



HEALTHCARE DATA FABRIC

EBOOK



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► HEALTHCARE DRIVERS FOR MODERNIZATION

On-demand, Client-Centric Care

“Do we have the ability to provide on-demand digitalized healthcare?”

- Smart, Digitalized and Personalized Care
- Healthcare Access and Equity
- Intelligent, Evidence-based Decision & Prediction Support

Interoperable Data Platform for Advanced Analytics

“Do we have the ability to modernize the data platform for seamless operational workflow and sophisticated data analysis?”

- Data Governance, Interoperability and Analytics
- Flexible, Portable and Collaborative Platform
- Secured Data and Operations

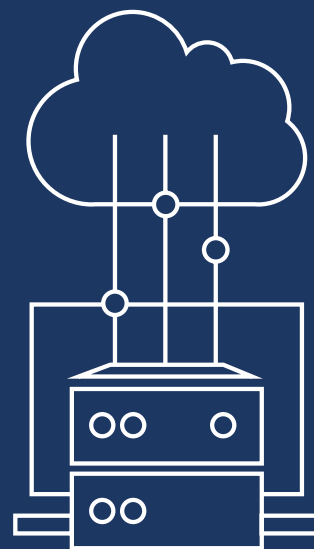
Process Optimization

“Do we have the ability to streamline administrative processes with automation to optimize cost structure?”

- Workflow Automation
- Workforce Optimization

From IBM Market Insights, 2022

Healthcare delivery organizations, payers, HIEs and public health services can benefit from the modern technology capabilities offered by a data fabric architecture.



► WHAT IS A DATA FABRIC?

Data Fabric is a digital framework of connected networks that collaborate to exchange data and information between data endpoints. This fabric serves as a fundamental mechanism facilitating the encounter of information and services, that have the power to change healthcare technology as we know it.

Establishing a data fabric architecture enables the full breadth of data management capabilities including integration, discovery, governance, curation and orchestration.

By 2024

“...the fabric deployment will quadruple efficiency in data utilization, while cutting human driven data management task in half.”

Gartner – Striving to Become a Data-Driven Organization? Start With 5 Key D&A Initiatives

“Through 2024, manual data integration tasks will be reduced by up to 50% through the adoption of data fabric design patterns that support augmented data integration”

Gartner Magic Quadrant for Data Integration Tools August 2022

HOW A DATA FABRIC APPLIES TO HEALTH DATA NEEDS



Governance

A Data Fabric serves as the mechanism by which multiple independent technologies can interact with the same data source to **enhance data governance, collaboration, and compliance** within a healthcare organization by effectively managing and sharing medical data across different departments and stakeholders.



Interoperability

A Data Fabric can **streamline data interoperability** across a healthcare organization by establishing shared and transparent terminology sets across current established data structures, APIs, analytics and reporting systems or contributing systems from outside entities such as payers, HIEs or public health.



Standardization

A Data Fabric enables data discovery, profiling and visualization to **improve data quality**, completeness and consistency trust prior to propagation to clinical or business processes that rely on trusted data to improve operations or deliver analytical insights.

► IMT'S STRATEGY FOR HEALTH DATA MODERNIZATION



IBM Cloud Pak for Data

Streamline hospital operations, enhance resource allocation, and improve patient care through data-driven insights and predictive analytics.



IBM DataStage

Address data integration and data quality challenges to optimize processes to improve patient care, access and population health initiatives.



IBM Match 360

Leverage Machine Learning-powered matching and self-serve access to consolidate data from disparate sources to create 360- degree views of patients, providers and other healthcare entities.



IBM Knowledge Catalog

Automate management of data lifecycles with governance, lineage and capabilities for collaboration.



IMT Healthcare Integration Accelerator

Technology agnostic, real-time integration accelerators with source and consuming systems that leverage both industry standard and custom patterns.

► **CLOUD PAK FOR DATA**

Healthcare systems have their own data composition, quality rules, security policies and data definitions implemented across unique systems and processes, both automated and manual.

Lack of a centralized view of data definitions, composition, quality, and policies can impede data usage due to lack of confidence in quality and accuracy.

COLLECT AND ORGANIZE DATA NO MATTER WHERE IT RESIDES

Integrate data from various sources within the hospital, including electronic health records (EHRs), admission and discharge records, patient monitoring systems, and revenue cycle management systems.

DEMOCRATIZE THE DATA

Expand access to trusted data with centralized interfaces tailored to specific stakeholder use.

