BDO DIGITAL

THE ESSENTIAL GUIDE TO DATA-DRIVEN DECISION MAKING

Overcoming the 4 Most Common Obstacles

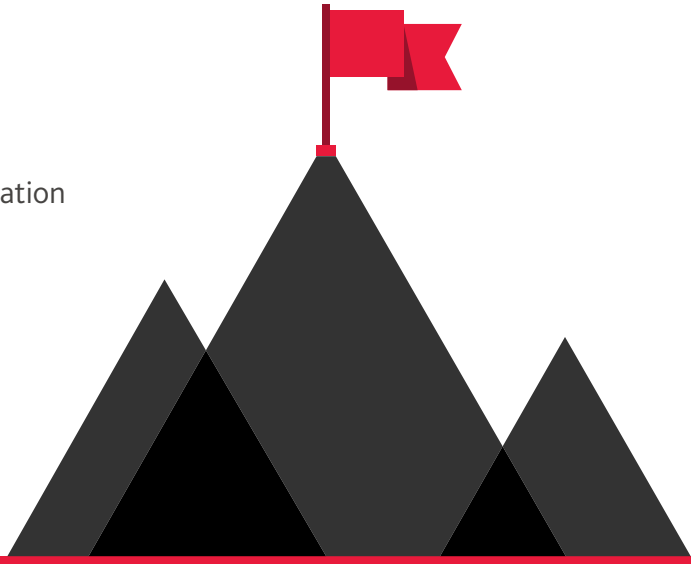
Not that long ago, decisions were made based mainly on guesswork, hope, and luck. Today, 90% of enterprise analytics and business professionals say that data and analytics are key to their organization's digital transformation initiatives.* Technological innovations have brought new tools and methodologies to the market, and we're seeing a significant shift in the way businesses are making decisions.

However, there are many companies that are reluctant to pull the trigger because they aren't sure about the advantages of becoming data-driven.[1]

While organizations recognize this shift, they are often met with challenges that prevent them from benefiting from data analytics. In fact, 60% of data analytics projects will fail to go beyond piloting and experimentation.[2] Why?

FOUR COMMON DATA PROJECT CHALLENGES

1. Lack of a defined use case aligned to business goals
2. Overwhelming amount of data spread across the organization
3. Lack of proper resources, processes and tools
4. Poor user adoption

