THE
Evolving Role OF THE
CDO
AT **Financial Organizations**

The 2021 **Chief Data Officer** (CDO) Study

EXECUTIVE
Summary

Over the past several years, the role of the chief data officer (CDO) has evolved from being security-and compliance-oriented to being strategic and innovative. Not only are chief data executives of all stripes taking on a more progressive role in key business decisions, but the position itself is becoming an essential staple of forward-thinking organizations, especially at financial services organizations. According to a 2019 study conducted by Forrester, 58% of organizations had appointed a chief data officer and another 26% were planning to do so.[1]

Moving forward, data executives must focus not only on securing data and ensuring their organizations meet rigorous data regulations but also on new strategies for leveraging Big Data and their organizations' proprietary data to generate business value. This will require new strategies in data management, as well as the deployment of new data solutions like data fabrics, automated governance, machine learning, and blockchain.

Primarily, it will require data leaders to focus more on offensive data management—a data strategy that supports key business objectives, such as boosting profitability and improving customer outcomes—in addition to defensive data management, which refers to the strategy of securing data and maintaining compliance with regulations.

This report provides benchmarking information about how CDOs are fairing in a rapidly shifting regulatory landscape. It also will explore CDOs' and other data professionals' opinions on enabling an offensive approach to data management and their best practices.

[1] https://go.forrester.com/blogs/chief-data-officers-rule-and-deliver-results

KEY Insights

70%
of CDOs say **risk data aggregation is a primary regulatory concern** within their IT departments, while 69% say "know your customer" (KYC) is a primary area of resource consumption.

69%
of CDOs say their organizations have **applied data lineage** as a data governance technique to Big Data, and 52% have applied crowdsourcing techniques.

69%
of organizations say **a lack of downstream visibility of data consumption** impedes their pursuit of an offensive data management strategy; 65% cite unclear data provenance and tagging information as an impediment.

61%
of organizations have deployed **automated governance** and workflow issue management solutions.

55%
of organizations have **used Big Data to fully replace their data warehouse implementations,** while 52% have used it to fully develop end-user analytics.

61%
of organizations are at least **mostly prepared** to support offensive data management opportunities as part of their data practices.

63%
of CDOs expect to **develop an analytics-driven business strategy** through an offensive approach to data management.

83%
of CDOs say compliance is now either a **secondary concern** to business improvement or is **fully automated.**

ABOUT
the Respondents

The WBR Insights research team surveyed 100 data and information technology executives to generate the results of this survey. Every respondent occupies a leadership role within their organization.

What type of company do you work for?
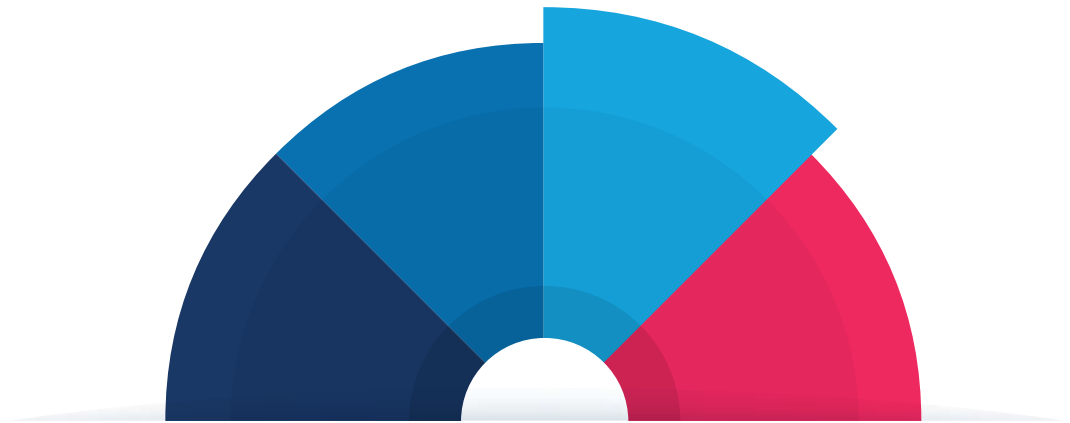
25%	**25%**	**25%**	**25%**
Asset managers	Hedge funds	Insurance	Investment bank

The respondents are evenly split between the type of organizations they work for, with 25% of respondents representing an asset management organization, a hedge fund, an insurance organization, or an investment bank.

Are you the highest ranking member of your organization's data/analytics practice?

