



The Essential Role of Chief Data Officers and Analytic Leaders for Digital Transformation

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This paper will address the above questions, incorporating our perspective as experienced data and analytic practitioners, with viewpoints from top influencers and industry data leaders.

Data as the Accelerant to Digital Transformation

The pressure on companies to transform is real, for our customers and ourselves at SAP. We tell our customers that a digital transformation journey requires a clear understanding of your desired business outcomes, reimagined processes to map technologies, products, and data, without disruption to the business. It is advice that we are using as well.

To compete in the digital economy, enterprise-wide business models must be reimagined, supported by new intelligent processes and innovative technologies across the customer lifecycle. Data is at the core, the lifeblood to power operational and analytical processes to accelerate decision-making and business-driven outcomes. Most organizations understand the importance of data but haven't matured to the point where **enterprise data is managed as a strategic capability** and included in corporate strategic priorities.

Per Gartner, "Leading organizations in every industry are wielding data and analytics as competitive weapons. Today, fewer than 50% of documented corporate strategies mention data and analytics as fundamental components for delivering enterprise value."¹ This is concerning, but not surprising based on our experiences advising customers on standing up data organizations and data strategy. To be

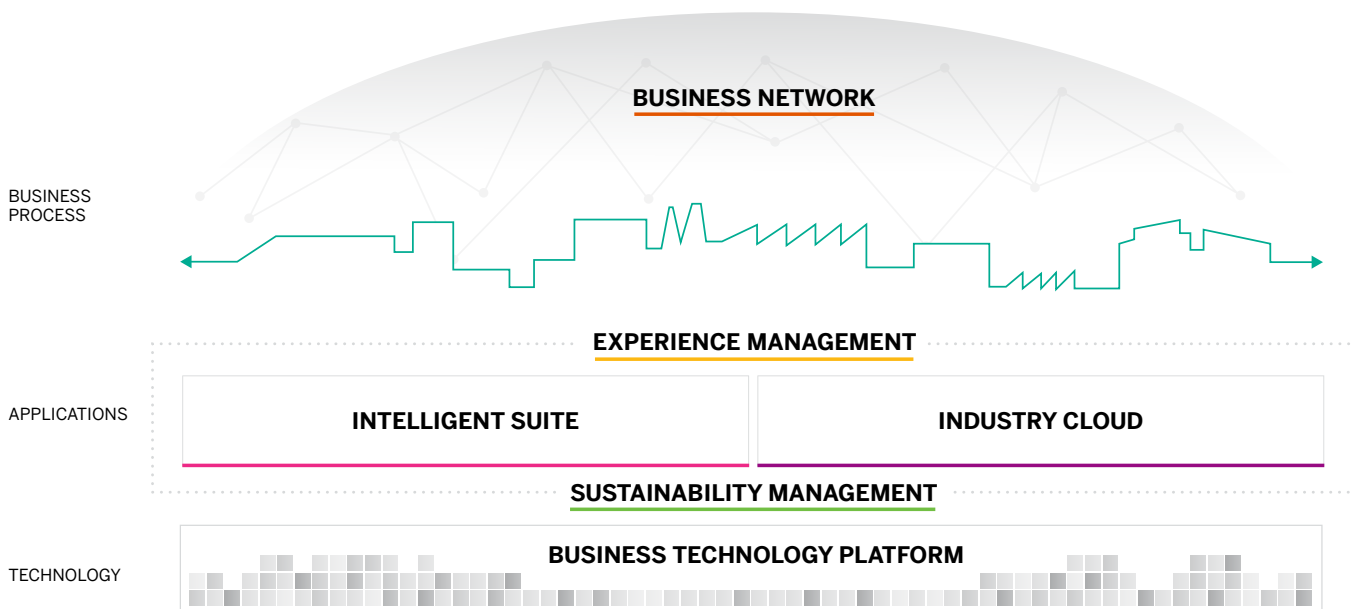
successful, an intelligent enterprise relies on real-time data and analytics to be embedded seamlessly into business processes such as source to pay, lead to cash, design to operate, and workforce management from hire to retire.

As business processes change including the analytics to derive value, there is undoubtedly a shift in how data needs to be managed and adjustments to policies that govern ethical use of personal data, data security, and legal permissions to name a few.

