



The evolving role of the chief data officer in financial services:

From marshal and steward to
business strategist

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Over the past few years, financial institutions (FIs) have increasingly come to recognize that their data assets represent highly strategic sources of insight and leverage for a wide array of business functions, including risk management, regulatory compliance, sales and marketing, product development, and operational performance, among others. To realize this embedded value, however, organizations need to proactively and effectively manage their information assets at the enterprise level. In response, they have been appointing chief data officers (CDOs) to provide required strategic guidance and execution support, and also to assure access to and the quality of critical data. In addition, CDOs will undoubtedly play a strategic role in helping FIs adapt and transform their data ecosystems in response to rapid technology innovation in digital, mobile payments, Big Data management, advanced analytics, blockchain, robotics, cognitive learning, and automation. This report explores the evolving role of CDOs in the global FSI—from senior data marshal and steward to strategic business-enablement leader and innovator.

Wanted: Executives to protect and create value from data assets

One might argue that the role of CDO really came into vogue in the aftermath of the 2008 global financial crisis. The need was clear: Too little attention had been paid by most institutions to their data, which, some believe, if managed more effectively, might have provided an advance warning of the forthcoming meltdown—or, at a minimum, a more resilient response. A senior, C-level executive was needed to marshal and govern critical data assets—someone with a balanced understanding of the institution's

core businesses, products, customers, and supporting data infrastructure's capabilities and needs.





More recently, the CDO's job description—for the most progressive organizations—has evolved from its initial focus on data asset gathering, governance, and stewardship to proactive business enablement, with many institutions even marrying the CDO and chief analytics officer (CAO) roles into a single senior-level position. This is especially true for organizations that aggressively seek to leverage data science and advanced analytical modelling to generate new insights into the markets and customers they serve, the products they build and price, the risks they assume or pass on, and the means by which they operate the business to benefit stakeholders. Organizations today need senior leaders to not only manage and govern the data, but also to leverage the data using emerging technologies that can generate actionable analytical insights and tangible business benefits.

For most FIs, a huge amount of work in the data space remains to be done—especially in the face of new and emerging technology innovations, and regulatory changes around data reporting and data privacy, for which traditional management strategies and approaches may be less than well-suited. In view of such external forces and dimensions, the role of the CDO in financial services should continue to expand in both influence and value. This is particularly important as corporate boards and executive teams increasingly appreciate the need for—and empower and fund—transformation of their businesses into information-centric, analytics-driven, and agile data consumers.

CIO, CDO, CAO...what's the difference today?

A cursory examination of a typical FI organizational chart reveals the existence of numerous, data-centric or sensitive C-level positions as shown in Figure 1. So, it's important to know how these roles differ from the CDO position.

Figure 1—Overview of data-driven roles
What's the difference

			
Chief Information Officer	Chief Data Officer	Chief Digital Officer	Chief Analytics Officer
Technologist	Scientist	Innovator	Strategist
<p>What they do:</p> <ul style="list-style-type: none"> • Focus on building an inter-connected technology ecosystem by assessing and mapping the linkages between different arms of the business • Assess and invest in enterprise-wide platforms and licences, such as visualization tools • Control complex multi-sourced vendor environments, mitigate SLA failures, outage risks and optimize services • Redefine IT by working closely with other CxOs to embed scalable technology into all approaches 	<p>What they do:</p> <ul style="list-style-type: none"> • Lead the data and analytics agenda of an organization • Establish and deliver technologies, tools, approaches and methodologies to unlock the value in enterprise data assets of an organization • Manage data as a strategic asset and operationalize data governance, data quality and other controls to sustain the integrity of the data of an organization • Serve as trusted partner to key business executives focused on the customer, enterprise risk management, regulatory compliance and finance • Fosters innovation leveraging emerging Big Data and analytics technologies 	<p>What they do:</p> <ul style="list-style-type: none"> • Deliver in-depth insights into the end-to-end journeys of customers, supply chains, employees and how they can be improved using digital technology • Have a strong understanding of how to migrate traditional processes and systems to cater for mobility, social media, sensors and so forth • Have a natural leaning toward innovation and development, including the ability to teach and inspire other stakeholders in the organization • Able to take the organization on a digital transformative journey both internally and externally 	<p>What they do:</p> <ul style="list-style-type: none"> • Assess the most appropriate operating model and data monetization approach for the business • Define and drive the enterprise-wide analytics vision across strategy, people, process, data and technology • Be heavily involved in the business transformation, change and education needed to embed analytics into the culture to become insight-driven • Remain at the cutting edge of data developments and risks and drive future insight programs for the organization

CDO holds the keys to unlock value

Data—of all shapes, formats and types—has quickly become the FI’s most strategic asset; one that continues to grow exponentially in volume, variety and complexity. Just like other crucial corporate holdings, data requires appropriate levels of stewardship and governance to ensure that its underlying value can be understood and realized. The CDO is the executive who holds the keys to help an organization both protect and unlock the full value of its data assets.

