Smarter AI for All

Comprehensive AI Solutions for Healthcare and Life Sciences

intel®

Get started with Intel AI in Healthcare and Life Sciences

Smarter technology for all

Lenovo

Contents

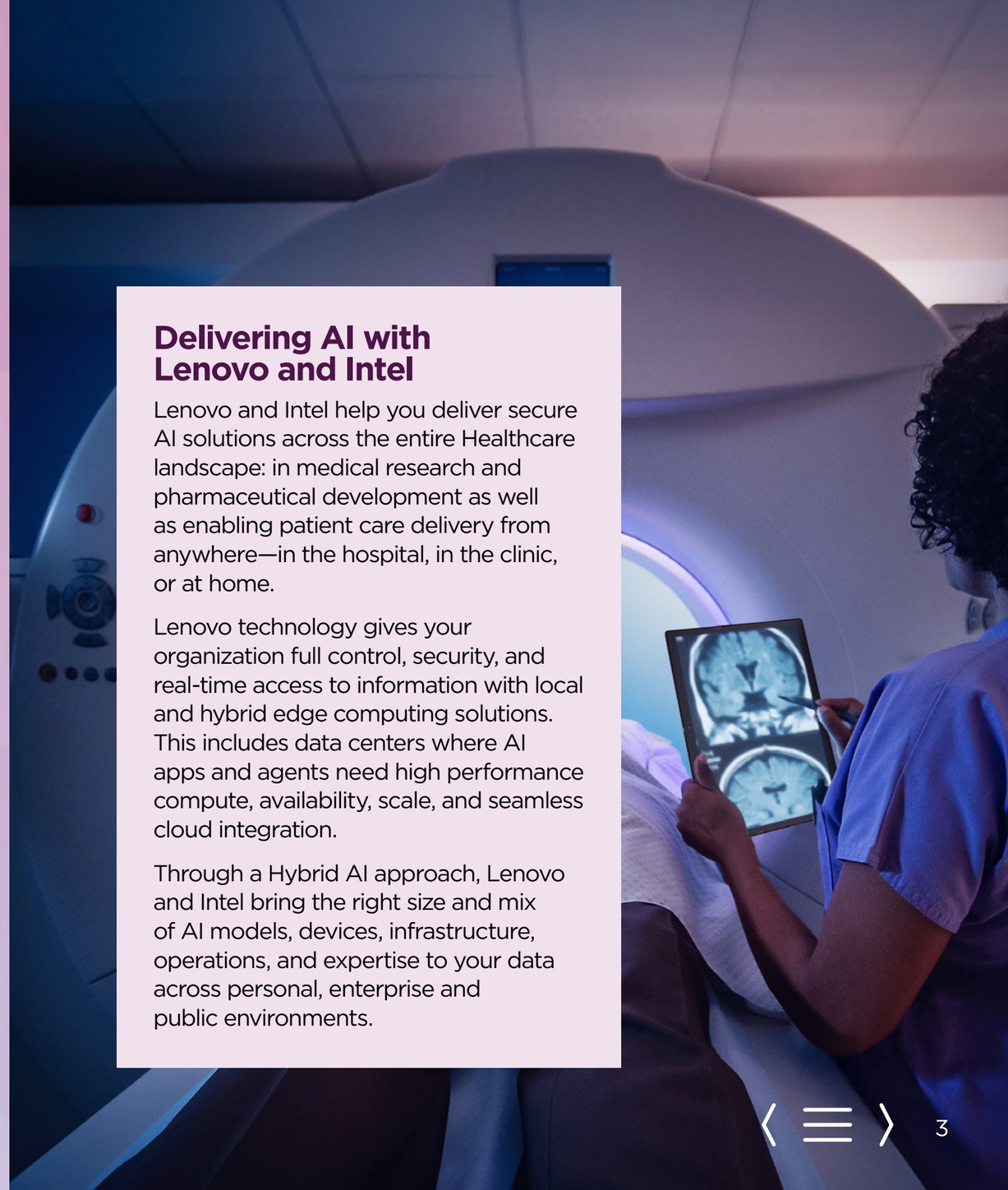
The future of AI in Healthcare and Life Sciences

As the Healthcare and Life Sciences industry strives for personalized patient care and innovative therapies, AI is creating a growing range of applications benefiting medical researchers, clinicians, and patients.

