

Insights for the new chief data officer

*How to define data strategy, align business goals
and prioritize winning projects*



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Introduction

Getting started as a chief data officer (CDO) can be a daunting process. Most likely your position is new to the organization, and your role may not be widely understood—either within the C-suite or beyond. Although you may possess the ideal background and skill set, few role models or best practices exist today for you to follow.

Yet within those challenges lies opportunity. You are free to create and define the role in the way that best suits the needs of your organization and uses the expertise you bring to the table. You have a chance to define the profile of a top CDO, leading the way and creating best practices for future CDOs.

Written with new and aspiring CDOs in mind, this e-book provides a fresh perspective on collaborating, prioritizing and spearheading your organization's efforts to put data at the center of its business. It includes insights derived from interviews and interactions with a number of early CDOs, as well as from related IBM studies and the experiences of information professionals across multiple industries.

Recommendations for the CDO are grouped into three broad areas:

1. Strategic alignment with the business
2. Data strategy development
3. Project prioritization



What is a chief data officer?



A CDO is a business leader who creates and executes data and analytics strategies to drive business value. Responsibilities may include:

- Defining, developing and implementing the vision, strategy and methods by which the organization acquires, analyzes, governs and manages the quality of data
- Identifying new business opportunities available through more effective and creative use of data
- Providing guidance, strategy and oversight for data-related initiatives
- Establishing and enforcing data policies and standards, including enterprise-wide business data definitions and data quality standards
- Measuring the effectiveness of data-related projects
- Supervising and nurturing a team of data scientists and other data-focused individuals with business and technical skills
- Managing a data-related budget



Business alignment: Support the strategic goals of your enterprise

Because the CDO position requires a keen understanding of the business as well as an appreciation of technology's role within it, one of your first priorities should be to align your data strategy with the business goals of your organization.

If new customer acquisition is a top priority, for example, a well-aligned data strategy might focus on using data to identify potential markets and customers. If customer retention is deemed essential, then you might utilize data to increase your understanding of current customers—taking advantage of structured and unstructured data stored in applications and databases, documents and even social

media to deliver informed customer service as well as smart, targeted promotions.

One example of effective alignment comes from TD Ameritrade, a company with well-established strategic goals for data and analytics: become “Google fast, Apple easy, Amazon intimate.” When Derek Strauss came on board as the company's first CDO, aligning with these objectives was natural because “Amazonification” depends on data, analytics and decisions at scale. Strauss translated the concept into related data goals called the “four As”: accuracy, accessibility, actionability and advanced analytics.

“It's incredibly important that the CDO role and the organization of the CDO be in direct support of corporate strategy.”

—Mark Ramsey,
Senior Vice President and CDO,
Samsung Telecommunications America

A balance between creativity and control

For some CDOs—especially those who report directly to the chief information officer (CIO)—there is a risk of becoming so involved in technology issues that business opportunities fall down the priority list. If this absorption into technology happens, it may become difficult to stay in step with the overall strategic goals of the organization.

One way to avoid this situation is to balance the CDO’s responsibilities for creativity and control (see Figure 1). Control-focused responsibilities cluster around information governance topics such as data quality, information lifecycle

management, master data management, business glossaries and data privacy. Creativity-focused responsibilities generally involve analyzing information, finding new data sources and identifying innovative opportunities to integrate and leverage existing information.

Balancing the two areas of influence will enable you to establish sound information governance practices while helping your organization widen its business horizons at the same time.