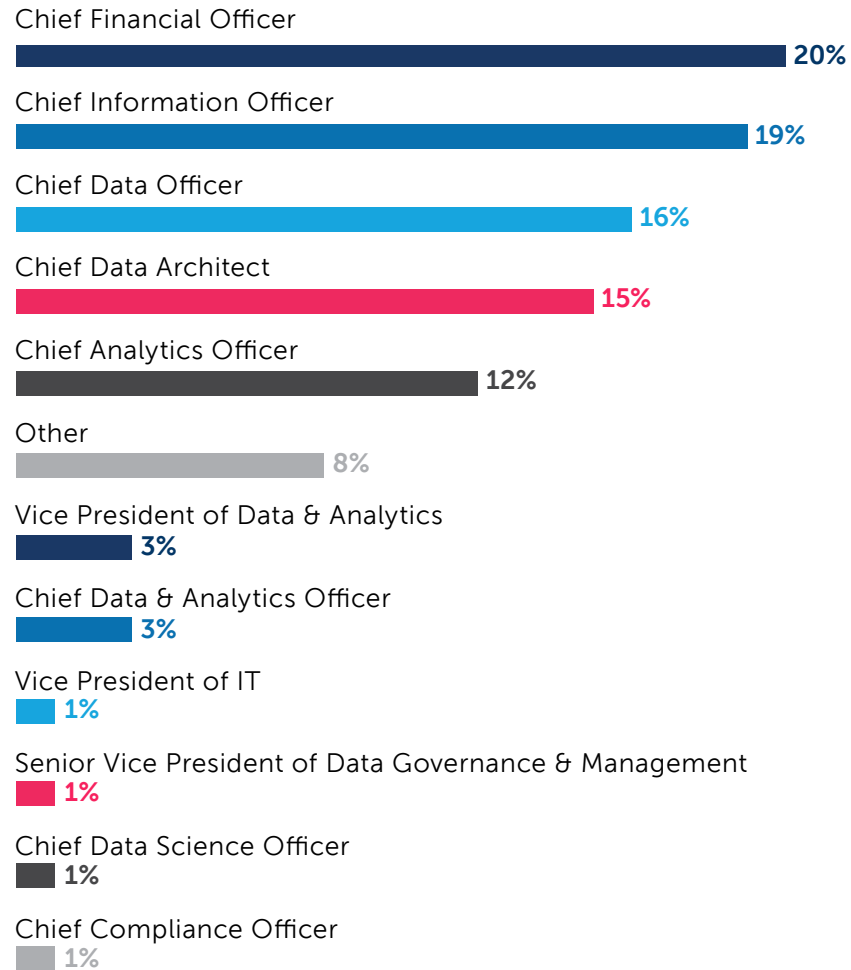| **90%**	**1%**	**9%**
Yes	No	I share this responsibility with one or more individuals.

Most respondents (90%) are the highest-ranking member of their organization's data or analytics practice. An additional 9% of respondents share the responsibility with one or more individuals.

A majority of respondents (87%) are in the C-suite. At 20%, a plurality of respondents are chief financial officers and 19% are chief information officers. The remaining C-suite executives represented in the study are chief data officers (16%), chief data architects (15%), chief analytics officers (12%), and chief data and analytics officers (3%). The study also includes one chief compliance officer and one chief data science officer.

What is your title?

Chief Financial Officer
20%

Chief Information Officer
19%

Chief Data Officer
16%

Chief Data Architect
15%

Chief Analytics Officer
12%

Other
8%

Vice President of Data & Analytics
3%

Chief Data & Analytics Officer
3%

Vice President of IT
1%

Senior Vice President of Data Governance & Management
1%

Chief Data Science Officer
1%

Chief Compliance Officer
1%

How long have you occupied a C-level position in data management/ governance, or alternatively, how long has your CDO occupied their role?

1%	**13%**	**20%**	**41%**	**25%**
< 1 year	1-2 years	2-3 years	3-4 years	5+ years

According to most respondents (66%), they have occupied their C-level position for three or more years, or their current CDO has occupied the role for three or more years. This includes 25% of CDOs who have occupied their roles for more than five years.

Implementing Data Lineage
A Business Imperative for Financial Firms

Your data tells a story—where it started and how it has been transformed over time to get to its present state. This is data lineage. Data lineage is a critical component of any data-driven business, but especially so for firms operating in heavily regulated industries such as capital markets.

Evolving Regulatory Landscape Places Premium on Data Lineage

Regulatory compliance requirements are putting greater transparency demands on firms to trace and audit data. For capital markets trading firms, data lineage must be implemented to support risk management, data governance and reporting for various regulations such as BCBS 239, CCAR, and MiFID II.

Although these regulations have been in effect for a while, financial firms are still struggling to meet the ongoing regulatory requirements as ad hoc reporting requests are exposing the limitations of existing compliance systems.

We're not just talking about financial firms and requirements for surveilling capital markets trading activities. Every company is feeling pressure from data privacy regulations, such as GDPR, and would benefit from having data lineage built into its data governance systems.

Data Lineage Makes Compliance Easier for Financial Firms

With regulators continuing to demand more effective data governance, financial firms may need to reassess their data-management capabilities around data lineage. As excerpted from the Data Lineage Handbook, here are a few things to consider when implementing a data lineage development approach:

1. **Building the Business Case**
   To increase the likelihood of project funding, enterprise architects and data managers should not only make the case at the technical level, but also at the operational and business-user levels.

2. **Selecting a Technology Solution for Data Lineage**
   While many data lineage projects in financial services firms started as in-house, manual developments, an increasing number of firms have graduated to a mix of in-house and vendor solutions. When deciding on what technology to deploy, organizations should consider existing data lineage systems, whether those systems are automated, semi-automated or manual, and what target outcomes the firm is aiming to achieve.

3. **Implementing a Data Lineage Approach**
   Firms looking to implement a data lineage project should consider scope and start small, identifying a pilot project with a well-defined scope that will have a relatively large impact on the firm. Also, determine if the required skills to implement and maintain a data-lineage project exists or whether external help is needed.

Break Down Data Silos for Effective Governance, Risk, and Compliance with MarkLogic

MarkLogic provides the data platform underpinning regtech solutions and risk management processes at leading financial services firms globally. We've not only helped our customers address requirements for many of the most complex transparency and privacy regulations, such as MiFID II, BCBS 239 and GDPR, we have also simplified the effort for addressing future obligations.

For more detailed information on data lineage, please refer to the Data Lineage Handbook. The handbook is a comprehensive guide to understanding the business and technical challenges and opportunities of data lineage and why a solution like MarkLogic should be a core component of any implementation approach.

To get a demo of MarkLogic's leading cloud data platform, please visit
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CDOs Are Making **Considerable Advancements in Data Management and Governance** but Manual Processes Remain

Leaders in the financial field have known for a long time that data is an asset. In the past several years, businesses have generated and collected data at unprecedented levels.