Moving beyond an unattainable wish-list into transformative solutions, AI is advancing modern care delivery and medical innovation. The Healthcare and Life Sciences industry is on the brink of an AI revolution, deploying solutions that enable precision medicine, advance new therapy development, and provide secure patient data management.

Just as the introduction of the Internet and smartphones spawned entirely new ecosystems of applications and consumer behaviors, AI, and especially generative AI based systems, are poised to fundamentally reshape the speed and accuracy of diagnosis, treatment, and drug discovery. Organizations that are ready to move are set for transformational shifts in patient outcomes, clinical experiences, data management, drug and vaccine development, and advances in population health.

At Lenovo, we believe in Smarter AI for All, bringing AI to your data using a secure, private, and hybrid approach. Our comprehensive AI products, solutions, as-a-Service models, and a growing partner ecosystem, provide our customers with the greatest set of open choices—where and when they need it most.



Delivering AI with Lenovo and Intel

Lenovo and Intel help you deliver secure AI solutions across the entire Healthcare landscape: in medical research and pharmaceutical development as well as enabling patient care delivery from anywhere—in the hospital, in the clinic, or at home.

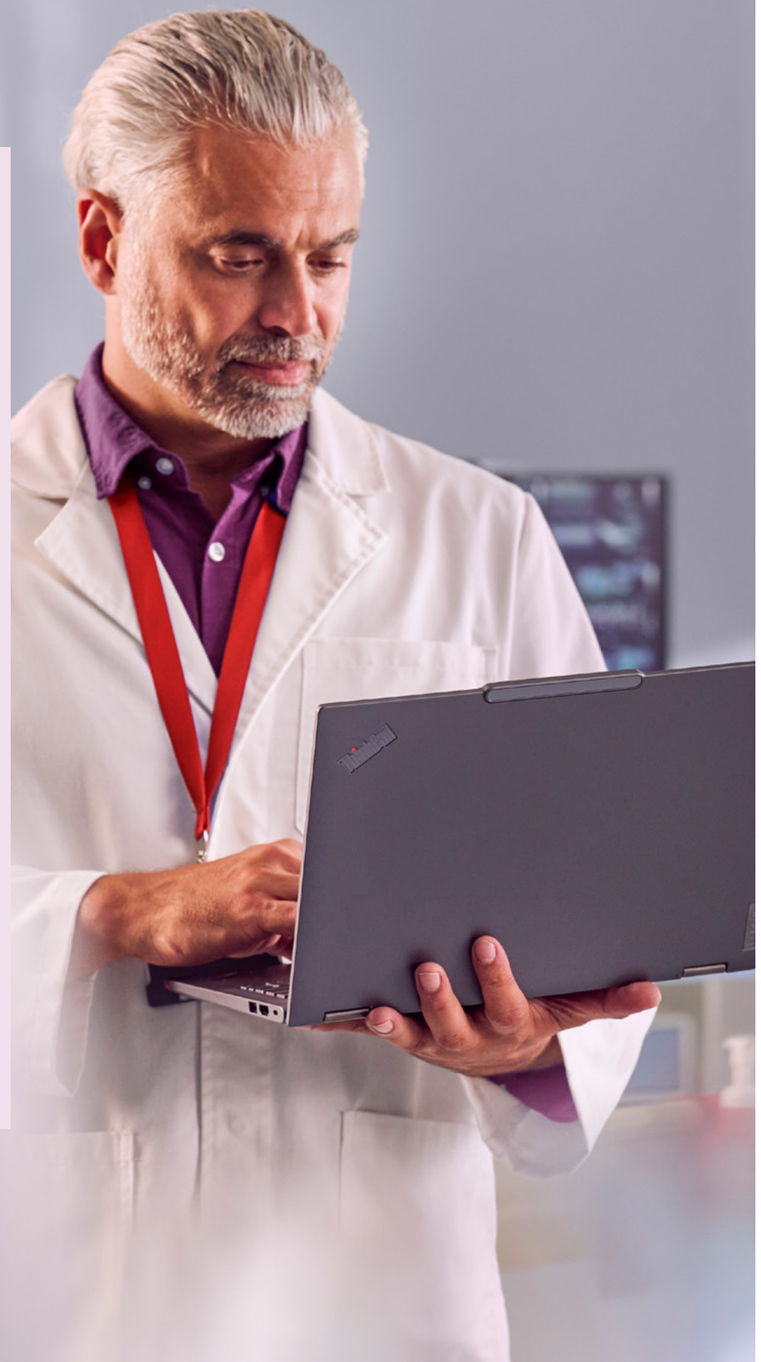
Lenovo technology gives your organization full control, security, and real-time access to information with local and hybrid edge computing solutions. This includes data centers where AI apps and agents need high performance compute, availability, scale, and seamless cloud integration.

