

# TRANSFORMING HEALTHCARE WITH AI INSIGHT

Unleash faster intelligence and performance with AI





**Discover the benefits of AI for healthcare**

- **Clinical and business outcomes:** Determines the AI systems and applications needed to drive high levels of care and performance
- **IT outcomes:** Ensures “the right first project” is deployed; by selecting the correct first project, hospitals can prove to the health system that the solution works, and then use the return on investment (ROI) for follow-on projects
- **Data science outcomes:** Speeds up AI development with existing building blocks to deliver medical breakthroughs

**REINVENTING CLINICAL PROCESSES**

Escalating demands in healthcare require hospitals to see more patients, offer more effective operations and procedures, better support caregivers and staff, and share more information. Global trends such as population growth, longer life expectancy, and the widespread need for health services have caused organizations to rethink their clinical and operational processes.

The pressure to meet these challenges is mounting as a rising number of patients rely on immediate and personalized care. These patients often require more doctor visits and more sophisticated treatments and medications, as well as the use of specialized equipment and personal devices that produce troves of medical data.

In addition to storing massive volumes of existing patient data at rest, hospitals must also manage all real-time patient as it is generated. These massive amounts of medical data were expected to increase by 100% every 73 days in 2021<sup>1</sup>—but today, 97% of this valuable information goes unused.<sup>2</sup>

The ability to act on medical data is more important than ever. Healthcare is becoming more sophisticated as organizations work to extract real-time insight and deliver faster, more-informed patient care. Cutting-edge technologies and tools are helping organizations to adapt and improve their operations—with the expansion of capabilities such as remote patient monitoring, smart point of care (POC) testing, operating theater optimization, medical image analysis, health and wellness maintenance, e-physicians and e-prescriptions, and clinical insight sharing.

To succeed, healthcare institutions must strive to:

- Heighten patient and caregiver experiences
- Deploy information and integrated health services
- Provide secure, reliable access to medical information
- Learn to harness advanced health technology
- Leverage data analytics to ease staff burdens
- Control IT cost and complexity
- Remain compliant with health and government mandates

To accomplish these goals, healthcare organizations are creating a new type of technology environment to boost clinical and operational efficiency, safeguard sensitive health data, and enhance standards of care. The right technologies will enable fast and intelligent applications—expanding the reach of today’s healthcare teams and providing patients with safer, more immediate care when and how they need it.

<sup>1</sup> Linchpin: Healthcare Technology Trends 2021

<sup>2</sup> [weforum.org/agenda/2019/12/four-ways-data-is-improving-healthcare#:~:text=Hospitals%20produce%2050%20petabytes%20of%20quality%20of%20medical%20care](https://www.weforum.org/agenda/2019/12/four-ways-data-is-improving-healthcare#:~:text=Hospitals%20produce%2050%20petabytes%20of%20quality%20of%20medical%20care)





## EMPOWERING A NEW ERA OF HEALTHCARE

Artificial intelligence (AI) is speeding the transition to smart hospitals, turning data into actionable insights at any scale. Healthcare organizations are leveraging AI to exploit petabytes of medical data to improve treatments, reduce costs, and unlock possibilities yet to be imagined. AI-enabled applications have already been developed for a wide range of uses—from spotting the warning signs of stroke, identifying acute conditions and diseases, and tracking patient activity and vital signs, to navigating medical images using speech or hand gestures. Now these complex data workloads can be implemented quickly and accurately to optimize the delivery of patient care.

Smart hospitals are employing AI applications in three primary areas—clinical outcomes, operational efficiency, and safety and security.

**AI for clinical outcomes** is redefining patient and caregiver experiences. By rapidly ingesting, processing, and analyzing large volumes of medical data, healthcare teams can seamlessly access and share data to streamline productivity and take real-time action. Next-generation technologies are designed to help caregivers achieve better outcomes and enhanced quality of life for patients. These capabilities include imaging and diagnostics, remote patient monitoring, patient engagement, fall prevention, operating room workflow automation, surgery analytics, and contactless control.