The CDO builds and oversees a data strategy and set of competencies that work in concert to enable information sharing, collaboration, compliance and security, and efficient resource management to support such critical stakeholder objectives as:

- Growing and sustaining revenue
- Selling the right solution to the right customer and maximizing profits
- Enhancing operational efficiency and reducing associated costs
- Enhancing risk management
- Reducing fraud
- Improving regulatory compliance
- Enabling new business strategies and innovation.

The CDO takes an enterprise view of data, building bridges and knocking down walls as needed to enable data to flow expediently across departments and functions for better consumption and leverage. In addition, more than ever the CDO is the ambassador for the vision, business value, and resulting benefits of effective data management. The importance of this communication responsibility cannot be understated. We have observed CDOs spending much of their time—especially in the early days—

regularly educating and updating the rest of the organization, beginning with the board of directors and fellow C-suite executives, and working down the chain of command.

Major influencers: Industry, market, and organizational maturity

Today, more than 25 percent of *Fortune 500* companies maintain a CDO position. Typically, these data leaders serve their organizations across one or more of four key dimensions, as identified in Figure 2—Catalyst, strategist, technologist and/or operator. That said, however, it should be acknowledged that multiple factors—including industry, market and organizational maturity—may strongly influence a given CDO’s specific responsibilities, reach, and impact.

Figure 2—The CDO typically has a focus across one to four key dimensions

Four faces of the CDO	Focus areas	
Catalyst	Seeks to instigate innovation through exploitation of data and analytics	<ul style="list-style-type: none"> • Innovation • Reengineering • Talent management • Change management • Stakeholder management
Strategist	Partners with the business to align business and data analytics strategies to maximize the value of data and analytics investments	<ul style="list-style-type: none"> • Strategy development • Demand management • Portfolio management • Regulatory planning • Risk management • Value management
Technologist	Assesses technologies and design data and technical architectures to increase business agility and manage complexity	<ul style="list-style-type: none"> • Architecture • Technology partners • Delivery management • Solution delivery • Technology governance • Security and controls
Operator	Defines, manages and governs data and technology policies/programs and operations to promote and control operational efficiency and effectiveness	<ul style="list-style-type: none"> • Data governance • Data quality • Operational performance • Shared services • Sourcing • Financial management

Industry influence

In general, within the global financial services industry (FSI), the banking and securities sectors are the most mature when it comes to instantiating and leveraging the CDO position. For example, in banking the CDO position was initially created, in large part, to address data governance and data quality challenges in response to ever-increasing business user complaints. The role gained further importance as industry regulatory mandates such as Basel II and then Basel III spelled out in greater detail specific levels of data management transparency that banks (and their CDOs) were compelled to deliver. In many banks today, the CDO's primary responsibilities remain focused on regulatory compliance and in operationalizing regulatory mandates, such as BCBS 239 (principles for effective risk data aggregation and risk reporting); for the larger players, however, there also is growing awareness of the position's potentially broader benefits as an enabler of business insights, strategies, and innovation.

On the insurance side of the equation, appointing CDOs has been a much more protracted exercise. Today, most of the largest P&C companies have a defined CDO or data leadership position in place, together with some form of a supporting data governance organization. Yet, while some P&C players are perhaps more mature in their messaging and capabilities, most still link the CDO role to an IT or operational agenda which, frankly, may limit its overall business value. L&H firms, on the other hand, are more slowly embracing the need for a CDO position, again typically as an adjunct IT leadership position.

For FIs interested in potential industry models for the CDO function outside of financial services, life sciences and health care (LSHC) is probably farthest along the maturity spectrum. Similar to financial services, the LSHC sector is highly regulated

and has considerable exposure and risk around data use (e.g., clinical trial data, patient data, product development data, etc.). Many LSHC players employ a CDO to mitigate such risks and, concurrently, reap regulatory compliance and direct business benefits. Similarly, a CDO in a consumer products company often collaborates with the CAO and chief marketing officer to maximize the use of data assets in generating insights to enhance customer retention, acquire new accounts and drive overall revenue growth.

