

THE CDO'S GUIDE TO PRACTICAL DATA INTELLIGENCE:

TURNING INSIGHT INTO
STRATEGIC BUSINESS VALUE

Name	Age	Gender	Date	Medical	Exempt
John Doe	35	Male	2010-05-19	Individual	
Jane Smith	42	Female	2010-04-05	Family	
Mike Johnson	28	Male	2010-06-09	Family	
Sarah Lee	31	Female	2010-08-04	Individual	
David Kim	45	Male	2010-10-22	Family	
Emily White	38	Female	2010-10-30	Family	
Robert Brown	51	Male	2010-12-23	Family	
Laura Green	40	Female	2010-12-14	Family	
James Black	43	Male	2010-08-17	Family	
Maria Garcia	37	Female	2010-12-14	Family	
Chris Evans	41	Male	2010-08-17	Individual	
Amy Adams	39	Female	2010-10-04	Family	
Ben Bell	48	Male	2010-07-30	Individual	
Grace Baker	33	Female	2010-07-30	Family	
Henry Clark	44	Male	2010-08-19	Family	
Ivy Davis	36	Female	2010-04-27	Family	
Jack Fisher	49	Male	2010-10-28	Individual	
Karen Hill	32	Female	2010-10-28	Individual	
Leo King	46	Male	2010-09-17	Individual	
Mia Lopez	34	Female	2010-03-11	Individual	
Noah Miller	47	Male	2010-03-11	Individual	
Olivia Nelson	30	Female	2010-03-02	None	
Peter Ortiz	42	Male	2010-03-02	None	
Quinn Parker	35	Female	2010-11-25	Individual	
Ryan Quinn	40	Male	2010-11-25	Family	
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Introduction

If we have data for everything, we should be able to use it to drive strategy, right? Enterprises focus on becoming ever more data-driven, meaning that it is simply unacceptable to allow data to go to waste. Yet, as the amount of data businesses collect and control continues to increase exponentially, many organizations are failing to derive enough business value from their data.

Companies are feeling the pressure to extract maximum value from all of their data, both defensive and offensive. Defensive analytics are the “plumbing aspects” of data management that must be captured to mitigate risk and establish a basic understanding of business performance. Offensive analytics build on defensive analytics and support overarching business objectives, strategic initiatives and long-term goals using predictive models.

Effectively tracking defensive and offensive metrics requires businesses to strategically identify both their current data analytics abilities and their ultimate data goals. For example, healthcare organizations have to be much more focused on controlling the validity of data, while forward-thinking hedge funds want to make quick decisions based on the latest data. This mismatch of goals and abilities leads to a struggle to produce meaningful insight and to a lack of trust in the data. In the spirit of extracting value, organizations run into challenges with bad data, analytics and visualization solutions that don't leverage data effectively, and an inability of enterprises to create a consistent and reasoned strategy to organize and govern their data.

Companies are making serious investments in data and analytics. Yet these investments are missing the mark in several key ways. They aren't providing the level of data intelligence that organizations truly need, nor empowering the line-of-business employees closest to the issues. Most existing solutions aren't flexible enough to address the needs of the entire organization, whether it's enterprise-wide or just a single department. They don't enable the collection of accurate and trusted data from across organizational silos. And many of these solutions do not adequately control access to the data to minimize security and compliance risks.

Most companies in the U.S. have at least 100 terabytes of data stored.

How did we get here?

This lack of trust in the data and inability to use it to its best advantage are caused by three main challenges facing all enterprises:

1

Companies are overwhelmed with data.

2

They don't have reliable ways to analyze and leverage that data to make informed business decisions.

3

Internal factors are not aligned to enable organizations to leverage their data successfully to serve the business.



Businesses today are overwhelmed with data, no matter how much and what types they collect. Industry studies indicate that less than half of an organization's structured data, i.e. databases, is used in decision making ⁱⁱⁱ and less than 1% of its unstructured data is analyzed or even used at all. ^{iv} On top of dealing with the high volume, businesses must identify the primary business purpose for their data. Without understanding that piece of the puzzle, enterprises grapple with choosing the most valuable information for reports or analysis. This struggle to balance capabilities with goals requires organizations to determine priorities and strategic trade-offs, in terms of defensive and offensive analytics.