AI analytics creates a comprehensive view of healthcare operations, providing a deeper look into patients and their unique needs. Harnessing extreme speed and processing power in medical imaging and diagnostics has transformed how organizations derive insights from a variety of data types and sources—an approach that has shown extraordinary accuracy and sensitivity in discovering imaging details and abnormalities. AI extends these capabilities for any requirement or use case, including extremely delicate tasks such as surgery analysis. AI and computer vision technologies can significantly improve the quality of surgical procedures by providing tools that help analyze and monitor the surgical workflow. This application is an important step toward the future of robotic surgery.

AI is also enhancing clinical productivity and outcomes outside the operating room. Contactless health services incorporate voice-activated, touchless screens that can be used to guide patients to appointments, perform consultations, and better manage patients, while reducing contact with staff to urgent needs only. Smart hospitals also utilize visual sensing for remote care and touchless assistance, streaming insights to a central location so that staff can monitor room hygiene, bed turnover, and patient safety in real time.

Each year about \$50 billion is spent on medical costs related to non-fatal fall injuries and \$754 million is spent related to fatal falls.<sup>3</sup> AI applications are used to monitor changes in a patient's position and alert healthcare staff to potential risks, allowing them to safely intervene. Using these remote capabilities, organizations can save upward of \$4 million per year for a 100-bed facility.

**AI for operational efficiencies** helps optimize workflows to achieve faster results from healthcare applications and data. Increased visibility and control of healthcare operations allows organizations to make better-informed decisions that can prevent and/or resolve issues, enable timely patient care, and deliver more effective health and wellness services. In this way, AI technologies are driving efficiencies across emergency room and hospital management, patient care management, resource management, claims management, service operations, compliance, and fraud detection. Smart hospitals are using these applications to transform how they operate—operationalizing intelligence on demand to empower high levels of performance with fewer resources at a lower cost.

**AI for safety and security** dramatically reduces risk by recognizing patterns, as well as uncovering important changes or events, from endless streams of data. With AI, healthcare organizations are realizing critical insights for applications such as video surveillance to create a more secure healthcare environment.

<sup>3</sup> [cdc.gov/falls/data/fall-cost.html](https://www.cdc.gov/falls/data/fall-cost.html)



**The future of healthcare is fast and intelligent with AI**

The recent explosion of medical data poses not only major difficulties, but also major opportunities for the healthcare industry. Hewlett Packard Enterprise, in partnership with Artisight and NVIDIA®, provides technologies and services to the global healthcare industry—helping organizations turn their IT and data challenges into value. Comprised of Artisight software running on NVIDIA-certified HPE systems, the HPE AI platform is designed to enable greater healthcare insight on demand with exceptional intelligence and performance, while also driving down total cost of ownership (TCO).

For healthcare organizations, ensuring physical safety of patients, visitors, and staff is as important as responding to patients’ medical needs. Intelligent video analytics (IVA) enables staff members to monitor their facilities to protect patients and their sensitive information. Using IVA and smart sensors, smart hospitals can recognize objects such as medical equipment and face coverings, identify and match faces of doctors and patients, and even detect elevated body temperatures. These inputs are used to determine high-risk individuals and create actionable outcomes.

Despite these game-changing benefits, organizations often struggle to realize the full potential of AI. Many organizations are unsure how to start or continue their AI journeys. To succeed, organizations must invest in a new breed of technologies that can support scalable and cost-efficient healthcare with AI.

**ADOPTING BREAKTHROUGH AI SOLUTIONS**

HPE, in partnership with Artisight and NVIDIA, is empowering the future of healthcare with insight on demand. Comprised of Artisight software running on NVIDIA-certified HPE systems, the HPE AI platform is a comprehensive solution designed to:

- Unleash medical insight
- Extend personalized care to more patients
- Improve the caregiver experience
- Drive clinical outcomes and efficiencies
- Help ensure safety and security
- Deliver all services at unprecedented speed and scale

The HPE AI platform includes the following core components.