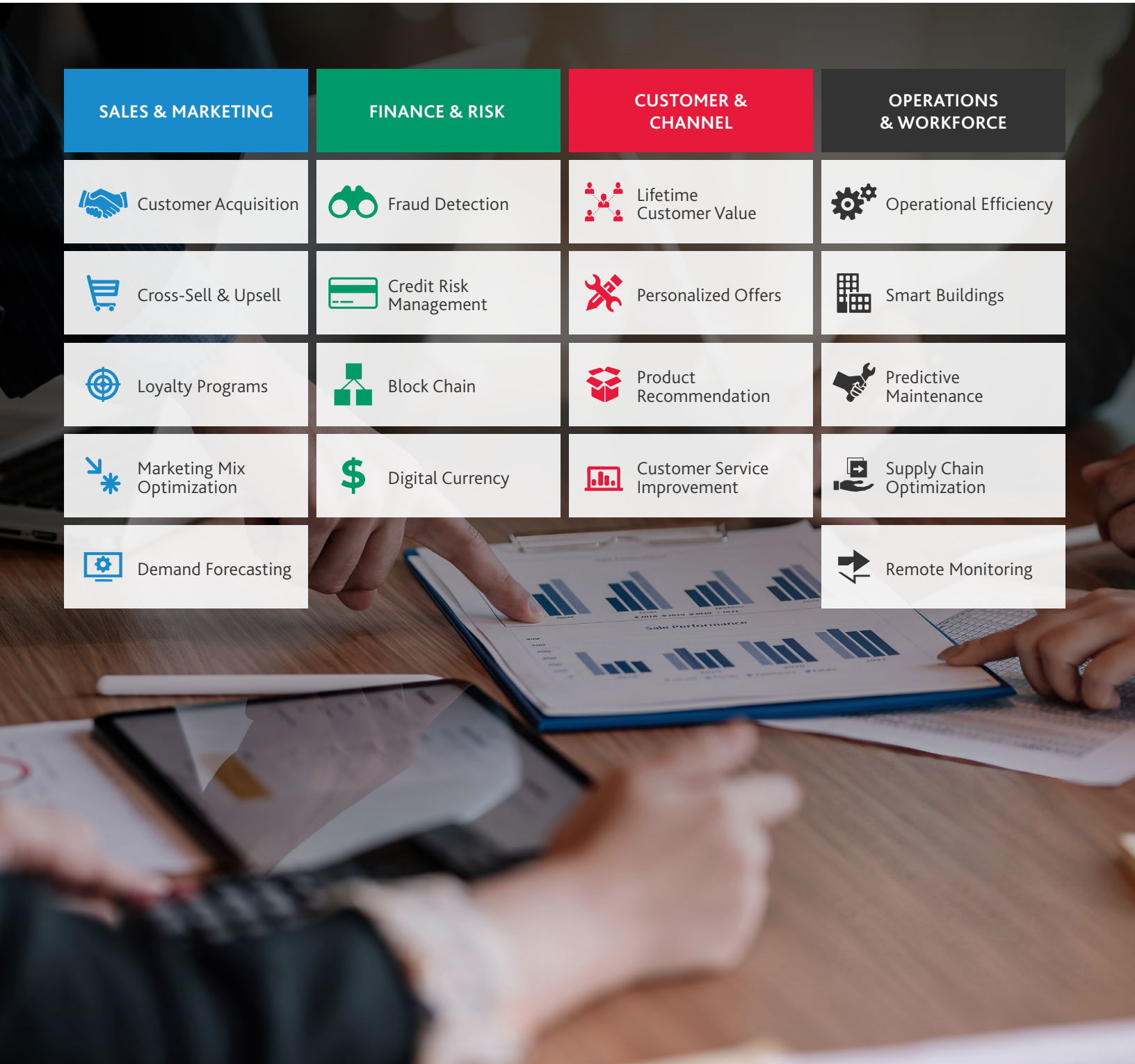


This whitepaper will discuss how modern data analytics helps organizations improve decision making. We'll look at current market trends across industries and explore specific examples of how companies are transforming their business with data. Most importantly, we'll provide insight into how companies can overcome common challenges when shifting to a data-driven culture.

MODERN DATA ANALYTICS

Data analytics is the set of techniques and processes used to transform raw data into meaningful and useful information. This information can then be used to make informed business decisions.

Advanced data analytics practices and technologies have come a long way - a shifting prioritization to managing data has led to improved technology, more affordable solutions, and more data-focused careers in the market. Multiple business verticals are embracing data analytics tools to answer their industry-specific questions.



DATA ANALYTICS IN PRACTICE

The Business of Baseball: Using Data to Compete

Data analytics is an opportunity for organizations to gain a competitive advantage. To put this opportunity in context, we'll explore another competitive landscape – Major League Baseball. Baseball isn't only America's pastime, it's a booming business. After two years of revenues being adversely impacted by the pandemic, a new revenue record was confirmed by the MLB exceeding $10.8 billion for 2022, surpassing the prior record set in 2019 of $10.7 billion.[3]

In the early 2000s, the Oakland A's were struggling. The 1990s were marred by losing seasons and low morale. The A's didn't have the budget of a team like the Yankees, so instead they turned to data to help them do more with less. Forsaking traditional scouting techniques, the A's General Manager, Billy Beane, decided to try something new. As chronicled in the book and later movie, Moneyball, Bean built a team of undervalued players that were predicted to succeed based primarily on two statistics: their on-base and slugging percentages. This approach enabled the team to make the postseason nine times and set an American League record of 20 consecutive wins. More importantly, it revolutionized the way that sports teams utilize data to make decisions - and this trend hasn't slowed down.

	WINS	LOSSES	PAYROLL
OAKLAND	103	59	$41,942,665
ANAHEIM	99	63	$62,757,041
SEATTLE	93	69	$86,084,710
TEXAS	72	90	$106,905,180

The A's outplayed teams with far bigger budgets during the 2002 regular season.[4]

Teams are now analyzing thousands of data points and employing dedicated statistical analysis resources in their front-office, and it's paying off. Look no further than the 2017 World Series where the Dodgers faced off against the Astros – two teams heavily invested in data analytics. The Astros went all-in on data and completely overhauled their entire organization using advanced data-driven decision making, a bet that earned them a World Series trophy.[5]

So how can your team use data to gain a competitive edge? To help explore that question, we'll begin by examining the different aspects of modern Data Analytics.