Through a Hybrid AI approach, Lenovo and Intel bring the right size and mix of AI models, devices, infrastructure, operations, and expertise to your data across personal, enterprise and public environments.

What's already happening with AI?

It's no surprise that Healthcare leaders are quickly realizing the benefits of investing in an AI strategy. AI offers transformative opportunities for patients, care teams, and researchers across almost every touchpoint, helping providers to prioritize patient experiences, reduce clinical errors, accelerate the drug-to-market pipeline, and modernize workflows.

AI capabilities are increasingly being used to streamline processes, protect proprietary and clinical trials data, helping organizations fast-track pioneering drug research, and maintain complex compliance regulations such as the Health Insurance Portability and Accountability Act (HIPAA) or the General Data Protection Regulation (GDPR). AI innovation is also transforming patient care by minimizing medical errors, delivering personalized education, improving patient safety, and helping to decrease preventable hospital readmissions.



10-20%

of a nurse's shift
is spent on activities that could be optimized with the right technology.[1]

By 2050, there will be

2.1 billion
people over the age of 60.[2]

As many as

40-60%
of adults with probable dementia are not being diagnosed.[3]

The challenges of implementing AI in Healthcare and Life Sciences

The Healthcare and Life Sciences industry is highly regulated, and adopting AI can present numerous challenges for organizations looking to unlock its full potential.

Cybersecurity is a top concern, particularly as AI expands the attack surface, introducing risks such as data poisoning and model inversion that puts patient data at risk. The interoperability of data poses another conundrum, with hospitals generating an average of 50 petabytes of data each year, 97% of which often goes unused. Many organizations will understand the frustrating paralysis that comes after AI proof-of-concept projects: we know this could improve people's lives, but how can we implement it responsibly and within budget?

Approximately 30% of the world's data volume is being generated by the Healthcare industry.[4]

The reality is that implementing AI brings several difficulties for Healthcare organizations, including:

- Knowing where to start
- A lack of strategic approach (AI for the sake of AI)
- The seven Vs of data: volume, veracity, validity, value, velocity, variability, volatility
- Skillset gaps and talent shortages
- Managing evolving cybersecurity risks
- Compliance challenges and staying up to date with evolving regulations, including:
  - EU AI act
  - Digital Operational Resilience Act (DORA)
  - HIPAA or GDPR
- Difficulty integrating simple or complex data from diverse sources, particularly with legacy systems (data silos) and hallucinations
- Ensuring transparency, explainability, and fairness/lack of bias
- Patient trust around data privacy
- Staffing gaps and clinical specialist shortages
- Underpowered hardware and devices

36%

By 2025, the compound annual growth rate of data for Healthcare will reach 36%.[4]

of Healthcare leaders have no immediate strategy to adopt innovations in analytics and artificial intelligence.[5]

of organizations have implemented governance around responsible deployment of AI.[6]

AI grounded in security

In addition to accuracy, explainability, and transparency, security is a cornerstone of AI integration in organizational processes.

This includes adhering to guidelines such as the EU AI Act, as well as ensuring data privacy and information security. Unlike traditional IT systems, AI solutions must be built on a foundation of strong governance and robust security measures to be responsible, ethical, and trustworthy.

Lenovo's security-by-design approach establishes this foundation, ensuring AI solutions are secure from the component level, where the Intel vPro® platform enables advanced hardware protection, and through our Supply Chain Assurance capabilities. Our commitment to AI security is reinforced by our Global Security Organization, the appointment of our Chief Security & Artificial Intelligence Officer (CSAIO), and our participation in initiatives like the Joint Cyber Defense Collaborative.

