

Guide to Data-Driven Healthcare Innovation

Defining and Deploying Data
as a Catalyst for Change



eBook

Overcoming Roadblocks to Transformation
and Understanding Two Core Models of Innovation

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ABOUT THIS EBOOK

This eBook will look at the meaning of innovation in the healthcare industry, the barriers to implementing new processes within an organization, and how data can be a catalyst for change. This eBook will also look at the two core models that drive innovation in healthcare today.

With new insights covered in this eBook, health systems can better understand how to meet today's industry challenges at a pace needed to impact quality and performance improvement, patient care, and revenue.



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Overview

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Innovation is the engine that powers transformation in the healthcare industry—improving business models and patient care, all while boosting revenue. This is the essence of progress in the industry and what every healthcare organization is driving towards.

Acute challenges face the industry today. As human behavior continues to evolve, health systems must continually revise the way we approach and implement transformation of care. With labor shortages, workforce retention, consumer demands, and market disruption at the top of healthcare agendas, the time to adopt innovative solutions to help alleviate these challenges is now.

A BUZZWORD

Innovation has emerged as one of the industry's most overused buzzwords. Despite the ubiquity of the term, its value is indisputable as healthcare leaders around the globe continue to make it a top business priority for the foreseeable future.

As a concept, innovation impacts every aspect of a healthcare organization and must be leveraged across both internal and external systems. Without innovation driving transformation, there can be no hope of furthering our industry.

IN ORDER TO MAKE THE BEST INFORMED DECISIONS NECESSARY TO DRIVE THIS LEVEL OF SWEEPING CHANGE, HEALTHCARE WILL REQUIRE THE ABILITY TO QUICKLY ACCESS, ANALYZE, AND UNDERSTAND DATA.

Innovation has emerged as one of the industry's most overused buzzwords.

When coupled with the right technology, data is the key to progress, facilitating the following foundational elements of innovation:

- + Improved information exchange
- + Seamless collaboration with external and internal partners
- + Streamlined research processes
- + Accelerated healthcare quality and performance improvements

Processes and efficiencies improve with increased innovation. By adopting new tools and technologies, healthcare organizations can begin to realize positive change for better patient outcomes, more effective employee retention, and cost savings across the entire organization.

THE BEST-INFORMED DECISIONS



In order to make the best-informed decisions necessary to address this level of sweeping change, healthcare will require the ability to quickly access, analyze, and understand data.

01

DISSECTING THE BUZZWORD:

What is Innovation?

Although a seemingly nebulous term with many definitions, simply put, innovation is the outcome of creating something new that brings value to others.¹

It is realizing the potential for something great, then taking action to make it a reality, promoting disruption and excelling beyond the status quo.

When you think about a progressive healthcare future, data and technology are two key elements that can drive fast, impactful change. When these two worlds collide, a powerful transformation can be set in motion.

Delving deeper into practical applications—we look at two core models for healthcare: **operational innovation** and **corporate innovation**. Each model presents its own unique opportunities for transformation and growth within modern healthcare systems and organizations. Together, these two models can create a continuous learning organization and lay the foundation for an innovative healthcare infrastructure.

THE OPPORTUNITY TO DRIVE CHANGE IS AVAILABLE TO EVERYONE—THE KEY IS KNOWING HOW TO IMPLEMENT IT.

For the purposes of this eBook, innovation (specific to the healthcare industry) is defined as:

The adoption of new products, technology, services, or processes that improve organizational performance or patient care

The activation of these novel approaches across the health system

A scalable approach to continued transformation with desirable outcomes

A GAME-CHANGER



Data and technology are two key elements that can drive fast, impactful change. When these two worlds collide, a powerful transformation can be set in motion.

Core Models for Healthcare Innovation

Below are two core models for healthcare innovation. While one model drives transformation from within the organization, the other model seeks to reach outside the organization to foster partnerships that are mutually beneficial to both parties. Both models can work in-tandem, creating a data-driven healthcare ecosystem.

1 Operational Innovation

- + Driving Internal Excellence
- + Process and Performance Improvement
- + Team and Individual Empowerment
- + Impacting Patient Outcomes

Operational innovation is the adoption, creation, or deployment of new ways of doing work. It is the strategic ability to better the current healthcare organization by employing the latest proven software, technology, processes, or procedures and to activate them across the system. Operational innovation drives better outcomes internally and works to promote a continuous learning organization.

EXAMPLE:

A health system may identify the readmission rate in a specific cohort of heart failure patients and predict future clinical events as part of a quality improvement initiative.

2 Corporate Innovation

- + Driving Outside Partnerships and Investments
- + Accelerator and Incubator Programs
- + Collaborations with External Organizations

At a broader scale, corporate innovation is driven by the desire to collaborate with external organizations and create new opportunities for the existing business. Driven by data and performance indicators, the health system seeks new partnerships to develop new tools, patents, and technologies with third parties, or to create a larger impact on healthcare as a whole. Health systems also have the ability to impact revenue with successes driven by these life science, startup, entrepreneur, or digital health company collaborations.

EXAMPLE:

A health system develops an innovation acceleration hub that encourages a digital health startup to build research connections in exchange for partnership.



Innovation calls for **disruptive** methodologies:

Driving economic growth and increasing efficiency requires healthcare systems to adapt during times of recession and crisis. When unexpected shifts occur, innovation can be the determining factor of an organization's success.

To continue moving innovation forward, health systems must:

- ✓ Clearly outline their challenges and pain points
- ✓ Remain open-minded to new ideas
- ✓ Collaborate with other organizations
- ✓ Continue learning from shortcomings
- ✓ Maintain a willingness to take risks

ADAPTING TO CHANGE



When unexpected shifts occur, innovation can be the determining factor of an organization's success.