BIG DATA

As mentioned, there is now more data being produced than ever before. According to the latest estimates, 328.77 million terabytes of data are created each day.[6] The immense amount of new data being created daily has helped create a sense of urgency around finding efficient ways to process and analyze this data. From this, Big Data analytics was born.

Big Data refers to extremely large data sets, inside and outside of an organization, that can be analyzed to reveal trends, patterns, and associations, especially related to human interactions and behaviors. Data is considered "Big Data" if it meets three requirements: size, speed, and variety.

Size:

When it comes to managing data, size matters. We're talking petabytes (1 million gigabytes) and exabytes (1 billion gigabytes!) here. If there is simply too much of it to even store in one place, not to mention organize and analyze without the help of special data analytic software, you're dealing with Big Data – and you'll probably need the help of cloud technologies with the capacity to store all of it.

Speed:

Not only is Big Data, well, big, it's also fast. Data streams at an unprecedent rate and trying to collect and organize it all is like trying to drink from a geyser with a straw.

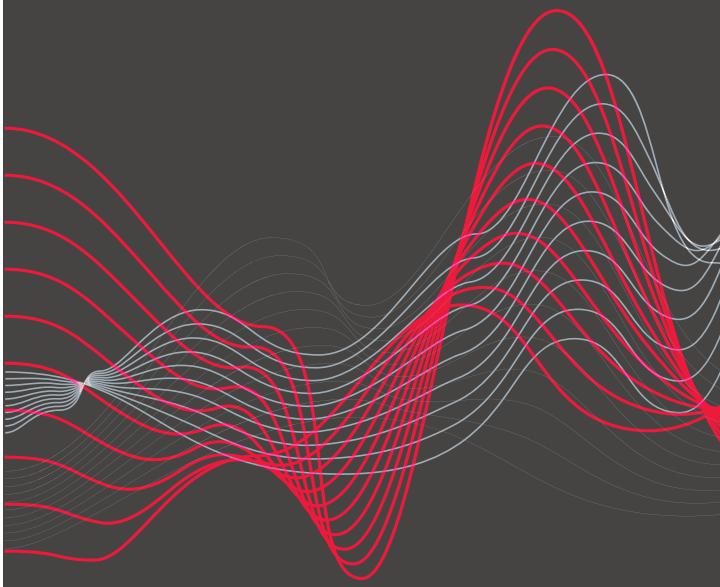
Variety:

If size and speed didn't make things complex enough, data also comes in all types of formats. There's multi-structured data, like numeric data, and then there's unstructured data, like video, audio, images, email, and financial transactions. Each have their own properties that must be addressed in order to properly analyze.

Businesses are now using big Data Analytics to gain a competitive edge and make better decisions thanks to advanced analytical technology.

BIG DATA SPOTLIGHT
JOHN DEERE

Farming has come a long way over the centuries, and Big Data analytics has had a hand in its continued evolution. John Deere utilized this technology to create an online Operation Center for farmers as a "gateway to better business decisions.[7]" The dashboard tool allows farmers to collect and analyze large amounts of machine and agronomic data which is then turned into usable information, like reports and maps. For example, the field analyzer shows how individual fields are performing using color-coded maps to include factors such as average yield, total yield, average moisture, seeding variety, and rates. A farmer can also track the location history of a machine and if it needs work or fuel, and with one click, send prescriptions directly to the machine. This information can be shared with teams anywhere, making it more efficient than ever to manage a large fleet of equipment and employees.



BUSINESS INTELLIGENCE

Business Intelligence (BI) refers to the technologies, applications, and practices for the collection, integration, analysis, and presentation of business information. BI is often used interchangeably with other buzzwords, like "data science" and "data analytics," but what differentiates BI is that it has traditionally provided analysis of historical data. In short, BI looks back, while other areas of advanced analytics look at trends to project outcomes for the future.

Business Intelligence will often be referred to as "descriptive analytics." There are a variety of Business Intelligence visualization tools like Microsoft's Power BI and Tableau. These tools produce interactive data visualizations that enables users to drill down into data, view different metrics and perform various data analysis operations on the fly.