Establishing a strong data culture, where data is understood, validated, trusted, automated, and used to STEER decisions and business outcomes require an **active and collaborative partnership between the enterprise data and analytic organizations.**

"We experience the same pressure as other organizations: we need to keep up in this era of Digital Transformation."

Christian Klein, SAP Chief Operating Officer and Head of Intelligent Enterprise Group



Why do you Need a Chief Data Officer?

Investing in the role and function of the Chief Data Officer is a **strategic decision to manage data effectively for business growth, realizing efficiencies, and minimizing risk**. It is often a crisis like data privacy or an M&A merger gone wrong, that is the impetus to hire a CDO.

- Gartner predicts by 2020, 80% of large enterprises will have an office of the chief data officer fully implemented²
- Gartner also predicts that by the end of 2019, only half of those Chief Data Officers will be successful²

Gartner's prediction that 50% of CDO's will fail is quite daunting. With daily headlines on breaches of data privacy, data ethics, and GDPR violations, it's not a role for the faint of heart.

The impetus of digital transformation, requiring data agility and speed of decision-making has emphasized the need for CDOs to be strategic business leaders.

We believe that today's CDOs or Heads of Data Management need to be strategic change agents WHILE setting the data strategy that includes data quality standards, governance policies of ethics and privacy, and management of data through the lifecycle from acquisition through deletion processes. The four capabilities of a business-outcome driven data strategy are covered in the next section.

Early on CDOs were focused on data governance and compliance, today's data and analytics leaders are impactful change agents, enabling the organization to not only be more data-driven but better prepared in a rapidly changing, digital world.



Where Should a Chief Data Officer Focus First?

Many customers don't know where to begin. They are feeling the pain of having data in multiple locations, replicating and proliferating duplicates, multiple versions of "the truth," along with other data inconsistencies which challenge their ability to understand what the data means, then analyze and interpret insights for decision making. A reactive environment, playing data defense to keep the lights on, will ultimately fail as competitors invest in digital transformation and data as a strategic asset.

We view enterprise data management as a strategic capability for enterprise wide transformation. What does this mean? It requires defining a cohesive and **comprehensive data strategy** that delivers business and technical capabilities, tied to business goals.

Our methodology starts with mapping the desired business outcomes and working backward to identify the data activities used in customer value chain processes. Not all data is critical, shared, and strategic. This approach will identify the enterprise data that matters, and is scoped to a focused program, jointly run by business and IT, with centralized data resources and the authority to execute. It is essential that data is accurate, consistent, reliable, understood, governed, and trusted – **effectively, and proactively managed** to produce repeatable results.

A business-outcome driven data strategy consists of four key capabilities that depend on people, process, and technology.

- **Organization and Governance**
- **Data Lifecycle Processes**
- **Ongoing Data Maintenance**
- **Tools and Technology**

These are the must-haves to build a rock-solid data foundation governed by processes and aligned organizationally, to position the Chief Data Officer organization successfully.

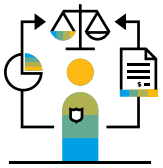


What Capabilities are in a Business-Outcome Driven Data Strategy?

Key to Success is Aligning Business Outcomes & Business Processes with E2E Technical Architecture

CAPABILITIES

1. ORGANIZATION & GOVERNANCE	2. DATA LIFECYCLE PROCESS	3. ONGOING DATA MAINTENANCE	4. TOOLS & TECHNOLOGY
<ul style="list-style-type: none"> • Scope • Strategy & Metrics • Standards • Accountable Owners • Executive Sponsors 	<ul style="list-style-type: none"> • Create, Update, Delete • Simple, Automated, Friendly • Following Standards 	<ul style="list-style-type: none"> • Always on, Proactive Data Quality • Low Cost Centers with SLAs • Automated Workflows 	<ul style="list-style-type: none"> • Tools for all Capabilities • E2E Data Architecture • Shared Technology Service

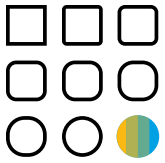


1ST CAPABILITY - ORGANIZATION & GOVERNANCE

Start with securing a business executive sponsor, a leader to visibly champion the data strategy, actively advocate and communicate the strategy to the broader organization. This is one of the most important first steps a Chief Data Officer should do. Typically, the executive sponsor for a Chief Data Officer is on the business side, it could be the CFO, or the COO, working in conjunction with the CIO.