02



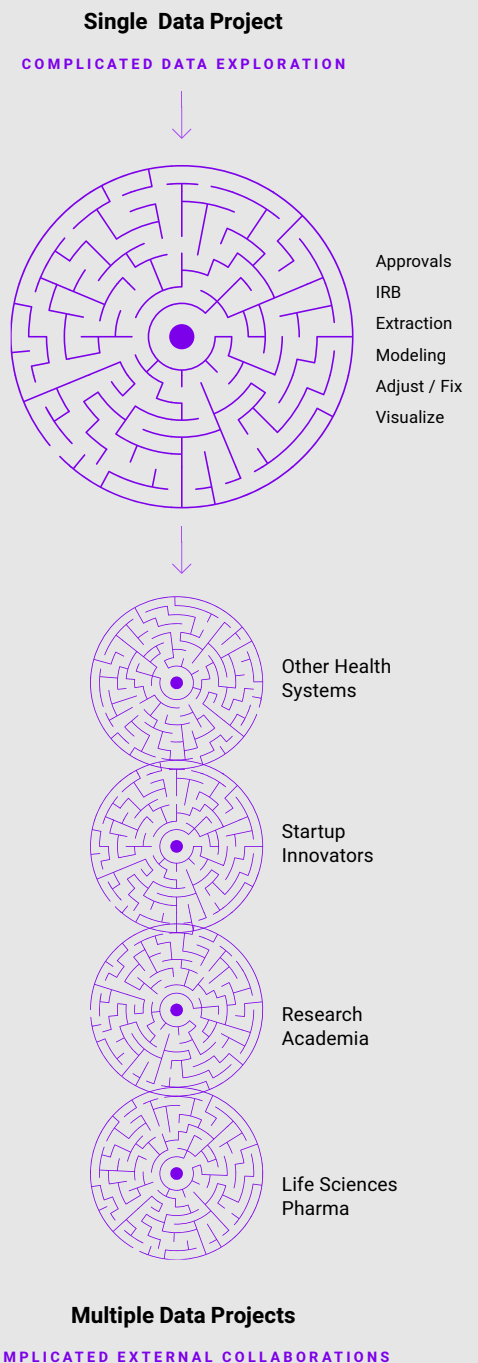
Roadblocks to Transformation

When adopting and deploying innovation, an organization will undoubtedly face numerous challenges along the way.

Communicating change, addressing fears, and convincing others that they should adapt new processes are all crucial to seamlessly implementing novel ideologies.

Supporting the highest levels of management is also essential to instigating a cultural shift. Making these fundamental changes to the fabric of any company can be onerous, and large organizations may face significant pushback along the chain of command during approvals. Strategic misalignment between innovation and business strategy can lead to reduced productivity and costs, decreased efficiency, and lost profitability. The underlying challenge, however, is that of data. When data is big, disparate, inaccessible, or unshareable, innovation can stall.

How can data fast-track innovation? With data-backed decision-making supporting innovative changes, overcoming the above cultural roadblocks and fears can be more easily attainable.



ABOVE: When singular data projects are complex within a healthcare system, working with outside organizations becomes even more complicated, sometimes nearly impossible.

Data Changes Everything

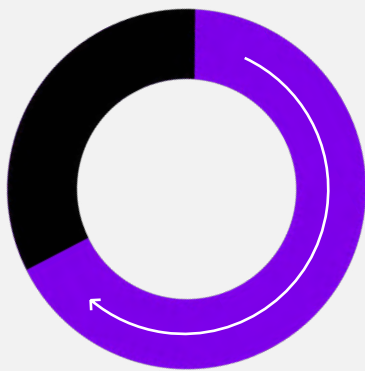
At the heart of innovation, data changes everything.

Data is a critical component of innovation, as it can provide both new information about what was previously unknown and back decisions.

Data enforces choices, reveals patterns and outliers, determines cause and effect, and validates results. It lays the foundation for an organization to make the right decisions at the right times. And when data is inaccessible, unreliable, or disconnected, it makes it very difficult to affirm conclusions and promise success.

In fact, analyst firm IDC estimates that in 2023, 70 percent of healthcare organizations' attempts to scale value-based care models will fail unless they invest in better data management and governance.²

However, it's not just the volume and infrastructure—it's the quality and granularity of data.



70%

of healthcare organizations' attempts to scale value-based care models will fail in 2023 unless they invest in better data management and governance.²



Discover how to unlock healthcare data:

[LEARN MORE ↗](#)

THE HEART OF INNOVATION



At the heart of innovation,
data changes everything.

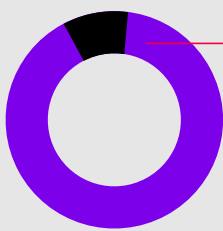
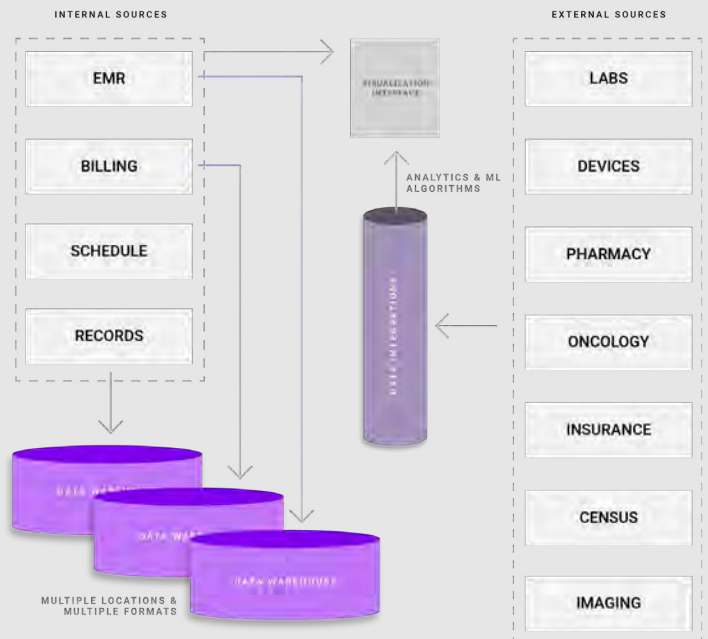
1

DISPARATE DATA

One of the overarching challenges faced by our industry is the inability to use information from disparate sources. Every second, an exponential amount of healthcare data is generated, but leveraging it in a cohesive, meaningful way has proven nearly impossible.

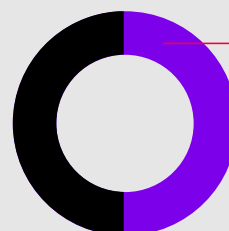
Among respondents to a *Performance Management Trends and Priorities in Healthcare* survey, 90 percent of healthcare Chief Financial Officers (CFOs) and finance executives believe their organization should be doing more to leverage financial and operational data to inform strategic decisions. In that same survey, more than 50 percent wanted access to trustworthy data and better dashboards.³

With new trends emerging, such as big data analytics backed by data science technology, the potential to connect and centralize these complex sources can unlock answers for both management and frontline staff. It's a critical innovation opportunity that could dramatically impact healthcare organizations.



