EXECUTIVE OVERVIEW

Watson Health Imaging vision and portfolio

Driving impact today and adapting for the future
Introduction

At the intersection of health and technology, many healthcare industry leaders face difficult questions: Do we focus on the present or set our sights on the future? When it comes to artificial intelligence (AI), what is real and substantive and what is merely hype?

At the same time, decisions must be made to keep healthcare organizations successful and solvent today. How can we maximize value while minimizing risk? What steps can we take to improve patient care and contain costs?

On so many fronts and in so many ways, healthcare organizations are at a crossroads — making critical decisions now that will have lasting consequences.

But what if you didn’t have to choose? What if you could drive real impact today, while simultaneously protecting your ability to adapt in the future?

Our vision at IBM Watson Health is to create not only paradigm-changing solutions that will transform the imaging world in the future, but also practical solutions that can make images more accessible and workflows more efficient for you right now.
Driving impact
today

Healthcare organizations are seeking the most strategic ways to deliver high quality healthcare while protecting their financial well-being. In an environment that seems to increasingly require them to do more with less, this is no easy task. Launching initiatives to achieve these goals requires time and energy, not to mention investment, so each step must be carefully measured.

We’re committed to helping stakeholders across your organizations — business leaders, IT leaders and clinicians — achieve their objectives today and prepare for the challenges of tomorrow.

**Clinical objective: Break down data silos**

As a result of the rapid pace in both provider consolidation and new technology, many organizations have data housed in separate IT systems or applications, making it difficult to access. This may cause workflow challenges for clinicians, forcing them to log in to multiple systems or workstations in order to review a current imaging study, relevant priors or a patient’s medical record.

A lack of accessible data could pose a risk to high-quality patient care, as physicians find it challenging to quickly access or review a complete patient record. Navigating cascading windows, multiple dropdown menus, and excessive “clicks” and pop-ups monopolizes clinicians’ time — time they could be spending interacting with patients. The result: patients who feel ignored and physicians who feel burned out.

Physicians need solutions that help ease access to patient data and images and also automate the administrative, often mundane tasks that consume so much of their time. When data silos are broken down, physicians have more time to focus on their patients or collaborate with their peers. They can also make diagnoses and care decisions with greater confidence, knowing they have access to comprehensive information about the patient.
<table>
<thead>
<tr>
<th>Watson Health solutions for data accessibility</th>
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<tr>
<td><strong>IBM Watson Imaging Patient Synopsis</strong></td>
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<tr>
<td>IBM Watson Imaging Patient Synopsis is a radiologist-trained AI solution that provides a single screen summary of clinically relevant patient data in seconds. It searches both structured and unstructured data in the EHR, including clinical reports and notes, arming radiologists with critical context while reading a study.</td>
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<td><strong>Merge Unity</strong></td>
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<td>Merge Unity™ is an all-in-one RIS-PACS-Reporting platform that functions as a turnkey imaging workflow solution, enabling organizations to focus less on managing IT infrastructure and more on patient care.*</td>
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<td><strong>IBM iConnect Enterprise Archive</strong></td>
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<td>IBM iConnect® Enterprise Archive is a vendor neutral archive that lets users store, manage and share enterprise-wide images from disparate storage systems, specialties, service lines and sites — regardless of source or format.*</td>
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<td><strong>Merge CADstream</strong></td>
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<td>Merge CADstream® is a pioneer in breast MRI computer-aided detection (CAD), providing assistance to reading physicians by accelerating and simplifying the interpretation of large studies. It also supports physicians’ efforts to interpret liver and prostate cases.</td>
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<tr>
<td><strong>IBM iConnect Access</strong></td>
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<td>IBM iConnect® Access is a true zero-download web viewer, enabling users to access images from any healthcare application under a ‘single pane of glass.’*</td>
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<td><strong>Merge Cardio</strong></td>
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<td>Merge Cardio™ is a Best in KLAS cardiology solution that allows users to access and manage patients’ integrated cardiovascular records from a centralized, web-enabled system from anywhere and at any time.*</td>
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<td><strong>Merge PACS</strong></td>
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<td>Merge PACS™ is an AI-ready radiology solution designed to improve reading workflows anywhere in the enterprise. It is not just a high-performance viewer, but also a versatile platform that simplifies physicians’ reading activities and helps organization to scale.*</td>
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<tr>
<td><strong>Merge Hemo</strong></td>
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<td>Merge Hemo™ is a hemodynamic solution that provides real-time, automated documentation for cardiac cath lab data and images, which are incorporated into the patient record at the point of care.</td>
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*Not FDA-cleared for diagnostic use on mobile devices.
IT leaders need to figure out how to make healthcare data and images accessible to radiologists and clinicians, and also keep it secure and protected...all while minimizing storage infrastructure and maintenance efforts.