Volume and how the data will be used aren't the only challenges—there are serious questions about the utility of the data businesses are able to use. In most companies, the data has numerous inaccuracies, and when people who aren't experts in the data or its source create reports or analyses, there is a high probability the numbers will not be accurate.

A recent study across industry sectors indicated that only 3% of data quality scores can be rated as acceptable using the loosest possible standard and that knowledge workers are wasting 50% of their time finding and correcting all that bad data. ^v The financial cost of this predicament is enormous—IBM reports that bad data is costing the U.S. economy \$3.1 trillion a year and that one in three business leaders don't trust the information they're using to make decisions. ^{vi}

1

97% of data is rated as not of acceptable quality, using the loosest possible standard. ^{vii}

2

The next force impacting organizations is the search for better ways to analyze and leverage their accumulated data to make business decisions. Data and analysis continues to be a focus for business investment. IDC reports a 2017 big data and analytics solutions market of \$150.8 billion, and they expect it to reach \$210 billion by 2020. ^{viii}

The market is large, and there are a number of self-service and other options available for enterprises to create operational reports or analytic insight. Yet, there aren't many tools that enable end users or analysts using the system to blend data from different sources or from outside their domain. Because of some of these factors, many still rely on old-fashioned approaches, like exporting data into Excel, where there is no auditability of the data and processes may not be repeatable. The way many companies are operating today, there is no way to explain where data in a certain report came from, how the numbers were calculated and what adjustments or assumptions were made along the way.

Gartner reported that only 51% of the C-suite is satisfied with their analytics strategy and that 60% of all data and analytics projects falter. ^{ix} How is it possible to sink so much money into a problem and be successful only 40% of the time? It comes back to the right organizational structure and talent, trust in the data and data quality, and the ability to instill confidence in the finished product. In most companies, it's usually impossible to demonstrate detailed lineage or show changes that were made to the original data source.



Internal factors are the third driver presenting challenges to leveraging data to serve the business. These internal challenges fall into three camps:



1. Data literacy

A clear gap in the labor market underlies part of the data literacy challenge. There aren't enough data scientists to fill the need, leaving many companies without advanced data analytics skills or enough people with that skillset. As a result, many organizations are increasingly relying on self-service solutions for business users to create their own analysis. Gartner predicts that by 2019, analysis created by business users with self-service tools will eclipse that of professional data scientists.^x While these self-service tools are a critical step in creating truly useful analytics, they can highlight a mismatch of skills.

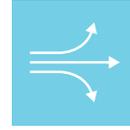
The data scientist doesn't have the business context and may create analysis out of step with what is truly needed to derive insight. On the other hand, the line-of-business employee who has the context (e.g. the marketing director) doesn't have the analytic skills or training to understand how to use the data most effectively. This can lead to poor analysis or a lot of time-consuming and unproductive back and forth between the analysis and business line teams.



2. The role of the chief data officer (CDO)

The role of CDOs continues to evolve, and exact responsibilities differ across companies. Most, whether their title is CDO, VP of business analytics or director of data science, have several core responsibilities. These may vary based on whom this person reports to, as well. Those who report to the CEO tend to have a larger, strategic view of the data. Those who report to the CIO tend to think primarily about governance and security, and may even be against sharing data across the organization.

Whatever the title and reporting structure, these individuals are being tasked with all things data-related—deploying and maintaining the underlying architecture, including creating and maintaining the data strategy; acting as guardians of the data; determining the balance in using defensive and offensive data; enabling value-added analytics; and ensuring data quality and integrity. With all that on their plates, it can be a challenge for CDOs to deliver value when internal factors, such as corporate culture and data literacy, are not properly aligned.