BI SPOTLIGHT

CAPITAL MANAGEMENT FIRM

A 5,000-person capital management firm based in Chicago wanted better and deeper insights into their sales and business development processes.[8] They had an overwhelming amount of data about their different client teams and business lines, but without the necessary tools and expertise, they weren't able to pull any insights that could lead to ways to optimize their processes. As a result, they were missing opportunities - and ultimately revenue. The company wanted to better understand their customer needs and client interaction by various segments. With this information, they'd be able to take actions that would improve cashflow, reduce financial carrying costs, become more efficient, and close more sales.

While most financial equity firms are rooted in tradition, leaders at this company had understood the importance of evolving and embracing innovation. They were tired of doing everything manually; they recognized that if they could digitize their analytics, it could transform their current challenges into opportunities. Utilizing Tableau, data architects pulled the needed data into dashboards so they could visualize the information in real time. The company is now able to more efficiently act on insights gleaned from their metrics and target the right areas for business development.

PREDICTIVE ANALYTICS

Predictive Analytics is a branch of data analytics that seeks to make accurate predictions about future events. It brings together business management and information technology using techniques such as data mining, statistics, modeling, machine learning, and Artificial Intelligence to analyze current data. This data can then be used to help improve decision making around predicted future events.

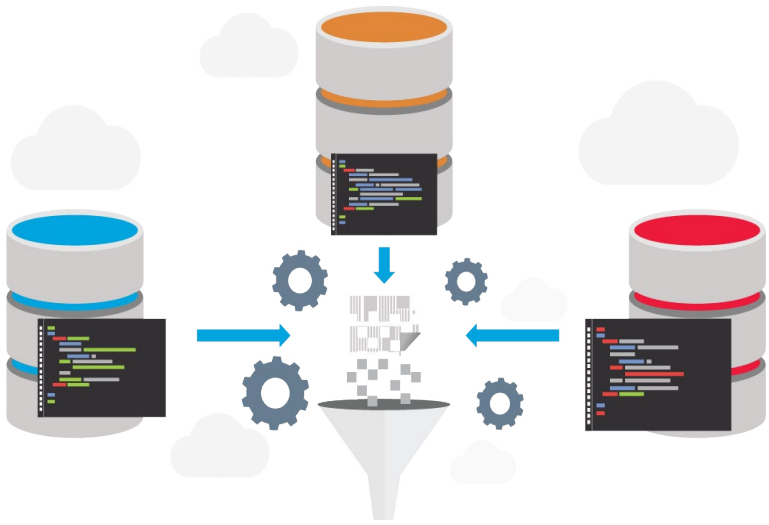
KEY DRIVERS FOR PREDICTIVE ANALYTICS

UNDERSTANDING CUSTOMERS

- Predicting Trends
- Predicting Behavior
- Leveraging Customer Insights

IMPROVING BUSINESS PROCESSES

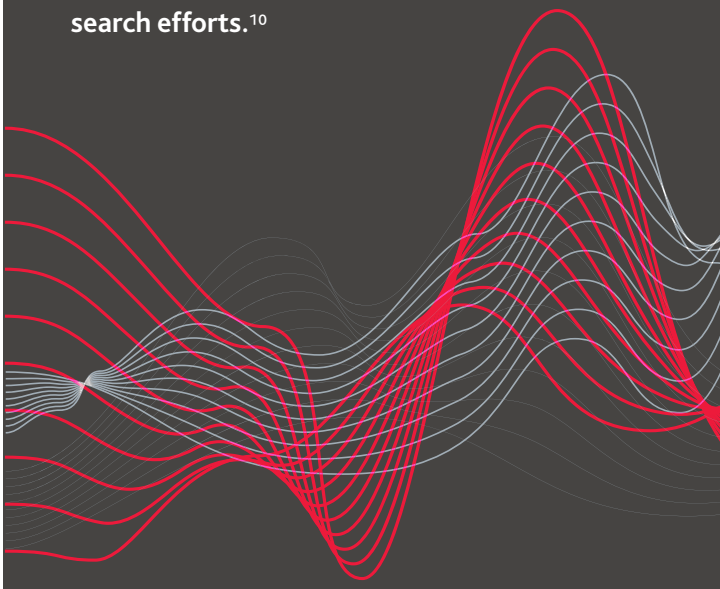
- Driving Better Business Performance
- Making More Strategic Decisions
- Improving Operational Efficiency