Still, financial leaders also have faced consistent barriers to leveraging their proprietary data, customer data, and Big Data. They've also faced mounting pressure from regulators, governments, and their customers to better safeguard data. Nowhere is this more apparent than in the recent fallouts from high-level data breaches at large corporations.

The CDO role was created to apply specific leadership to the areas of data government and management. Once the purview of large corporations, now even smaller and mid-market companies have adopted the role in their attempts to preserve and draw value from their organizations' vast data stores.

Thankfully, the role is showing both promise and progress.

How far has your team advanced toward a governance model where there is an emphasis on driving significant business improvements beyond compliance within the data practice?

3%
We are still entirely compliance driven.

14%
While we focus on compliance, we have also begun to improve our ability to support the business at large.

45%
Our compliance focus is now handled well enough to the point that it is a secondary concern to business improvement.

38%
We have fully realized a "governance 2.0" model where the majority of compliance concerns are automated, allowing a primary focus on creating business efficiencies.

CDOs and other company data leaders have taken significant steps toward a data governance model that doesn't just safeguard data but also drives business improvements. Based on the results of this survey, 45% of data leaders say compliance is now handled so well within the organization that it is a secondary focus to business improvement. Meanwhile, 38% say they have fully realized a "governance 2.0" model in which the majority of their organizations' compliance concerns are automated.

These results show significant progress when compared to the results of the 2019 FIMA Global C-Suite Report, which found that the successful modernization of data management practices was only occurring at 44% of companies.[2]

Compared to your industry peers, how do you feel your current data management practices compare?

| **1%**	**13%**	**23%**	**49%**	**14%**
We are behind the curve and need to catch up.	We are slightly below average but improving.	We are at a neutral level around the industry average.	We are starting to improve our technology and strategies to outpace competition.	We are fully modernized beyond what is considered average for the industry.

Similarly, a majority of respondents believe they are either beginning to outpace their competition in terms of their current data management practices (49%) or they are fully modernized beyond what is considered average for their industry (14%). Another 23% believe they have met industry averages.

These results suggest that most companies with a clear data leadership structure may achieve full data modernization in the coming months and years. This will have a significant impact on those organizations' business operations, as they'll be able to fully automate their compliance responsibilities and focus almost entirely on leveraging business data to generate value.

[2] https://fimaus.wbresearch.com/downloads/the-2019-fima-global-c-suite-report

What percentage of your data practice's operating budget is dedicated to compliance activities?

12%	**64%**	**23%**	**1%**
30%	40%	50%	60%
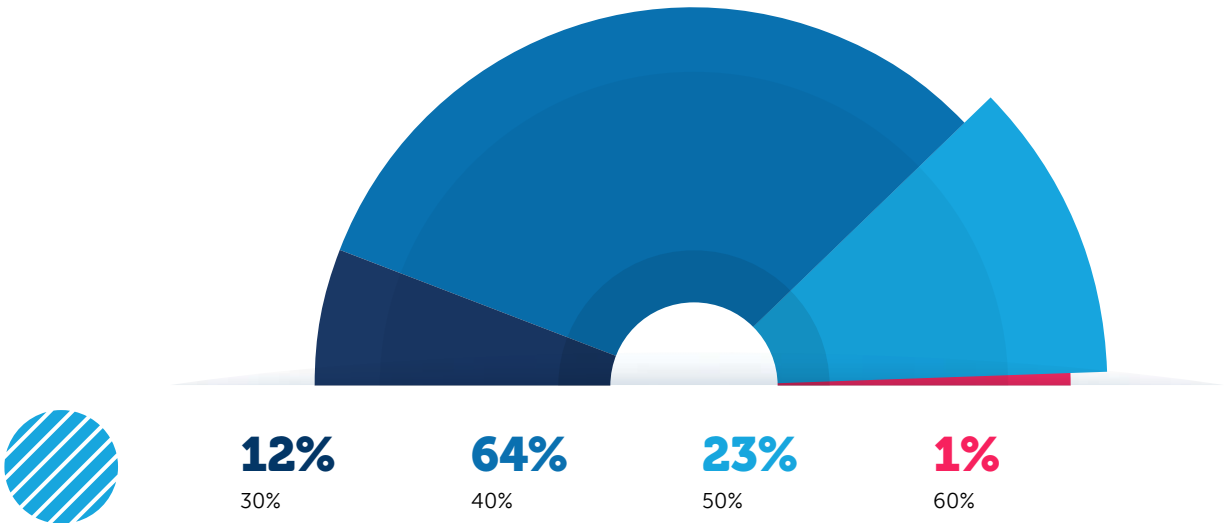
Naturally, modernization and the deployment of an overarching compliance strategy requires significant investments. Compliance itself still imposes a significant investment. According to this study, 88% of organizations devote 40% or more of their data practice's operating budget to compliance activities.

Much of their compliance budget is being spent on specific regulatory concerns and areas of risk. However, areas of particular concern don't necessarily require a sizable portion of the organization's resources.

For example, 70% of organizations view risk data aggregation as a primary concern, but only 42% say it is a primary area of resource consumption. Although financial organizations are focusing heavily on their ability to process risk data and measure their performance against risk tolerance, many have successfully deployed a framework for addressing this concern without consuming too much of the organization's budget and resources.

