

Powering the Future
of Healthcare ▶



Survey Hosted by CHIME

Modern Data Strategy Adoption in Healthcare Enterprises

The CitiusTech Modern Data Strategy Survey polled over 60 organizations across the healthcare landscape to derive key insights around their readiness and adoption of Modern Data Strategy



www.citiustech.com

Who we are

As a strategic partner to some of the world's largest healthcare and life sciences organizations, we play a deep and meaningful role in accelerating digital innovation, driving sustainable value and helping improve outcomes across the healthcare ecosystem.



Gartner



healthcare
innovation
PEOPLE. PROCESS. TECHNOLOGY TRANSFORMATION

With 100% focus on healthcare, CitiusTech is uniquely positioned to address complex healthcare technology challenges, accelerate digital innovation, drive rapid adoption of value-based care models, enhance patient engagement and empower clinicians for better care.

150+

Data & analytics
engagements

250+

FHIR & HL7 certified
professionals

350+

Clinical apps & data
systems engineered

80M+

Patient records
handled

Modernizing Data Strategy to Drive Digital Transformation

Modern data strategies present tremendous opportunities for healthcare organizations to generate timely, actionable insights to drive clinical and business decisions. As payment models move quickly from volume to value, modern data strategies have become critical to digital transformation for better clinical outcomes and personalized care.

CitiusTech's 2021 'Modern Data Strategy for Healthcare Enterprises' survey, hosted by CHIME, received responses from more than 60 senior healthcare executives and data management leaders across health systems, payers, life sciences, covering strategic imperatives and priorities around data and analytics management.

The survey results show that most healthcare organizations today realize the importance of modern data strategies. A majority are either looking to adopt or are already on their way to building a holistic data strategy, to address challenges around data quality, governance, interoperability (FHIR) and new data sources.

Survey Indicators

88%

believe that they have a modern data strategy at various stages of execution but only a few are leveraging modern architectures to their true potential

52%

of respondents' modernization efforts include data lakes and data quality improvement with very few addressing emerging needs

78%

feel that data governance and growing data sources are key hindrances in implementing enterprise-wide data strategy

64%

feel they do not have a well articulated data strategy or that their data strategy is not aligned to business priorities

Key Survey Insights

1

Most healthcare enterprises surveyed, lacked a well-defined, business-aligned, modern data strategy

2

Data governance, variable data sources and data quality pose significant challenges to enterprise-wide data strategy

3

Most organizations are moving towards a single source-of-truth but face multiple challenges in driving business value / ROI

4

While Cloud adoption has increased considerably, organizations are yet to truly harness the power of Cloud Computing

5

A shift from legacy to modern data architectures is evident, but emerging challenges have not been adequately addressed

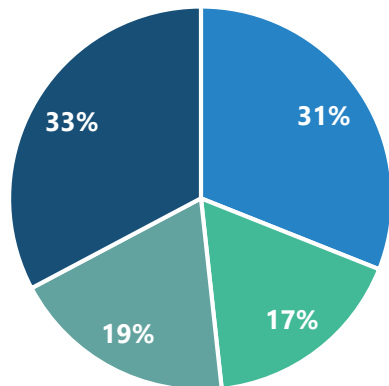
6

FHIR is top-of-mind for organizations to address interoperability needs, but some are still in wait-and-watch mode

1

Most healthcare enterprises surveyed, lacked a well-defined, business-aligned, modern data strategy

How aligned is your enterprise data strategy to your business needs? / analytics strategy?



- Do not have a well articulated data strategy
- Data Strategy is entirely business / analytics driven (top-down, vertically aligned, multiple sources of truth)
- Data & analytics are separated but synergized
- Strategy is entirely data - driven (bottom-up, horizontally aligned)

What we heard

- One-third (33%) of respondents accepted that they did not have a well articulated strategy in place
- Nearly a third (31%) believed that their data strategy was entirely business driven with a top-down approach
- 19% of respondents felt that their data and analytics setups were well synergized
- Only 17% felt that their data strategy is a bottom-up approach and entirely data driven