Lenovo ThinkShield

Put the right foundation in place

Lenovo's security by design approach provides the foundation for responsible AI solutions. Lenovo ThinkShield has you covered at every layer, starting with Supply Chain Assurance to protect your devices from the component level up. It also safeguards your devices from threats below the operating system, all the way to keeping data secure between the operating system and the cloud. And with our partnership with Intel, diverse AI workloads are further secured from data center to edge.

This approach includes:

- Lenovo ThinkShield Zero-Trust practices to secure devices, infrastructure, and networks
- Hybrid AI that balances on-premises and cloud processing to protect sensitive data
- Partnerships with leading security vendors to create a robust ecosystem
- Lenovo owns and controls our manufacturing, so we can ensure security is built in every system and component
- Governance is embedded, driving security across products and services to maintain a vigilant focus on customers' safety
- Lenovo's experience and expertise ensures we prioritize innovation, continuously earning our customers' trust

The foundation of responsible AI

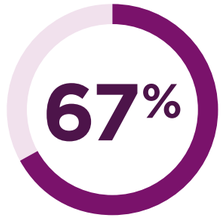
To safeguard AI driven applications, AI adoption must be grounded in security. Lenovo's multi-layered approach provides the foundation for responsible, ethical, and secure AI solutions, built upon correct and up-to-date governance.

The Lenovo Responsible AI committee covers a wide array of challenges in the AI space. It makes sure AI is legal, ethical, fair, privacy-preserving, secure, and explainable.

The six pillars of Responsible AI at Lenovo are:

1. Diversity & Inclusion
2. Privacy & Security
3. Accountability & Reliability
4. Explainability
5. Transparency
6. Environmental & Social Impact

Read more on Lenovo's Responsible AI



of Healthcare executives surveyed aren't confident in their IT systems' ability to protect the integrity of patient data.[7]

of Healthcare leaders say their patient data is stored in fragmented, siloed systems.[7]

IT should leverage AI using teamwork

As AI increasingly integrates into the Healthcare ecosystem, how we approach IT is evolving.

AI's widespread adoption requires IT teams to take on a more dynamic and proactive role as digital advisors. Lenovo is a trusted technology partner to over 3,000 Healthcare organizations in over 100 markets. **With 4 AI Innovation centers, 18 R&D locations, and an extensive AI partner ecosystem**, we are uniquely poised to help Healthcare and Life Science organizations with AI readiness. From identifying opportunities and use cases to managing data and deploying solutions, Lenovo becomes part of your AI strategy team to create the foundation for organizations of all sizes—no matter where they are on their AI journey.

AI technology: a team approach

Building a scalable, secure, and sustainable AI architecture requires a holistic, team-based approach that involves key stakeholders, including division leaders, infrastructure, operations, software development, and data science.

In an industry where protecting patients and data is paramount, the human touch is still essential, even as we embrace automation.

How AI is having an industry-wide impact

Take a deeper look into how AI is already being used in Healthcare and Life Sciences, and the many ways Lenovo can help organizations drive medical innovation forward.

Diagnosis and treatment:
AI improves diagnostic accuracy by analyzing patient data to identify diseases and suggest personalized treatments.

Computer vision:
AI accelerates pathology workflows and assists in medical imaging, detecting anomalies in X-rays, MRIs, and CT scans.

Workflows:
Automates routine tasks, streamlining processes to enhance operational efficiency.

Predictive modeling:
AI stratifies patient risk, enabling earlier intervention for at-risk individuals.

Precision medicine:
Accelerates drug discovery and matches treatments based on genetic makeup and medical history.

Mobile apps:
Provides real-time health monitoring and personalized wellness recommendations.

Virtual assistants:
Supports healthcare professionals and patients with real-time information and reminders.

Matching engines:
Enhances patient engagement and optimizes clinical trial recruitment by identifying suitable candidates.

of Healthcare professionals **are intending to adopt AI**.[8]

of Healthcare leaders agree that **accurate data helps** them improve quality of care.[5]

of Healthcare leaders **believe AI is important** to remain competitive.[9]

Lenovo Solutions for AI in Action

Leveraging AI to diagnose cancer up to 10x faster

"The Lenovo and Nutanix HCI solution is the perfect fit for this innovative cancer screening project. The infrastructure is designed and built to ensure service continuity, fault tolerance, and high-speed data exchange—enabling healthcare professionals to analyze patient images faster than ever before."

