Maintaining A Patient-Centric Focus In The Paperless Clinic

Situation Analysis

Measuring the success of digital transformation projects varies from industry to industry and organization to organization. However, there are two north stars that every transformation project team should use as guidance: streamline and simplify the customer experience, and capture data in a meaningful way.

As with any technology trend, some industries adopt early, while others lag. Depending on the industry, the lack of maturity in adopting a well-considered (and planned) strategy will invariably result in inefficient business workflows, and a less-than-ideal data management strategy.

The real-world implications of falling short of transformation goals can be significant for specific industries. In the healthcare industry, the customer is the patient, and failing to achieve these outcomes means that patient care suffers. And the impact of this diminished customer experience can have serious consequences.

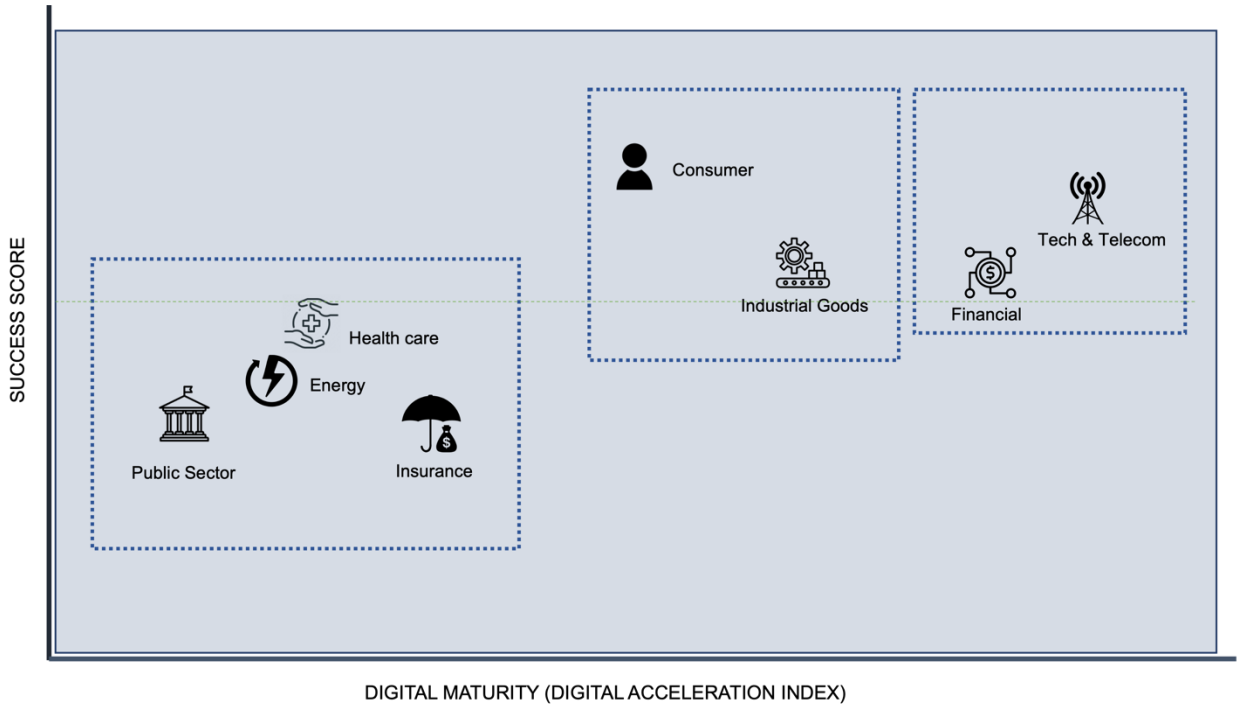
This research brief will explore how coupling a well-thought digital transformation strategy in the healthcare industry with the right technology can help improve the patient experience. Further, we will explore how companies like Iron Mountain bring unique technology and expertise to help healthcare providers achieve these goals more completely.