The Chief Data Officer needs to help the executive sponsor understand their role. The executive sponsor will influence, by enforcing accountability of shared data responsibilities and model the desired data mindset shift to rely on data insights for decision making. Lastly, the executive sponsor will help arbitrate data issues between business units that may require changes to business processes to solve for the root cause. In addition, you can have more than ONE executive sponsor.

Other activities under the **ORGANIZATION & GOVERNANCE CAPABILITY**, include defining the reporting structure, centralizing data resources, stewardship and data architect roles, assigning business data leaders responsible for mapping critical data elements (CDEs) to their business processes. Establish a data governance forum such as a data council for decision making, with shared accountability of data management processes documented in a RACI model across respective IT & Business teams. The data council will review and approve the approach to measure data value through KPI's, that are agreed by business stakeholders.



2ND CAPABILITY - DATA LIFECYCLE PROCESSES

This capability builds upon the first, as the scoped Critical Data Elements (CDEs) require a definition of acceptable standards for each phase of the data lifecycle.

For example, if the CDE is a customer record, the business data leader and data steward collaborate to define the standards of how the customer record is acquired, where enriched (with 3rd party data), the acceptable field values for data quality, update frequency, processing service level agreement (SLA), trusted sources, privacy/permissions process, how and where the records are created, updated, retained or deleted.

The data lifecycle standards ultimately provide the business definitions of data, and this understanding is essential to scaling through automation to realize cost efficiencies in the organization as it transforms.



3RD CAPABILITY - ONGOING DATA MAINTENANCE

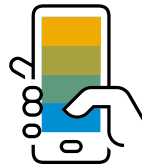
When data quality is “always on,” the rules and standards defined for critical data, are systematized to automate and proactively

detect data errors or issues. Workflows of data issues are also automatically routed to user groups assigned to correct the data issues within an agreed upon SLA.

Collaboration between data stewards, business data leaders, and IT will help diagnose the root cause of specific data quality issues and design permanent fixes to eliminate or reduce the volume of detected data issues.

Measuring improvement of data quality for different data objects, at defined time intervals such as monthly or quarterly, will provide immense value to the CDO and Executive Sponsor to demonstrate the tangible business value of the data management program.

In more advanced and data mature organizations, the detection and correction of data issues are done by what we call the Digital Data Steward. The Digital Data Steward augments data management capabilities with artificial intelligence, such as machine learning to automatically detect data anomalies or robotic process automation to update missing values or correct repetitive issues.



4TH CAPABILITY - TOOLS & TECHNOLOGY

Technology is an enabler to business processes and business outcomes.

This capability addresses the tools to enable data profiling, data quality, metadata capture, data lineage, etc., that are necessary for effective end to end data management processes.

The data tools, systems, and technology should be defined as part of an end to end data architecture and not just siloed tools that can not work together seamlessly. An effective technical data architecture will cohesively manage legacy and new data. The funding model, whether centralized or a shared expense, will need to be addressed, as well as how and who will deploy, maintain, and support data tools within Information Technology.

How Should Chief Data and Chief Analytic Officers Partner Together?

In today's world, it is easy to get excited about the sophisticated advancements in analytics, such as artificial intelligence (AI), machine learning (ML), Internet of things (IoT), robotics, and all the buzz words or "shiny objects" you hear or read about daily. However, if data is inaccurate and poor quality, **it won't matter how cool the analytics... if the data is not trusted by the organization.** We advise Chief Data Officers to focus on the "data that matters" to scope and prioritize the critical data in business processes that is required for measurable and repeatable business outcomes. This may be an organization's top programs or strategic initiatives sponsored by the executive board.