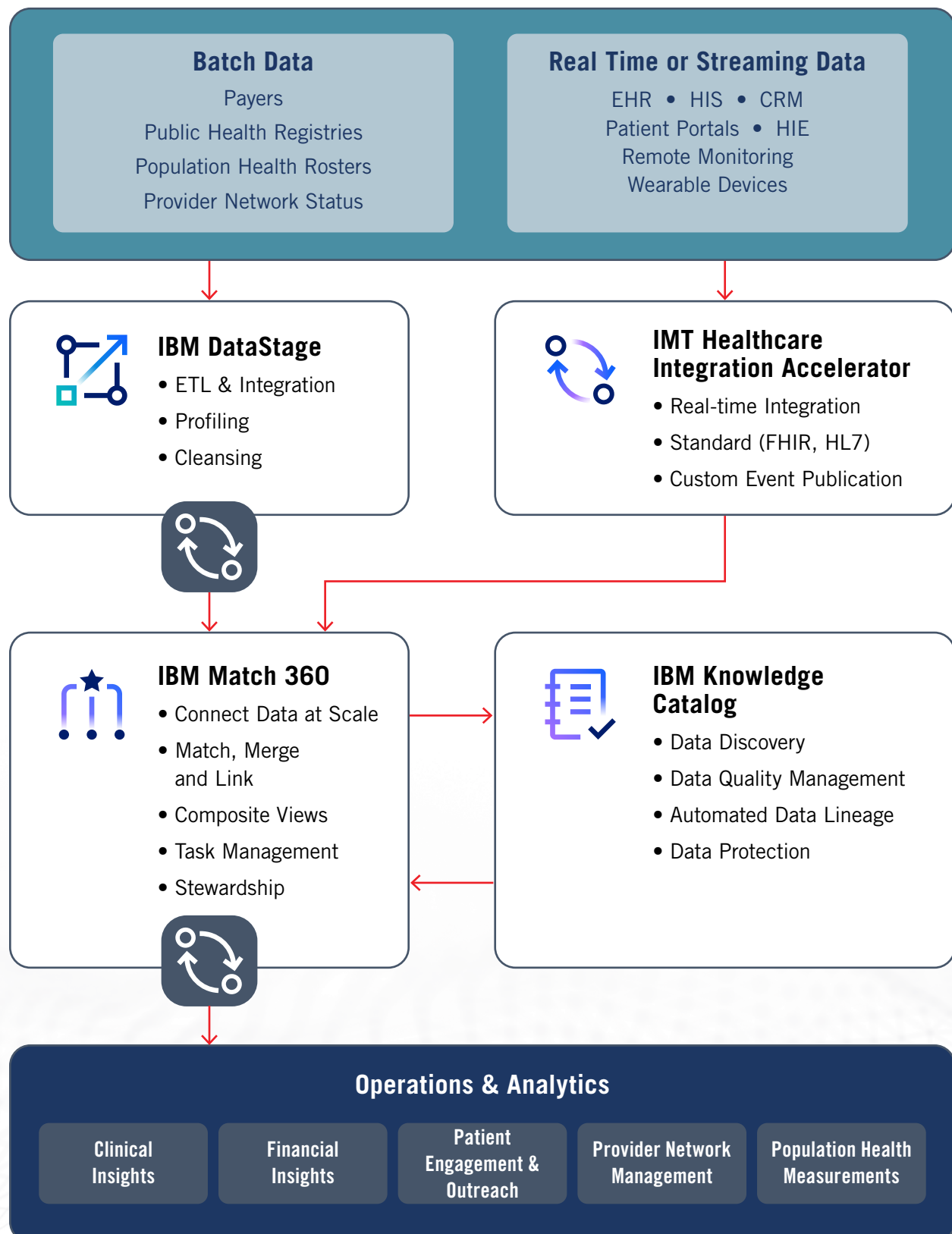
MAINTAIN PRIVACY AND SECURITY

Enforce enterprise-wide policies for data access with full audibility and traceability.



ibm.com/products/cloud-pak-for-data

IBM CLOUD PAK FOR DATA MODERN DATA FABRIC FOR HEALTHCARE





IBM MATCH 360

Healthcare organizations often have multiple systems and databases containing patient records. Duplicate records can lead to fragmented and inaccurate histories.

IBM Match 360 uses next generation ML-powered self-service matching to deliver trusted, unified views of master data across disparate, multi-domain sources.

AUTOMATED DUPLICATE IDENTIFICATION & RESOLUTION

Eliminate data redundancies and ensure that healthcare providers and integrated systems have access to a complete and unified patient record through duplicate detection and automated decision making.

MULTI-DOMAIN

Manage patient, provider, member, plan and organization data in a single engine with entity-specific rules. Maintain and interrogate relationships within and across the entity types with a multi-domain solution.

ADVANCED ALGORITHMS WITH MACHINE LEARNING

Utilize machine learning-driven algorithms to analyze patient profiles and provider data to create a personalized matching process, that's tuned and customized to meet requirements.