90%

of healthcare CFOs believe their organization should be doing more to leverage financial and operational data to inform strategic decisions.³



50%

of healthcare CFOs want better access to trustworthy data and better dashboards.³

2

DATA INFRASTRUCTURE

According to investment bank RBC Capital Markets, the healthcare industry generates around 30 percent of the world's data today, and by 2026, the compound annual growth rate of healthcare data will reach 36 percent.⁴ With a potential market reach of \$44.53B by that time, the big data healthcare market is expected to grow at an astronomical pace.⁵

With such explosive growth, collecting data (and with enough detail) to conduct valid research has proven difficult. The disparity of sources, IRB and approval boards, IT and data teams needed, and additional barriers to discovery create roadblocks to obtain the volume of data needed to be effective.

3

DATA ACCESS

Looking back, 2022 was a historically difficult year regarding cybersecurity at health systems. Throughout the year, cyber attacks forced several large health systems to suspend patient operations and take systems offline to combat the attacks, resulting in lost revenue and massive investment in rebuilding systems and networks.

Now, more than ever, the privacy of patient information is vital. Even with patient privacy safeguards in place, healthcare data privacy is an extremely sensitive subject. Accessing it for research, patient care, population studies, or performance reports requires long timelines, external resources, and cumbersome processes because a breach in patient data security can be debilitating for a health system. To be effective, data needs to be accessible to the users of an organization while still maintaining privacy.

Without this access, healthcare organizations can't expect to uncover new insights, therapies, or processes with efficiency. With patient privacy as a top priority, it's also critical that data utility is maximized in order to promote positive system-wide impacts.

4

GRANULAR-LEVEL, DETAILED DATA

Along with access to healthcare data, health systems must also have high-quality data in a structured format that can be effectively leveraged. Often, aforementioned privacy restrictions remove information from datasets that could impact research. For example, a name field can either be a single field or subdivided into first name, middle name, and last name. By subdividing the name and specifying its parts, the data is considered to be more granular.

In order to make the best decisions possible, organizations need comprehensive, detailed information regarding patients without any characteristics or descriptors removed. De-identified and aggregated data are common methods for sharing detailed patient information while mitigating risk, but these options often lack the necessary granularity and hold the risk of potential re-identification.

WHAT IS GRANULAR DATA?

Granular data is detailed data, or the lowest level that data can be in a target set. It refers to the size that data fields are divided into, in short, how detail-oriented a single field is.⁶

DISCOVER MDCLONE GRANULAR DATA ↗



5

MAKING SENSE OF DATA

In a survey conducted by *eHealth Initiative and the College of Healthcare Information Executives* analyzing clinicians at 98 different healthcare systems, 39 percent said they use between 11 and 50 electronic platforms to collect and analyze data. In spite of the array of technology, Healthcare Information and Management Systems Society (HIMSS) analytics still indicate the "use of data analytics by providers remains immature."⁷

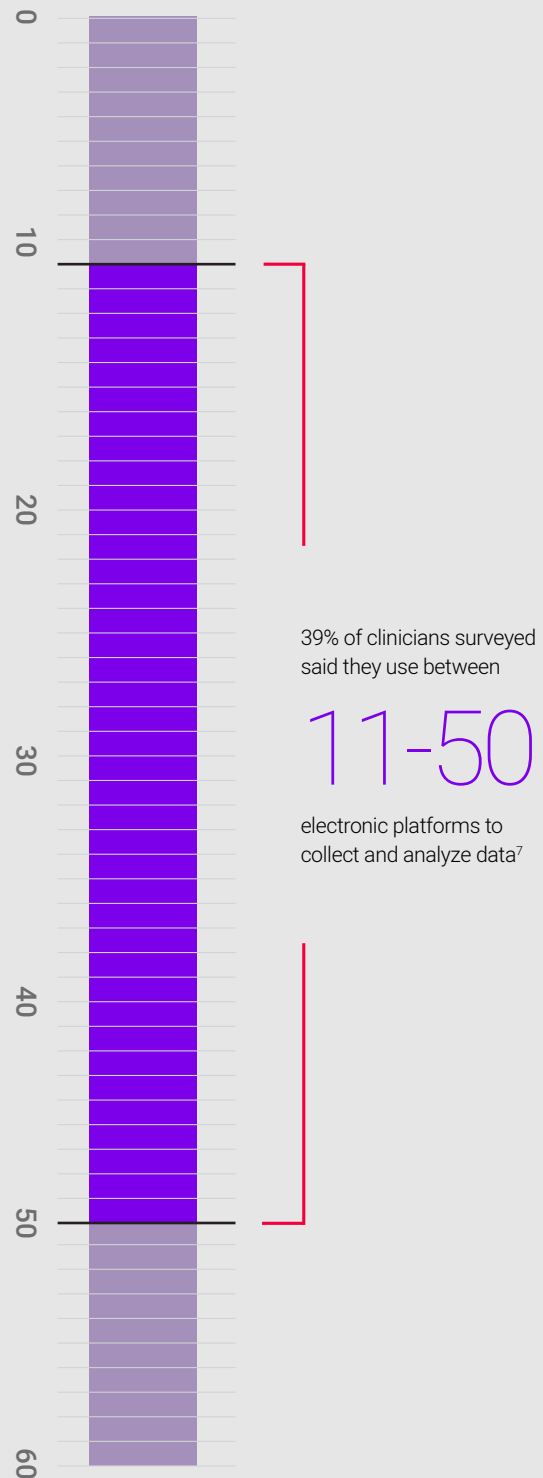
With so much data at hand, deriving meaningful insights from such vast amounts of information remains another key challenge for healthcare. The industry needs a single, intuitive platform to proactively generate easy to understand insights that will enable physicians and clinicians to enact change. To truly make sense of data, the industry needs a scalable solution that incentivizes innovation within, and across, service and business lines.

6

RAPID DATA TRANSFER

The process of sharing health data with third parties can take years of long, drawn-out conversations, contracts, and processes. Without a streamlined way of providing access to healthcare data, health systems are unable to collaborate quickly or efficiently, delaying timelines and even hindering collaboration altogether.

Institutions with streamlined processes or tools can share their data with third parties quickly and easily leading to new insights and new revenue streams. When health systems give external entities the power to access data, innovation can advance at a faster pace than ever before.



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REMOVING THE BOTTLENECKS

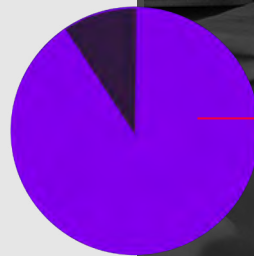
How to Unlock the Power of Data

With data challenges at hand, innovation can stall or even be stopped in its tracks completely.

The challenges in place are immense, but health systems need to realize they are sitting on a goldmine of information.