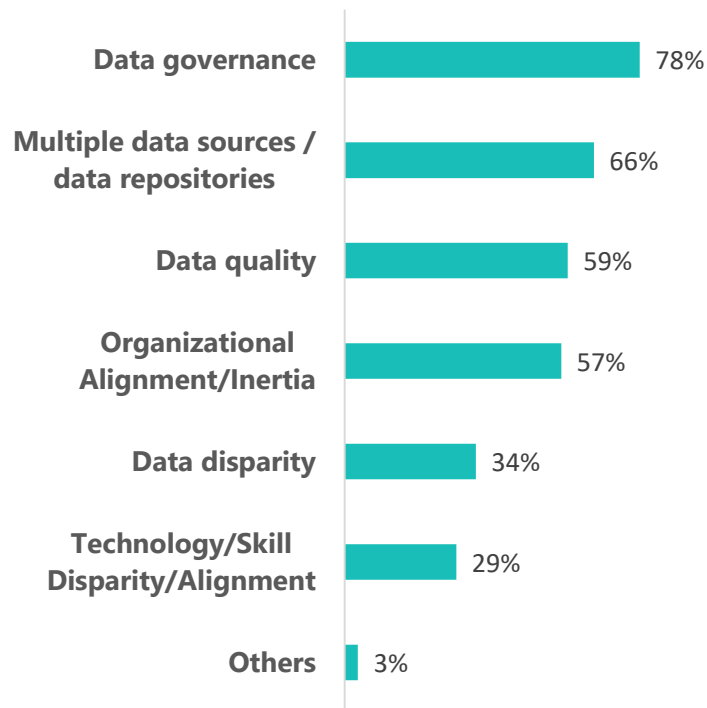
Our perspective

With massive volumes of enterprise and consumer data at their disposal, implementing a robust, modern data strategy will give healthcare organizations the agility to drive both top-down and bottom-up data strategies, and enable them to adapt quickly to new business priorities such as cross-industry convergence, new value-based care models, regulatory compliance, omnichannel engagement, etc.

2

Data governance, variable data sources and data quality pose significant challenges to enterprise-wide data strategy

What are the key challenges in executing an enterprise-wide data strategy?



What we heard

- Data governance (78%) and data source variability (66%) were the biggest perceived roadblocks to building a robust data-strategy across the enterprise.
- Data quality (59%) and organizational alignment (57%) were also felt to be key challenges, while issues like data disparity (34%) and technology / skill challenges (29%) came out as lesser concerns.

Our perspective

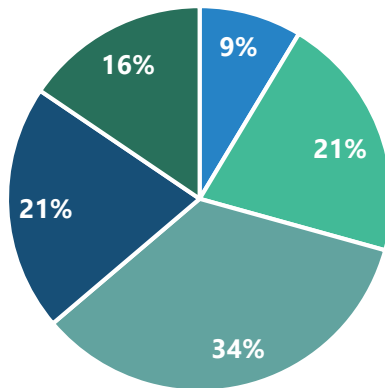
Since most healthcare organizations have traditionally had an incremental and distributed approach to data and analytics, the notion of unifying the enterprise data ecosystem under a governance framework would seem highly challenging.

It is imperative to partner with specialized healthcare data and analytics experts with strong domain, process and technology experience, for large scale enterprise data architecture, data / process consulting and end-to-end program management.

3

Most organizations are moving towards a single source-of-truth but face multiple challenges in driving business value / ROI

Do you have a single source of truth to drive enterprise-wide analytics and decision-making?



- Largely yes but many gaps / challenges exist
- Yes - in place but difficult to align with speed of business
- Not yet but actively working on it
- Yes - in place and working well
- Not really, we have an EDW but it's not all encompassing, and many data silos exist

What we heard

- A significant majority (70%) of respondents said that they already have a single-source-of-truth for enterprise-wide analytics and decision support.
- However, 55% also felt that while a single-source of truth was available, they still faced multiple challenges which prevented effective leverage of data and analytics.

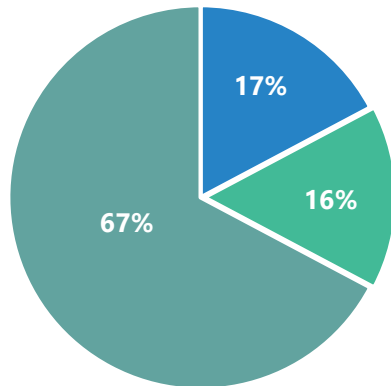
Our perspective

Most data and analytics programs are still impacted by operational challenges like data accuracy, business rule definition or consistent terminology standards. As the data ecosystem continues to expand and diversify, it is important for healthcare organizations to build a robust data governance model that effectively irons out these issues, and provides a strong platform for reliable, ROI-driven analytics, based on comprehensive, high-quality data.

4

While Cloud adoption has increased considerably, organizations are yet to truly harness the power of Cloud Computing

Are you leveraging Cloud for your data strategy?