**IT leader objective: Manage growing image volume**

When digital imaging was introduced, imaging studies produced a handful of images on just a few modalities, so storing and managing the images was relatively simple. Today, advanced imaging technologies produce hundreds or even thousands of images per study. In addition, specialties and sub-specialties continue to add unique imaging modalities to better capture the images they need.

The result is millions of images living in separate IT systems, often managed through separate vendors, even for small organizations. These challenges increase exponentially for large hospital systems, especially if legacy systems have been inherited through consolidation.

The brunt of this difficulty is borne by those who manage HIT systems. IT leaders need to figure out how to make healthcare data and images accessible to radiologists and clinicians, and also keep it secure and protected...all while minimizing storage infrastructure and maintenance efforts.

IT leaders need solutions that can simplify their technology stack by unifying multiple imaging and data sources across the enterprise. This can provide the stable and update-ready foundation they need to efficiently manage data across their organization and be prepared for future challenges.

**Watson Health solutions for image management**

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<tr>
<th>IBM iConnect Enterprise Archive</th>
<th>IBM iConnect Enterprise Archive supports the consolidation and sharing of diagnostic images (DICOM) and XDS (non-DICOM) information across the enterprise, with rich integration to EHRs and HIEs.*</th>
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<tr>
<td>IBM iConnect Access</td>
<td>IBM iConnect Access supports a longitudinal view of diagnostic-quality DICOM and non-DICOM images, which can be shared and exchanged across the enterprise and community.*</td>
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*Not FDA-cleared for diagnostic use on mobile devices.*
Business leader objective: Manage the organization efficiently

The shift to value-based care has put significant pressure on healthcare business leaders as they have witnessed reliable reimbursements become more elusive. In order to manage resources, business leaders need to ensure that processes within their organization are as efficient as possible, and that staff time is optimized and focused on tasks best suited to their unique abilities.

When operational processes are redundant or needlessly manual, it’s not just a matter of wasted time. Systems that require excessive manual entry or transcription are more prone to error, which can directly impact patient care and may create liability.

Business leaders can streamline operations with solutions designed to automate administrative tasks and ease information collection and exchange. Smart, integrated data solutions can improve staff and clinician efficiency and potentially increase revenue capture and patient volume.

### Watson Health solutions for operational efficiency

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<th>IBM Watson Imaging Clinical Review</th>
<th>Watson Imaging Clinical Review is a retrospective AI-enabled data review tool that compares unstructured data from clinical reports with the EHR problem list and recorded diagnoses to identify potential areas for reconciliation and follow-up.</th>
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<td>Merge RIS</td>
<td>Merge RIS™ is a browser-based radiology information system that stores, manages and distributes patient imaging information. Merge RIS also assists referring physicians by automating the orders-results workflow and providing added services to improve the referral process.</td>
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<tr>
<td>Merge Dashboards</td>
<td>Merge Dashboards™ is a business intelligence solution designed to collect and analyze billing, workflow, clinical and compliance data. Powered by IBM Cognos® Business Intelligence, it allows users to make decisions based on analytic data.</td>
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<tr>
<td>Merge Document Management</td>
<td>Merge Document Management™ is a companion of Merge RIS and Merge PACS that allows providers to manage documents digitally, which can assist any organization seeking to go paperless.</td>
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Adapting for the future

In some ways, the healthcare industry resides within a technological paradox. On one hand, the surgical suite at a large metropolitan hospital might boast a state-of-the-art robotic surgery system. On the other, smaller organizations or physician groups may still be dealing with faxes, phone calls and handwritten forms.

Healthcare’s relationship with technology has only grown more complicated as clinicians navigate unwieldy EHR systems and technology leaders struggle to connect and consolidate IT systems.

Enter into this equation artificial intelligence (AI), which continues to drive conversations about the future of healthcare technology. Organizational leaders are understandably wary. Is AI worthy of all the hype? Will it really simplify the delivery of healthcare or just further complicate it?

As healthcare leaders prepare to make decisions about technology investments, it is important they look for vendors who can offer solutions that are adaptable and ready to accommodate their organization’s future needs and goals.

IBM Watson Health has consistently prioritized developing solutions — AI-enabled or otherwise — that add value to organizations by being:

→ Vendor-neutral for easy integration into existing IT systems
→ Needs-driven to address an actual healthcare problem
→ Holistically-supported by a larger system that can adapt to changes
The near-term promise of AI is to help build a safety net that lets us identify high-value findings that could otherwise have been missed.