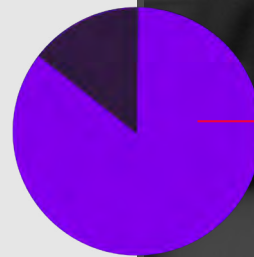
If bottlenecks can be removed and data can be effectively leveraged, the possibilities are limitless. The desire to be more data-driven isn't standing in the way; but the uncertainty of how to achieve that level of insight efficiently and effectively.

A study from IDC indicates that 83 percent of CEOs want their organization to be more data-driven, and 87 percent of CXOs said being an intelligent enterprise is their top priority.⁸



87%

of CXOs top priority is to be an intelligent enterprise⁸



83%

of CEOs want their organization to be more data-driven⁸

Unlocking the Power of Data

When it comes down to the details, there are three main components necessary to unlock the power of data in any healthcare organization – connection, empowerment, and accessibility.

THREE MAIN COMPONENTS TO UNLOCK DATA:

1

A Connected Ecosystem

Centralized, Connected, Accessible Data

2

Empowered Users

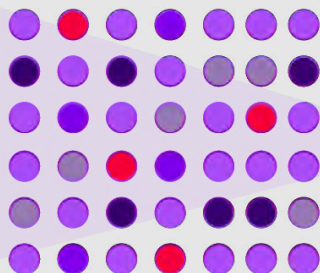
Using Intuitive Technology to Ask Questions

3

Accessible Healthcare Insights

Synthetic Data and Third-Party Collaboration Opportunities

A Connected Ecosystem ANY DATA SOURCE



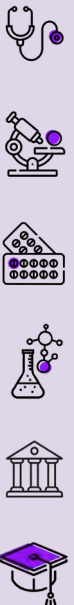
DATA LAKE

Empowered Users ANY USER



Accessible Healthcare Insights

SHARE AND ACT ON INSIGHTS
INTERNALLY & EXTERNALLY



A Connected Ecosystem

Centralized, Connected, Accessible Data

Now, more than ever, the privacy of patient information is vital. Even with patient privacy safeguards in place, healthcare data privacy is an extremely sensitive subject. Accessing it for research, patient care, population studies, or performance reports requires long timelines, external resources, and cumbersome processes because a breach in patient data security can be debilitating for a health system. To be effective, data needs to be accessible to the users of an organization while still maintaining strict patient privacy.

WITH ETHICAL CONSIDERATIONS OVERARCHING DATA CONNECTIVITY, THERE IS STILL A CRITICAL NEED TO REMOVE THE BARRIERS THAT PREVENT END-TO-END DATA DISCOVERY AND COLLABORATION.

Within most health systems today, data sources are often disconnected, requiring multiple systems to source data, multiple resources to pull data, and lengthy turn-around times to retrieve data. Without this access, healthcare organizations can't expect to uncover new insights, therapies, or processes with efficiency. With patient privacy as a top priority, it's also critical that data utility is maximized in order to promote positive system-wide impacts.

SOLVING THE CHALLENGE

Today's technology has the ability to consolidate and securely store these data from different sources into a centralized big data warehouse or lake. From this data lake, information can be organized into one, cohesive, understandable story and easily accessible by those who need it.

The technology is here; we just need to utilize it.



Typical (Unconnected) Data Sources within a Health System

These (often) disjointed connections between health data create barriers to optimal and fast discovery.

EMR (demographics, diagnoses, procedures, labs, medications)

Physician Notes

Ancillary Lab Systems (often disconnected from the main EMR because labs can be independent of hospital)

Oncology EMR (often separate)

Patient Device Data (i.e. glucose monitors, heart monitors)

Financial Systems (billing, cost reporting)

Clinical Support Software (scheduling)

Radiology, Imaging, Pathology Reports

A CRITICAL NEED IN HEALTHCARE



With ethical considerations
overarching data connectivity,
there is still a critical need to
remove the barriers that prevent
end-to-end data discovery
and collaboration.

Empowered Users

Using Self-Service Platforms to Ask Questions

Self-service data analytics platforms empower both technical and non-technical users to ask questions and gain insights at rapid speeds at any time. Users no longer need to wait in departmental queues for staff to query a specific data set. Without these long wait times, practitioners and clinicians can quickly and efficiently get answers to healthcare-related questions.

By accessing the capabilities to access data individually, health systems can begin to deploy innovation from the bottom up, meaning clinicians and frontline staff can be empowered to use data in their everyday work. This simple addition to the process encourages every user to become more engaged with the data as they find meaningful insights that propel better patient outcomes, overall operations, and performance improvements across the healthcare ecosystem.



FINANCIAL EMPOWERMENT

Healthcare workers can understand the fluctuation in medical costs for top use cases, noting how even the smallest changes in supply and device costs might lead to significant savings with no negative impacts on operations. They can also inform value-based care goals within and outside the system by understanding patient total cost of care and care utilization.



CLINICAL EMPOWERMENT

Providers can use data to forecast length of stay, identify negative patient outcomes proactively, and prescribe medications for certain comorbidities. They can also develop care algorithms to improve care model design, track impact of care management and patient support programs on specific populations, and medical presentations.



OPERATIONAL EMPOWERMENT

Managers can forecast admissions to optimize resources, oversee supply changes more effectively, and compare performance between providers for more streamlined care. To help solve for today's workforce challenges, managers can also identify drivers of retention and operational efficiencies that drive employee wellbeing.

Accessible Healthcare Insights

Synthetic Data and Third-Party Collaboration Opportunities

Synthetic data is a powerful force beginning to open the doors between healthcare organizations and third-party entities. This type of data is the key to enabling health systems to overcome data-sharing challenges while maintaining patient privacy.

Derived from original patient information collected from actual patient populations, synthetic data provides information about patients' health statuses and healthcare delivery. Based on data routinely collected from sources such as electronic health records (EHRs), claims and billing activities, and product and disease registries, a completely anonymized, brand new parallel of insights is created.

Users working with synthetic data can glean insights and draw conclusions they would otherwise not have been able to reach due to privacy boundaries. Synthetic data cannot be traced back to individuals in the original patient population like other forms of data (such as de-identified or limited use). This anonymity allows users with access to the information to avoid the stringent compliance regulations that come with sharing real patient data.