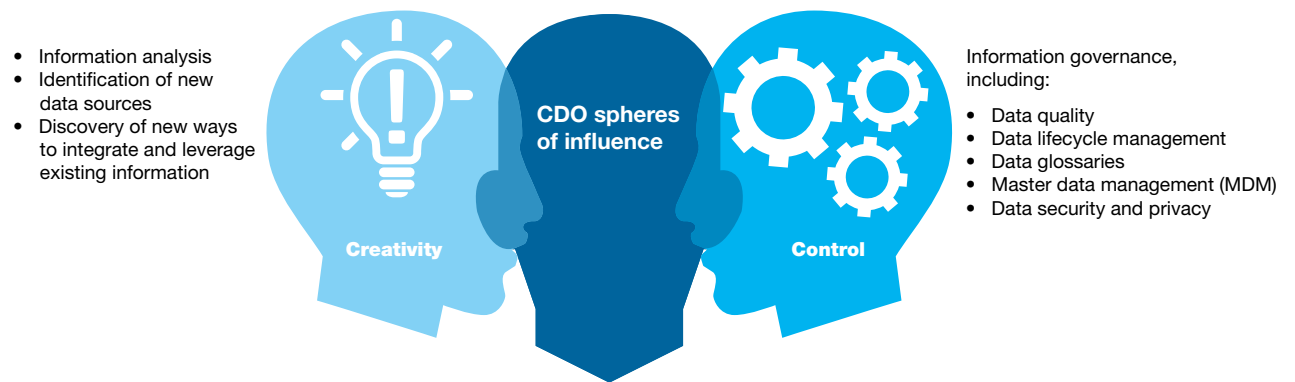


Figure 1. To meet demands for aligning business and IT, the CDO must balance control with creativity.



Collaboration: The secret sauce for CDO success

While collaboration skills are important in any role within an organization, they are absolutely essential for CDOs. Your ideas and proposals will likely be novel ones—based on data newly available or freshly understood—with a strong need for socialization and understanding across the enterprise. The support of your peers and other groups is critical to your ability to promote those ideas effectively and make an impact.

As a new CDO, you should work to establish and nurture relationships with the chief executive officer (CEO) and chief operations officer (COO). An alliance with the CIO is also necessary—whether or not

a reporting relationship exists—as data-related projects are often managed within the CIO’s organization and many consider organizational data to lie within the CIO’s purview. Moving from potential conflict to cooperation with the CIO is vital to the success of the CDO.

“CIOs should view the CDO as a peer and partner who can manage data and who has the knowledge, background and skills to do so, which allows CIOs to focus on the more-than-full-time job that they already have.”¹

—Debra Logan, Research Vice President and Gartner Fellow, Gartner

The chief marketing officer (CMO) is another important ally. The CDO is in a prime position to assist marketing departments with their need for accurate, trustworthy customer and prospect data to enable intelligent, highly targeted marketing activities.

A collaborative partnership with the chief information security officer (CISO)—if there is one in your organization—is critical to the establishment and implementation of data protection policies. In a typical working arrangement, these two C-level officers define data protection strategies together, with the CISO driving execution and the CDO involved on an ongoing basis in progress reporting and problem resolution.

Similarly, since data protection and retention are central to compliance regulations, the CDO should collaborate closely with the chief risk and compliance officer (CRCO) to develop and implement compliance strategies.

In addition to C-level relationships, partnerships with data stewards and others throughout the enterprise are essential, especially in organizational structures where the CDO has minimal staff—an unfortunate but common scenario. Here, collaboration becomes increasingly important because data strategy execution depends on joining forces with the teams that control the necessary resources.

For example, a CDO frequently needs the support of marketing department knowledge workers who control rich customer data stores that can be mined for potential up-selling and cross-selling activities. Good relationships with these individuals help maintain access to data that may have previously been tightly held within the marketing department.

“...[T]he executive suite needs someone who can oversee the strategic business application of its information assets enterprise-wide.”

—Micheline Casey, CDO, US Federal Reserve Board

Team building: Getting the job done

While much of the CDO job requires influence over other executives and teams, you will also need to build the chief data office, staffing it with individuals who combine business understanding with technical familiarity.

According to Ashok Srivastava, chief data scientist for Verizon, “One thing I’ve found is that it takes...a good understanding of the business and the business needs and the market drivers,” as well as “...[a] good understanding of the data and machine learning and other advanced technologies....Bringing all these things together is a key aspect of having a good data science team.”²

CDOs echo Srivastava’s experience, noting that they and their teams must be able to articulate the strategic value of data to business users, yet speak with credibility about technical topics such as data workflows, data sources, data definitions and tooling requirements, as well as data-related policies and standards. Team members who can help you build and maintain credibility in any of those areas are valuable assets.

The best preparation for a CDO team member may be a varied set of experiences, including technical, business and analytical roles. If individuals with this combined skill set cannot be found, build a team with balanced expertise across these areas, and encourage ongoing communication among the team members.



Where do I sit?

Many opinions exist around the ideal position of the CDO within the organization. Some report directly to CEOs or COOs, while others report to CIOs, CMOs or other C-suite executives. Your key concern as a new CDO should be not where you sit in the organization, but how you can be most effective.

“The best place to report is wherever you get the strongest support for business issues.”

—Ursula Cottone, CDO, Key Bank

“CDO reporting to CEO, president or COO makes the most sense. The focus is driving business value.”