The same is true of CFO attestation, which requires the chief financial officer of bank holding companies (BHC) that are overseen by the Federal Reserve's Large Institution Supervision Coordinating Committee to report material weaknesses and errors in the data on forms they submit to the Fed. Similarly, many financial organizations are concerned about the Capital Analysis and Review (CCAR) framework, but most feel that it is not a particular drain on their resources.
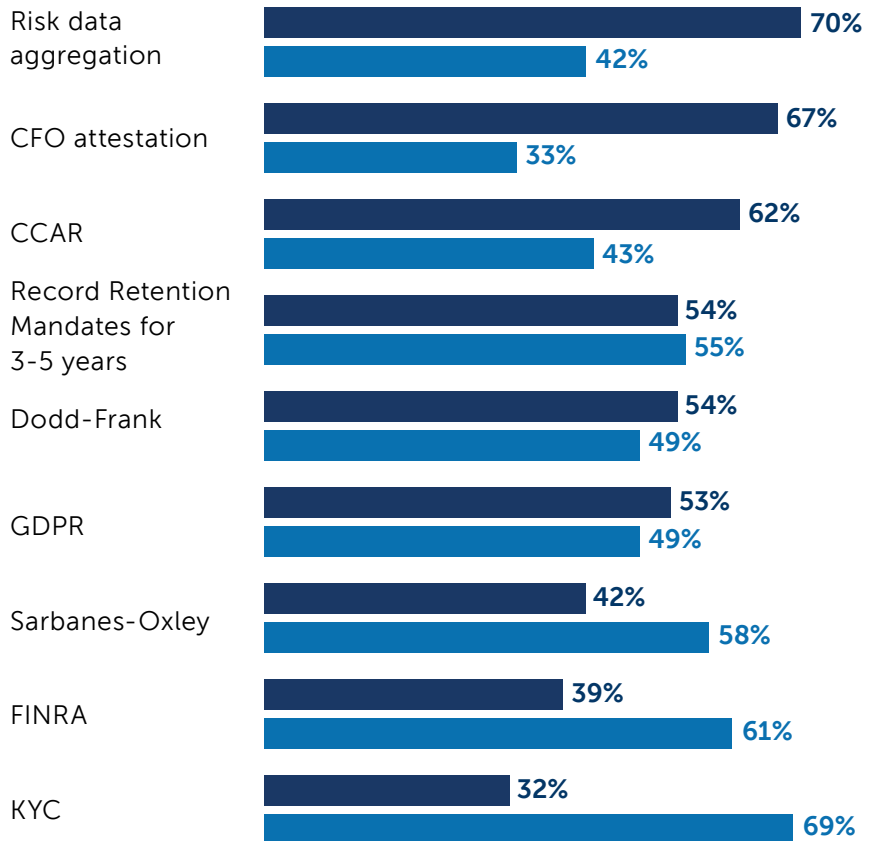
Regulatory concerns that do consume significant resources for most organizations are the Sarbanes-Oxley Act (58%), which sets requirements for public company boards, and regulations set forth by the Financial Industry Regulatory Authority (FINRA), the private corporation that regulates the financial industry.

Interestingly, 69% of organizations feel that regulations impacting "know your customer" or "know your client" (KYC) data are a significant drain on resources. This includes the Know Your Customer Rule 2090, which requires broker-dealers to faithfully maintain records of essential information about customers. However, only 32% feel that this is a primary regulatory concern, which suggests that most organizations feel they have a handle on addressing these regulations even though they require a significant allocation of their resources.

## Which of the following are your primary regulatory concerns within IT, and which are the most resource-intensive?

● Primary area of concern ● Primary area of resource consumption

Risk data aggregation
- Primary area of concern: 70%
- Primary area of resource consumption: 42%

CFO attestation
- Primary area of concern: 67%
- Primary area of resource consumption: 33%

CCAR
- Primary area of concern: 62%
- Primary area of resource consumption: 43%

Record Retention Mandates for 3-5 years
- Primary area of concern: 54%
- Primary area of resource consumption: 55%

Dodd-Frank
- Primary area of concern: 54%
- Primary area of resource consumption: 49%

GDPR
- Primary area of concern: 53%
- Primary area of resource consumption: 49%

Sarbanes-Oxley
- Primary area of concern: 42%
- Primary area of resource consumption: 58%

FINRA
- Primary area of concern: 39%
- Primary area of resource consumption: 61%

KYC
- Primary area of concern: 32%
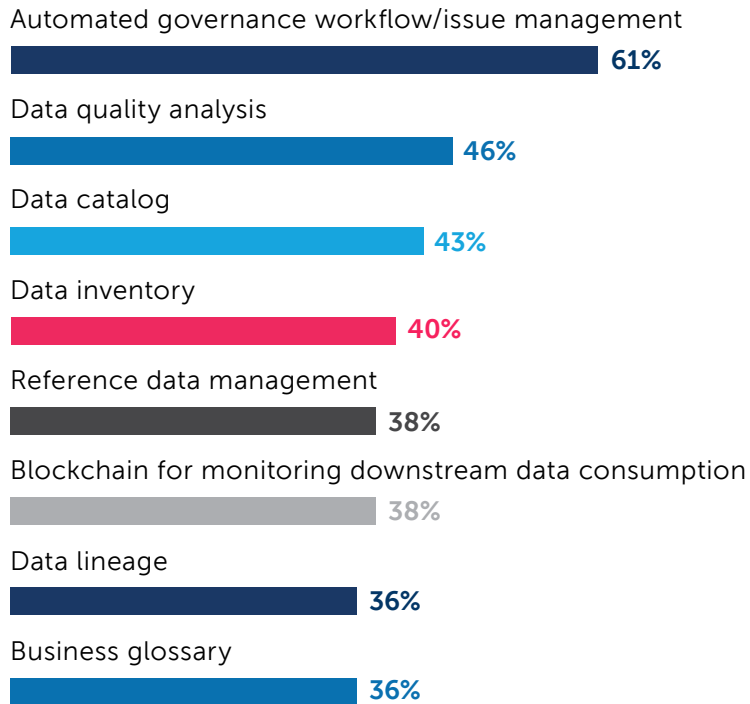- Primary area of resource consumption: 69%

But part of the reason compliance is still relatively expensive for financial organizations is the fact that many compliance activities still must be completed by hand—95% of the respondents to this study claim that 40% or more of their regulatory compliance efforts are performed manually.