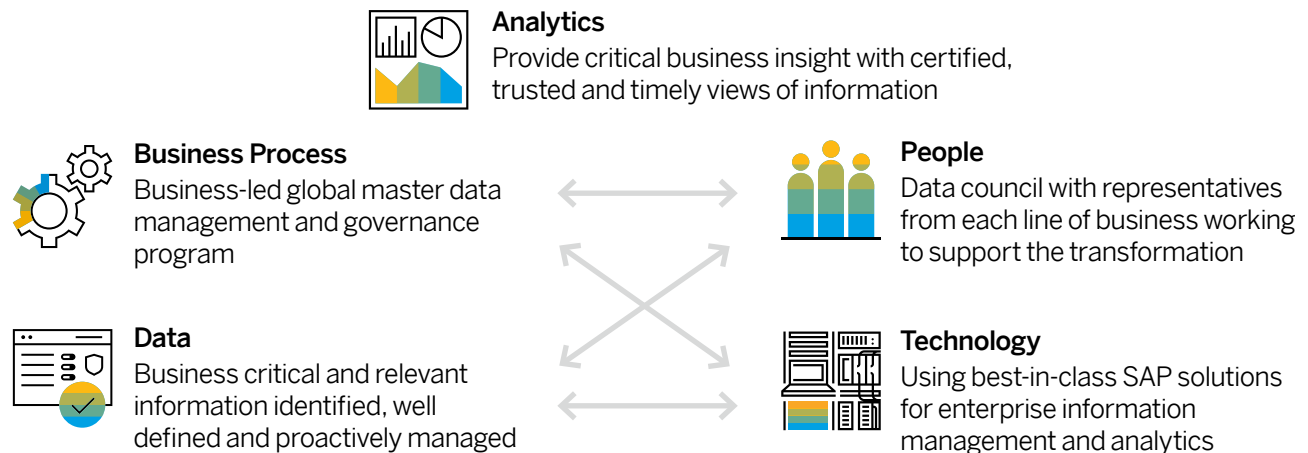
If data is the supplier and analytics the consumer the partnership is a two-way street to deliver the four capabilities for effective data management and business outcome success.

From an organization viewpoint, **the CDO and the CAO partner on shared data management roles to define and govern critical data elements.** Data scientists can identify

the factors or variables correlated with risk predictions from machine learning, such as sales opportunities status, customer industry or open support tickets. These variables may become in scope for critical data that needs to have standards agreed to and proactively managed through data quality processes that have a data steward and business steward from the analytics organization.

CDOs and CAOs also need to partner on data architecture and technology tools. We like to see the data architect role residing in the CDO organization to design, create, deploy, and manage the availability of data throughout the enterprise. Strong collaboration with IT enterprise architecture and IT teams to enhance and support user tools for data management and analytics is also needed. As data ethics can make or break consumers trust in a brand, we also advise a strong partnership between the CDO and the CAO. They should collaborate to define a data ethics framework, with executive support, and the operating model throughout the data lifecycle to ensure corporate ethical principles are not being compromised.

Enterprise analytics and data management at SAP is a combined governance effort



Another area for partnership between the CDO and CAO is the analytics and reporting for data quality and the progress on the enterprise data management program. The CAO team, as they do for other business stakeholders, can/should provide the CDO with the data analytics and reporting that will serve their mission; often producing a "CDO dashboard."

What are the Risks of Combining Data and Analytics Under One Leader?

A recent trend is combining the data and analytic functions under one leader – the Chief Data and Analytics Officer. This is happening in the industry as noted by New Vantage Partners in a recent [survey](#) of executives in top Fortune 1000 companies on AI and Big Data.

“Over the course of the past few years, a new trend has emerged among many Fortune 1000 corporations. This is the creation of a yet newer role - The Chief Data and Analytics Officer - integrating the data and analytics responsibilities within a single executive. It is noteworthy that 72.8% of survey participants reflect the senior-most executive responsible for data and analytics activities within their organizations.”³

During our interview with Theresa Kushner, a highly accomplished Business Data and Analytics Executive (see [LinkedIn profile](#)), she shared a simple analogy of data and analytics as the “cake and icing”. Sure, the icing is what you see on top, but the cake is the foundation. Analytics will introduce new data sources and complexities that put pressure on Chief Data Officers to manage data effectively with proper governance and processes. The Chief Data Officer role is “damn hard” where there is always more data than resources to manage, much less add incremental new sources that analytics creates. Therefore, a strong partnership between the CDO and Chief Analytic Officer is a must-have.