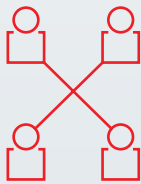
▶ IBM MATCH 360 FEATURES

IBM Match 360 on IBM Cloud Pak for Data seamlessly consolidates data from disparate sources to establish a single, trusted, 360-degree view of your most important health data entities.

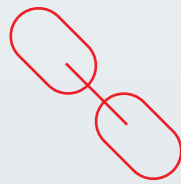
Provides an intelligent matching algorithm that you can tune and train to deliver a trusted, unified source of multi-domain data.

Includes cloud-native, machine learning-assisted, matching tools and self-service analytics that deliver business insights.

HEALTH DATA ENTITY RESOLUTION



Deduplication



Match/Link



ML Auto-Mapping

HEALTH DATA GOVERNANCE



Stewardship



Publication



Collaboration

ibm.com/products/match-360



Healthcare organizations often struggle with data silos, lack of standardized data management practices, and challenges in ensuring data privacy and compliance.

Maintaining data standards is crucial to efficiently sharing and collaborating on sensitive patient information.

INTEGRATE

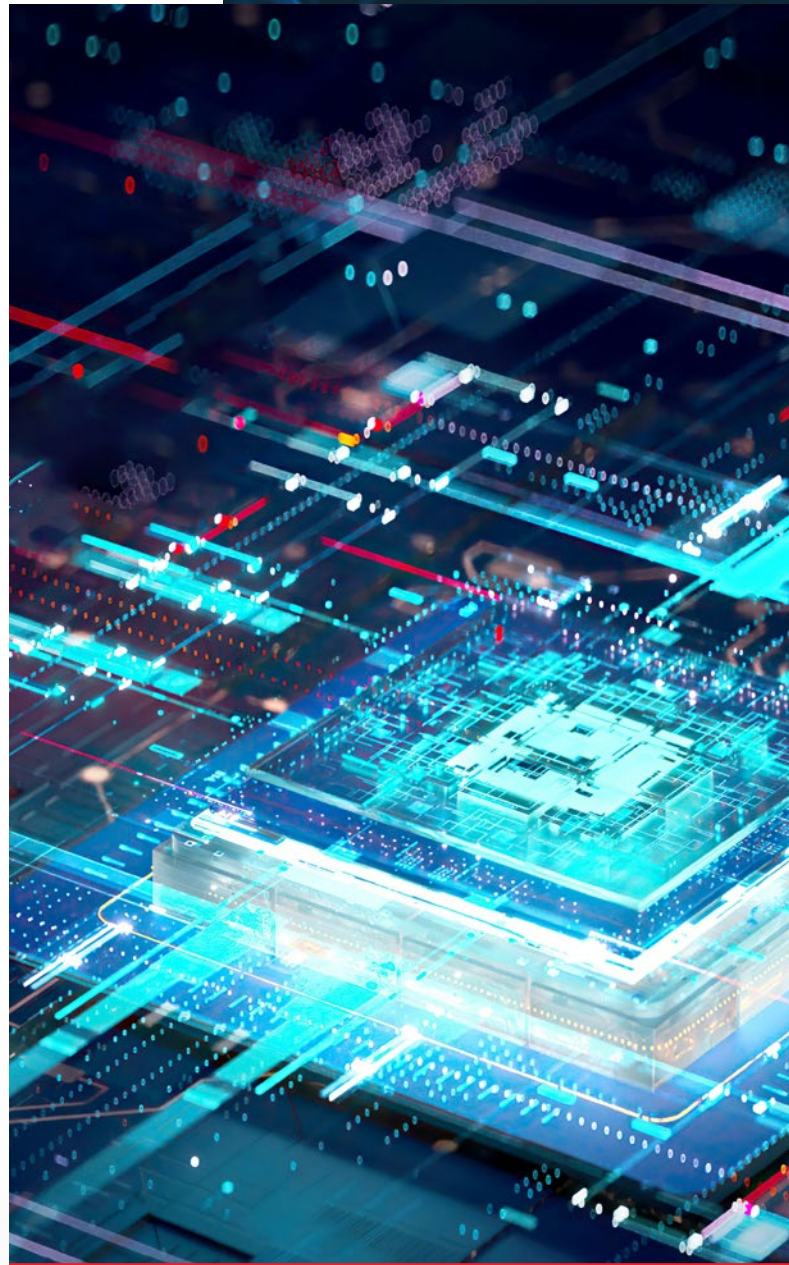
Connect to various healthcare data sources, including EHRs, patient databases, imaging systems, and billing platforms, pulling data for integration.

TRANSFORM

Standardize data from different formats, structures, and sources into a unified format, ensuring consistency and accuracy.

PROFILE AND CLEANSE

Profile data to identify patterns and sources of data quality issues for cleansing and rectification.