Regardless of the individual corporate drivers, we see a common reliance on the CDO role across all industries to assure the integrity and readiness of information for internal business users, and enable the realization of critical, externally focused business objectives.

Market influence

Geographic market considerations also have impacted both the adoption and evolution of the CDO position, often independent of industry considerations. For example:

- In the United States, the CDO role originated to help inventory and improve the quality and availability of data assets. Over the past few years, however, US-based FIs—especially the largest banks and securities firms—have shifted the CDO's focus toward enabling business strategy by leveraging Big Data to drive actionable, analytical insight-generation.
- In Europe, the earliest banking CDOs were chartered with organizing and overseeing data elements needed to meet Basel II/III and other regulatory compliance mandates. Insurance companies, meanwhile, appointed “heads of” data compliance to manage Solvency II reporting demands. But now that executives' understanding is more mature, both banking and insurance organizations are moving toward a more fully fledged

CDO role that combines data management and architecture, governance, and analytics, with a number of large players already having significant programs in place.

- Alternatively, in the Canadian market, adoption of the CDO position first evolved as a direct response to the demands of that country's FSI regulator for two prominent Canadian banks that had significant US operations to each establish a CDO function. These banks now field well developed CDO-led organizations, which they continue to "fine tune" to enable benefit realization across their respective enterprises.
- In Australia, on the other hand, the FSI regulator's ongoing focus on data risk management across the sector has driven the CDO role to gain more prominence in larger institutions. Although risk and regulation priorities are a key component of the CDO mandate, many CDOs in the Australian market are also now driving a value-creation agenda, with increasing focus on the use of data as part of a wider business and technology transformation.
- Finally, in Latin America, the CDO role is in the earliest stages of maturity—a concept being explored by many organizations across the banking and insurance sectors, but thus far only implemented by a few larger institutions in more mature financial markets such as Brazil and Colombia. For those institutions that have taken action, most have positioned the role within the IT department.

One additional observation worth mentioning: financial organizations—particularly banks—that maintain a global footprint appear to have a much more mature view of the CDO role than those operating in single geographic markets. Given their size, complexity, local versus enterprise remits, and other special requirements and needs, the former often

create multi-dimensional and multi-tiered CDO infrastructures that include functional, regional, and shared service-focused data leadership roles under a single global data leader. For example, select global banks have already established CDO organizational structures that consist of a group level CDO function, individual regional CDO functions, separate line of business CDO functions and CDO roles to support key global corporate functions such as HR, finance, and risk.

Organization influence

Organizational maturity also has been shown to impact the CDO's evolutionary journey—different types of financial services firms simply move at different speeds. If, for example, an organization has just appointed a CDO, the initial focus of the role is likely to be securing adequate departmental resources (budget and employees) and establishing a basic data management organization supported by a set of foundational processes and policies. These are essential stepping stones to enable the entire enterprise to leverage data assets and drive business transformation. The new CDO also should build a business case for value-adding data services that are enabled by the new foundational processes and policies. In addition, the CDO can educate senior leadership about the FI's current capabilities and the strategic potential of analytics—in short; sell the vision and the business case to "make it happen."

Overseeing data-related regulatory compliance typically is the next rung up on the CDO evolutionary ladder. To fulfil its regulatory reporting duties, a FI wants and needs a CDO to help the organization understand what data it has and what condition it is in, how to manage it in a consistent manner to remediate and assure ongoing reliability, and how to rationalize multiple copies of data to enable one version of the truth. And, while most CDOs retain significant compliance-driven responsibilities, increasing numbers of

FIs are looking beyond compliance for opportunities to exploit the value of data for competitive advantage. The desire of these entities (especially in insurance and retail banking) to make greater use of diverse types of data (i.e., structured, unstructured, internal, external, etc.) to generate business value is indicative of their sufficient maturity to recognize that data is a strategic asset and that the CDO must be appropriately empowered and supported to serve as its designated “parent.” Considering, for example, the myriad places where customer data alone touches the enterprise, the need to institutionalize the management of that data is overwhelmingly clear.

