The State of NoSQL: Winning with Data

Modern digital experiences, interactive consumer applications, and IoT devices have created an explosion of data that challenges organizations even as it opens up new opportunities.

Winning organizations leverage data to build a competitive advantage. A recent survey of enterprise leaders found that leading data-driven organizations have several traits in common:



They use more data

They run modern workloads on NoSQL databases like Apache Cassandra

They run more modern workloads

DataStax

oOU They gain differentiating business results from modernizing their data

The study indicates several ways in which other organizations can emulate these leaders to reap the benefits of becoming more data-driven.

Data volume is exploding

The data deluge is here and accelerating. According to IDC, "the amount of data created over the next three years will be more than the data created over the past 30 years."



180 zettabytes

Annual data created and replicated in 2025, an increase of 115 zettabytes over 2020, a 23% CAGR.¹



The value of global data estimated by the Economist. The Economist estimates that the value of all the data in America is about \$2T.²



33%

The companies capturing the expanding value of data are being rewarded with a 33% premium in their price/earnings ratio.³

Leaders vs laggards: how organizations win with data

If the 2010s were about digital transformation (integrating technology into the business), the 2020s are about modernization (becoming a data-driven leader). Modernization is the advanced stage along the digital transformation journey, where the organization is not merely adopting digital technology to improve business processes, but is using data to create competitive advantage through deeper personalization, better customer experience, or greater productivity.

Leaders run larger workloads on **NoSQL databases than other organizations**



45% expect the volume of data run

on NoSQL to increase a great deal⁴ VS 12% of laggards









What is the definition of a data-driven leader?

According to McKinsey, data-driven leaders excel in aligning people, processes, and technology, with these characteristics in common⁵:

- They construct a strategy to pursue data and analytics
- 2 They have a data culture: data leadership in the C-suite, broadly accessible data, and a culture that tolerates failure
- They understand data at all levels of the organization
- **4** They deploy modern data architectures that support data- and analytics-related efforts at scale



"Companies with the greatest overall growth in revenue and earnings receive a significant proportion of that boost from data and analytics."

- McKinsey

92% say the data they use has a material impact on revenue generation VS 55% of laggards⁶

Examples of data-driven leaders

Leading data-driven organizations activate their data to differentiate themselves from competitors



Mint aggregates exponentially growing amounts of user data from more than 11M customers while delivering application performance in real time



Sling TV provides 2.3M customers across 16 platforms with faster, more personalized content delivery from their on-demand data center



Macy's reduces its omnichannel catalog data refresh time by 6X to back the heavy increase in traffic for its ecommerce site, allowing them to handle 10x growth



Intercontinental Exchange handles 2+ terabytes of data daily to provide trusted and reliable up-to-the-second financial data to traders, risk managers, brokers, and investors

How data-driven leaders use NoSQL to surpass the competition

76% vs 22%

63% vs 34%

Data-driven leaders deploy NoSQL databases to optimize and automate operations, offer interactive, delightful customer experiences, feed machine learning models, and more.

> Real-time sensor or device monitoring

Real-time inventory or

catalog management

Leaders Laggards

60% vs 30% Leaders

Laggards

eCommerce, such as user profile management and e-payments/e-wallets

Digital experience, including virtual and augmented reality, and digital twin technology

AI/ML for uses including process automation, auctions, and customer service



Leaders

Leaders

Laggards

Laggards

54% vs 20% Laggards



What are the roadblocks to becoming a data-driven leader?

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Many organizations who have gone through digital transformations are not data-driven leaders yet because they still run their businesses on relational databases.



Monolithic data architecture

Monolithic architecture is based on relational databases that were invented more than 40 years ago to optimize for storage at the expense of performance. Under the heavy pressure of modern workloads it is slow, difficult to scale, and prone to failure. With tightly coupled business logic, it also lessens developer productivity.

1 81% of data-driven leaders see the ability to run modern workloads as material or critical to their business success vs. 44% of laggards. Modern experiences run on NoSQL databases.

IDC DBMS forecast, 2020-2024⁷:

- RDBMS growing at 5.6% CAGR (2019-2024)
- NoSQL growing at 21.3% CAGR (2019-2024)



McKinsey defines a data leader as having a culture of data leadership in the C-suite, where data is broadly accessible, and a culture that tolerates failure. This culture results in business agility that can consistently and frequently turn data into innovations.

- **1** 85% of leaders have a data strategy vs. 29% of laggards
- (2) 58% of leaders have a Chief Data Officer vs. 31% of laggards
- 3 95% of data-driven leaders have established clear ownership of turning data into products⁸

An open data stack can overcome these roadblocks

Here's another way McKinsey defines a data-driven leader: "They deploy modern data architectures that support data- and analytics-related efforts at scale". In fact, 58% of leaders are engineering a modern data stack, piece-by-piece vs. 22% of laggards



Is built on open source NoSQL

Has APIs

Runs on Kubernetes

Doesn't lock you into any cloud



Cassandra is key to open data stacks

Apache Cassandra is an open source NoSQL distributed database trusted by thousands of companies for scalability and high availability without compromising performance.



Data-driven leaders use **Apache Cassandra**

- **1) 47% of DDE leaders use Cassandra** vs. 30% of laggards⁹
- 2 90% of Fortune 100 uses Apache Cassandra¹⁰

Top reasons for using Apache Cassandra in mission critical applications:

- (1) "Good hybrid solutions" (62%)
- **"Very secure"** (60%)
- Highly scalable" (57%)
- **4 "Fast"** (57%)
- (5) "Easy to build apps with" (55%)

Smart organizations have learned that transforming the data deluge into insight, experience, and innovation can drive profitable growth well into the future.

They also know that it requires an open data stack based on NoSQL databases, notably Apache Cassandra. DataStax Enterprise and Astra DB take Apache Cassandra to the next level with global scale, operational reliability, and native Kubernetes support, among many other benefits.

> To learn more about transforming your business into a data-driven leader with DataStax:

> > Read State of the Data Race - 2021 **Read Data Modernization - a Future State** Try an open data stack for free



- ¹ IDC Worldwide Global DataSphere Forecast, 2021–2025, Doc # US46410421
- ² <u>A deluge of data is giving rise to a new economy</u>, the Economist
- ³ Built to Scale report, Accenture ⁴ In the next 12 months
- ⁵ McKinsey & Company, "Catch them if you can: How leaders in data and analytics have pulled ahead," September 19, 2019
- ⁶ Enterprise Management Associates
- ⁷ IDC (Doc # US46556220)
- ⁸ 2021 State of the Data Race report, by DataStax ⁹ Data from a survey of 515 US-based companies administered by
- ClearPath Strategies on behalf of DataStax ¹⁰ Including DataStax Astra DB or DataStax Enterprise