3. The approach to data strategy and data management

The third part of the internal struggle is the change in how companies approach data strategy and data management. It used to fall into IT's camp, so there was clear responsibility and specific ways of working with data and the reporting and analytics platforms. Today, the collection, management and use of data is driven more by business needs and line-of-business users who want flexibility and to get the job done easily. So, IT's role has evolved to supporting the platform and ensuring data security and governance. The job of the CDO is to make sure the two sides play together well—that the data is controlled, secure, trustworthy, available in one place and usable by everyone from the data scientist to the end users.



Top 2 roadblocks to success for CDOs

Corporate culture that doesn't accept change: 40%
Poor data literacy: 35%^{xi}

Gartner

The challenges of data mismanagement

Information is constantly flowing in and out of a business. When companies are able to use this information effectively—collect it, prepare it and use it collaboratively across teams—they can make informed and insightful business decisions that enable them to meet their larger business goals. However, when companies are not able to successfully manage and leverage their data assets, this vital resource will continue to present challenges, such as an inability to streamline operational reporting, difficulty generating truly insightful analytics and inconsistent analytic goals across the organization.

This challenge is true for all the data enterprises deal with today, based on the data's primary purpose – defensive or offensive.^{xii} Defensive data is used to support internal activities like budget management, tracking website statistics, ensuring regulatory compliance, ensuring data integrity and identifying fraud or other risks. Companies in heavily regulated industries like healthcare or financial services may lean towards using defensive data in reporting and analytics. Offensive data often receives more of the attention in companies in very competitive environments that need to track and analyze externally focused activities such as net promoter score, lead conversion rates, return on investment of marketing campaigns, forecasting performance or revenue, and predictive analytics (Figure 1).





Inefficient operational reporting

The inability to streamline operational reporting, whether defensive or offensive, is common and presents a major challenge for many organizations. In some cases, the data preparation and analytics tools are unable to support regularly scheduled or ad hoc reporting tasks, or the tool is set up in a way that creates or reinforces organizational silos. These issues often result in duplication of work, such as when both the sales and marketing teams run the same report on the same data without collaborating.

When companies are unable to create reports quickly and easily, it causes a number of problems, such as reduced productivity, compliance violations, lost sales opportunities, multiple inaccurate versions of the truth and decisions made with bad or incomplete data. And with the number of operational and analytic reports that companies routinely need or want to run, this can create a costly information gap.



Failure to produce insights

Raw data is of little significance in most enterprises. The value comes from generating truly insightful analytics from the massive amounts of data they are collecting. Many businesses struggle with this. When they do have success, it's often with the creation of internal operational reports, the bottom left quadrant in Figure 1. CDOs are recognizing the need to make the critical shift to using data to create value beyond tracking internal activities and efficiencies. More than a third of those surveyed by Gartner look to increasing revenue as one of the top three measures of success, showing a focus on creating value over risk mitigation. Indeed, almost half (45%) allocate their time to value creation or revenue generation.^{xiii} Yet, because it's still difficult and time-consuming to get the operational, defensive reports right, there is little time to focus on using the data to gain business intelligence and insight and to create value.

Part of that is due to the way existing platforms are designed. Even self-service analytics can be time-consuming for collating the proper data, building the visualizations and then analyzing the results. And when pressed for time, many businesses focus on operational defensive data. Another part of this struggle is a lack of resources – many platforms require that users have a deep analytical skillset, putting it out of reach of many line-of-business end users.

Data quality is also a cause of the failure to derive true insights. Data comes from different parts of the organization and different sources, and is best used for either defensive or offensive purposes. This can make it difficult to align the data and track it—where it came from, what changes have been made and by whom. When the lineage is uncertain, there is no way to audit the changes made to the data. At worst, this leads to limited questions about validity of bad analytics and, at best, accurate analysis with questions about legitimacy. Businesses are not able to trust their data, delaying analysis and any resulting insights, thus delaying mission-critical business decisions.