Making the leap from data steward to business strategist

To elevate the CDO’s role from data steward to business strategist requires that both the FI and CDO adopt an entrepreneurial, disruptive and innovation mind-set that will challenge and extend existing business models, and identify and enable new ones. What factors might drive this transformation and make the CDO an organization’s most critical change agent or resource?

Some key factors include:

- **Proliferation of new market entrants**—How can FIs counter or partner with non-traditional market disruptors—such as financial technology (FinTech) companies or mass-market retail businesses that sell credit cards, insurance and other financial products—who threaten to disintermediate traditional financial services providers?
- **Emergence of lower-cost, digital-only competitors**—How can enhanced data capabilities help FIs improve the customer experience, increase loyalty and retention, and reduce the overall cost to serve?
- **Advent of technology and tool innovations** (e.g., Big Data, sensor-based and robotic solutions, real-time

engines)—How can the CDO enable a strategy that simplifies, integrates and enhances an organization’s ability to leverage its data assets by marrying technology innovation with existing data management platforms and capabilities (e.g., warehouses, business intelligence solutions, campaign management tools) that have evolved over many years and with significant investment?

- **Development of intelligent, machine-based analytics solutions** (e.g., cognitive) **that can execute and interpret data-intensive processes to generate new insights**—What is the role of the CDO in responding to and/or leveraging these innovations and trends?
- **New sources of data**—How can the CDO extract synergies from new sources of data (internal and external, structured and unstructured) and supporting technologies to derive business insights that were not previously possible?

As market drivers proliferate and data increases in complexity, volume, and strategic importance, the CDO’s role is expected to evolve into that of a transformational leader and innovator—the executive who can guide an organization along a journey that enables it to be truly information-centric, analytics-driven and agile in leveraging all available information assets to make better business decisions, better manage risk and be more responsive to the customers and markets it serves. However, the timing has to be right. There needs to be a catalyst to create the spark—perhaps a burning issue or opportunity supported by an innovative and insightful board-level executive, who can envision the CDO’s ultimate value and is willing to aggressively advocate for the role and create momentum around both essential and strategic data management.

Finding the “right” CDO

The mature CDO-led organization is one that aggressively represents and enables the data management and insight-generation needs of all critical business functions—including finance, risk, marketing, sales, compliance, product development, human resources, shared services and individual lines of business. To do so, it is critical that the CDO “has a seat at the table” together with other senior executives, who lead the businesses and functions that the CDO must serve. However, to sit at that table as an equal, the CDO must possess certain requisite business, technology and management skills and experience that often are not found in one individual. This can present a serious challenge for both the organization and those seeking to serve in this increasingly essential role (see sidebar).

The CDO CV

Effective CDO candidates in the FSI present impressive curricula vitae (CVs) that showcase their ability to combine technology, business, and management acumen to deliver tangible enterprise value. Examples of sought-after skills and qualifications may include:

- **Domain experience.** Institutionalized knowledge of the FSI (or a specific sub-sector), including a thorough understanding of critical operations, customer interactions, and other external and internal stakeholder expectations and needs.
- **IT background.** Demonstrated information management (IM) and quantitative skills—including working knowledge of IT infrastructure, various technologies/platforms, and aligned vendor solutions and the capabilities they bring—as well as experience leading major IM programs in key business areas.
- **Quantitative mind set.** Ability to develop a business case and performance metrics to secure program funding/resources and to measure business value.
- **Business perspective.** Expertise at the intersection of risk, financial, and customer domains to drive business value, and awareness of the FSI regulatory environment to help enable compliance and risk management through effective use of data.
- **Program leadership.** An understanding of organizational design and the ability to shape and drive large-scale, cross-functional, multi-level programs around people, technology, processes, and tools—balancing long-term strategy with quick wins.
- **Communication skills.** Ability to sell the agenda and educate cross-functional stakeholders about the embedded value to the enterprise of available data, serving as a change agent for the organization to overcome cultural resistance often fuelled by a “not-invented-here” mind-set.

In addition, CDO candidates should be:

- **Enthusiastic.** Executive leadership commitment to champion data as a strategic business asset to drive significant new revenue opportunities across the enterprise.
- **Visionary.** Strategic foresight to identify new business models, capture opportunities arising from technology and data advancements, deflect potential problems, and develop innovative, forward-facing capabilities that provide long-term competitive advantages.
- **Disruptive.** Confidence to bring up new ideas and uncomfortable subjects, and to counter “not-invented-here” or “not worth the effort” attitudes to drive transformative change.
- **Collaborative.** Willingness to serve as a “bridge builder” and facilitator to traverse divisional siloes, create synergies between business and technology functions, and align shared efforts to enable measurable business outcomes.
- **Agile.** Capacity to deliver value to the business quickly and often by applying a pragmatic approach to develop governance and foundational data capabilities and avoid elongated initiatives to build “frameworks” that lose connectivity with the front line of the business.