### Where is AI in imaging going?

When it comes to the future of AI, we can find insights from experts who are making predictions about how AI in healthcare will evolve. An analysis from Accenture compiled a list of 10 AI applications with “the greatest near-term impact in healthcare.” Combined, they are estimated to be valued at about $150 billion by 2026. Of these, two applications — automated image diagnosis and preliminary diagnosis — represent $8 billion of future AI value for the imaging market.¹

AI will continue to evolve in its capacities for imaging. Currently, AI-enabled solutions can perform data analysis tasks using natural language processing (NLP) to surface relevant unstructured data from archives such as a patient EHR record. Applications can also detect anomalies through organ-specific image analytics.

Within a matter of years, image analytics are likely to expand to surfacing findings within entire body systems or regions, such as the chest or abdomen. Further in the future, AI may be able to reveal biomarkers and other radiomic trends in images that may not be detectable from human observation alone, facilitating virtual biopsies and decision support through precision medicine.

The near-term promise of AI is to help build a safety net that lets us identify high-value findings that could otherwise have been missed. Longer term, the technology has the potential to revolutionize precision medicine and improve patient care. A lot still needs to happen before that long-term promise is fulfilled, but many of the critical building blocks are already in place today.

We are building next-generation solutions, powered by Watson technology, which are designed to understand, reason and interact with data and people.

**AI will require a supportive ecosystem**

As the AI landscape broadens and more vendors enter the market, healthcare organizations face significant challenges as they vet, select and work to integrate numerous AI applications into their existing IT infrastructure and physician workflows. Technological integration of any kind is expensive and time-consuming; some analysts predict that health systems may want to purchase and implement hundreds of algorithms in the coming years.

Considering these challenges, a scalable solution such as an AI marketplace is crucial. Not unlike a smartphone app store, this marketplace can serve as a space where organizations choose from an array of vendor-neutral AI solutions to integrate into their existing IT platforms. Users will benefit from a seamless integration point between AI applications and their existing systems through a single gateway.
**Watson Health Imaging’s AI journey**

Watson Health brings the power of AI to imaging so physicians can have greater confidence in diagnostic and treatment decisions for their patients. We are building next-generation solutions, powered by Watson technology, which are designed to understand, reason and interact with data and people.

The Watson Health Imaging AI portfolio includes two robust solutions available today:

- **IBM Watson Imaging Clinical Review**, a retrospective data review tool that identifies discrepancies in the EHR between clinical reports and the problem list/recorded diagnoses
- **IBM Watson Imaging Patient Synopsis**, a solution for radiologists that searches structured and unstructured data in the EHR to find patient data that is clinically relevant to the current study

In addition to expanding the capacities of our current offerings, we are committed to working with world class partner companies and creating solutions that will easily integrate into an organization’s existing systems. For example, Watson Health is collaborating with Guerbet to develop an AI software solution to support liver cancer diagnostics and care utilizing CT and MR imaging.

While it is tempting to focus on the long-term potential — as so many prognosticators have done with their forecasts for “robot doctors” — the most exciting developments around AI in imaging are actually those that are taking shape today. By carefully nurturing this technology, partnering with healthcare providers around the world to train and test it, and aiming for consistent improvements in workflow processes, we are putting the pieces in place that will enable a real, sustainable revolution in healthcare.
About Watson Health Imaging

Watson Health Imaging, a segment of IBM Watson Health, is a leading provider of innovative artificial intelligence, enterprise imaging and interoperability solutions that seek to advance healthcare. Its Merge branded enterprise imaging solutions facilitate the management, sharing and storage of billions of patient medical images.

Watson Health Imaging artificial intelligence solutions analyze structured and unstructured patient, population, and medical research data residing within disconnected silos. Solutions available now and under development are designed to organize available information and present it in a contextually relevant, probability-driven manner to objectively assist healthcare professionals, whether at a reading workstation or at the point of care.

With solutions that have been used by providers for more than 25 years, Watson Health Imaging is helping to reduce costs, improve efficiencies and enhance the quality of healthcare worldwide.
The client is responsible for ensuring compliance with all applicable laws and regulations applicable to it. IBM does not provide legal advice or represent or warrant that its services or products will ensure that the client is in compliance with any law or regulation.

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IT system security involves protecting systems and information through prevention, detection and response to improper access from within and outside your enterprise. Improper access can result in information being altered, destroyed, misappropriated or misused or can result in damage to or misuse of your systems, including for use in attacks on others. No IT system or product should be considered completely secure and no single product, service or security measure can be completely effective in preventing improper use or access. IBM systems, products and services are designed to be part of a lawful, comprehensive security approach, which will necessarily involve additional operational procedures, and may require other systems, products or services to be most effective. IBM does not warrant that any systems, product or services are immune from, or will make your enterprise immune from, the malicious or illegal conduct of any party.

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