PREDICTIVE ANALYTICS SPOTLIGHT

RED ROOF INN

In the competitive hotel industry, Red Roof Inn was operating on a fraction of the media budget of its competition. They turned to Predictive Analytics to help them identify a target audience with the greatest probability to convert and boost sales. During a record-setting winter, the airline flight cancellation rate reached 3%, which meant around 90,000 passengers became stranded each day.[9] Financial Firm Utilizes Tableau to Turn Salesforce Data into Actionable Insights The economy hotel chain realized the value of having hotels close to major airports in times of bad weather. Their marketing and analytics team worked together to identify publicly-available weather condition and flight cancellation data sets. Using this previously unavailable information, Red Roof Inn created a targeted online marketing campaign aimed at mobile device users in the geographical areas most likely to be affected by bad weather. This lead to a 10% increase in business overall and Red Roof Inn emerged as one of the first brands to utilize innovative flight-tracking technology to power its search efforts.[10]

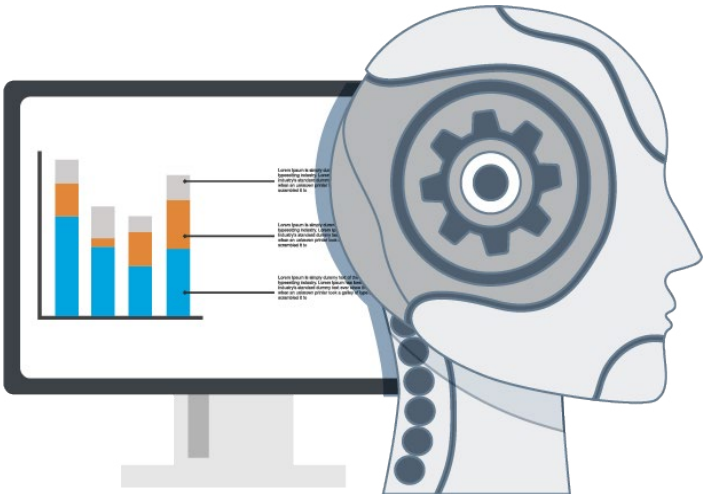


ARTIFICIAL INTELLIGENCE

One of the most buzzed-about terms within the realm of data analytics is Artificial Intelligence (A.I.). While many people may envision a science fiction world of human-like robots, the reality is that 50% of people who encounter A.I. technology don't even realize it. In reality, A.I. has been around for decades, beginning as a branch of computer science software in the mid-1950s.

A.I. mimics problem-solving, or "learning," through use of advanced algorithms and machine learning. You can most commonly see A.I. use cases in personalization of marketing offers and sales promotion you see on websites or social media, anti-virus security alerts, and fraud detection.

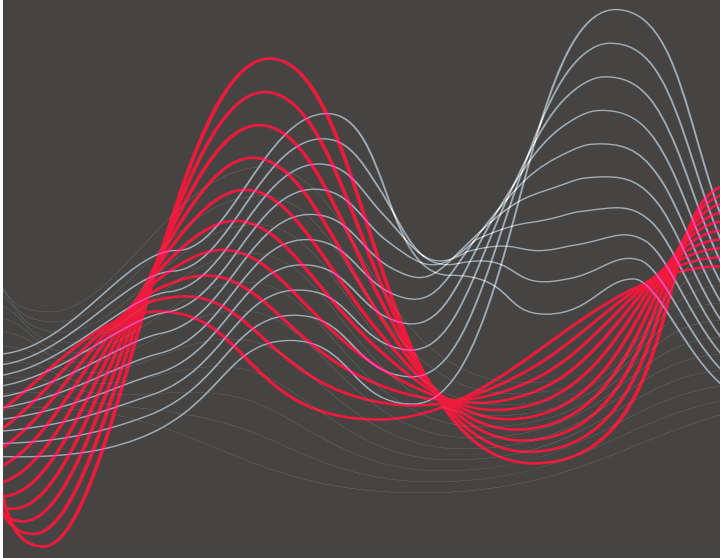
Today, many companies are embracing A.I. to improve customer engagement. Some advanced applications of A.I. are found in aiding medical diagnoses and navigating self-driving cars.