—Mark Ramsey, Senior Vice President and CDO, Samsung Telecommunications America

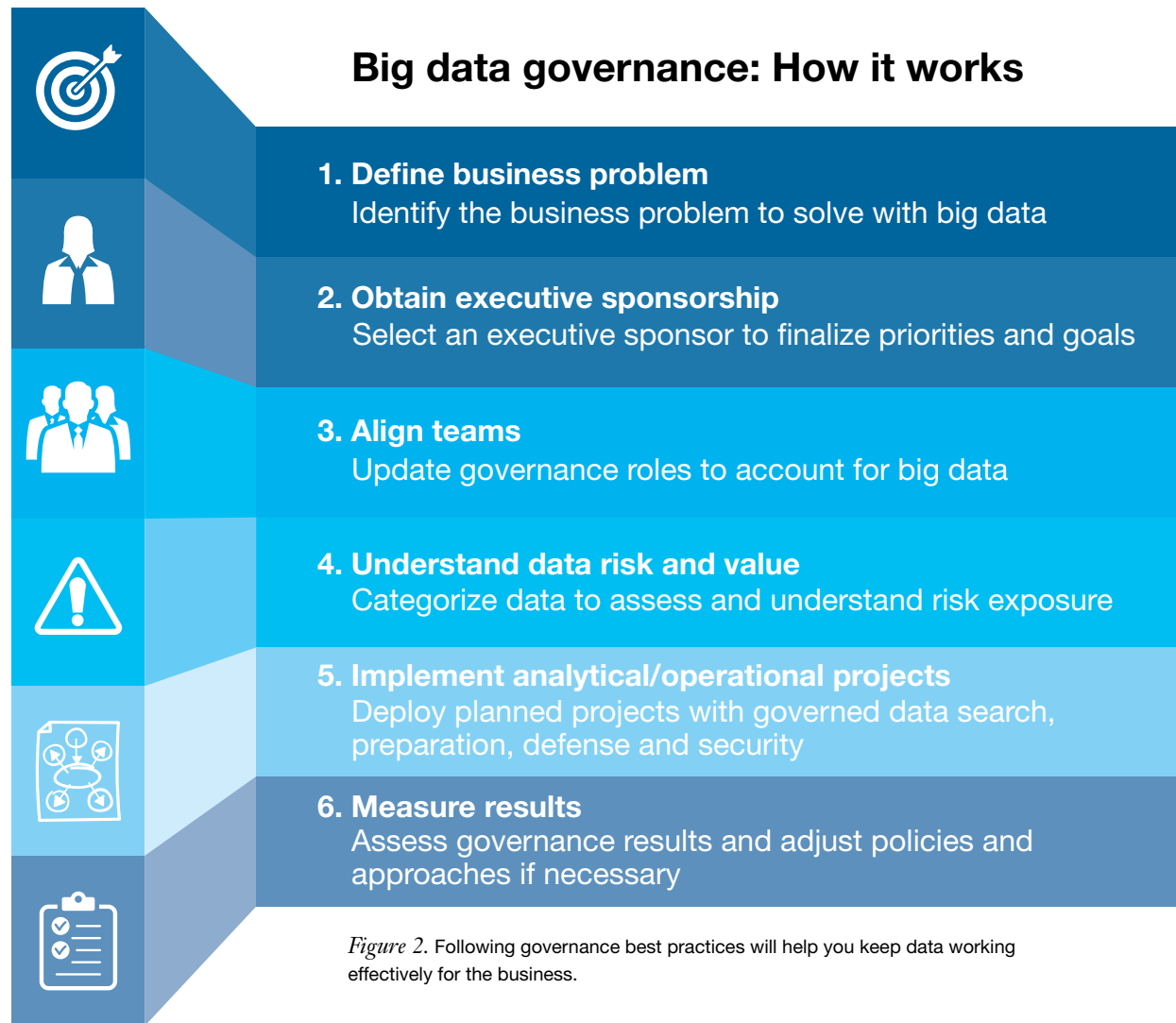
“Fundamentally, I believe the CDO should be on the business side of the house, within a division or unit that has a holistic, strategic view across the organization.”