Varying analytical goals

In many organizations, each department or line of business has its own analytical goals and maybe even its own data and reporting and analytic tool. The ability to make informed decisions suffers when business goals, the purpose of the data (defensive or offensive) and the data itself are not synchronized across the enterprise. With

multiple analytical platforms or non-integrated data, organizations are severely limited in how they can gather and effectively use their data. Separate data sets prevent any kind of holistic view, and companies operating this way frequently create analysis that presents an incomplete or one-sided picture of the business problem, leading to uninformed decisions.



THE SOLUTION:

Data intelligence that creates a culture of collaboration

To overcome the challenges of inefficient operational reporting, inability to generate insightful analytics and inconsistent analytic goals across the enterprise, businesses are turning to data intelligence solutions that enable them to derive real, actionable value from their data. At the core, the ideal system is easy to use for anyone in the organization. This enables everyone to be on the same page regarding data and its purpose, and how the enterprise information is collected, used and reported on. A complete system to manage data—including centralized access and automated data preparation for data from different sources and in different formats—provides companies with consistency in how the data is defined, how data sets are connected to each other and how users engage with the data.

The ideal integrated data preparation and collaboration solution provides users the ability to efficiently and effortlessly extract analytical insight for both defensive and offensive applications. It's also flexible enough to deal with requirements for data governance and management, and comprehensive enough to integrate data from throughout the organization. This solution is designed to meet the needs of diverse end users so that companies are using secure, trustworthy enterprise data to build, discover and share insights.

Important benefits

There are a number of significant benefits for companies using a system like this, addressing the three main challenges.



STREAMLINING OPERATIONAL REPORTING:

When the data tools are placed in silos, the data itself is of questionable quality, and self-service reporting is not managed properly, companies are not using their data to its best advantage. This makes the data difficult to use, causes inefficiencies because of a failure to reuse reports and analysis, and heightens the probability of creating reports with bad data.

The best solution is one that:

- ▮ Enables operational reporting, both defensive and offensive
- ▮ Requires governance and access control from IT
- ▮ Delivers structured, clean, high-quality data gathered from many sources
- ▮ Automatically extracts, cleans, and reports the data
- ▮ Provides the ability to search and browse existing data sets
- ▮ Delivers reports and analysis in a centralized data marketplace



DELIVERS INSIGHT:

Companies are overwhelmed with the amount of data they own and manage, and it can be difficult to find and use the proper data to provide insights. The ideal solution is a single enterprise platform that empowers teams throughout the department or enterprise to access, create and use the full data sets available, no matter the source or format. This solution also builds a culture of trust by increasing collaboration and data literacy throughout the enterprise and enabling transparent usage, which is the foundation for data-driven insights and discovery.



SINGLE, UNIFIED PLATFORM FOR EVERYONE:

The model of centralized data access has not always worked. Data warehouses, which formed the basis for most business intelligence, are just one source among many and are not typically accessible to end users. Gathering all the sources together via master data management can create an unwieldy repository where it is difficult to find the required data. The ideal solution enables companies to manage and control their data in a way that has never been done before, making it possible to:

- ▮ Connect defensive and offensive analytical goals across the organization in a single, secure platform.
- ▮ Make data and analytics available anywhere on any device.
- ▮ Empower users to share and use the data to discover trends and create insight.

What to look for in a solution provider

When looking for a solution provider to deliver the ideal data preparation and collaboration platform, consider the following requirements:



EASY TO USE:

Look for a solution that doesn't require users to be data scientists. It should increase data literacy throughout the organization and be usable by everyone from the end users to the data analysts—for accessing data, creating data sets, conducting analysis and reporting results. It should also be browser-based for use across the enterprise and across devices.



BUILDS TRUST IN THE DATA:

Look for a secure platform that ensures data quality by providing access to more types of data from more sources and in more formats, sourced and curated by business experts, governed by data stewards and IT, and with demonstrated utility via social features such as likes and subscriptions that provide intelligent recommendations on data to view and use.



ENCOURAGES PARTICIPATION AND CONTRIBUTION:

The right solution uses gamification and dashboards to encourage participation and provide visibility into the data. This breaks down barriers across teams while enabling users to work together collaboratively and use the best data available for their purpose.