Theresa stated she does not believe a combined role works because today’s world is fast and impatient, and **data is long term investment** that you often don’t see the value immediately. Theresa equates this to being healthy at age 25 is often not fully appreciated until you are age 55! She believes combined Data + Analytics roles are on the rise because the CDO role is so challenging, adding analytics gives the perception of added value and easier to showcase. In our interview, Theresa also commented that “Only heavily regulated industries like financial services or health may be possibly mature enough for a combined role of CDO and CAO.”

The risk when combining data + analytics is that data management will suffer, and quality of information for key business processes will decline, as will confidence in delivering repeatable and predictable business outcomes. This is a risk that a Chief Data and Analytics Officer will need to mitigate.

The CDO role and work has expanded and will continue to grow as their data organization manages streaming of data, transactional volumes, and proliferation of critical data in increasingly complex landscapes. Adding additional analytic environments, tools, processes, and people for business intelligence/data science could distract the focus from defining and executing a comprehensive data strategy.

However, many companies are going in this direction and there are steps that can be taken to manage the risks. Our first recommendation is that the Head of Data and Analytics recognize that risks exist and ensures the organization structure keeps “data management” as a peer function to the analytic team and not embedded them under the analytics managers. At least not in the beginning. Create a “CDO” like position, with a strong leader that will be “on par” with the Analytic leader, reporting both to the Head of Analytics and Data.

The data teams and analytic teams should partner to identify the complexity of the ‘semantic’ analytic layer that should be remediated at the source. The data team would drive the business process, master data, and operational data changes that need to occur to have a well-defined and understood semantic layer. This would be a significant project for the joint teams that would enable end to end data integration across multiple processes and systems, which is a key pain point in most companies today. The project would also highlight to both the data team members and the analytic team members how they should work together to drive business outcomes.



In Conclusion: Becoming Data-Driven is a Commitment to Change

Becoming a data-driven organization is a mindset and culture shift that needs to permeate the entire organization. We believe our data strategy methodology that maps business outcomes to processes (including analytical processes), along with critical data that is proactively managed and monitored via established KPI's is the right approach. What are the characteristics of a data-driven culture?

What are the characteristics of a data-driven culture?

- It is an environment WHERE data is seen as an asset & **key enabler** to **business outcomes**.
- The most **critical** data is **known, accurate, consistent, and reliable**.
- Data is **effectively and proactively managed** to ensure **predictable and repeatable outcomes** for processes like analytics.
- Business and technical resources work **on what matters most** and **improve the speed** by which outcomes are achieved by **automating and simplifying** data processes.
- Data is trusted, and together with **people and business processes**, is used to **STEER decisions and outcomes**.
- Where there are **'accountable' owners** for managing data across the business and IT.

REFERENCES

¹ Gartner <https://www.gartner.com/smarterwithgartner/why-data-and-analytics-are-key-to-digital-transformation>

² Gartner <https://www.gartner.com/smarterwithgartner/keys-to-success-for-chief-data-officers/>

³ <http://newvantage.com/wp-content/uploads/2018/12/Big-Data-Executive-Survey-2019-Findings-Updated-010219-1.pdf>

Biographies



Lynette T. Kenney

Lynette Kenney is a seasoned business leader of enterprise data, operations, analytic (predictive, AI/ML) and platform initiatives to enable and steer customer success. Over the past 20 years, she has held senior level positions at SAP and Fidelity Investments in business and IT organizations, leading teams responsible for marketing operations, customer journey predictive modeling, data integration and performance management. Recipient of the American National Advertisers (ANA) Excellence in Analytics Genius Award, for SAP global events analytics portfolio.



Maria C. Villar

Maria Villar is an IT professional and author with over 25 years of experience in IT, technology re-engineering and enterprise data management. She has held senior executive positions in both the technology and financial sector that included responsibilities for data quality, governance, architecture, and database technology solutions. She is currently Head of SAP North America Data Enterprise Transformation. Maria has been recognized in Hispanic Business Magazine as one of the top 100 Influential Hispanics. Coauthored [“Managing your Business Data: From Chaos to Confidence”](#), with Theresa Kushner, a business book for how business leaders should manage their business data.

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