AI SPOTLIGHT

MASTERCARD

A.I. is also being used to help protect against credit card fraud as well as false declines. Though fraud gets most of the attention, it is estimated that the value of false declines is actually more than 13 times the total amount lost to actual credit card fraud – an estimated $118 billion per year. This hurts not only the consumer but merchants and banks as well. According to a study by the research consulting firm Javelin, about 15% of all cardholders have experienced a false decline for a legitimate purchase.[11] Of these, almost 40% abandoned their credit card after the false decline. To combat this, Mastercard rolled out its Decision Intelligence service which "uses artificial intelligence technology to help financial institutions increase the accuracy of real-time approvals of genuine transactions." This allows normal and abnormal shopping spending behavior overtime to be analyzed. Using sophisticated algorithms to assign a predictive score to the user, information is then incorporated into Mastercard's existing fraud mitigation efforts.[12]

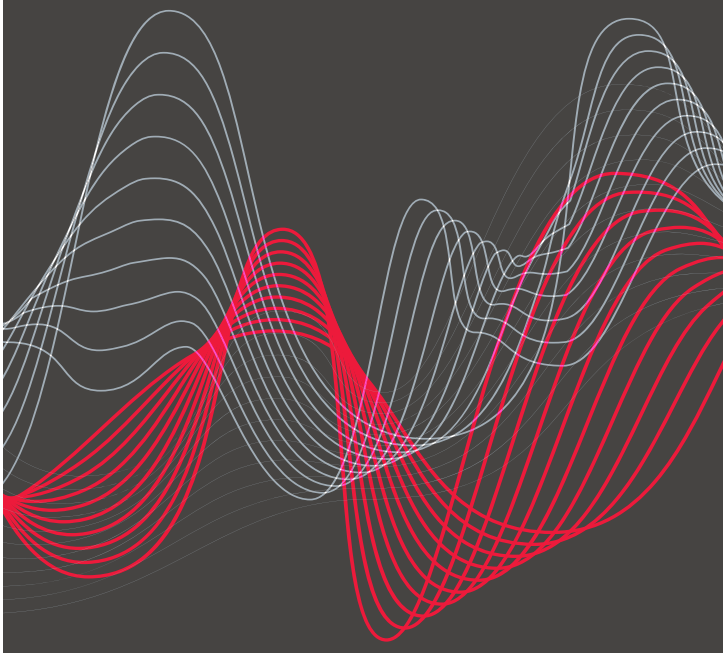


PRECISION MEDICINE

Precision Medicine is a medical model utilizing advanced analytics to make customized healthcare decisions for individual patients based on their specific data. Precision Medicine is based on the principle that every patient is unique. A patient's family and personal medical history, demographics and lifestyle info, and even molecular and cellular data can be analyzed and compared to others to detect patterns. From there, doctors can tailor prevention methodologies and individualized medical treatments for a particular patient.

PRECISION MEDICINE SPOTLIGHT
PMI

When the White House launched the Precision Medicine Initiative (PMI), it enabled a new era of medicine through research, technologies, and policies that empower patients, researchers, and providers to work together toward the development of individualized care.[13] PMI is arguably the ultimate Big Data project, linking together all the data medical researchers have been collecting for years. The projects are dominated by data collection, storage, and sharing. Analysis of this data can be used to help develop personalized cancer treatments or individualized diet plans for diabetic patients. This is the opposite of today's one-size-fits-all healthcare that is based on the "average patient" and the next step in the evolution of medicine.



CLOUD SOLUTIONS PUTTING DATA ANALYTICS WITHIN REACH

Only a few years ago, companies that wanted to take advantage of data analytics were faced with multiple challenges. Data analytics specialists were few and far between, and their only choice was to hire a PhD in mathematics to make sense of intricate data sets, powered by complex, often custom systems and robust architecture behind them. For many, this route proved to be costly and unrealistic. In recent years, that all has changed.

Today, with recent advancements in analysis tools and cloud technologies, the ability to perform and store advanced data analytics has become highly practical, efficient and user-friendly.

One of the major changes is the prevalence of cloud-based analytic tools. Companies that are embracing these tools are finding that there is a new reality where advanced analytics are within reach of almost any organization. Cloud convergence solutions provide the ability to share and access data throughout an entire organization. The massive amounts of data collected by an organization requires a capable, scalable, and cost-effective way to manage, network, compute, and store data effectively. Organizations are relying on cloud infrastructures to propagate business continuity, merging multiple technology components into a single cloud system for Big Data processing. This will be the foundation for digital businesses and increased cloud adoption in the coming years.