With synthetic data, health systems can:

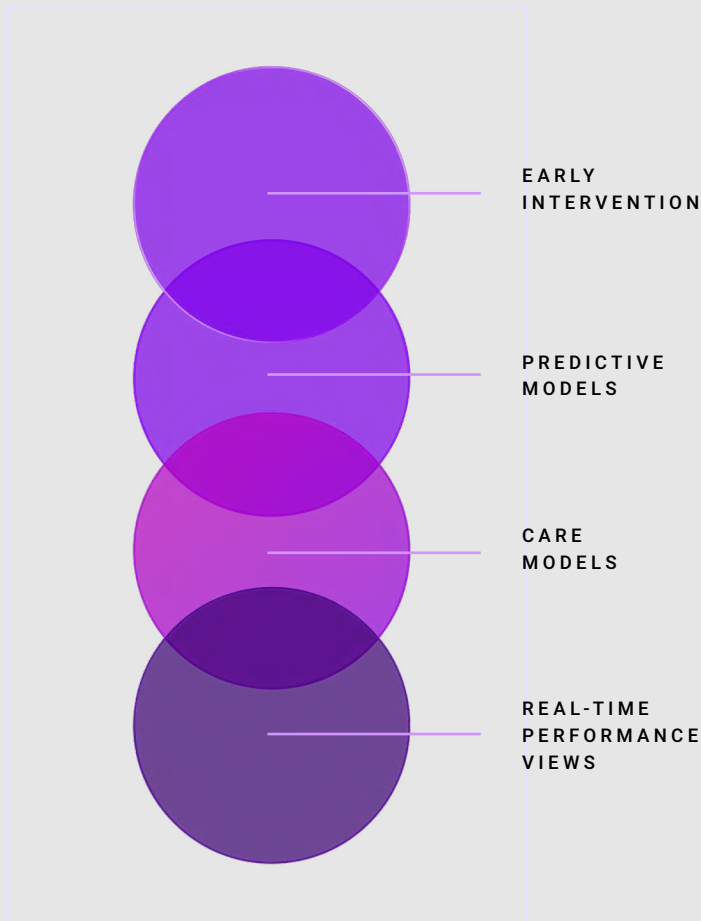
- + Facilitate research
- + Aid in the discovery of health patterns
- + Assist clinicians in treating patients

To learn more about synthetic data for healthcare,

[DOWNLOAD THE SYNTHETIC DATA EBOOK ↗](#)

With a connected data ecosystem, an intuitive technology platform, and the power of synthetic data, innovation can become a reality.

Health systems and life science organizations are able to seamlessly collaborate—testing hypotheses, building models, validating studies, developing clinical trials, improving care optimization, and creating life-saving therapies at an accelerated pace.



04



Data-Driven Healthcare Innovation Models

Since the onset of the pandemic, health systems have become more creative in applying practical solutions to solve real-world problems. These modern healthcare solutions increasingly evolved in recent years to meet new and growing challenges. For example, health systems have created new ways of monitoring the spread of disease via centralized data analytics and visualization hubs.

Pharmaceutical companies have developed new vaccines to mitigate the spread of disease and shorten the period of illness. And technologists have built novel web-based applications and software to better treat patients virtually.

In regards to innovation, two core models can help spark data-driven change inside and outside the organization: operational innovation and corporate innovation. With these two models in place, health systems can lay the foundation for an infrastructure of continuous learning centered around improvement.

The Two Models of Healthcare Innovation

OPERATIONAL INNOVATION



CORPORATE INNOVATION

ABOVE: By working in tandem, the two models can improve operational, quality, and performance functions at a rapid pace, setting the infrastructure for a continuous learning organization.

Operational Innovation

When operational innovation is a core business objective for a health system, the organization seeks to elevate clinical, financial, and operational systems by driving internal excellence, process and performance improvement, and employee empowerment.

With today's healthcare challenges demanding answers, health systems will need to align primary business objectives with the strategic ability to better the current healthcare organization. And do so quickly.

CHALLENGES OF CHANGE

Health system will need to identify challenges in implementing quality and performance improvement (QI/PI) initiatives. These include fear of change or failure, grief over loss of familiar processes, lack of expertise, and more.

Along with this, the organization must also identify factors that can facilitate the improvement process. To aid in the adoption of new processes, organizations can encourage social interaction—like evaluations from early adopters—and internal communication of successes.



Ultimately, by proactively and openly informing an organization's staff about innovative, new practices and implementing them accordingly, the health system can raise the standard of expectations and encourage disruptive, positive change.

DATA HOLDS THE ANSWERS

Innovation can be a driving force for quality improvement—robust analytics, artificial intelligence, and intuitive reporting can uncover answers at a faster pace than today's cumbersome, resource-heavy, disjointed data extraction processes. If data were better leveraged, streamlined, and made accessible (even fragmented internal and external data sources), health systems would be able to better understand the inefficiencies impacting the organization.

Data holds the answers to these complex operational healthcare challenges. With access to real-time, detailed, and reliable data, health systems can improve decision-making and elevate operational innovation with concrete evidence to reinforce these decisions.

With data unlocked, health systems are able to activate providers to adopt self-service analytics. With data at their fingertips, providers can better understand the impacts of value-based care and population health management. With bottom-up data activists asking questions and seeking change, health systems are able to impact operational, financial, and clinical systems at a greater scale.



QUALITY IMPROVEMENT AND PERFORMANCE IMPROVEMENT

One of the most critical ways health systems can innovate internally is through quality improvement and performance improvement (QI/PI).

According to the Institute of Medicine, QI involves care that is safe, timely, effective, efficient, equitable, and patient-centered while PI entails improving operational efficiency of a healthcare system.⁹

