ACHIEVING EFFECTIVE DATA ANALYTICS

Gain an advantage over competitors with your most valuable asset — data.

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PEOPLE WHO GET IT®

EXECUTIVE SUMMARY

The notion that "every company is a data company" is so widely accepted that it's almost a cliché. Still, many organizations continue to struggle even to inventory and organize their data, much less leverage it in a way that helps them to arrive at transformative insights.

Data analytics can help organizations improve customer service, increase profits, enhance security, predict industry trends and achieve other benefits — but only with the right mix of strategies, tools, processes and practices. Effective analytics programs require organizations to implement processes such as data cataloging and governance, and to embrace culture changes and build internal expertise. Additionally, organizations must implement tools that provide capabilities around storage, transformation, discovery and analysis.

As their data analytics programs mature, organizations should constantly seek out new opportunities to use data in innovative ways that create value and provide a competitive edge. This requires the adoption of a comprehensive data management strategy. Often, organizations that lack internal analytics expertise rely on a trusted partner like CDW to help develop this strategy and put it into action.

Data Analytics Is Changing the Game

It is no secret that effective data analytics can create massive value for enterprises across industries. For years, in fact, savvy organizations have recognized that their data is not a burden to be managed but rather a resource to be mined. Today, nearly all businesses generate, collect and store a wealth of information about their products, their processes and (perhaps most important) their customers. Sometimes, as with customer sales leads, the value of this data is readily apparent. Other times, business and IT leaders must dig a little deeper to find hidden value in their data. Speaking generally, organizations that make effective use of data can expect to make better decisions that result in benefits such as cost savings, operational improvements, quicker solutions to problems, greater efficiency and improved business.

One of the greatest challenges our customers face regarding analytics is taking data that appears to be disconnected and bringing it together to use in a meaningful way. To do that, organizations must adopt a strategic approach to data analytics, fueled by the right mix of tools, practices and services to help them achieve their specific goals.

While each organization's path to effective data analytics will be unique, CDW has found that analytics environments tend to follow a common, five-stage progression toward maturity.

1. Manual reporting: In the IT world, the word "manual" tends to conjure the image of gears grinding to a halt. While most analytics programs will begin with manual reporting, there's a reason it is the first rung on the data analytics ladder, and organizations at this stage should look for opportunities to level up their analytics. For example, it is nearly impossible to imagine manual processes being very effective for anomaly detection. While anomaly detection is crucial for ensuring that an organization is operating how it's supposed to, it simply isn't practical to expect human staffers to constantly comb through data and spot deviations from the norm. Manual reporting often leads to increased errors and costs, as well as poor productivity and difficulty managing workflows.

2. Visualization and business intelligence: The next step is basic data visualization and business intelligence, typically achieved using dashboards that provide stakeholders with a centralized view of organizational data. Benefits of visualization include improved insights, faster decision-making, simplified distribution of information and better understanding of data trends. Business intelligence (BI) is a broader term, encompassing not only data visualization but also the collection, integration and analysis of raw data, often using dedicated tools. We see BI tools often being used by individual business units throughout an organization, in addition to data scientists and analysts. For instance, finance departments may use BI solutions to better understand factors that impact profit and loss, sales managers may leverage dashboards to analyze factors such as customer profitability, and marketing departments might use BI tools to track key campaign metrics.

3. Implementation of methodology and strategy: In many cases, we have seen data analytics efforts begin as almost an ad hoc exercise. Business and IT leaders start by trying to extract some basic value from the data they have, relying on whatever reporting processes are in place, then create dashboards to help stakeholders better see trends. However, to use data in ways that truly begin to transform the organization, CDW believes that leaders must take a strategic approach to data and analytics and put in place methodologies designed to maximize the value of data within the enterprise. Often at this stage, stakeholders will take a closer look at their governance policies and storage practices.

4. Advanced insights and modeling: As organizations' data analytics programs mature, leaders will often uncover new use cases they hadn't previously considered. Many times, the initial applications of analytics are focused on IT — partly because technology professionals are the ones implementing the solutions and partly because of the ready wealth of data produced by IT environments. However, it's been our experience that after organizations have applied a strategic framework to their analytics efforts, more opportunities to use data in innovative ways become apparent. Some organizations, for instance, use programs that collect comments from social media and then run text analytics to better understand customer sentiment. Analytics can also help companies classify the key attributes of

existing products and find relationships between specific features and commercial performance, which helps to inform the development of new products and services. Savvy retail companies are analyzing data from mobile apps and in-store purchases to optimize merchandising.