- **Artisight software platform.** This comprehensive solution is designed to support a wide variety of use cases and deliver impressive results.!

Application function	Example clinical results <sup>4</sup>
OR coordination	5% more OR procedures and 16x return on investment (ROI)
Surgical quality improvement	4-fold reduction in supply variation
Patient monitoring	78% fewer patient falls; 20–30x ROI by cutting human room-sitters from the budget
Virtual consultation	45-minute reduction in stroke evaluation
Capacity management	0.4 shorter length of stay (LOS)
Clinical care	93% improved patient satisfaction
Parking lot optimization	90% fewer patient complaints

This modular platform is designed for extensibility. You can start with one Artisight use case—such as patient monitoring—and then systematically add more modules after you experience the productivity, efficiency, and cost benefits first-hand. With the HPE, Artisight, and NVIDIA solution, you can solve one problem today, as well as the next 100 problems you will face over time. Regardless of which modules you deploy, the HPE, Artisight, NVIDIA solution will connect all data gathered from all sources, and then use AI to add meaning to the data. Able to analyze data at rest (in storage) or in motion (generated in real time), this practical, highly efficient solution can help you meet your healthcare objectives with confidence.

<sup>4</sup> Results will vary within each environment and implementation





- **HPE systems, powered by NVIDIA GPUs.** Depending on your hospital's unique needs, you can tailor your AI-driven environment using:
  - **HPE ProLiant Servers**—The intelligent compute foundation that delivers unmatched workload optimization, security, and automation. These servers seamlessly integrate NVIDIA GPU computing for dramatically higher application acceleration, including deep learning and AI applications.
  - **HPE Synergy Systems**—Composable, [software-defined](#) infrastructure for your AI environment is characterized by:
    - A single intelligent physical infrastructure that combines compute, storage, and fabric so all resources are instantly available to run any application
    - Compute modules that can be ready to boot in fewer than 30 seconds and be provisioned with pooled storage, network connectivity, and images
    - High-density, integrated storage that delivers a new level of simplicity, density, and flexibility

## YOUR AI SOLUTION, DELIVERED YOUR WAY

Beyond traditional financing and leasing, HPE Financial Services and HPE GreenLake provide flexibility in how you acquire and consume IT. HPE GreenLake offers AI as a service—a pay-per-use consumption model with the security and control of on-premises IT—that brings the cloud to you. Cloud services enable you to innovate faster by making your applications and data accessible everywhere. HPE GreenLake for VDI extends these capabilities—redefining how healthcare organizations operate with secure, scalable VDI as a service (VDIaaS).

In partnership with Citrix, HPE combines cloud-like economics on-premises with Citrix Cloud™ to make it simple for you to buy and scale VDI. VDIaaS helps eliminate the need for costly up-front investments or near continuous upgrades by extending the choice of monthly payments or pay per use.

HPE Pointnext Services offers world-class expertise to help you design and implement the right approach for your AI capabilities. You can work with HPE experts to plan and support a successful AI strategy for your healthcare organization. Together, we will discuss your unique goals and requirements, identify problems, and select the best technologies and services to create a future-proof solution designed to support the uses cases of today and tomorrow.





## CONCLUSION

### Resources

[hpe.com/us/en/greenlake.html](https://hpe.com/us/en/greenlake.html)

[hpe.com/us/en/services.html](https://hpe.com/us/en/services.html)

AI is modernizing healthcare operations from the ground up. HPE, in partnership with Artisight and NVIDIA, is enabling organizations to capitalize on this trend by delivering a robust platform designed to harness the full value of medical data.

The HPE AI platform unleashes your AI capabilities to enable integrated, cost-effective, and patient-centric healthcare so you can tackle today's challenges and evolve to meet tomorrow's requirements. These solutions are expertly engineered to facilitate AI and help you:

- Increase productivity
- Expand health and wellness services
- Fuel positive outcomes with the highest quality care

Together, we are pioneering a new age of healthcare.

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