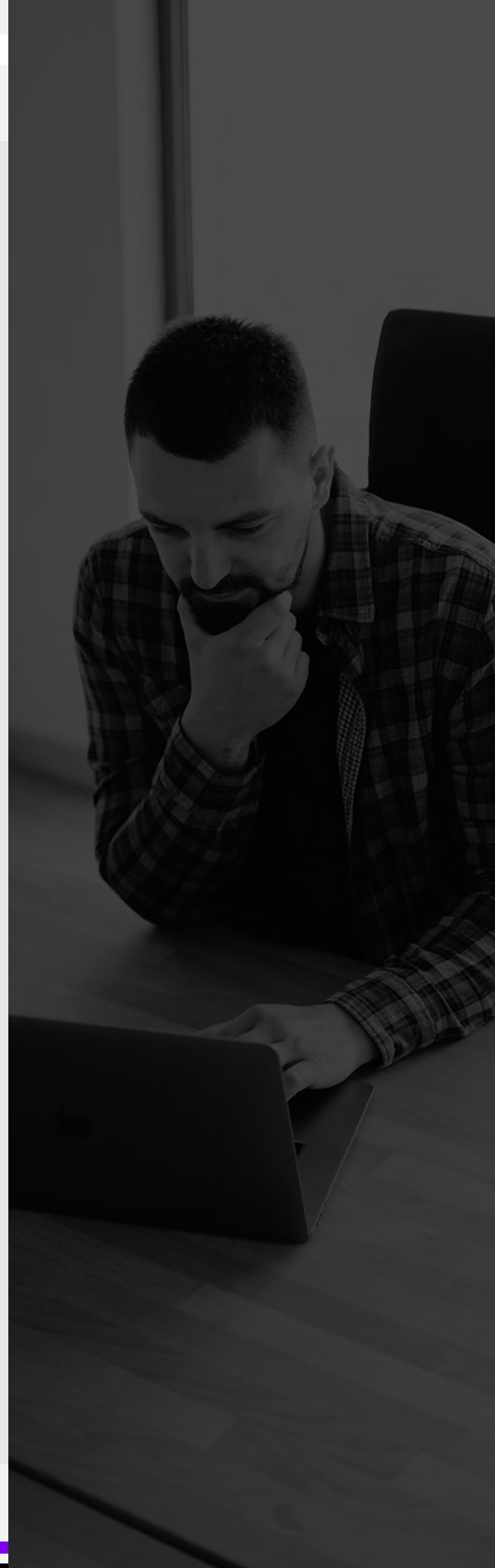
Innovation in QI/PI moves an organization forward, easing the burden of delivering care and improving the processes required to treat patients. Effective quality and performance improvement innovations can span the entire organization, impacting advances in data analysis, EHR improvements, upgrades to financial systems, and more efficient storage system developments.

Examples of such improvements include:

- + Patient Flow and Throughput
- + Monitor Clinical-Related Outcomes
- + Revenue Cycle Management
- + Supply Chain Analysis
- + New Clinical Guidelines
- + Procedural Changes
- + Inventory Management
- + Care Model Redesign
- + Workforce Planning and Efficiency

Driving excellence internally (improving quality and processes, solving for inefficiencies, and streamlining systems for the betterment of the organization) will be a critical component of strategic initiatives in the coming years.

With the help of the latest proven software and technology, health systems have the opportunity to harness data to scale operational innovation at a faster pace than ever before.



Corporate Innovation

When corporate innovation is a strategic driver for a health system, the organization seeks partnerships with external third parties to collaborate on new technologies, products, and services.

These types of partnerships and programs are sometimes described as accelerator programs or innovation hubs.

The co-creation of these projects is beneficial to both the health system and the third party as the health system benefits from the new innovations (be it a medical device, software, or novel therapy) or by diversifying revenue streams with investments in promising companies. At the same time, the third party benefits from access to expert teams, information and data, advisors, and industry connections.

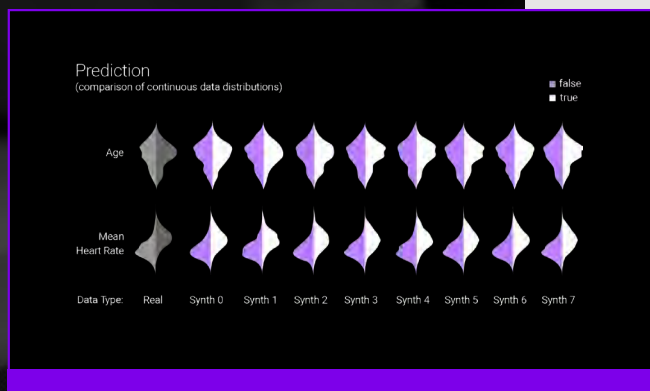
Oftentimes, these third parties need access to data when collaborating with health systems to validate results, test hypotheses, and find populations for study. As noted in chapter 2, accessing and sharing that data is difficult unless the right technology is in place to alleviate those challenges. When data sharing is effective, secure, and easy, third parties can thrive within the environment, moving new ideas forward with confidence and speed.

The demand for accessible healthcare data is vital in this dynamic, as higher education institutions, government agencies, pharmaceutical companies, and life science organizations strive to understand how healthcare systems are operating and how patients are responding to specific therapies. Data must be shareable to generate economic, clinical, socioeconomic, and commercial value.

THE POWER OF SYNTHETIC DATA

To overcome external data-sharing challenges, one solution lies in the power of synthetic healthcare data. Synthetic data enables third-party data-sharing with security and patient privacy preserved.

With synthetic data, healthcare organizations can not only let members of their internal teams explore freely, but they can also share discoveries and research with external teams worldwide without undue constraints.



Real-World Evidence and Clinical Trials for Life Sciences

There is an important need to speed up the clinical trial process for life science companies. Complex processes, complicated protocols, high-risk investments, fragmented data sets, and long timelines hinder life science organizations from discovering life-saving therapies.

Health systems have the opportunity to partner with life science organizations to help facilitate and accelerate the research process. Through synthetic data sharing, health systems can provide access to specific, granular patient data so life science organizations can test hypotheses, build models, validate studies, develop clinical trials, improve care optimization—all while exploring information securely. With access to this data, life science organizations can determine if subject populations are sufficient before committing to traditional data access processes for clinical trials. Being able to query, adjust, and analyze populations of interest allows life science organizations to build out projects with confidence and at an accelerated pace.

Synthetic data provides life science organizations with real-world evidence at their fingertips. Once analyzed, this data helps to:

- + Gain insights into specific patient populations
- + Understand which competitor products, medical devices, or pharmaceuticals are being used and in what capacity
- + Get a grasp on the entire pharmaceutical landscape for a specific therapeutic area
- + Identify which clinical trials to pursue and prioritize

Additionally, the health system does not need to assign staff to these external projects because the life science organization has the ability to do the work themselves.

With new insights unlocked, life science organizations have an opportunity to refine their vision and goals, enact more efficient product development processes, and save time and money. It's a win-win for health systems and life science organizations with costs saved for each participating entity.



Incubators and Accelerators

Startup incubators and accelerators are two additional examples of corporate innovation. Healthcare incubators aid external entrepreneurs in solidifying their ideas and building their companies while accelerators provide educational resources and tools that startups can use to accelerate growth.

When health systems engage in building incubator or accelerator programs, they build a network of startups, entrepreneurs, and vendors to work together on new technology and new digital health tools while mutually benefiting from the partnership. Because health systems store an abundance of data, enabling synthetic data sharing can offer a powerful benefit for incubator and accelerator programs, streamlining research and testing hypotheses to get to answers faster.

