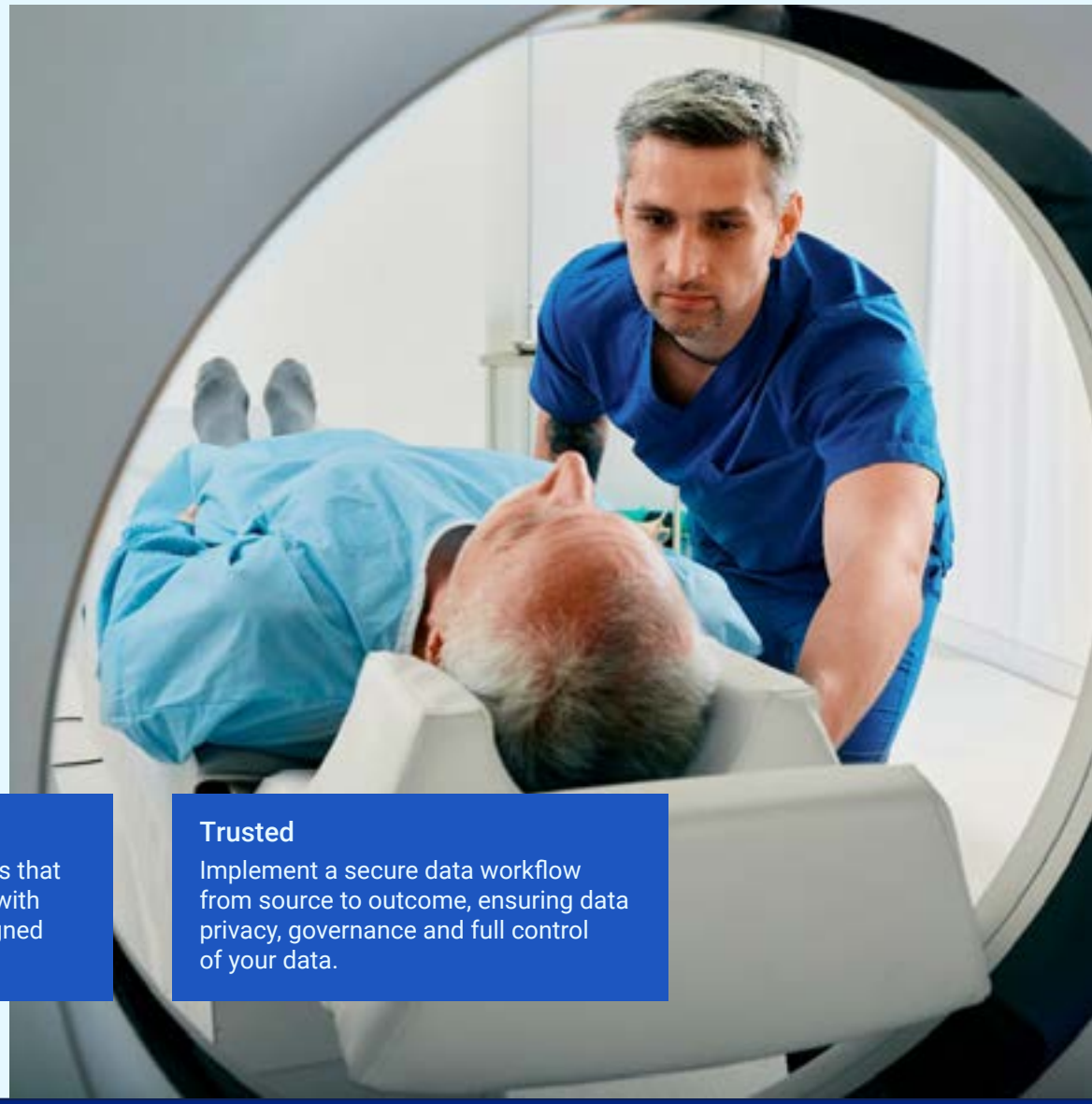
- **Digitization:** Digitize routine tasks from care delivery to facility management, driving staff optimization.
- **Inventory and supply chain management:** Automate stock monitoring, asset tracking, shipment tracking and product traceability.
- **Workflow optimization:** Deliver efficient patient flow management and staff allocation, for example.

Infrastructure and solutions for AI success

Deploying infrastructure for any new IT initiative requires a number of decisions. For healthcare and life sciences organizations, choosing on-premises infrastructure offers several key benefits, including enhanced data security, superior performance and greater control over sensitive information. These advantages are critical for supporting diverse AI and GenAI use cases in a healthcare setting.

Dell AI Factory with NVIDIA® addresses these needs with an end-to-end AI solution that integrates leading Dell compute, storage and networking capabilities with NVIDIA's advanced AI infrastructure and software. This combination helps you more easily manage, prepare and secure critical data while achieving the high performance required by AI and GenAI applications.

This solution is built to handle diverse deployment scenarios, including core data centers, the cloud and hospital and clinical environments at the edge, providing the flexibility to adapt as needed. By leveraging the comprehensive Dell professional services and pay-as-you-go Dell APEX subscriptions, you can accelerate your GenAI journey with tailored support and scalable solutions.