Whether a CDO should be recruited internally or hired from the outside may depend, in large part, on a FI's structure and underlying culture. Building the CDO function and team around an internal hire can sidestep a number of potential stumbling blocks: Presumably, this CDO candidate will already know the company, its industry and key objectives, as well as its products, customers, business and operational processes, critical data needs, and more. However, most financial services organizations—especially those that are less mature—rarely employ a single professional, who actually possesses the end-to-end CDO skill set. This said, if there is an internal candidate with skills close to CDO level, the company may appoint this individual to the role and use external resources to provide collateral support for any skill gaps that may exist.

Conversely, there are certainly instances in which it may be useful to bring in an external hire, who can offer deep skills and experience from financial services or another industry, frank advice, and a fresh perspective without the political “baggage” of the incumbent candidate. While aligned industry experience is certainly valuable, the right data executive with the appropriate skills can often move across industries and be very successful, particularly when surrounded by a team of industry-savvy professionals who understand the value that the executive may bring from another sector or industry. While having deep domain knowledge is certainly an advantage for the role, a lack of such experience

may, in some instances, be offset by other capabilities—including a successful track record implementing similar programs outside the FSI, deep technical knowledge, advanced leadership abilities, and strong communication skills, as well as unbridled enthusiasm.

And even if one or more candidates appear to be a fit, certain internal obstacles or misperceptions may slow an organization's efforts to define, establish, and empower the CDO's role. For example, some board members or C-level executives may not understand the role's business value beyond regulatory compliance. Certain peer executives may view a new C-suite position as a threat to their departmental processes and resources (both financial and personnel). And, since data often resides in departmental silos, they may perceive the designation of one individual to manage it across the enterprise to be an unnecessary interference—despite the potential benefits that such management might offer. Adding complexity, the traditional bank operating model holds that a senior executive should have many direct reports. It may be difficult to justify a CDO's senior position and sphere of influence when the function doesn't necessarily require a large staff like other C-level posts. Finally, business cycles that bring shifting priorities and executive emphasis on short-term, cost-savings, and revenue-generation can divert executive attention and financial support from the long-term competitive advantages that an effective CDO can deliver.

Three dimensions of daily challenges

From board members to department heads to external financial analysts, FI stakeholders typically underestimate the massive effort and lengthy timeline required to whip their organization's data assets into shape. Many stakeholders also assume that once on board, the CDO (with limited staff assistance) will single-handedly fix the problem when, in reality, the CDO's first job is to define a path forward and convince others to help get the work done.

If the CDO lacks adequate budget, staff or authority, he or she may need to convince individual business units, back-office functions and IT departments to provide the extra resources needed to 1) locate, define, catalogue, govern and monitor data assets across business lines, information systems and geographies; and 2) audit existing processes to understand their critical data components, and fine tune or rewrite them for a more data-driven business approach. As part of this undertaking, CDOs face daily challenges across three discrete, yet interrelated dimensions—business, technology and people. Let's take a closer look at each.

Representative business challenges

- Balancing enterprise and business unit goals for data collection and use;
- Complying with increasingly intrusive and demanding regulations around data availability and quality, including Solvency II, BCBS 239 risk data aggregation, and certain local regulations such as those governing packaged retail investment products (PRIIPS);
- Establishing meaningful metrics by which data effectiveness and value that is (or could be) delivered as a result of more effective enterprise data management;

- Identifying potential partners and/or acquisitions needed to enable organizational performance in the face of business model and technology changes or externally-driven demands; and
- Producing sufficiently positive incremental results to maintain needed stakeholder support and funding.

Representative technology challenges

- Managing vast and increasing data volumes and complexities;
- Keeping pace with the accelerated rate of IT innovation while also dealing with legacy system complexity and shortcomings;
- Aligning with the CIO's and/or CTO's agendas to ensure a shared vision and priority for holistic development of a data-related technology roadmap; and
- Leveraging emerging technologies such as Big Data (digital, blockchain, robotics, cognitive analytics, etc.), to derive business benefit from data and analytics.