5. Predictive and prescriptive analytics: For most organizations, the end goal of data initiatives will be predictive and prescriptive analytics, which answer the questions of what is likely to happen and what is needed for improvement. Most people encounter predictive and prescriptive analytics use cases in their daily lives, from weather forecasts to smartphone applications that identify the best driving route to a destination. We've seen that tailoring analytics tools to predict trends and prescribe best practices within the specific context of a particular organization can be challenging, but the rewards are generally worth it. By embracing and enabling predictive and prescriptive analytics use cases, organizations can forecast customer demand, optimize

52%
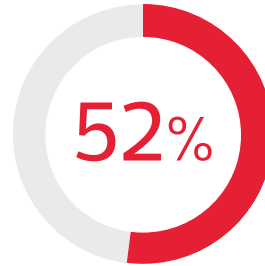
The percentage of organizations that store their data on five or more platforms[1]

sales strategies, improve asset lifecycle management, manage risks, and fine-tune operations and logistics.

Enabling Effective Data Analytics

For business and IT leaders whose organizations have not yet employed data analytics in their operations, the subject can feel daunting. Indeed, as with any new technology, analytics presents potential challenges — not only around the implementation and management of analytics platforms, but also around security, governance and even organizational culture.

CDW has focused on tailoring solutions to data discovery, storage, analysis and other functions to help ease organizations' path to effective data analytics and set teams up for success. Several organizations look to the public cloud for data analytics capabilities, giving themselves increased flexibility.

Challenges

Data cataloging: A data catalog is an inventory of data assets within an organization, which can help data scientists and other stakeholders to collect, organize, access and enrich metadata that assists with overall data management. Without a data catalog, many business and IT leaders would struggle to identify the sources of data within their organization, let alone where all that data resides.

Security: Data security should be a key component of any IT initiative, let alone one centered on Big Data (where a breach could potentially expose massive amounts of information to cybercriminals). In fact, some observers, including Forrester Research, have dubbed highly sensitive information — such as health information, credit card data, bank account details and Social Security numbers — "toxic data," due to its ability to harm an organization if it falls into the wrong hands.

Governance: Data governance encompasses the policies, processes and organizational structures that support data management and analytics. Organizations face governance challenges including where and how long to store data, who can access which data (and how they can access it), how data is shared across the organization and how to cull redundant records that contain identical information.

Culture: As they adopt new data analytics tools and processes, organizations must shift their cultures in a way that embraces both employee experiences and data-driven insights. For instance, executives and IT leaders should be careful not to discount the experience of sales team members, who have intimate knowledge of their customers' needs, and instead enhance that firsthand knowledge with insights derived from data analytics tools.

Expertise: Often, organizations enter their data analytics efforts with a specific, narrow use case in mind. That's great for getting started, but when organizations lack internal analytics expertise, they may overlook opportunities to expand into new

3 Strategies for Acquiring Analytics Talent

Robust data analytics tools can't be effective without talented, trained staffers to put them into action. However, many organizations have trouble filling open positions for workers skilled in data science and artificial intelligence (AI) applications. In 2020, Deloitte notes, "analysis" ranked second on the list of the most sought-after IT skills.

"Tech companies continue to ramp up data scientist and data analyst talent," Deloitte notes. "With businesses across industries scrambling to acquire AI talent and to increase their own data-driven decision-making, demand for data analytics professionals will likely outstrip the available talent for some time."

Deloitte offers three strategies for acquiring analytics talent:

Selective hiring: Business leaders should take a selective approach to hiring, assessing when specialists are truly needed and when analytics objectives can be accomplished through services or automated tools.

Focused and targeted reskilling: Organizations can leverage their current employees by training them in data and analysis fields such as machine learning (ML), data analytics, data modeling, data architecture and data engineering.

Strengthening partnerships: Universities, business incubators and startups may provide pathways to partnerships that bring data analytics talent into larger organizations.

applications. Organizations should seek to maximize their access to analytics talent and should encourage their data professionals to look for new ways to derive value from data.

Solutions

Through our experience with customers, CDW has found that five key capabilities are necessary for data analytics. Numerous tools can provide some of these capabilities, and organizations must choose the right mix of solutions to help them to achieve their desired outcomes.

Capability 1 — Store: Advanced storage solutions provide a solid foundation for data analytics initiatives. These include next-generation databases, data warehouses and data lakes. Next-generation databases are specifically built for speed and scale, while a data lake is a large pool of raw data. A data warehouse, by contrast, is a repository for structured, filtered data that has already been processed for a specific purpose.