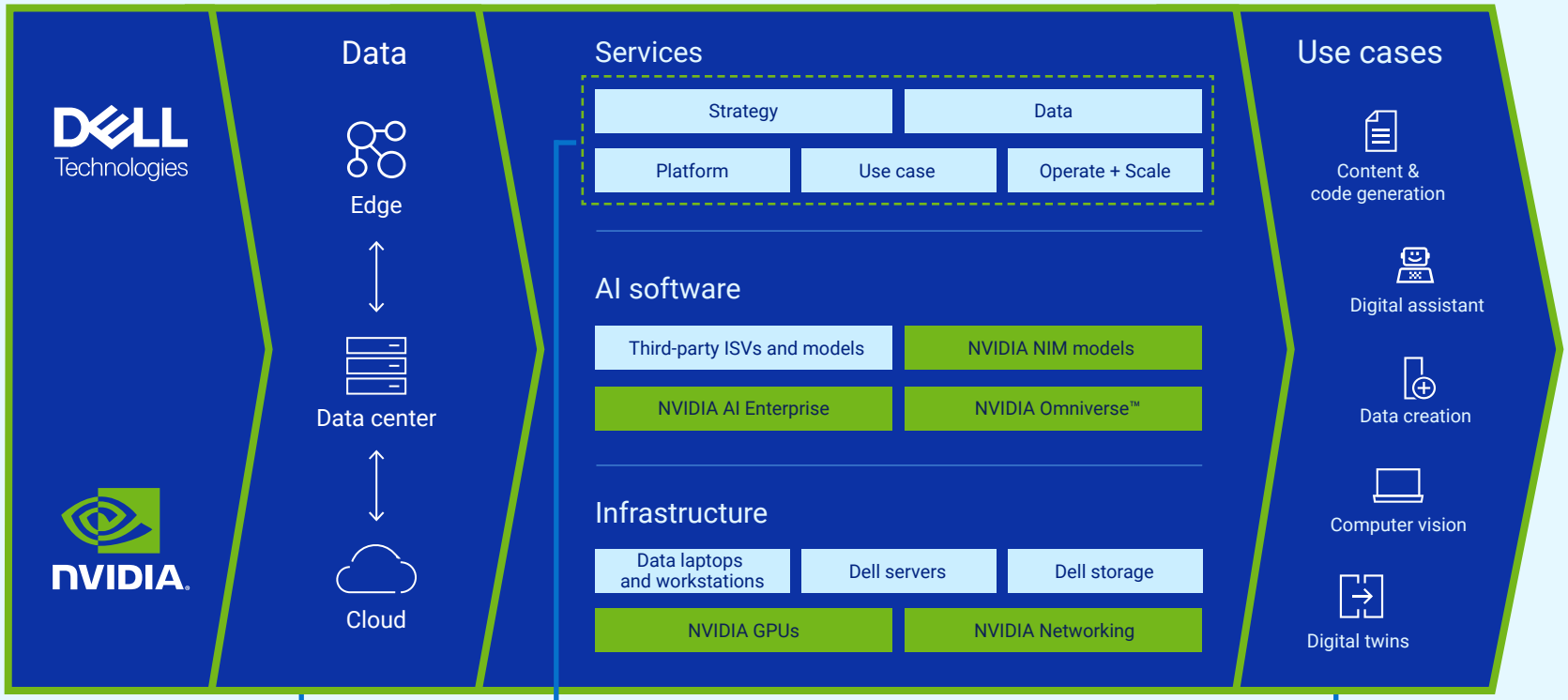
Simplified
Simplify and scale AI deployments and operations to production, with workflow automation for fast time to value.

Tailored
Transform your data into insights that scale across your organization, with leading capabilities uniquely aligned to your objectives.

Trusted
Implement a secure data workflow from source to outcome, ensuring data privacy, governance and full control of your data.

The Dell AI Factory with NVIDIA

The industry's first end-to-end enterprise AI solution



Data fuels the AI factory and your use cases
Your most valuable data is on-premises and at the edge. Dell Technologies helps you bring AI to that data and is a leader in storing, protecting and managing it.

Expert services for AI
Dell Technologies has extensive experience guiding customers through their AI journeys, accelerating AI outcomes aligned to business objectives while utilizing the right technical solutions at scale.

Use case to outcomes
The AI factory produces business outcomes powered by your highest priority use cases. Dell Technologies simplifies the deployment of your most important AI use cases with validated solutions and tailored services.

Two easy ways to get started today

Strategy Planning

Accelerator Workshop for Generative AI
Start your journey toward developing a winning GenAI strategy with a fee-waived half-day workshop that will help you address challenges and gaps, prioritize objectives and identify opportunities. A more complete readiness assessment is also available for a deeper dive into infrastructure requirements, AI models, operational integrations and more.

Technical Preparation

Mobile AI lab
Jumpstart your journey to success with a ready-to-use mobile lab that includes a Dell Mobile Precision Workstation and two days of consulting services to help get you started. The lab also includes:

- Portable GenAI testing and demonstration
- Rapid prototyping in a pre-validated environment
- Cost-effective, low-risk exploration of GenAI use cases
- Assistance with GenAI skills gaps
- A sandbox environment for GenAI experimentation, with a deployed and configured retrieval augmented generation (RAG) architecture
- NVIDIA AI Workbench platform, preconfigured to run software and validated for performance
- A foundational chatbot use case, implemented with your data, to enable further exploration

Dell Technologies Mobile Precision Workstation 5690/7780 with NVIDIA GPUs

DELL Technologies AI Factory WITH NVIDIA

Learn More
Dell.com/NVIDIA-AI