Sultan Assylbekov - CEO, iNOVA TECH

Learn more

Accelerating ground-breaking genomics research

"Thanks to our strong collaboration with Lenovo, we are well positioned to keep pace with the latest advances in genomics research and lead the way for multi-omics analyses in Europe."

Miguel Vazquez, Ph.D.
Head of the Genome Informatics Unit, Barcelona Supercomputing Center

Learn more

Delivering outstanding eyecare with AI

"We are shipping Spark™ 4W solutions to customers around the world. Thanks to Lenovo, we are assured that our customers receive a high-quality product accompanied by exceptional support, providing peace of mind in every aspect of our service."

Zohar Katzman - CTO, Shamir Optical Industry Ltd.

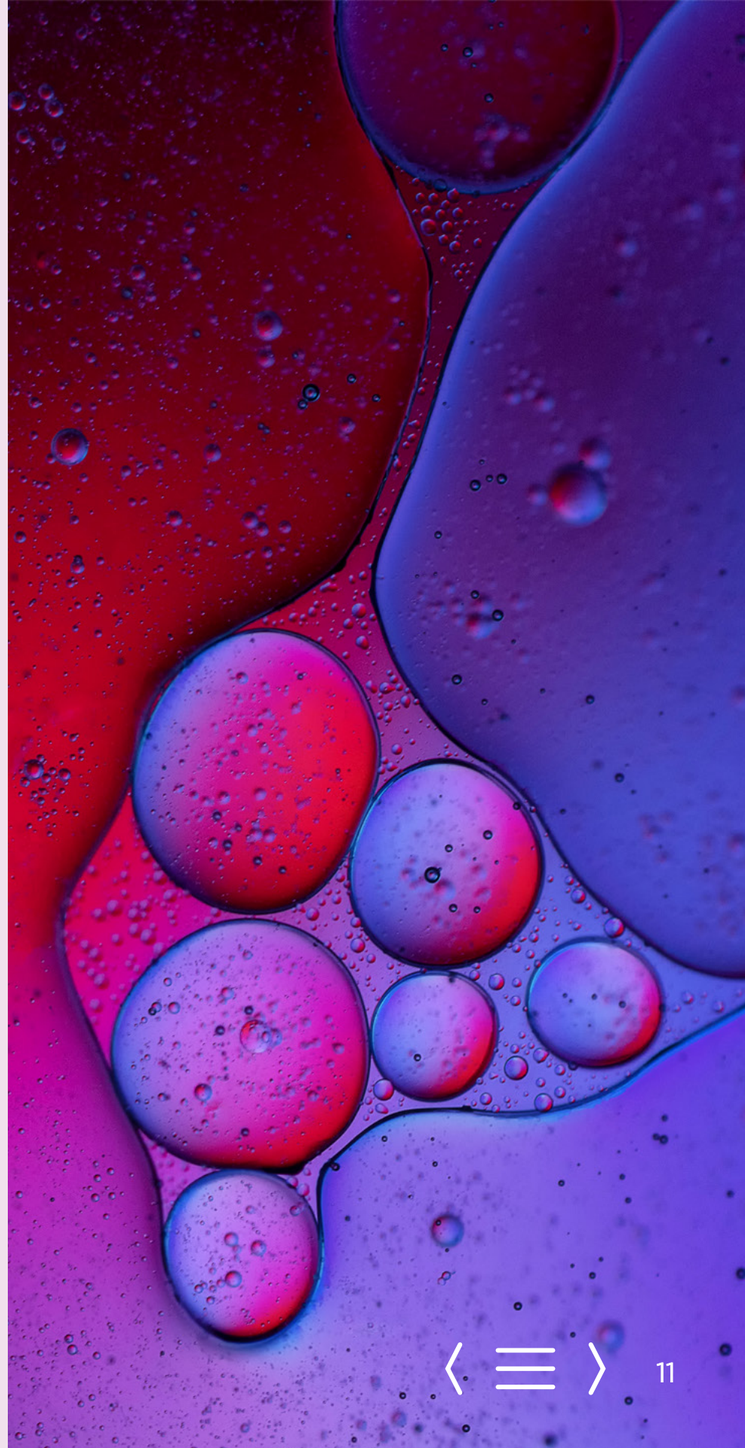
Learn more

Advancing cancer research

"The higher computing throughput and capacity delivered by Lenovo GOAST is helping accelerate the pace of research and increase our output, helping us drive scientific progress that makes a real impact on people's health and lives."