Capability 2 — Transform: The next step on the data analytics journey is for organizations to transform their stored data into a more easily accessible asset. For instance, data cleansing solutions standardize data formats, and data merge solutions combine data from multiple sources. Master data management (MDM) tools allow business and IT leaders to create a "single source of truth" across their organizations. Without MDM tools in place, many organizations struggle to answer relatively basic

questions, such as who their most profitable customers are or which products have the highest profit margins.

Capability 3 — Discover: Data discovery tools, such as data catalogs, help organizations to arrive at a better and more complete understanding of what data assets exist in their environments. Only after engaging in data discovery can business and IT leaders begin to make an informed assessment about what sorts of objectives can be achieved using the information resources they already have.

Capability 4 — Analyze: To power data analysis, organizations must invest in solutions such as data visualization tools and IT operational analytics (ITOA). ITOA can assist with functions such as root cause analysis, and it is frequently an early use case for organizations investing in data analytics for the first time.

Capability 5 — Operationalize: Operationalizing data analytics simply means making data and analytics a regular part of an organization's operations. This involves tying together previously mentioned tools and using governance and a strategic vision to continue maximizing the value of an organization's data.

The Cloud and Data Analytics

Many organizations are moving their data to the cloud — and moving their analytics operations along with it. Public cloud hyperscalers each have their own platforms with their own strengths, and each offers much greater flexibility than a strictly on-premises environment. Burstability for peak usage periods is a significant benefit, especially in hybrid cloud environments.

A general rule of thumb is that organizations should run their analytics close to where their data is, to optimize both cost and performance. Many organizations already house their data in the public cloud, and the cloud is a natural fit for their analytics, as well.

Strategies for Data Analytics Success

Some IT leaders may get swept up in the technologies powering data analytics. Instead, stakeholders should first focus on outcomes and applications, then seek out solutions that will help them achieve their goals.

To maintain this emphasis on use cases, CDW recommends that organizations ensure that their data analytics initiatives are guided by an overarching strategy. These strategies will vary from organization to organization, but nearly all analytics efforts will be propped up, at least in part, by the pillars of data management, artificial intelligence (AI) and machine learning (ML), and security.

Data Management

A data management strategy is essential to analytics success. It maps an organization's use of data to its goals, ensuring that the disparate activities surrounding data management — from collection to collaboration — work together effectively, efficiently and seamlessly. Without a data management strategy in place, organizations often run into problems including incompatible, duplicative or missing data. They may find themselves running siloed projects that use common data yet rely on redundant hours and costs. Overall, data analytics efforts are more likely to consume time and resources in

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The Future of Data Analytics

A [2021 Gartner report](#) makes predictions about where data analytics is headed in the coming years.

- By 2022, over **75%** of centrally organized analytics programs will be replaced by a hybrid organizational model that shares power with local domain data and analytics leaders.

- By 2023, **60%** of organizations with more than 20 data scientists will require a professional code of conduct incorporating ethical use of data and AI.

- By 2023, **60%** of organizations will combine components from three or more analytics solutions to build decision-oriented applications infused with analytics that connect insights to actions.

- By 2023, decisions that leverage a data fabric will reduce operational costs and accelerate time to insight by **20%**.

- By 2023, over **50%** of the primary responsibilities of data and analytics leaders will be related to data that is created, managed and analyzed in edge environments.

- By 2025, **70%** of organizations will shift their focus to "small" data analytics (approaches that require less data) and "wide" data analytics (approaches that leverage a variety of unstructured and structured data sources).

Source: gartner.com, "Top Trends in Data and Analytics for 2021," Feb. 16, 2021

ways that do not contribute to an organization's objectives if they are not guided by effective data management.

To create a strong data management strategy, organizational and IT leaders must identify their business objectives, create effective processes and find the technologies that meet the needs of their use cases. When identifying business objectives, it is often helpful to keep the scale small at first — focusing on a limited number of analytics use cases — and expand from there. Effective data processes include not only analysis but also data collection, preparation and storage. Stakeholders should ask themselves whether they will be using structured or unstructured data (or both), how they will transform data to prepare it for analysis, how analytics insights will be communicated and whether data will be stored on-premises or in the public cloud.

A data management strategy should also cover data governance and employee training. Data governance incorporates security and privacy, as well as factors such as data quality and transparency. Training programs, meanwhile, are often the unheralded factor that separates successful analytics programs from less successful ones. Frequently, an

180
ZETTABYTES

The projected size of the "global data circle" — the collection of all created, collected or duplicated data in the word — by the year 2025 (a zettabyte is equivalent to a trillion gigabytes)[2]

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organization's data owners are not actually data experts, and it is critical to provide these stakeholders with the knowledge and skills they need to understand analytics insights.