What percentage of your regulation compliance efforts are performed manually?

5%	**41%**	**45%**	**9%**
30%	40%	50%	60%
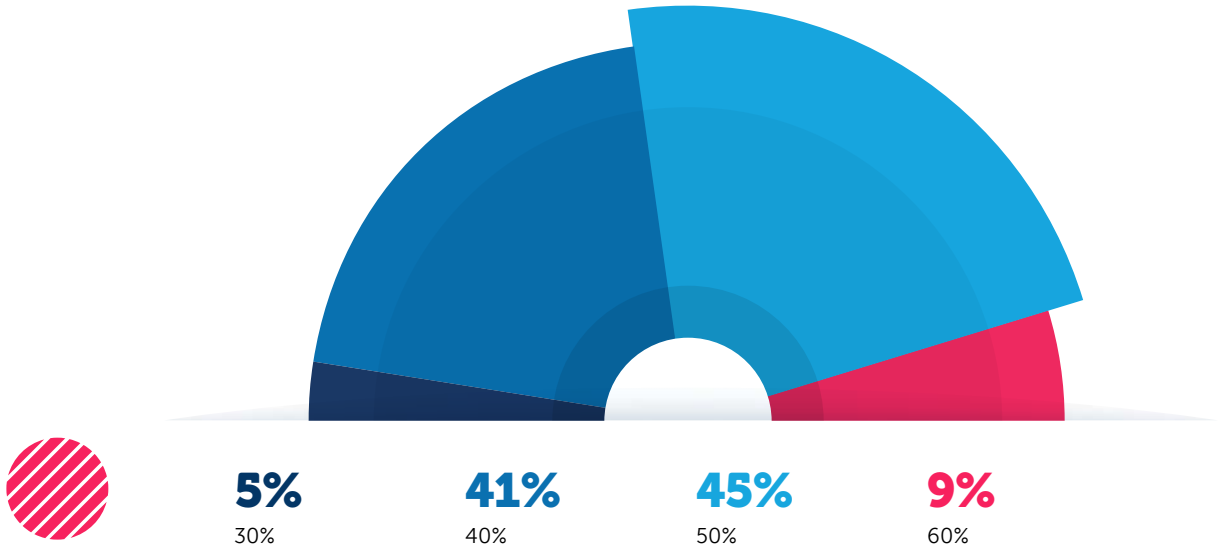
Which of the following data intelligence solutions have you deployed?

Automated governance workflow/issue management
61%

Data quality analysis
46%

Data catalog
43%

Data inventory
40%

Reference data management
38%

Blockchain for monitoring downstream data consumption
38%

Data lineage
36%

Business glossary
36%

One of the most important steps in addressing the challenge of manual data processes is the deployment of new data intelligence solutions. According to the results of this study, CDOs are clearly making strategic investments in key solutions and their progress toward modernization is evidence of those investments.

Most CDOs (61%) have already deployed automated governance and workflow issue management solutions. Meanwhile, almost half of the respondents have deployed data quality analysis solutions (46%) and data cataloging solutions (43%).
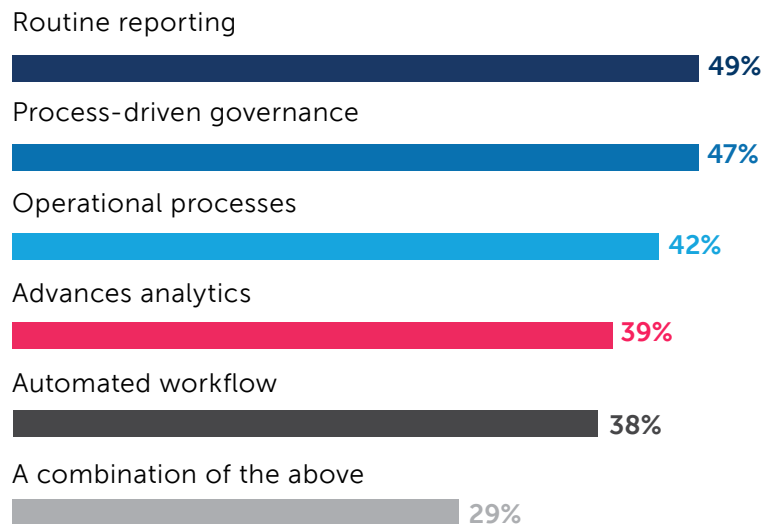
Over the next 12 months, financial organizations must select the appropriate solutions for their organizations to eliminate the manual processes of data management. Only then will they be able to automate compliance and focus more aggressively on data management strategies that generate business value.

Financial Organizations Are **Approaching Maturity** in Using and Governing Big Data

Large and diverse sets of structured and unstructured data—commonly known as "Big Data"— have always presented opportunities to businesses. As part of one of the most data-intensive sectors in the global economy, financial organizations have been at the forefront of deploying the tools and processes to draw insights from their data sets and deliver value for the customer, the company, and shareholders.

Based on the results of this report, it's clear that many financial organizations have reached significant levels of success in their usage and governance of Big Data.