The successes of these partnerships cultivate a portfolio of potentially ground-breaking technology, co-development of innovative new therapies, and provide possible passive revenue streams. Revenue diversification increases financial stability, provides exposure to new audiences, and decreases dependence upon a single source of revenue, thereby reducing risk. In the increasingly competitive startup landscape, the type of insights that synthetic data provides could easily make these burgeoning companies more competitive and more attractive to venture capitalists.

THE NEW CURRENCY



Data, and effective use of data, will be the new currency of successful healthcare performance in the coming years.

05



The MDClone Difference

MDClone offers health systems the ability to maximize use of healthcare data while maintaining complete patient privacy. The ability to activate healthcare teams to utilize data to its fullest extent can be a major catalyst for innovation within a healthcare ecosystem.

Designed as a big data system for healthcare, the MDClone ADAMS Platform is a powerful, intuitive environment created for workers within a healthcare organization to ask questions on-demand, find insights instantly, measure performance, set KPIs, and implement action for better patient care or improved processes.

Along with a robust semantics engine, longitudinal data organization, and a natural language processing application, the ADAMS Platform also includes the ability to analyze both original or synthetic data. With synthetic data capabilities enabled, users can share information broadly with internal or external teams, opening the door for healthcare organizations to collaborate seamlessly with third parties.



With uncomplicated access to real-world data, health systems can implement an innovation infrastructure to boost revenue, partnerships, and digital transformation.

Health systems are in the midst of rapid transformations in key areas including business models, care delivery models, and market positioning. With continued margin pressure in 2023, we expect to see acceleration in the use of healthcare data to optimize clinical capacity and service lines, to find new revenue streams, and to discover new breakthroughs in treatment.

Data, and effective use of data, will be the new currency of successful healthcare performance in the coming years.

A MODEL FOR CONTINUOUS LEARNING

MDClone's Approach to Operational Innovation

For Healthcare Performance Improvement and Accelerated Discovery

With the platform's unique underlying technology, health systems can leverage ideas from across the entire ecosystem, overcoming common obstacles and long timelines hindering research, innovation, and collaboration. The ADAMS Platform's powerful, self-service data analytics environment enables healthcare teams to quickly organize and access information, explore data, and find new ways to optimize business functions, leading to impactful healthcare change, better outcomes, and secure collaboration.

KEY PLATFORM FEATURES INCLUDE:

- + Unstructured or Structured Longitudinal Data Organization
- + Powerful Natural Language Processing
- + Robust Semantics Engine
- + Synthetic Data Generation
- + User-friendly Interface

Data from any source is collected into a data lake hosted by the healthcare organization, and any user is able to access that data—for patient care, research, or process improvement. With data compiled from EHRs, financial claims, genomics, medical devices, and more, information forms a cohesive and intuitive story for clinicians and leadership to identify insights and patterns quickly in order to innovate at a faster pace and with solid, data-driven decisions.



MDClone for Operational Innovation

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EXAMPLE

OPERATIONAL INNOVATION IN ACTION

Determining risk stratification and treatment options for patients with pulmonary embolism.

Intermountain Healthcare needed to be able to access and properly review data to determine risk stratification and treatment options for patients with pulmonary embolism. The team required a tool that would analyze the levels of clinical biomarkers in patients with pulmonary embolism, provide information about the mortality rates for these patients, and generate insights into how different treatment options affect outcomes.

Leveraging the MDClone platform to develop a pre-discharge model for venous thromboembolism treatment could avert approximately 1,180 venous thromboembolism events annually across Intermountain. This process opened visibility to a state of care that had never previously been realized with data at the organization.

The insight will lead to a standardized care process model for all patient locations. It also leads to a request for capital funding for a point-of-care solution to use this risk stratification for patients on admission, a quality improvement approach to continuously evaluate thrombectomy and new lysis procedure outcomes, and an abstract for submission to a journal.

[READ THE STORY ↗](#)

A MODEL FOR OUTSIDE COLLABORATION

MDClone's Approach to Corporate Innovation

Fueling Innovation For Life Science and Programs

For collaboration with life science and external organizations, MDClone offers a ground-breaking approach for health systems to deploy. With a secure, controlled environment in place, health systems can work with outside organizations to allow access to granular patient data so researchers can test hypotheses, build models, validate studies, and create life-saving therapies for improved patient outcomes.

With synthetic data technology at the forefront of this approach, external third parties are able to analyze structured or unstructured real-world data in incredible detail—all within an environment that offers unprecedented flexibility and independence. With instant access to detailed data, third parties can reduce the time to discovery and accelerate real-world evidence projects.

Health systems can completely control the process of sharing data for external collaboration, enabling new revenue streams while paving the way for innovation. When health systems and life science organizations collaborate, data sets are pooled into the secure environment and analyzed based on project need and intended users. When analysis is complete, the controlled environment is switched off and data is no longer accessible. The ability to control access based on project needs ensures another level of data protection and peace of mind for both health systems and life science organizations so they can focus on the important lifesaving discoveries needed.



MDClone for Corporate Innovation

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EXAMPLE

CORPORATE INNOVATION IN ACTION

Janssen conducts research using synthetic data provided by MDClone and Sheba Medical Center.

Performing research while using synthetic data makes it easier to locate any event along a patient's journey without having to worry about patients' privacy issues.

Sheba's ARC Center (Accelerate, Redesign, Collaborate) brings together key players in digital medicine - physicians, researchers, start-ups, investors, and top-tier medical centers with the goal of redesigning healthcare.

As the pharmaceutical division of Johnson & Johnson, Janssen focuses on developing innovative molecules for patients in different therapeutic areas, to serve unmet medical needs. This aligns well with Sheba's position as one of the world's most digitally advanced hospitals.¹⁰

[READ THE ARTICLE ↗](#)

UNLIMITED COLLABORATION POTENTIAL

One Powerful Solution

With today's healthcare challenges at the forefront of agendas in 2023, health systems will need to find ways to efficiently understand operational performance, solve workforce challenges, and find innovative strategies to impact the bottom line.

Healthcare data is an often underutilized asset of many organizations today and unlocking its potential for the betterment of healthcare can impact patients, business, and the industry as a whole. With easier access to data, by more users within a health system, answers to today's challenges can be discovered at a much faster pace than before.