CREATES A DATA MARKETPLACE:

Find a solution that includes a data marketplace so users can create and share their own data sets and analyses to build a deep data ecosystem, provide more access to insightful information, break down silos and eliminate duplication of work.



PROVIDES SUPPORT:

Look for a solution provider that will partner with you for the long-term and offer resources and training to help you make the most of your investment.



HAS A SOLID TRACK RECORD:

Find a solution provider with has been working with data preparation and management for many years and has a variety of customers across industries along with extensive knowledge of data analytics and reporting.

The Datawatch Monarch Swarm advantage

There is no shortage of data. Datawatch enables enterprises to master that data and turn insight into strategic business value. The Monarch Swarm data intelligence platform solves the three major problems that enterprises face by streamlining defensive and offensive operational reporting, freeing up time for more insightful analytics and connecting all the analytic goals across the enterprise into a single platform. This browser-based enterprise data intelligence solution empowers individuals and organizations to intelligently tap into more data to drive faster insight and better value. It bridges divides within the enterprise and leverages trust to enable analysts and ordinary business users to do incredible things with their data—to spend less time preparing it as well as more time reporting on it and analyzing it to inform critical business decisions. It fuels businesses with all the data intelligence needed to evolve, transform, disrupt, invent and succeed.

Monarch Swarm meets the needs of all stakeholders and is designed to allow people of any skill level to unlock more data, regardless of the source or the structure, and make that data usable. It gives analysts and end users the independence and agility they need, IT the governance and compliance they don't get with other self-serve data analytics tools, and the CDO and the executive suite trust in the data quality and the integrity of analysis and resulting business decisions.

With over 25 years of experience in self-service analytics, Datawatch is the data intelligence solutions partner that will drive your business transformation and allow anyone in your organization to achieve extraordinary results with any data. Datawatch solutions drive the use of more data, foster more trust and incorporate more minds into analytics and reporting projects. Organizations of all sizes in more than 100 countries use Datawatch products, including 93 of the Fortune 100.



MORE DATA

More sources, and in more formats, including previously inaccessible, unreliable or unstructured data

More insightful because processes are repeatable, enabling streamlined reporting and analytics



MORE MINDS

More people have access to insights within a centralized data marketplace

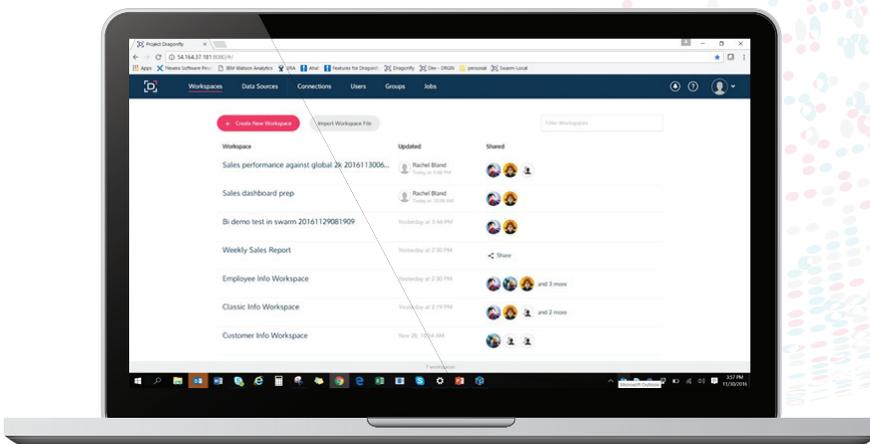
More avenues for teams to share and collaborate, breaking down silos while eliminating duplicate data and duplicate work



MORE TRUST

More of the widest variety of trusted, governed data available and easy to use

More of an environment of true data stewardship within your organization



TO LEARN MORE ABOUT DATAWATCH AND GET A DEMO OF HOW MONARCH SWARM ENABLES YOU TO OVERCOME YOUR REPORTING AND ANALYSIS CHALLENGES,

VISIT WWW.DATAWATCH.COM OR CALL 1-800-445-3311 TODAY.

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