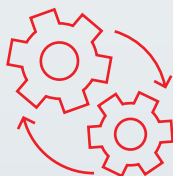
▶ IBM DATASTAGE FEATURES

IBM DataStage moves and transforms data between operational, transactional, and analytical target systems to provide enriched and tailored information for your enterprise.

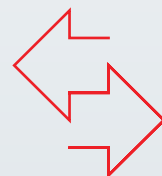
Design flows that process and transform data with an interactive, machine-assisted user experience for workflow design and development.

Orchestrate data dynamically and intelligently across a distributed data landscape to create a network of instantly available trusted information for data consumers.

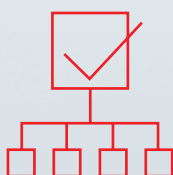
DATA TRANSFORMATION AT SPEED AND SCALE



Faster Workloads



Reduced Movement Costs



Easier design with ML



Reference Data Augmentation

ibm.com/products/datastage

▶ IBM KNOWLEDGE CATALOG

Healthcare organizations deal with vast amounts of data from different sources, such as electronic health records (EHRs), laboratory results, patient billing systems, and more, each with unique stakeholders and governance policies.

A data catalog with shared governance policies are essential to delivering high quality data for operations and analytics.

CENTRALIZATION

Maintain a central repository of healthcare data definitions and semantics across various sources, with data lineage for clear auditability and traceability.

CATALOGING

Catalog data with relevant metadata, tags, and labels, making it easier to search, discover, and understand the available datasets in context of a patient, member, provider, encounter or claim.

POLICY MANAGEMENT

Provide role-based access control, ensuring that only authorized personnel can access sensitive patient information and adhere to national and regional privacy regulations





IBM KNOWLEDGE CATALOG FEATURES

IBM Knowledge Catalog enhances data governance, collaboration and compliance within a healthcare organization by effectively managing and sharing data definitions and semantics across different departments and stakeholders.

Establish data governance policies and enforce them with data classification, access controls and data lineage to ensure that data is used responsibly and securely.

IBM's Healthcare Accelerator for IBM Knowledge Catalog includes industry approved pre-defined terms, definitions and policies for rapid implementation.

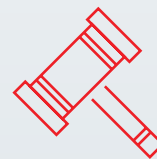
HEALTH DATA CATALOG



Discovery



Catalog



Governance

HEALTH DATA POLICY ENFORCEMENT



Access Control



Protection

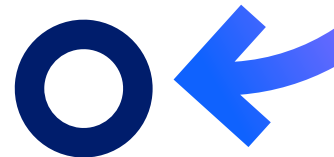


Quality Rules

ibm.com/products/knowledge-catalog



IMT INTEGRATION ACCELERATOR



IMT Integration Accelerator brings efficient, and proven healthcare integration capabilities to the data fabric architecture.

With 20+ years of experience and healthcare data management, IMT brings proven technology for standard and custom integration patterns used industry wide.

HL7, FHIR, IHE or proprietary integration patterns are implemented quickly and reliably with IMT's library of integration components – with no additional tools to acquire.

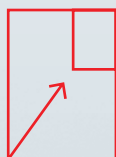
LIGHTWEIGHT INTEGRATION FOR HEALTHCARE



Process and Publish
Real Time Updates



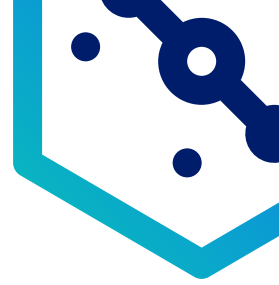
Audit and Log



Lightweight & Scalable



Industry Standard or Custom



► WHY IMT & IBM FOR DATA FABRIC?



Experience

20+ years in health data management, integration and quality implementation and support for 200+ clients

Scale

IMT implementations represent the highest volume and most integrated systems in healthcare delivery and health and human services

Focused

IMT knows health data, across many contexts – healthcare delivery, payers, public health services, wellness providers and HIEs



**IBM Cloud
Pak for Data**

Complete

Comprehensive solution providing policy and business controls enforcement in a single solution.

Automated

End-to-end automation to maximize productivity and time to value

Self-Service

A true data marketplace that enables users to find, access and collaborate using high quality data

ARE YOU A GOOD CANDIDATE FOR DATA FABRIC?

- ✓ Require advanced data governance, policies and collaboration across enterprise health records
- ✓ Need to standardize your data for downstream consumption and analytics
- ✓ Demands to propagate high quality data in real time for operations
- ✓ Seek proactive management of data retention and data currency policies with clear visibility to historical data lineage
- ✓ Have an enterprise data strategy that requires a centralized master data store with capabilities for reliable, rapid and flexible data sharing

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