Digital Transformation Is Critical For Healthcare Providers

In a Boston Consulting Group (BCG) study that measured digital transformation maturity among different industries, healthcare was found to be one of the least mature. And the state of healthcare providers specifically is even more unsettling, with a score that falls considerably lower than other healthcare sub-industries (e.g., pharma/biotech and insurers).

When compared to other industries, healthcare providers scored in the lowest quartile in governance and strategy and the second-lowest quartile in technology and data platforms.

FIGURE 1: DIGITAL TRANSFORMATION MATURITY



Higher digital maturity industries have higher levels of success.
Source: Boston Consulting Group

According to the American Hospital Association, health systems, hospitals, and post-acute care facilities (PAC) in the United States must adhere to 629 patient management regulations. Global management consulting organization McKinsey reports that roughly 25% of the $4 trillion spent on healthcare annually in the US goes to administrative costs.

Looking at healthcare administration at a higher level, the US outpaces its European peers. On a per-capita basis, the US spends more than $900 per patient. The highest administrative per-capita cost in Europe is $528 in Switzerland, with Germany coming in at slightly over $300. This high cost of administering healthcare does not correlate to quality, as Switzerland is regarded as having the best healthcare in the world, and Germany is ranked 7th. Despite its cost, the US ranks 23rd on the list of public healthcare systems.

The average healthcare provider generates 137 terabytes of data every day, most of which is unstructured. The average hospital produces roughly 50 petabytes of data every year. This includes MRI films, lab results, surgical procedures, radiation and therapy, patient notes, insurance claims, etc. This is a challenge for healthcare providers across three vectors—data volume, data type diversity, and data locality.

And, of course, consider this: In healthcare, the patient is both the customer and the primary source of data. Achieving suboptimal customer satisfaction can literally have life-and-death consequences. Mishandled, misplaced, or misinterpreted data can have equally severe consequences.

The current healthcare system manages patients through a mix of media across many providers. Disparate data types are collected and managed in silos, with compatibility challenges that span the patient experience. As a result, about 400,000 cases annually of incomplete or incorrect data impacts the patient experience. Of those cases, about 25% (100,000) are fatal.

While patient outcome is far and away the top measurement of success in healthcare, there is also a financial impact. Healthcare organizations that employ paper-based records face a constant budget challenge, as managing these systems accounts for up to 40% of the annual IT budget.

The Patient Data Opportunity – And Challenge

Delivering better patient outcomes is the ultimate goal of digital transformation in healthcare—undoubtedly so. Part of driving better patient outcomes is leveraging data. What if a healthcare provider could mask, scrub, tag, and apply algorithms to patient data to assist in finding causality and correlation?

This practice can meaningfully impact how healthcare is provided based on specific customer symptoms, pre-existing conditions, and other environmental factors. However, such a practice must account for the inefficiencies of paper-based and siloed patient management systems.

Likewise, patient data can be mismanaged and exploited. The previous reference to burdensome regulations is real, but it also serves a purpose. Every day seemingly brings news of another hack of a healthcare provider, exposing millions of patients' private data. So, while masked patient data can be invaluable in driving correlation and causation, its use also poses a significant risk to providers—a risk further complicated by the mix of media (physical, digital) and format (film, pdf, video, etc.).

The ideal patient experience is one in which the customer (patient) receives complete and appropriate care in the most timely and cost-effective manner. This can only happen when healthcare providers embrace tools that automate the ingestion, management, routing, and securing of data that originates in various types and formats from different locations.

The foundation of the ideal patient experience and healthcare management begins with digital transformation. And one of the foundational elements of digital transformation in the healthcare industry is the paperless clinic.

Paperless Clinics – The Manifestation of Transformation

Paperless clinics are practices (hospitals, offices, and other facilities) that utilize a technology platform to create and manage electronic health records (EHR) through AI-enabled automated workflow, document management, security, and storage.