—Micheline Casey, CDO, US Federal Reserve Board

Data strategy: Create a plan with information governance as a central theme

CDOs in all industries share one priority during the first 90 days on the job: the creation of an enterprise-wide data strategy. Typically, strategies cover issues such as:

- **Data ownership:** Who is responsible and accountable for each type of data? Is there an overall owner? What level of transparency and sharing is required within the organization and beyond?
- **Data definitions:** How do individuals across multiple divisions, departments and locations achieve and maintain a common understanding of the business terms used in reports and analysis?
- **Data quality:** How is data quality measured, increased and maintained? Do all types of data have the same data quality requirements and associated processes?
- **Data integration:** How should data from diverse sources be integrated into combined views, whether physical or virtual?
- **Data lifecycle management:** How long must different types of data be kept? At what age should data be eliminated? Which industry, government or legal compliance bodies define lifecycle requirements?
- **Data protection:** How must data be secured against internal and external attacks? Where in the organization is the sensitive data that requires special protection? Are there any external bodies that set compliance rules related to data protection?
- **Data analytics:** How is the best available data provided to systems and people for analysis? Who is entitled to request and receive analytics results?



Mapping out an information governance plan

Information governance is one of the key responsibilities associated with the CDO role. While your organization may already employ some form of information governance, individual governance-related activities often exist within specific, siloed data types or projects, with no enterprise-wide strategy in place. It is your job as CDO to create one.

Fortunately, there are well-documented best practices to take into consideration as you develop your own plan (see Figure 2).

According to respondents in a 2013 Data Blueprint survey,³ data governance gets top billing as both a capability provided by the CDO and the primary function reporting to the CDO.

“What kind of organization does the CDO have reporting into him/her?”

75% - Data governance

50% - Information architecture

20% - Data acquisition and BI

12% - Compliance

The governance strategy should include:

- **People:** As CDO, you will determine the organizational structure required to manage information governance. Depending on the size of your enterprise, it can include executive sponsors across multiple functions, an information governance council (headed by the CDO) and data stewards, who may remain in their respective functional departments but have a dotted-line relationship to the CDO.
- **Processes:** You will need to determine how information governance functions, define roles and responsibilities, and decide how results are measured and feedback is cycled back into the process.

- **Technology:** Because your organization may not be prepared to implement a complete program all at once, you should define which technical capabilities are necessary to support your information governance strategy and what the priorities will be. Some components are probably already in place for specific projects. Are those capabilities part of an extensible platform? Can and should you build out new capabilities on the existing base?

Capabilities to be considered and prioritized in alignment with your business strategies include:

- **Metadata management** for clarifying the source and history of data elements
- **A catalog of terms** shared by business and IT personnel across the enterprise
- **Data quality management** for increasing, monitoring and maintaining data quality over time across multiple projects
- **Master data management** for creating and maintaining a 360-degree view of critical information about customers, products or other “master” entities

- **Data lifecycle management**, including intelligent archiving capabilities that maintain data in its original context when it is moved to less-costly storage
- **Data protection capabilities** such as database access monitoring, data masking, data redaction and encryption

Selection of specific tools may be led by your IT department, but as CDO, you must influence the decision-making process to ensure that the capabilities you need are deployed on a rich and extensible platform.

You should also maintain visibility into data-related projects across multiple departments and divisions, so you can identify synergies and reduce redundant effort. You may be able to work with the CIO to identify opportunities for simplifying governance tooling and increasing efficiencies by introducing common approaches across the enterprise.

Project prioritization: Focus on early wins

CDOs report that their early days on the job are filled with action as a change agent—networking with individuals and teams across the organization to help them understand the role of the CDO and how it contributes to enterprise success.

The next phase comes as the organization becomes more receptive to new ways of thinking about and leveraging information. As ideas—and requests for data projects—start to flow, your subsequent challenge will be to identify which ones you will tackle right away.

In addition to prioritization criteria such as alignment with business strategies, cost/benefit analysis, increased efficiency and risk reduction, experienced CDOs point out that a top consideration should be the chance for early success in a high-value area. A quick win that brings visible benefits to influential individuals or teams can go a long way toward turning colleagues into champions and building the support foundation needed to enable larger projects, bigger budgets and more staff.

For example, one executive responsible for customer data at a US-based global organization reports that years of hard work integrating systems and creating master views of client information across a complex organization suddenly won admirers when a few key, previously unavailable data items became accessible to enthusiastic users who could immediately utilize the data in new ways. The effort to make that data accessible may not have seemed particularly important in the grand scheme, but it became a crucial pivot point for acceptance of the larger initiative.