Dr. Anurag Agrawal - Director, CSIR-IGIB

Learn more



Lenovo simplifies AI for Healthcare & Life Sciences

Lenovo's vision for Smarter AI for All simplifies adoption and brings AI innovation to everyone in collaboration with Intel, through our Hybrid AI model, ensuring AI is delivered seamlessly, responsibly and securely to personal, enterprise and public environments across the Healthcare and Life Sciences sector.

We bring AI to your data where and when you need it most, delivering AI solutions at your edges; in hospitals, research labs, clinics, and remote care settings—wherever your organization needs full control, security, and real-time access to data. We also deliver AI solutions at your data centers, providing high performance power, availability, scalability, and seamless cloud integration. Through a Hybrid AI approach, we bring the right size and mix of AI models, devices, infrastructure, operations, and expertise to your data across personal, enterprise and public environments.

In line with the unique demands of Healthcare and Life Sciences, Lenovo brings a hybrid approach, which can blend on-premises and cloud-based processing. Together, Lenovo and Intel jointly enable a broad portfolio for hybrid AI, data center, cloud, edge, and PC. With Lenovo supporting your AI adoption, organizations can drive medical innovation forward, enhancing clinical experiences and effortlessly maintaining regulatory compliance.

Our Hybrid AI model brings innovation to everyone

Personal

AI-powered solutions on smart devices like AI PCs predict patient needs and support clinical decision making while keeping data private. We call this **AI for You**. This approach allows clinicians to rapidly analyze patient data for personalized treatments, streamlining clinical workflows. It also empowers pharmaceutical and research organizations to accelerate insights in drug and vaccine development and optimize clinical trials.

With Lenovo and Intel, AI is:

- **Personalized**: Harness AI capabilities to optimize workflows, streamline clinical trials research, and accelerate drug pipelines.
- **Enhanced**: Transform your workday with AI automation, accelerating time to insight for clinical intelligent decision-making, diagnosis, and treatment.
- **Protected**: Strengthen your digital defenses with advanced, predictive security measures, robust threat detection, and cyber-resiliency, safeguarding a secure and efficient digital environment for patient data and proprietary information.

Enterprise

Securely and privately develop, fine-tune, deploy and scale AI solutions (AI apps, agents, tools, models) on-premises, using enterprise data, policies, and governance compliance such as HIPAA and GDPR, across multiple devices.

- **Innovate**: Accelerate medical innovation with the industry's leading AI portfolio, delivering rapid insights and personalized medicine and treatment.
- **Transform**: Transform your life and work with enhanced innovation and productivity through scalable and smart AI solutions, infrastructure, services, and support.
- **Responsible**: Apply Responsible AI principles to your AI adoption ensuring the integration of secure, ethical and sustainable AI solutions.

Public

Leverage cloud AI with personal assistants, chatbots, and open-source frameworks, enhancing innovation, and public research and datasets to optimize costs across Healthcare organizations, driving innovation, operational efficiency, and life quality.

- **Custom build, design and deliver**: Develop AI solutions tailored to your needs, boost performance, maintain compliance, and help reduce costs for long-term growth and competitive advantage.
- **Safeguard technology excellence**: Make sure your AI systems are robust, reliable, and perform consistently to minimize downtime, reduce errors maintain business operations, and build patient trust.
- **Deliver exceptional patient, clinical, and research experiences**:
  Better-designed, more intuitive AI solutions lead to enhanced user experiences, adoption rates, and greater satisfaction.

The Lenovo AI portfolio

Building a scalable and sustainable AI architecture

Building an AI architecture begins with a technology partner like Lenovo that can bridge cross-industry best practices for compliance, security, and data management while providing devices and infrastructure to meet the unique needs of Healthcare and Life Science end-users.