The goal of paperless clinics is, as one would expect, to reduce costs, increase efficiency, and, most importantly, deliver better patient outcomes.

Consider the following use case:

> *A middle-aged person visits their primary care physician (PCP) complaining of sharp abdominal pain. After checking in at the front desk, the person is escorted to an examination room where vitals are taken and logged.*
>
> *The PCP performs an examination and is concerned with the location and intensity of the pain. Because of this, the doctor orders an X-ray, which shows as inconclusive. The doctor follows this up with an ultrasound, revealing a ruptured appendix.*
>
> *The patient is immediately transported to the local hospital, where an emergency appendectomy is performed. Because of elevated vital signs, the patient is held overnight as a precautionary measure.*
>
> *The following day, the patient is discharged, along with a prescription for antibiotics and pain medications. They are ordered bed rest for the week, with orders to return to their PCP for a follow-up.*

In the above example, the patient traveling from a doctor's office to a number of locations with physical records and films is an example of how 400,000 cases of patient misinformation happen per year.

Conversely, the patient experience is vastly improved due to paperless clinics. With the paperless clinic, patient administration is more accurate, secure, efficient, and integrated. Instead of carrying films and records from office to office to office, all artifacts and patient information follow the patient as they move from doctor's office to radiology clinic to hospital to pharmacy.

Additionally, the requirement for several technologies tightly integrated into a single framework or platform is apparent in the above use case. First and foremost is the need for a workflow automation tool clinics can use to manage the patient journey. This workflow automation tool must be built into an application interface that can ingest patient data in virtually every format. Whether that data originated in the physical or digital world.

This workflow platform must be open in architecture. Patient data—from demographics and vitals to history to relevant attachments—must be securely shared with third parties, as necessary, whether this is forwarding the patient's information to a waiting surgeon at the hospital or a pharmacy for a prescription.

The Technology Behind the Paperless Clinic

AI is a critical element of the paperless clinic that can help determine causality and correlation. It can help ensure that the appropriate data is shared with the appropriate facilities and verify that patients receive appropriate care based on critical patient information. While there are many workflow automation tools that a healthcare provider can employ, Moor Insights & Strategy (MI&S) believes AI is a must-have. Conversely, workflow automation tools that do not use AI should not get the same level of consideration.

Like AI, security is a critical element for workflow automation. This is especially true when considering the regulations governing data in the healthcare industry. Patient data must be locked down from the point of generation throughout its entire life—at use, in flight, and at rest. MI&S advises organizations to double-down on security and not compromise when evaluating technologies to support their paperless clinics. Protecting data across its life should be a design point informing every platform element.

Finally, the difference between good and great paperless clinic solutions is not technology. Many companies are good at developing technology. Instead, it's the people who stand behind the technology. Depth and breadth of experience informs product design, requiring technically astute staff that can translate business needs into software. However, understanding the nuances that go along with managing historical paper records also makes an impact. Knowing the challenges of securely sharing, storing, and archiving customer data in the physical realm informs how to instantiate such a solution in the digital realm.

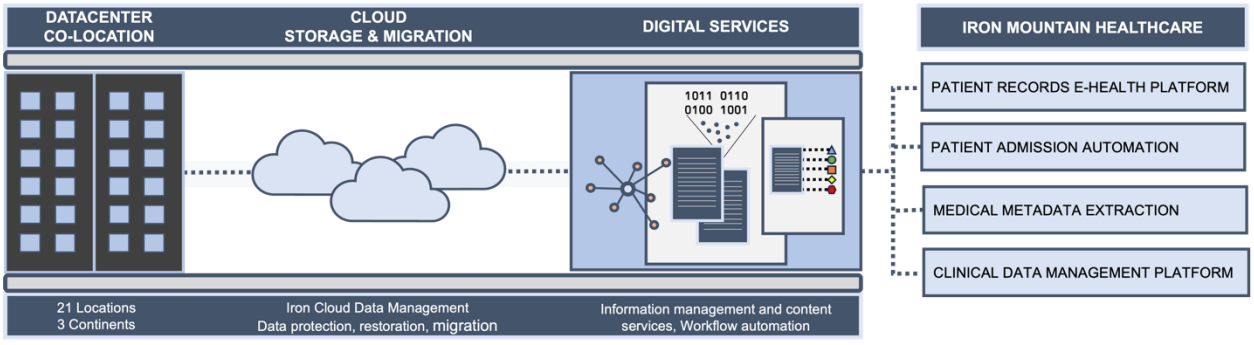
Companies claiming to “do it all” with the click of an easy button without customers or experience to speak of should be avoided.