Indicate for which of the following you are currently using Big Data:

Routine reporting

49%

Process-driven governance

47%

Operational processes

42%

Advances analytics

39%

Automated workflow
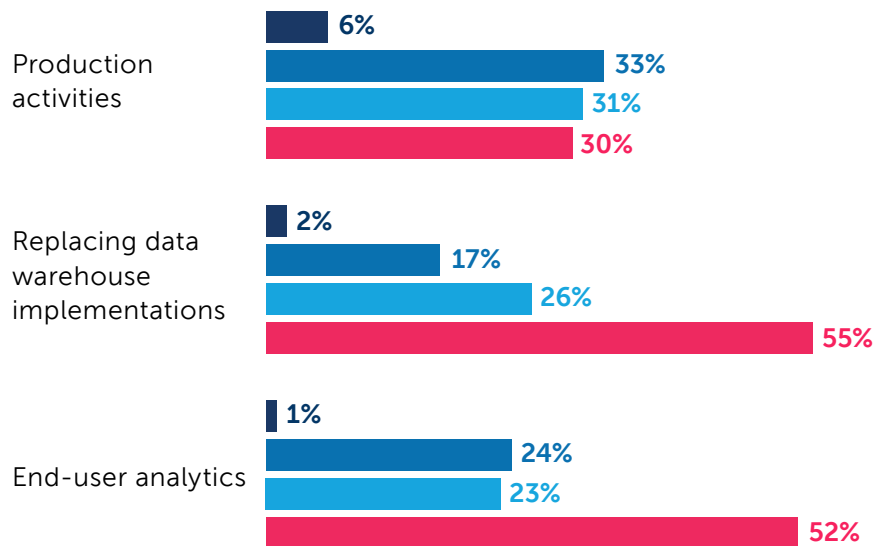
38%

A combination of the above

29%

Currently, almost half of the organizations surveyed are using Big Data for routine reporting (49%), process-driven governance (47%), and operational processes (42%). Fewer respondents say their organizations are using Big Data for advanced analytics and automated workflows.

Still, 29% of respondents say their organizations are using Big Data for a combination of some or all the processes mentioned. Although some organizations are still working to leverage Big Data for more advanced applications, there is significant success in their utilization of it for routine processes. This coincides with results from the 2019 FIMA Global C-Suite Report, which found that only 19% of organizations were aligning their Big Data strategies with revenue-driven initiatives.[3]

How far have you progressed in using Big Data for the following activities?

- We are just getting started.
- We are somewhat developed in this area.
- We are almost fully powering this activity with Big Data.
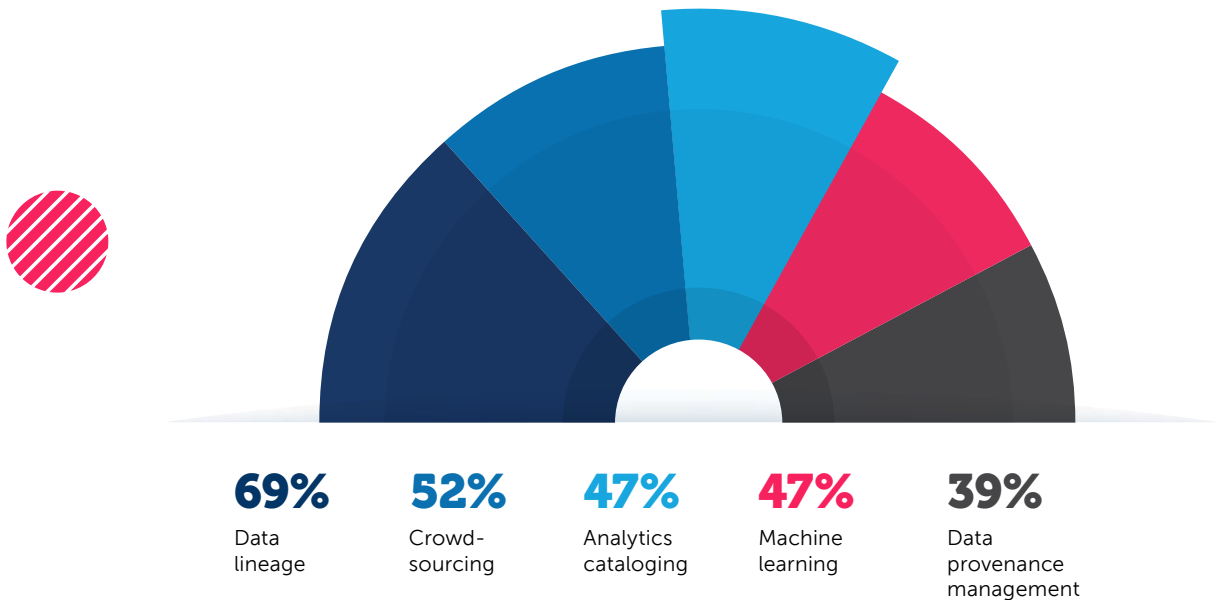- This is a fully developed area for us.

Production activities
- 6%
- 33%
- 31%
- 30%

Replacing data warehouse implementations
- 2%
- 17%
- 26%
- 55%

End-user analytics
- 1%
- 24%
- 23%
- 52%

[3] https://fimaus.wbresearch.com/downloads/the-2019-fima-global-c-suite-report

Financial organizations still are approaching a certain level of maturity regarding Big Data, especially when it comes to leveraging it for specific activities. This study found that about half of organizations have fully developed their ability to replace data warehouse implementations (55%) and end-user analytics (52%) using Big data. Most of the remaining respondents are either almost fully powering these activities with Big Data, or they are somewhat developed in the areas.

The one area in which most respondents seem to be struggling is their ability to power production activities with Big Data. Only 30% of respondents have fully developed this area.

Which of the following data governance techniques are you applying to Big Data?

