Brochure

Digital pathology: a pivotal moment of opportunity



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Digital pathology creates a vibrant, imagedriven ecosystem where pathologists can acquire, manage, and interpret information from digitized glass slide images using the information to understand medical events, train students, and contribute to research. Globally, the digital pathology market is expected to increase at a compound annual growth rate of 7.7% from 2023 to 2030.¹ That means the amount of digital image data that must be created, stored, and accessed is growing steadily, calling for innovative, economical, and effective solutions.

Prepare your organization to stay competitive in a fast-approaching future where artificial intelligence (AI), automated workflows, and timely collaboration will be standard practice.



¹ Grand View Research.

Pathology challenges

Reliance on physical samples rather than digital images makes it difficult for pathologists to quickly access slides from within the organization. Pathologists, lab managers, and researchers may work remotely. Having to physically retrieve slides for viewing can impede their ability to timely assess them.

Collaboration across the organization becomes difficult with physical slides. The samples and the experts must be in the same place at the same time. The handling of slides during retrieval, transit, and delivery can also potentially impact slide quality.

The need for physical storage space is growing, but storage space is at a premium, particularly in the facility itself or in high-value real estate areas where many facilities are located. In addition, temperature-monitored storage is needed for slides and blocks (tissue samples) that are core elements of pathology. Secure digital images of slides are needed to facilitate timely access and collaboration at scale.



Iron Mountain Digital Pathology solutions

A digital pathology solution that stores large digital images economically and makes it easy to find and retrieve them by leveraging metadata, helps pathologists view and analyze images in less time. It enables specialists and researchers in different locations to collaborate faster, since they do not have to be in the same location, and they do not need to have physical slides or blocks in their possession.

As digital pathology data increases, the amount of digital data creates storage management and cost challenges. Iron Mountain's tiered storage solution with a secure digital image library helps organizations achieve similar benefits of a large-scale implementation - faster and cost-effectively by partnering with a capable and reputable service provider.

Iron Mountain speed and collaboration





On Demand and Archival



On Demand:

Reduces the time to access slide images. When a customer requests to view slides in an accession that is already in Iron Mountain storage, the team retrieves, prepares, digitizes, and refiles the slides. With On Demand, the time to receive the digital image can be decreased from an average of 8 days down to 24 hours. The risk of damaging physical slides in transit is eliminated since the slides do not leave the Iron Mountain infrastructure. The scanned slide images are digitally stored in Iron Mountain's Digital Pathology storage solution. Web-based viewing access is available to share the digital images with other pathologists, train students, or collaborate in tumor boards.

On Demand provides the following:

1. Get the images you need when you need them. Managing the retrieval and physical delivery of physical slides is both labor-intensive and time-consuming. It slows time-to-retrieval and risks damage to slides from shipping and sharing. With On Demand, pathologists can retrieve images when needed from a secure web portal.

2. Share and collaborate easily. Physical slide sharing requires the person, microscope, and slide to be in the same place at the same time. On Demand provides a secure web-based portal

to access and search slides from anywhere. Collaboration can take place without delay, minimizing the time to insight. Authorized users can search, annotate, and share images.

3. Stop worrying about digital image storage and management. Pathology labs must maintain security to guard protected health information (PHI) to comply with HIPAA regulations. Digital Pathology professionals experienced in asset preservation and compliance handle cost-effective image storage and management across scalable cloud storage. On Demand protects images with an auditable chain of custody, secure storage, data encryption, access restriction, and role-based permissions.



Archival:

Unlocks access to large sets of archival images used to facilitate research, train AI models or be monetized via marketplaces. For researchers wanting to create a rich in-house digital medical image archive, large slide sets in storage are scanned and uploaded to the cloud. Images can be viewed by humans, analyzed digitally, or used to train machine learning algorithms. Archival achieves the following:

1. Source secure digital slide images. Relying on physical slides subjects researchers to long wait times. Archival provides researchers a digitized slide library supporting Al tools.

2. Collaborate on research efficiently.

Researchers can more easily collaborate using quality slide images stored in a digitized library.

3. Securely and cost-effectively manage your digital medical image archive. Building a library of digital slide images requires labor, time, and expense. A searchable image library can be used to train your Al algorithms and provide monetization opportunities. Archival can help by storing the digital slide image library securely and cost-effectively in Iron Mountain's Digital Pathology cloud storage.

Iron Mountain Digital Pathology storage solution

Having images digitized enables organizations to participate in asset marketplaces in which images are collected, anonymized, and marketed for sale to enable research as well as support in-house research.

Using Iron Mountain's cloud storage cost-effectively provides storage tiers based on needs. Given that organizations produce thousands of slide images per day, and **high-resolution whole slide images could exceed 1GB each**, the management and scaling of digital images are challenging. That's where Iron Mountain's extensive experience in securing customers' information and assets makes a difference.

Tiered storage options:

1. Active: the data is fully online. It is the high availability model keeping the digital images for 30 days when they are most likely to be viewed and shared.

2. Warm: the data is accessible within minutes as the images are restored back to the active tier. The images are stored in this tier from 31 to 90 days.

3. Cold: after 90 days the images are offline and protected by an "air gap," meaning it is not accessible from the Internet. When requested, the images are restored within 12 to 24 hours, moving back into the active tier for viewing.

Iron Mountain services

Iron Mountain provides an end-to-end Digital Pathology solution consisting of both services and flexible components. Components include a secure web portal, slide digitization, digital viewing, and digital and physical slide storage. Organizations can reap the advantages of a digital solution more efficiently and costeffectively by partnering with a capable and reputable service provider rather than attempting to handle everything in-house and on-premises.

Iron Mountain also provides:

- Pathology physical slide and block storage
- Cloud storage and migration services
- Data centers and colocation services
- Document scanning and digital storage
- Information governance advisory services
- Information management and content services



Why Iron Mountain

The Iron Mountain Digital Pathology solution leverages Iron Mountain's extensive digitization capabilities along with Iron Mountain's traditional pathology slide-storage experience in managing more than one billion slides and blocks in more than 150 temperature-monitored facilities meeting the 2021 US CAP requirements. Iron Mountain delivers a holistic service that spans the entire physical-to-digital pathology lifecycle. Iron Mountain is the global leader for storage and information management services. Trusted by more than 225,000 organizations-including almost all of the Fortune 1000-we store and protect billions of valued assets.

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About Iron Mountain

Iron Mountain Incorporated (NYSE: IRM), founded in 1951, is the global leader for storage and information management services. Trusted by more than 220,000 organizations around the world, and with a real estate network of more than 85 million square feet across more than 1,400 facilities in over 50 countries, Iron Mountain stores and protects billions of information assets, including critical business information, highly sensitive data, and cultural and historical artifacts. Providing solutions that include secure storage, information management, digital transformation, secure destruction, as well as data centers, art storage and logistics, and cloud services, Iron Mountain helps organizations to lower cost and risk, comply with regulations, recover from disaster, and enable a more digital way of working. Visit www.ironmountain.com for more information.

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