Representative people challenges

- Educating stakeholders, especially board members and other C-level executives, about the need for and value of the CDO beyond regulatory compliance;
- Building trusted relationships and overcoming conflict, especially when other departments may not want to relinquish control of their data; and
- Hiring and developing individuals with the right balance of information management and business skills to drive the CDO office agenda.

All of these challenges and others increase exponentially for the CDO of a global institution, who must additionally navigate the complexities of local data security and privacy laws, manage overseas Centers of Excellence (COEs) and global delivery models, rationalize redundant technologies, capabilities and data management and security initiatives, and orchestrate the performance of resources, who often present significant cross-cultural differences. These are the kinds of drivers that have led to group CDOs to appoint CDOs in local geographies to ensure that these complexities are effectively understood and managed region by region.

Better together: Talented CDO, empowering organization

Combining a talented, visionary CDO with a financial institution leadership team that understands the role's potential value and empowers it appropriately, can help bring out the best in both parties. How can an effective CDO help take an organization from good to great?

1. Improve technology and data management. An empowered CDO holds accountability for an FI's strategic information management roadmap. In this capacity, the CDO helps steer capability investments that can produce tangible financial benefits for the organization when they enable the elimination of data siloes and redundancies, accelerate the identification and remediation of data quality impairments, and lower the overall cost of manual "data wrangling."

2. Reduce enterprise risk. The CDO function enables holistic governance by bringing all data-related activity under one umbrella and putting in place operational controls such as data governance and data stewardship, operational data quality management, master data management, and metadata management. This concurrently serves to

improve regulatory compliance through enhanced data quality, greater consistency and traceability of data practices, and reduced internal monitoring and audit costs.

3. Add business value. The CDO drives efficiencies and improves data use to enhance operations and add value across the enterprise. The CDO monetizes and democratizes data by making it available to the business on a self-service basis, establishing the foundation for a cultural shift to an insights driven or advantaged organization. This, in turn, enables the FI to participate in new business models and partnerships within or across the FSI, improves customer service and sales across all contact channels by fulfilling information needs around customer behavior and retention to deliver more personalized service and offers, and increases visibility into new business opportunities.

So, how can an organization increase its CDO's effectiveness?

1. Make the CDO a true C-level executive. While the CDO role may carry a C-level title, it frequently sits too low in the executive hierarchy to be truly impactful. Some FIs bury the CDO multiple levels down in the IT department, reporting down from the chief information officer (CIO) or chief technology officer (CTO). Others place the CDO on the business side of the house, under the chief financial officer (CFO), chief risk officer (CRO) or chief marketing officer (CMO) because data is understood to be "owned" by the business, not IT.

While industry-leading practices may favor positioning the CDO as a direct report of the chief operations officer (COO) to assure the role's neutrality between business and IT, there is, in fact, no single right answer because the CDO's positioning may depend on the organization's size, complexity, maturity, and other internal or external

considerations. In reality, the CDO should sit where the position can most positively influence such concerns as availability, completeness, quality, and reliability for data consumers enterprise-wide. As the role continues to evolve, CDOs are increasingly reporting to the CEO, CFO or COO function, sending the message that data is a critical business priority, not just an IT concern.

2. Send a top-down message that effective, enterprise-wide data management is a strategic imperative. Frequent and supportive executive communications confirm to the organization at large that the CDO has the responsibility and necessary charter to operate, innovate and help set the direction of the business to unlock the embedded value of its information assets.