- Partially or for specific tools
- Yes, but largely for infrastructure as a service (IaaS)
- Largely yes including platform as a service (PaaS) components

What we heard

- Cloud has become ubiquitous to enterprise technology today, with every organization using Cloud resources in some fashion (SaaS, PaaS, IaaS, DBaaS, etc.).
- However, a majority of survey respondents (67%) felt that their use of Cloud Computing is tactical / tool specific and does not make effective use of Cloud solutions for their data strategy.
- Only 33% felt that their ability to use PaaS and IaaS solutions help them drive scalable data and analytics strategies.

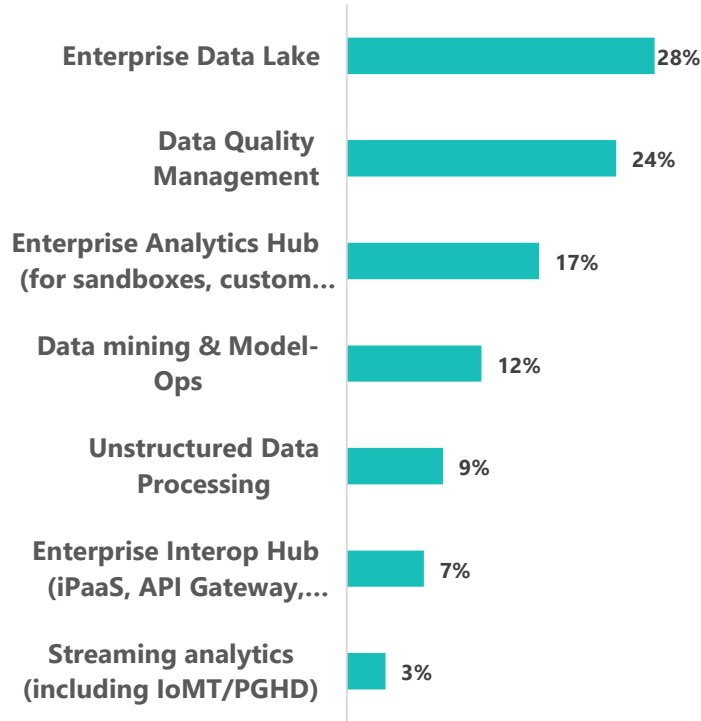
Our perspective

The rapid shift to virtual care delivery, value-based models, personalized care, etc. is driving the need to get real-time insights and build AI/ML models using massive volumes of data generated across the healthcare ecosystem. A strong Cloud strategy that optimally uses multiple models (SaaS, PaaS, IaaS) will give organizations the necessary ability to accelerate innovation, scale on-demand and drive real-time business intelligence.

5

A shift from legacy to modern data architectures is evident, but emerging challenges have not been adequately addressed

Are the following a part of your modern data architecture, either in place or WIP?



What we heard

- 50% of respondents felt that Enterprise Data Lake and Data Quality are integral to their modern data architecture.
- To a limited extent, organizations currently leverage or plan to use enterprise analytics (17%), data mining (12%) and unstructured data processing (9%) as part of their modern data architecture.
- The emphasis on emerging and critical data challenges like unstructured data processing, interop hub and streaming analytics was surprisingly low.

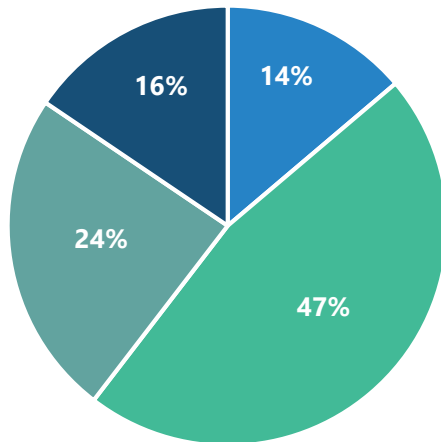
Our perspective

While the interest at present seems to be low, the shift to advanced analytics (AI/ML, predictive analytics, RPA) and evolving consumer trends (IoT, wearables, connected devices) will drive organizations to make significant investments in robust healthcare data models (both industry standard and custom models), big data processing, streaming analytics and interoperability capabilities (using API gateways).

6

FHIR is top-of-mind for organizations to address interoperability needs, but some are still in wait-and-watch mode

How important is FHIR for your data strategy?



- *Very Important- actively planning for FHIR Integration*
- *Important but not on the hotlist*
- *Not sure, still exploring and watching what others are doing*
- *Extremely important, already implementing FHIR pipelines & repositories*

What we heard

- An overwhelming majority of respondents (84%) feel that FHIR is an important piece of their data strategy.
- 60% have already set out on their FHIR implementation journeys (are actively planning or have implemented FHIR).
- A small section of respondents (16%) are in a wait-and-watch mode but are likely to follow the early adopters.