Artificial Intelligence and Machine Learning

The use of AI and ML tools in data analytics programs makes it possible for organizations to obtain insights about their customers and constituents, expand their business, and optimize the quality and speed of logistics. Business and IT leaders should be willing to experiment when implementing AL and ML in their analytics efforts, and should quickly move past any unsuccessful projects, maintaining a "think big, start small, fail fast" mindset. By beginning with specific business outcomes that can easily be measured and understood, stakeholders will be able to accurately assess how well their AI and ML projects are working and use these lessons to make improvements.

AI and ML tools have a wide variety of potential applications across industries. Firms in the financial industry use AI and ML to arrive at market insights, healthcare organizations use them to scan medical images and assist with diagnostics, marketers find new ways to personalize campaigns, and payment card companies can increase the precision with which they distinguish between legitimate and fraudulent transactions.

Like other data analytics capabilities, AI and ML skills are in high demand. Organizations implementing AI and ML should build up the skill sets of staff members in this area or seek outside expertise from a trusted partner.

Security

Data analytics can be a powerful weapon in an organization's security efforts — but organizations must take great care to safeguard their data storage and analytics infrastructure to prevent a potentially catastrophic breach. Security analytics tools can help stakeholders to identify changing use patterns, execute rapid analysis in real time and perform complex correlations across a variety of data sources. These data sources may range from server and application logs to network events and user activities.

These security efforts require advanced analytics, as well as the ability to run analysis on large amounts of current and historical data. However, by integrating security into their analytics programs, organizations can improve their cyber resilience, limit exposure to malware and protect their reputations.

A new generation of security analytics tools has emerged in recent years. These solutions can collect, store and analyze huge amounts of security-related data across an entire enterprise. Contrasted with traditional security offerings, these analytics-powered tools generate a smaller number of security alerts, which are ranked by severity and enriched with forensic details that lead to faster detection and mitigation of cyberattacks.

Data Analytics for SMBs

Small and midsize businesses (SMBs) lack the robust IT budgets of large corporations, and few smaller organizations can afford advanced data analysis tools or a team of data scientists. That doesn't mean they can't benefit from analytics applications.

By 2025, IDC predicts, 30 percent of SMBs will adopt cloud-native, data-driven apps that intelligently adapt their behavior to the needs of the business. "SMBs are apt to follow an app's default design, likely because they do not have the IT resources for customizations," IDC notes. "The future of data-driven apps ... offers SMBs an unprecedented opportunity to automate and streamline their data/content management and gain insight."

IDC gives the example of a patient onboarding app for small healthcare organizations. Typically, doctors run through all the questions (even irrelevant ones) with new patients, simply to get to the next screen in the app. But data-driven apps will, IDC writes, eventually omit data fields that aren't necessary.

"Over time," IDC notes, "the confidence level of the data recommendations will improve and move humans to more of a governance role."

CDW: We Get Data Analytics

CDW's analytics team can help organizations understand where their data is coming from, who has access to it and how to harness it. Wherever you are on your analytics journey, CDW can meet you there and guide you to the next level of insights.

Data management: To maximize the value of data, it must be properly managed. Partnering with CDW for data management will help you organize your data, optimize storage solutions and prepare you to take the next step in your analytics initiatives.

IT operational analytics: Partnering with CDW for IT operational analytics will help organizations learn when customers are having trouble transacting, optimize human resources, correlate data across multiple data centers and achieve other critical insights.

AI and ML: By embracing AI and ML tools, we help organizations reduce the need for manual programming and compile information in faster and more intelligent ways.

Business intelligence: Using historical and current data, organizations that partner with CDW for business intelligence (BI) can drive operational efficiency and strategic growth. CDW's analytics experts will help you learn how to build a comprehensive BI strategy, define your goals and choose the tools that meet your needs.

CDW Amplified™ Services

CDW Amplified™ Data Services offer actionable insights that give you a stark competitive advantage.

DESIGN Data Practices
CDW will assess your current data practices along with your goals and work with you to build a roadmap to connect the two.

ORCHESTRATE Analytics Solutions
CDW will help you select the right solutions and design the infrastructure, software and services needed for an effective analytics strategy.

MANAGE Performance
CDW will monitor the performance and security of your data solution so you can continue to extract powerful data insights.

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