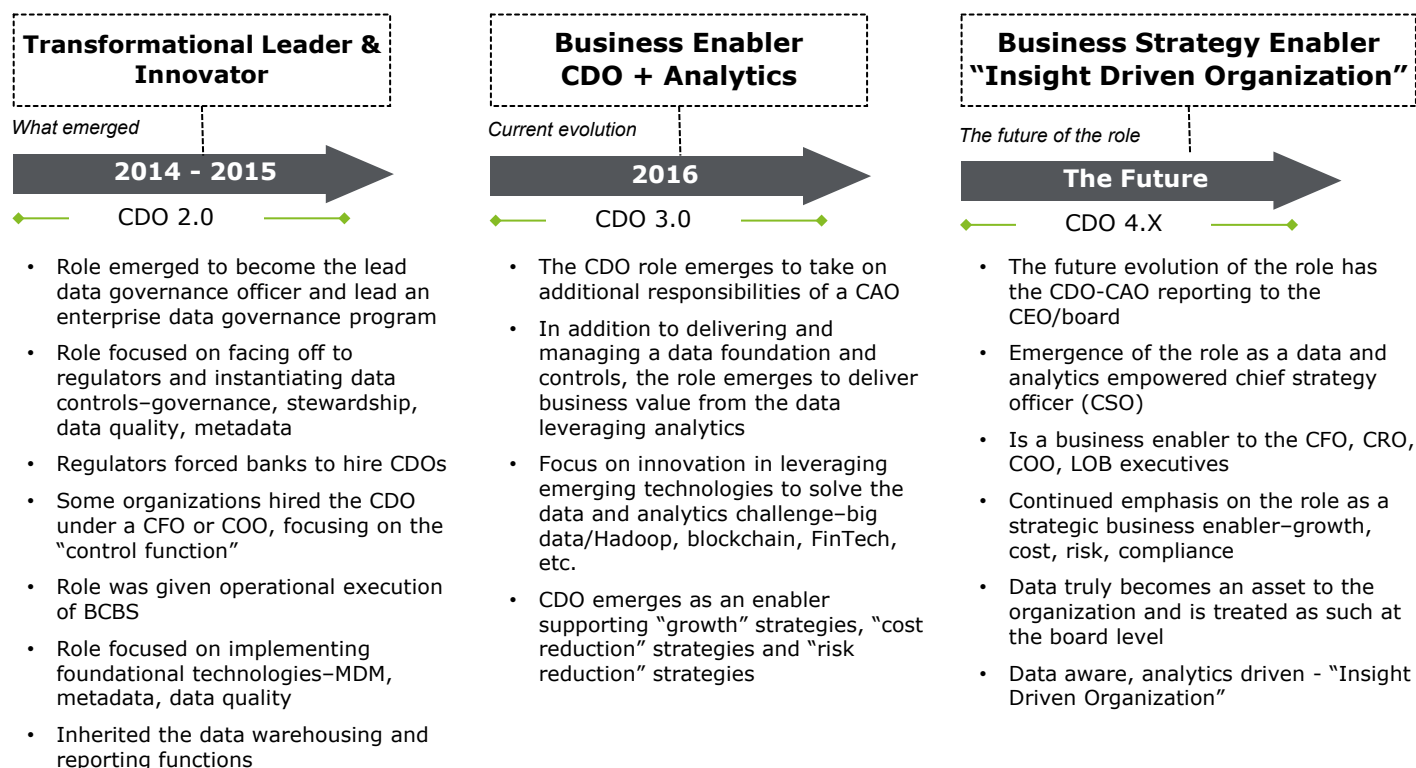
3. Defuse territorial issues before they start. Fostering a positive relationship between the CDO and the CIO functions is imperative. Since FI business functions traditionally haven't had the resources or leader to engage in data-related agenda-setting, technologists have grown to own data dictionaries, analytics, etc. The CDO is increasingly assuming these responsibilities and this can create friction. With direction from the CEO and board, the two positions can work collaboratively to mine business value from the organization's technology and data resources.

The CDO of the future

Organized mastery of data, analytics and the digital realm is quickly becoming an essential ingredient for FSI success. New data forms such as blockchain, new innovations in insight-generation such as cognitive analytics, and continuing advancements in Big Data management technologies and techniques all serve to elevate the importance of the CDO role and the demands of the job as a strategic business-enablement leader. With the CDO's further evolution (Figure 3) and increased responsibility should come more funding, larger staffs, increased empowerment, and—along with other C-suite occupants—heightened board attention and expectations.



Figure 3—The role of the CDO continues to evolve



Looking further into the future, we may see the financial services CDO's role expand to serve even more strategic needs of the organization, including advanced analytics-based insight creation. To that end, once the CDO has enabled the institution to establish a reliable data infrastructure supported by effective data governance standards, the CDO should be able to move on vigorously to the business of exploiting and monetizing data for competitive advantage as a combined chief data and analytics officer (CDAO)—a position that is already being formalized, particularly by many insurance organizations around the world and some banking institutions.

While we can speculate at length about the changing dimensions of the role over time, one thing appears certain—the financial services CDO is and will continue to be a critical and challenging role as businesses increasingly come to realize that data is their underlying DNA and continues to offer untapped opportunities to advance stakeholder returns.

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