Our perspective

FHIR adoption has gained significant momentum. Healthcare organizations are actively implementing FHIR to drive interoperability and align with the CMS IPA Rule.

The concerted, industry-wide push towards FHIR is likely to boost digital transformation and cross-industry convergence – with a strong positive impact on patient engagement, care-coordination, shared risk contracts, clinical research and claims / denials management.

Conclusion: Driving a Modern Data Strategy for Healthcare Enterprises

The 2021 Modern Data Strategy survey for healthcare enterprises, launched by CitiusTech in association with CHIME shows that there is a strong industry-wide push towards modernizing enterprise data strategies to drive evolving business priorities, build competitive edge and take advantage of growing data sources. Data disparity, data quality and data governance stand out as key challenges in driving success of modern data strategies.

With increasing volumes, variety and velocity of healthcare data and rapidly evolving business needs as well as market consolidation, it is imperative for large healthcare enterprises to modernize and future-proof their data strategies to quickly and effectively adapt to emerging business, data and technology challenges.

It is also critical to anchor data strategies to business priorities (quality, cost, experience, growth) and facilitate the continuum of analytics (descriptive, inquisitive, predictive, prescriptive) to drive business outcomes and build strategic advantage in a highly competitive healthcare marketplace.

CitiusTech Data & Analytics Offerings

We help organizations leverage next-gen tools and capabilities to build robust, scalable data management and analytics solutions. We combine deep healthcare expertise with AI to help customers transform business processes, enhance customer experience and drive growth and profitability.

- Strong consulting capabilities to address lifecycle needs – **data capture, quality, management, transmission and streaming analytics**
- Industry standard data adapters (HL7, FHIR, CCD, QRDA, etc.), utilities, best practice and KPIs
- A comprehensive suite of managed services, including **certified teams, technology expertise and best-in-class frameworks / methodologies**

30+

AI engagements delivered

100TB+

Healthcare Data Processed

300+

Healthcare Data Models

Recent work

Modern Data Strategy for a large IDN

Conducted a detailed assessment of a dozen odd data environments across the IDN business lines (hospitals, physicians, ACO, health plan) and defined a modern data strategy to consolidate into a modern data warehouse architecture leveraging big data, cloud, sandboxes, API gateway, et al including end-state architecture, roadmap and TCO/ROI considerations.

EDW Solution for a leading home health and hospice provider

Designed, developed and implemented a scalable Enterprise Data Warehouse (EDW) solution using Hadoop-based infrastructure, hosted on Microsoft Azure cloud. Build a robust data infrastructure for current and future (predictive) analytics. Effectively manage a large set of enterprise KPI's (70+) and compliance metrics (65+)

Streaming data platform for a leading health plan

Developed a flexible, scalable and an automated subscription-based event notification service with a robust healthcare data pipeline that processes 500k+ messages per day in real-time to trigger proactive care alerts. Extended to feed HEDIS supplemental data to their health plan to significantly reduce chart abstraction efforts.

About CitiusTech

With 6,500+ healthcare technology professionals worldwide, CitiusTech helps leading healthcare and life sciences organizations reinvent themselves by accelerating digital innovation, leveraging next-gen technologies, and driving data convergence across the healthcare ecosystem.

We provide strategic consulting, digital engineering, data, analytics & AI, specialized platforms and end-to-end solutions to over 130 organizations across the payer, provider, medtech and life sciences industries. Our key focus areas include healthcare interoperability data management, quality performance analytics, value-based care, omni channel member experience, connected health, virtual care delivery, real-world data solutions, clinical development, personalized medicine and population health management.

Our cutting-edge technology expertise, deep healthcare domain expertise and a strong focus on digital transformation enables healthcare and life sciences organizations to deliver better outcomes, accelerate growth, drive efficiencies, and ultimately make a meaningful impact to patients.

100%
healthcare focus

130+
healthcare clients

50M+
lives touched

4.5/5
client satisfaction score

\$340M+
worldwide revenue

Key Contacts



John Squeo

Sr. Vice President

Head of Healthcare Providers, CitiusTech

john.squeo@citiustech.com



Sridhar Turaga

Sr. Vice President

Digital, Technology & Analytics, CitiusTech

sridhar.turaga@citiustech.com



Powering the future of healthcare ►



This document is confidential and contains proprietary information, including trade secrets of CitiusTech. Neither the document nor any of the information contained in it may be reproduced or disclosed to any unauthorized person under any circumstances without the express written permission of CitiusTech.