69%	52%	47%	47%	39%
Data lineage	Crowd-sourcing	Analytics cataloging	Machine learning	Data provenance management

Underpinning these capabilities is Big Data governance. Without the ability to manage enormous volumes of data, the organization can't leverage them for decision-making and analysis.

Currently, most respondents' organizations are using data lineage (69%) and crowdsourcing (52%) techniques as part of their Big Data governance strategy. But fewer respondents are successfully applying analytics cataloging, machine learning, and data provenance management. Financial organizations can successfully crowdsource and track the origins of their data sets but struggle to apply metadata in the sorting of those data sets, leverage machine learning to govern them, and successfully manage the inputs that deliver their data in the first place.

Financial Organizations Are Mostly Prepared for **Offensive Data Management**

2020 was a tumultuous year. Some financial organizations that were approaching a significant level of maturity in data management had to put their initiatives on hold to address more immediate issues. But as we've learned by analyzing other industries, the events of 2020 also led some sectors to innovate, moving processes that were once manual to the digital realm.

The research team asked respondents to describe how their data practices were impacted by the need to adapt to changes in the work environment created by COVID-19.

Overall, most respondents say they avoided any catastrophic impact on their data operations. Most of these respondents note the fact that they had been updating their tools and programs ahead of time to prepare for such risks, and those investments inevitably paid off.

According to a CFO at an investment bank, "Our data practices have evolved enough to keep them protected in disaster situations. Only a couple of additions and we were good to go. Key developments have been put back on track and have been given enough momentum to achieve completion in the expected timeframe."

Similarly, a chief analytics officer at an insurance company says, "We had most of the arrangements covered so that the transition to working from remote locations was made possible. New programs haven't been hampered as the bandwidth was enough to cover business and development requirements."

The respondents who did note that the pandemic caused a disruption repeatedly said that they nonetheless managed to "keep everything in check."

As one CIO at an investment bank puts it, "Data practices became more precise and everyone got more conscious as the pandemic reached its first peak. Key programs have been kept in check and have been restarted securely."

Other respondents note that their data operations faced little disruption due to COVID-19, but the pandemic did provide them with more incentive to fully leverage their existing workforce and communication tools. As another CFO at an investment bank says, "The technology we possess that makes working from different locations possible did have a positive impact in this situation. Key programs have now been given an acceleration in the second half of this year."

As financial organizations continue to recover, they can start making plans for the next phase of their data strategies. If they can make compliance and risk management secondary through automation, they can pursue more offensive data management, or an offensive data strategy, moving forward.
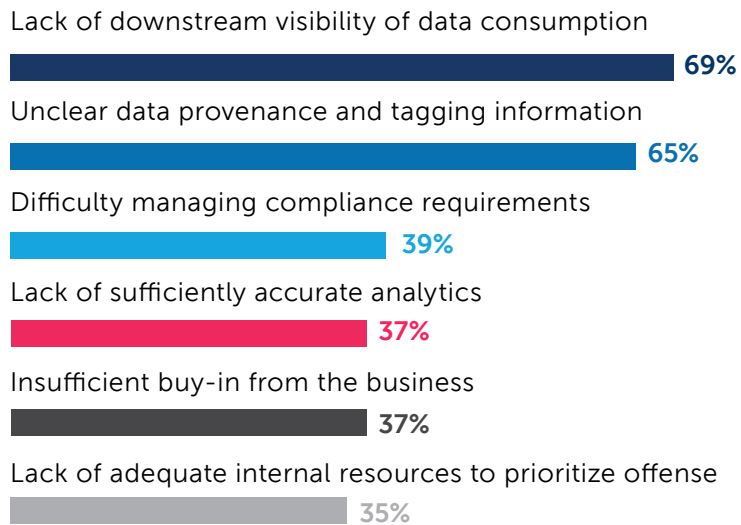
On a scale from 1-5, how ready is your data practice to support offensive data management opportunities in 2021?

19%
1 - Very prepared

42%
2 - Mostly prepared

26%
3 - Somewhat prepared

13%
4 - Mostly unprepared
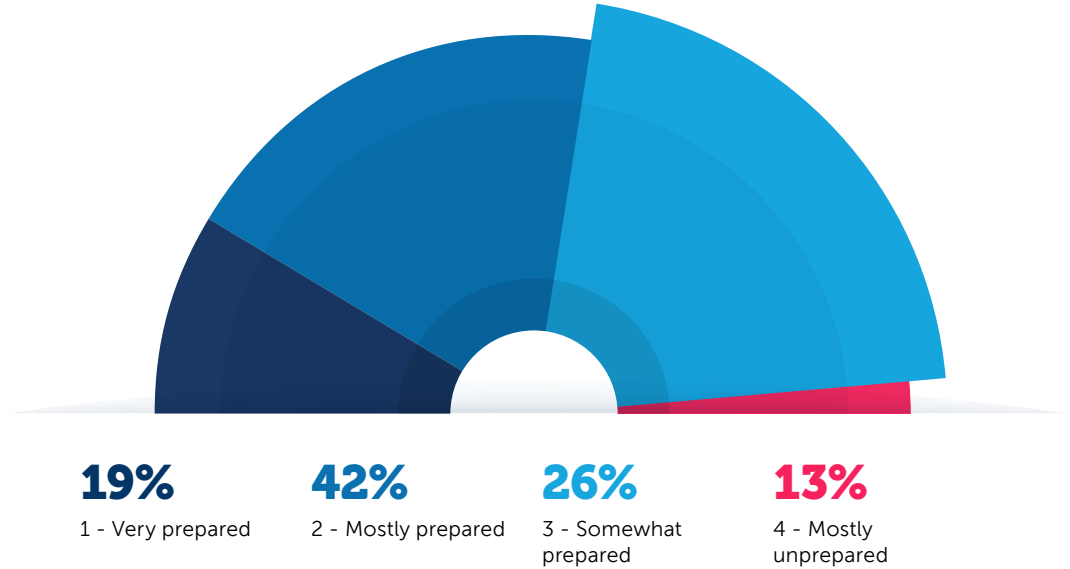
In this case, offensive data management refers to the strategy of leveraging data to generate value, revenue, and profit, usually by drawing insights from it. Currently, 61% of organizations feel that their data practices are at least "mostly prepared" to support offensive data management opportunities in 2021, with 19% saying they are "very prepared."