Iron Mountain Powers the Paperless Clinic

As mentioned, while many industries can take a calculated risk on new technology solutions and solutions providers, healthcare is not one of them. The reason the industry lags in adopting digital transformation is grounded in logic, as the regulatory requirements are stringent, and the price for failure can be tragic.

One company uniquely positioned to support the needs of healthcare—with openness of architecture, deeply rooted security, and the ability to adhere to the stringent yet ever-changing regulatory requirements at the federal and local level—is Iron Mountain. Iron Mountain is perhaps the original information management company. For the past 70 years, the company has specialized in the storage, archiving, and security of over 95% of Fortune 1000 companies.

Figure 2: Iron Mountain Healthcare Portfolio



Iron Mountain’s portfolio addresses the needs of healthcare providers.

Source: Moor Insights & Strategy

In the healthcare industry, the company has an equally impressive track record supporting some of the largest healthcare providers across North America and Europe. Iron Mountain has over 2,000 customers in the healthcare industry, supporting over 850 million patient records, over 1 billion medical images, and 1 billion pathology slides.

Iron Mountain is especially unique in the way its business has transformed with the healthcare industry. A company that started by managing physical assets—the original form of data for the largest companies around the world—embraced technology to both reorient its business and align with the needs of its customers. Physical storage and archiving were complemented by digital storing and archiving, which has evolved into available cloud storage services.

The company has developed a technology portfolio through in-house innovation, partnerships, and acquisitions, enabling it to marry decades of experience managing data with rich technical capabilities. Because of this, MI&S sees Iron Mountain as a company that healthcare organizations must consider as part of their transformation to a paperless clinic.

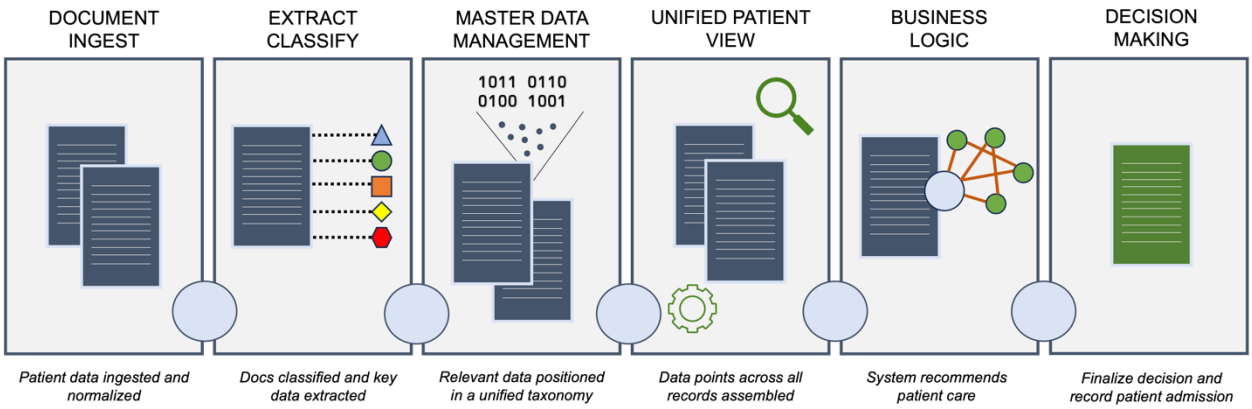
InSight - How Iron Mountain Drives Efficiency

Iron Mountain has experienced a seemingly continuous innovation cycle to transform its service to the healthcare industry. Perhaps its most valuable asset is InSight, the company's SaaS-based intelligent document processing and electronic record solution. The InSight platform focuses on data sharing, visualization, deeper insights, and workflow automation powered by machine learning.