Instant AI-driven productivity

Lenovo AI PCs, workstations, and edge devices include Intel processors and the new Intel AI-accelerating NPU (Neural Processing Unit) to enhance employee productivity and drive real-time decision-making across every touchpoint.

From hospitals to medical research institutions, Lenovo Edge AI servers, devices, and ISV-based solutions transform operations across your entire Healthcare and Life Sciences ecosystem.

Lenovo ThinkStation P Series

Powered by Intel® Xeon® Scalable processors

High-performance workstations which are powerful, ISV-certified, energy-efficient and highly versatile. Ideal for AI applications in analytics.

ThinkStation PX

Lenovo ThinkPad X1 2-in-1

Powered by Intel® Core™ Ultra processors

The ThinkPad X1 2-in-1 Gen 10 Aura Edition combines the versatility of a laptop and a tablet, with AI-driven features that adapt to user preferences and improve efficiency.

ThinkPad X1 2-in-1

Lenovo ThinkPad X1 Carbon

Powered by Intel® Core™ Ultra processors

The ThinkPad X1 Carbon integrates AI-driven features like Microsoft Copilot, allowing users to automate tasks and enhance productivity effortlessly.

ThinkPad X1 Carbon

Lenovo ThinkEdge

Powered by Intel® Xeon® Platinum processors

Purpose-built platforms for compute-intensive applications deployed outside traditional data centers, with the flexibility needed for real-time data processing.

ThinkEdge SE450

Lenovo ThinkSystem

Powered by Intel® Xeon® Scalable processors

High-performance servers optimized for deploying and training AI models, handling large datasets, and complex algorithms.

ThinkSystem SR670

Lenovo ThinkAgile

Powered by Intel® Xeon® Scalable processors

Integrated systems offering pre-configured servers, storage, and networking to streamline AI adoption and deployment.

ThinkAgile HX650

Neptune™ Liquid Cooling

AI technology requires more system power than ever, putting an increased strain on energy demands. Lenovo's Neptune™ Liquid Cooling enables performance without compromise, reducing energy consumption by up to 40% while providing maximum performance and reliability of critical AI systems, ensuring that these systems can operate optimally without overheating or downtime.

Learn more

Lenovo High-Performance Computing (HPC):

Supercomputers are widely used in healthcare for drug and vaccine discovery, modelling, genomic mapping, and diagnostics. Lenovo is the world's #1 supercomputing provider.[12] With industry-leading technology and global HPC architects and experts, we take a customer-centric approach to provide the HCP solutions that best meet the needs of evolving Healthcare and Life Science organizations.

Learn more

Lenovo GOAST

GOAST enables real-time AI operations and security across multiple platforms, ensuring robust AI deployment. With Lenovo GOAST, researchers can analyze an entire human genome in 47 minutes and whole exomes in a matter of seconds. In a standard cloud or on-premises environment, the same analysis takes 40–150 hours. Offering a high-performance, cost-effective solution that optimizes software for critical workflows and supports scalable modularity.

AI can help

plan radiotherapy treatments about

2.5x faster

with than without.[10]

AI has the potential to automate or augment

37% of Healthcare practitioner and technical tasks.[11]

The pace of change

Lenovo is passionate about responsible AI practices, while helping organizations keep pace with AI's rapid evolution thanks to an end-to-end AI services portfolio.

Lenovo has developed a Responsible AI committee, an AI Innovators program, and an AI Center of Excellence. Plus, our flexible Everything-as-a-Service solutions, scalable AI infrastructure, and managed services provide access to AI expertise whenever it's required.

AI Center of Excellence

The Lenovo AI Center of Excellence (AI CoE) is designed to help customers put AI to work for their organizations quickly, cost-effectively and at scale, with solutions that bring AI from ideation to reality. Lenovo makes AI adoption easier for you by providing workshops, proof of concepts, benchmarking, and performance optimization. Together, with our global partner ecosystem, we help reduce time to value and risk. Lenovo has strategically positioned AI data scientists, solution architects, engineers, and industry consortiums worldwide.

Lenovo AI Innovators program

Lenovo has a comprehensive partner strategy that brings together best-in-class Independent Software Vendors (ISVs) for AI software, hardware, and solutions. We have over 50 AI Innovators in the program, providing more than 165 solutions.