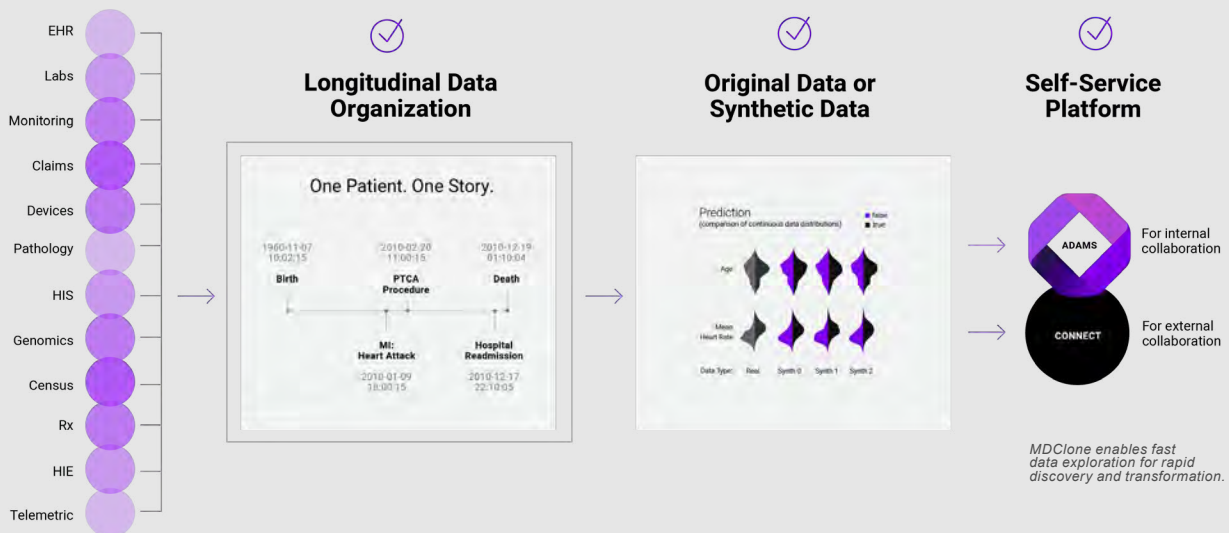
With MDClone's solution in place, data from any source (both structured and unstructured) is collected into a data lake (hosted by the health system), organized longitudinally, and made accessible to any authorized user. The user-friendly interface allows healthcare workers to ask questions and get answers instantly—visualizing patterns and outliers, and solving for both immediate patient and larger organizational challenges. Once discoveries are made, users can create KPIs to

measure and act on changes, and share discoveries to both internal and external teams with synthetic data.

Alongside the powerful platform, MDClone offers a novel approach to optimizing a high-performing healthcare system—the ADAMS Center. The ADAMS Center methodology essentially aligns business units and service lines within the health system to create a streamlined approach to understanding best practices, projects, and research before deploying those ideas out to the greater organization. With a birds eye view of the ADAMS Center initiatives, leadership can quickly understand key initiatives and progress.

Whether striving to innovate from within the health system or to build partnerships outside of the organization, the MDClone platform gives health systems the ability to build a truly innovative infrastructure with data at the heart of decisions.

From delivering better patient care to partnering with world-class life science organizations, innovation is a key component for building an unshakeable healthcare foundation in 2023 and beyond.



ABOUT THE MDCLONE ADAMS PLATFORM

The MDClone ADAMS Platform is an intuitive data analytics environment that empowers users to quickly organize and access information, accelerate research, drive better patient outcomes, empower healthcare teams to action, and create impactful healthcare innovation.

Put your organization on a continuous learning path with real-time access to insights with our pioneering healthcare data platform that breaks down barriers in data exploration.

mdclone.com/adams-platform ➤

ABOUT THE CONNECT PLATFORM

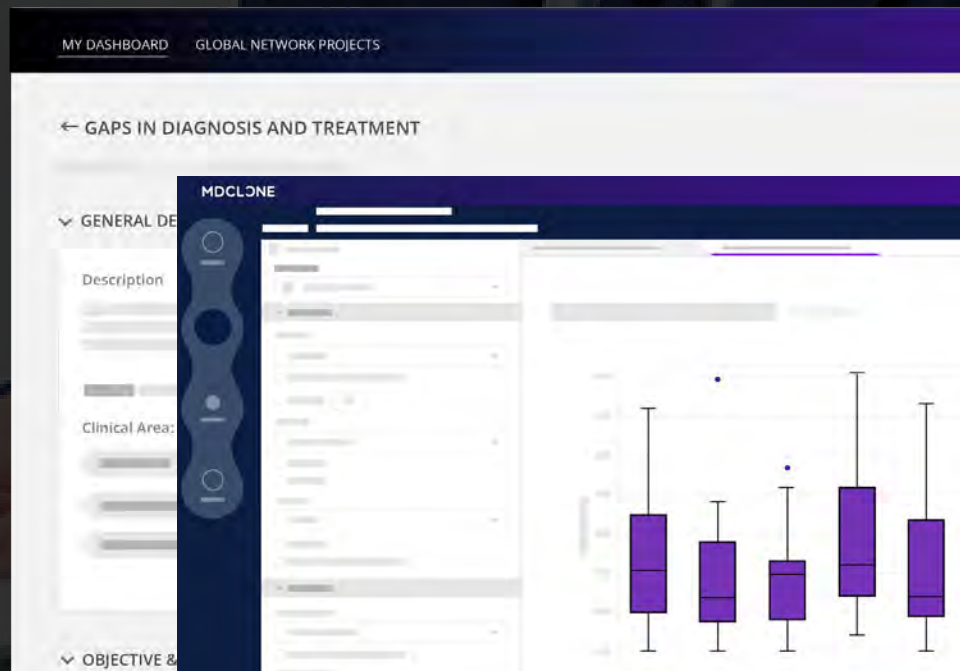
Introducing a new approach for life science organizations to access real-world data. The MDClone Connect Platform enables external or cross-organizational collaboration with unfettered access to data within a secure environment.

Within the platform, take advantage of key tools and functionality to streamline projects. Dynamically explore robust, detailed data needed to answer complex healthcare questions. With over 50M synthetic patient records available, MDClone offers both health systems and life science companies unlimited collaboration opportunities.

mdclone.com/connect-platform ➤

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& Learn More

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A TRULY INNOVATIVE INFRASTRUCTURE



Whether striving to innovate from within the health system or to build external partnerships, the MDClone ADAMS Platform gives health systems the ability to build a truly innovative infrastructure with data at the heart of decisions.

MDCLONE

Partner With Us

MDClone is a technology firm focused on unlocking healthcare data and empowering exploration, discovery, and collaboration.

MDClone democratizes data and empowers clinicians, researchers, and executives to explore, drive action, and work together to improve patients' health.

LEARN MORE ↗

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Transform care.