Keep the creativity flowing

As you choose your priorities, remember to devote time to the creative side of your role. Look for fresh data sources and innovative ways to combine and leverage existing data for competitive advantage. Thomas Redman suggests that you pay special attention to your organization's own unique data rather than data from third-party sources.⁴ A competitive edge that is based on proprietary data may be more sustainable than one based on publicly available data.

Metrics: Measure something that matters

Once you have prioritized your projects and identified those with potential for short-term wins, be sure to decide which metrics you will use to track your progress. If you quantify results and communicate them effectively to key audiences, you may garner additional support for your position and future projects. For example, a project that demonstrates a 10 percent increase in cross-sell success or a 15 percent cost reduction can help you win allies for your next proposal.

If data analysts are not part of your own team, encourage the support of their current management by targeting a data governance project that helps them conduct faster analysis. A 2014 study showed that organizations spent so much time finding the right data and defending their work that only 27 percent of their time was spent on their core responsibility for data analysis.⁵ If you, as CDO, can improve those statistics, you may be able to win the support of your analysts' management.

Conclusion

Becoming a CDO presents many challenges: aligning with business goals, building a data strategy and a supporting team, and choosing the priority projects that will help you succeed quickly and gain backing for broader initiatives.

With a shared vision of the possibilities inherent in enterprise information, expertise gained across thousands of client engagements and the technology to enable your achievements, IBM is prepared to support you as you tackle those challenges.

As a critical element of IBM Watson™ Foundations, the IBM big data and analytics platform, **IBM® InfoSphere® Information Integration and Governance (IIG)** tools provide market-leading capabilities to handle the challenges of big data. InfoSphere IIG delivers optimal scalability and performance for massive data volumes, agile and right-sized integration and governance for the increasing velocity of data, and support and protection for a wide variety of data types and big data systems. It helps make big data and analytics projects successful by giving business users the confidence to act on insight.

InfoSphere capabilities include:

Metadata, business glossary and policy management: Define and share metadata, business terminology and governance policies with IBM InfoSphere Information Governance Catalog.

Data integration: Handle all integration requirements, including batch data transformation and movement (IBM InfoSphere Information Server), real-time replication (IBM InfoSphere Data Replication) and data federation (IBM InfoSphere Federation Server).

Data quality: Parse, standardize, validate and match enterprise data with IBM InfoSphere Information Server for Data Quality.

Master data management (MDM): Act on a trusted view of your customers, products, suppliers, locations and accounts with IBM InfoSphere MDM.

Data lifecycle management: Manage the data lifecycle from test data creation through retirement and archiving with IBM InfoSphere Optim™ solutions.

Data security and privacy: Continuously monitor data access, protect repositories from data breaches and support compliance with IBM InfoSphere Guardium®. Help ensure that sensitive data is masked and protected with InfoSphere Optim solutions.



Resources

Whether you're already serving as a CDO, just stepping into the role or contemplating it as a career move, IBM has plenty of resources available on the growing importance of the CDO in the era of big data. Check out these resources or contact your IBM representative to learn more.

- [IBM Institute for Business Value study of the Chief Data Officer \(June 2014\)](#)
- [CDO infographic](#)
- [IBM Institute for Business Value Study: "Analytics: A Blueprint for Value"](#)
- [IBM Data Magazine: Meet the New Boss](#)
- [IBM Data Magazine: The Orchestrators](#)
- [Video: Chief data officer on innovating with big data and analytics](#)
- [Blog: Where do you turn for innovation?](#)
- [Video interview: Manage Your Data Assets for Innovation and Growth](#)



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¹ Logan, Debra. "By 2015, 25 Percent of Large Global Organizations Will Have Appointed Chief Data Officers." Gartner Update. January 30, 2014. www.gartner.com/newsroom/id/2659215

² "Chief data officer on innovating with big data and analytics." The Big Data and Analytics Hub. April 1, 2014. www.ibmbigdatahub.com/video/chief-data-officer-innovating-big-data-and-analytics

³ Aiken, Peter. "The Precarious State of the CDO." Data Blueprint. July 16, 2013. www.datablueprint.com/white-paper-the-precious-state-of-the-cdo

⁴ Redman, Thomas C. "Invest in Proprietary Data for Competitive Advantage." Harvard Business Review Blog Network. March 28, 2013. blogs.hbr.org/2013/03/invest-in-proprietary-data-for

⁵ "Governance Moves Big Data from Hype to Confidence." Unisphere Research study, sponsored by IBM. June 2014.