In the AI Innovator program, we provide access to our AI Discover Labs and a collaborative platform where partners can develop, deploy and validate their AI solutions with the support of cutting-edge tools, resources and expertise.

- Find specific enterprise AI solutions for Healthcare and Life Sciences
- Execute proof of concept and comply with Lenovo's Responsible AI guidelines
- Train your own data without risking confidentiality

Explore innovation

Services powered by AI

Lenovo AI Fast Start: Helps you quickly prove the business value of Personal, Enterprise, and Public AI platforms. It provides access to AI assets, experts, and partners to rapidly build a GenAI solution tailored to your business, ensuring relevance and speeding up large-scale deployment.

Get started

Lenovo TruScale Device as a Service (DaaS): Provides comprehensive, scalable Smarter AI devices and frees up valuable IT resources with a predictable subscription-based model—all from a single trusted partner. TruScale DaaS allows for quicker upgrades without upfront costs so Healthcare and Life Science organizations can future-proof their technology investments and remain competitive.

Lenovo TruScale Infrastructure as a Service (IaaS): Unlock the advantages of on-premises infrastructure with the flexibility of a cloud-like experience. Lenovo offers tailored solutions for hybrid and multi-cloud environments, infinite storage, and high-performance computing (HPC).

Our new GPU-as-a-Service allows customers to get started quickly and easily upgrade to the latest compute and accelerator technologies. Combined with Asset Recovery Services, assets can be securely recycled, reused, or repurposed in an environmentally friendly way to maximize value. In an era of rapid advancements in AI and GenAI hardware and software stacks, this flexibility is crucial. Lenovo provides clients with the broadest range of deployment options.

Discover TruScale

Delivering intelligent sustainability

We understand that what's better for people is also better for business, which is what drives every decision and investment we make.

Lenovo sustainability services include robust offerings to help Healthcare organizations achieve their sustainability goals. Lenovo Asset Recovery Service (ARS) helps extend device ROI with premium warranty, support offerings, and hassle-free disposal.

Our innovative Neptune™ Liquid Cooling technology reduces energy consumption by up to 40% supporting eco-friendly data centers while addressing the growing concern of AI powered consumption. Lenovo CO_2 Offset Services allows our customers to offset their device's carbon footprint.

We also go further with the Lenovo Intelligent Supply Sustainability Analytics (LISSA) tool, which enables transparent monitoring of supply chain sustainability. We ensure all GenAI solutions enabled by Lenovo undergo a responsible AI review including advising customers on how to setup their own responsible AI review and stay compliant.

Top 10

Lenovo's ranking in the 2024 Gartner Supply Chain Top 25 [13]

Since 2017, Lenovo has invested more than

$1.7 billion

into AI [13]

Get started with AI for All

Embarking on your AI journey begins with a thorough assessment of your current capabilities. You'll need to identify what your priorities are and focus on the quick wins that improve patient outcomes and clinical experiences and rapidly move beyond proof-of-concept to tackle the main challenges head-on.

Lenovo can support your AI initiatives at every stage of your journey. Once we understand your unique requirements, we define your desired outcomes, evaluate your data readiness, implement critical milestones, and pilot a use case to demonstrate proof of value and ensure your organization is set up for success. Lenovo provides your organization with the tools, knowledge, and expert guidance required for robust and reliable AI adoption.

Our AI Professional Services cover five critical phases: AI Discover, where we identify how AI can create value for your organization; AI Advisory, which assesses your AI readiness and defines strategic plans and roadmaps; AI Fast-Start, focused on designing and building AI elements; AI Deploy & Scale, implementing secure, scalable, and tailored Hybrid AI solutions; and AI Managed, which ensures continuous optimization.

Visit

www.lenovo.com/health

www.lenovo.com/pharma

Why Lenovo?

You can trust Lenovo to empower your business with intelligent technology, driving innovation and growth in a secure and scalable way.

Embrace AI and redefine the future of your organization with intelligent solutions designed to help you drive medical innovation and personalized patient care forward. From devices and edge computing to infrastructure, servers, storage, and services, Lenovo delivers a complete, sustainable, and secure solution tailored to your needs.

Get a trusted partner. Discover how Smarter AI for All delivers better patient care.

Contact your Lenovo representative today.

Learn more

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