When talking to IT and business leaders in healthcare—even some that have executed digital transformation strategies and use electronic health record management systems—MI&S has heard of frustrations around the decentralized, disjointed approach (silos) to creating and managing different patient health records. This can result in patient data being residing in many different silos across a providers' network, not easily accessible by healthcare providers.

The cloud-native architecture of InSight simplifies the process of tearing down these silos. It categorizes ingested data and uses metadata to feed machine learning, making sharing relevant patient data with the right stakeholders at the right time easy and automatic. Further, unstructured data such as X-ray and MRI images, provider notes, and more can add context and insights where they previously just represented uncorrelated raw information.

FIGURE 3: IRON MOUNTAIN PATIENT DECISIONING SOLUTION



Iron Mountain's paperless clinic automates the patient intake process.

Source: Moor Insights & Strategy

Iron Mountain's capabilities are truly unique in a market filled with companies claiming to have product differentiation. The company leverages a depth of experience across a range of healthcare providers located around the globe. The results are solutions specifically tailored to each provider's needs, along with a rich practice in deploying and optimizing solutions across the entire patient value chain—from provider to provider to pharmacy.

EXPERIENCE MATTERS

This marriage of experience and capabilities is especially relevant for the healthcare industry, where the ability to provide technology that delivers the appropriate care to the patient while adhering to the requirements of local and federal regulations is critical.

An excellent example of Iron Mountain's uniqueness is how the company assists in standing up the paperless clinic environment. What physical artifacts exist for each patient? What should be digitized and stored in the patient's electronic healthcare record (EHR)? What artifacts must be maintained and for how long? And where must this data—both physical and digital—be stored? These are the types of scenarios Iron Mountain deals with every day, with experience built over decades.

SUMMARY

Streamlining operations leading to improved customer outcomes and leveraging data are the two guiding principles of every digital transformation project. While some industries are mature in their digital transformation journey, others lag.

Healthcare is one of those industries that lags—with good reason. The very business of healthcare is life and death. Streamlining can afford zero errors where the customer is the patient.

With this said, digital transformation is inevitable as its benefits are necessary for an industry trying to reckon with providing more care with fewer doctors and professionals per capita and a tightening regulatory environment.

One of the foundational elements of a digitally transformed healthcare provider is the paperless clinic. At a high level, the concept of the paperless clinic is simple. EHRs exist for each patient and follow that patient throughout their engagement with a healthcare provider.

In practice, implementing a paperless clinic is extremely complex for several reasons, beginning with the volume of data and seemingly infinite data types associated with each patient. Next is the frequency of exception-based routing of parts of the EHR that must happen as patients traverse caregivers.

And if these challenges didn't make deploying a paperless clinic nearly impossible, the number of regulatory considerations that must be accounted for is enough to make the most talented group of IT and records professionals stop before they even start.

MI&S recommends healthcare providers find a trusted partner in their paperless clinic journey. Engage the partner at the very outset and lean on their expertise during the project's planning, design, implementation, and remediation phases.

Further, MI&S recommends healthcare providers perform a thorough vetting of potential partners. Look for depth not just in technology but in the partner's experience in servicing the information lifecycle needs of similar healthcare providers.

MI&S believes Iron Mountain is uniquely positioned due to its depth and breadth of solutions for the healthcare industry, combined with its decades of experience in supporting some of the largest healthcare providers in the world.

As a result, Iron Mountain should be given serious consideration and evaluation. For more information on Iron Mountain and its healthcare solutions, visit here.

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