Which of the following represents the greatest impediments to your pursuit of an offensive data management strategy?

Lack of downstream visibility of data consumption
69%

Unclear data provenance and tagging information
65%

Difficulty managing compliance requirements
39%

Lack of sufficiently accurate analytics
37%

Insufficient buy-in from the business
37%

Lack of adequate internal resources to prioritize offense
35%

Still, most financial organizations must overcome specific challenges in their pursuit of offensive data management. The two most significant challenges cited by the respondents are a lack of downstream visibility into data consumption (69%) and unclear data provenance and tagging information (65%). These results coincide with our previous discovery that only 39% of respondents are successfully achieving data provenance management.

This suggests that financial organizations are making significant headway when it comes to managing data internally, but they are struggling to apply metadata and manage their data inputs to determine the provenance of that data. They also are struggling to gain visibility into downstream applications of data once it is used in the final delivery of services or released to other entities.

Which of the following benefits do you expect to gain from the adoption of an offensive approach to data management?

Development of analytics-driven business strategy
63%

Ability to outpace minimum compliance standards for data
49%

Greater internal support for the mission of the data practice from the C-suite
49%

New sales opportunities
40%

Improved customer service
36%

Improved partnership opportunities with allied organizations
32%

If financial organizations can overcome these impediments, they hope to harness the power of data through effective offensive management, so they can achieve better business outcomes.

At 63%, most respondents say they want to develop an analytics-driven business strategy through offensive data management. Meanwhile, about half of the respondents hope to outpace minimum compliance standards in using and securing their data (49%) and garner more internal support for the data practice from the C-suite (49%). If data leaders can demonstrate that their efforts provide real value for the business in the form of better customer outcomes, more revenue, and more profit, they could secure more resources for pursuing their data objectives.

CONCLUSION

AI-Assisted Analytical Cloud Services Will
Be Key to Offensive Data Management

CDOs, acting CDOs, and other C-level executives in this study were asked to identify what tools they anticipate will be most important for enabling an offensive approach to data management. If there is one tool that stands out among their responses, it's the cloud—namely, analytical cloud services and cloud-based data management solutions. Many respondents specifically say that "AI-assisted cloud services" will be the most important tool for data management moving forward.

One CFO at an investment bank was straightforward in their response: "The search stops at analytic cloud services."

Aside from the cloud, AI and tools to augment analytics are also forerunners for the most important feature moving forward. A chief analytics officer at an insurance company says, "Augmenting data analytics can be the next best thing, but I feel that in terms of being offensive, AI will have a bigger impact."

AI tools can sift through enormous data sets to deliver insights, but they can also be used for managing and structuring data. This capability is paramount for financial organizations that intend to use Big Data to generate insights, as sifting through such enormous data sets would be an incalculable manual task for even the most seasoned data analysts.

As financial organizations continue to recover from the events of 2020, and as key initiatives for their data practices reach maturity, it will be crucial for them to harness the latest cloud-based and AI-driven analytical tools to drive their offensive data management strategies forward.

KEY
Suggestions

1

Financial organizations have reached a significant level of maturity when it comes to data compliance, allowing them to **pursue an offensive data management strategy.** If you are still struggling with compliance, pursue the technologies and processes necessary to automate as many manual compliance tasks as possible.

2

When securing data and complying with regulations becomes an afterthought, **develop your plan for an offensive data management strategy** if you haven't already. With the right solutions and processes in place, you'll have more resources to focus on drawing value from vast data sets.

3

The two most significant impediments to offensive data management are a **lack of downstream visibility of data consumption and unclear data provenance.** Deploy solutions that can provide you with full visibility of your data, from its point of origin to the point of consumption.

4

CDOs say that **AI-powered, cloud-assisted services represent the most important investment for pursuing offensive data management.** Even if you aren't pursuing offensive data management currently, it's important to begin searching for a viable solution, so you can deploy it once your data operations are ready.

ABOUT
Our Sponsor

MarkLogic™

Data integration is one of the most complex IT challenges, and MarkLogic's mission is to simplify it. The MarkLogic Data Hub is a highly differentiated data platform that eliminates friction at every step of the data integration process, enabling organizations to achieve a 360º view faster than ever. By simplifying data integration, MarkLogic helps organizations gain agility, lower IT costs, and safely share their data.

For more information, please visit www.marklogic.com.

ABOUT
the Authors

FIMA US Financial Information Management

Financial Information Management (FIMA) launched in 2005 and is the leading data management event for financial services in the United States. Born as a reference data management event, FIMA has quickly grown to cover so much more as different kinds of data are creating new risks to manage and opportunities to capitalize on. Each of our events hosts more than 425 guests from more than 145 companies with three days of content and 12 hours of networking. Each year FIMA-hosted sessions and discussions are led by top data management professionals, all covering topics that are of fundamental importance to your enterprise-wide data management initiatives. We're dedicated to helping you make an ever-increasing impact on your business, year after year.

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