The big data analytics (BDA) market was worth $271.83 billion in 2022. Global spending on BDA solutions is expected to grow at the compound annual growth rate (CAGR) of 12.8% over 2021-2025.[14]

As cloud solutions drive increased adoption of Big Data initiatives, the window for early adoption status is shrinking. The big data analytics (BDA) market was worth $271.83 billion in 2022. Global spending on BDA solutions is expected to grow at the compound annual growth rate (CAGR) of 12.8% over 2021-2025.[14] This suggests that the adoption of data analytic practices is more than just a market trend, but a significant business culture shift. Cloud-based solutions are truly the future, in data analytics and beyond. 94% of companies use cloud services in 2023. This massive percentage is partially due to a massive shift that occurred in 2020, due to the COVID-19 Pandemic, which caused a reliance on remote work, 61% of businesses migrated their workloads to the cloud. Further, even at 94%, cloud adoption is still growing in 2023.[15]

THE SKY IS THE LIMIT... IF YOU CAN GET OFF THE RUNWAY

Data analytics is a growing field, The global data analytics market size was exhibited at USD 41.39 billion in 2022 and is projected to surpass around USD 346.33 billion by 2030, poised to grow at a projected CAGR of 30.41% during the forecast period 2022 to 2030.[1] To keep up with the explosion of data-related jobs, universities have debuted dozens of data analytics programs during the past few years. That's good news for the future, but current staffing remains a challenge. This brings us back to that daunting statistic – currently 60% of data analytics projects will fail to go beyond piloting and experimentation – how can you be one of the 40% that succeeds?

GETTING YOUR DATA ANALYTICS OFF THE GROUND

The reality that most organizations face today is that they have the data and the tools, but they have yet to establish a structure and a process for ongoing success in data analytics. Many organizations are now building out frameworks and taking iterative steps for a future driven by data analytics. Other organizations are turning to experienced partners to help them kick-start their data-driven future.

CHALLENGES

LACK OF A DEFINED USE CASE ALIGNED TO BUSINESS GOALS

There are infinite ways the same set of data can be sliced, diced, and analyzed. To make all these small decisions, you need to make one big decision – defining your goal. Without having a defined business case, there's nothing driving your project forward and your potentially game-changing data will remain relatively useless.

OVERWHELMING AMOUNT OF DATA SPREAD ACROSS THE ORGANIZATION

Most companies have been collecting, storing, and managing data in varying ways throughout the organization, which is commonly not unified in a manner that allows it to be utilized. When it comes time to perform analysis, the amount of data found can be so overwhelmingly abundant that companies struggle to even know where to start, which often leads to analysis paralysis.

LACK OF PROPER RESOURCES, PROCESSES, AND TOOLS

Shortages of available data scientists continue to trend. Supply is sparse because of the relative newness of the career itself. There are no 30-year professionals in the data science field today, and even someone with 10 years of experience is almost unheard of.* This often leads to a lot of spinning wheels trying to set up new processes, wasted time and effort, and ultimately abandoned initiatives.[16]

POOR USER ADOPTION

The technology behind a data analytics solution has no inherent value – it is the people that make it a success. After all the time, energy, and money are invested in a project, the true measure of success is how well the end-user is leveraging the analytical insights. Often, employees are too busy, unengaged, uninformed, or unenthusiastic about using the end product, grounding a data analytics project before it even has a chance to take off.

SOLUTIONS

START WITH BUSINESS GOALS FIRST

A critical first step to a successful data analytics initiative is to clearly define how it will make a strategic business impact. To do this, companies should surface pain points, identify potential ROI, and develop a strategic roadmap that aligns the best people, process, and technology to achieve your well-defined goals.

CONSOLIDATE DATA INTO ONE CENTRAL SOURCE OF TRUTH

Data needs to live somewhere, whether that be in a data warehouse, data lake, or other option that fits your company's needs and budget. It should ideally update in real time to maintain the most accurate information. In order to perform analysis, you first must integrate your data from disparate sources into cloud storage that has the capacity to store and maintain it, then provide the right context for analysts to discover and explore information in ways that make intuitive business sense.

UTILIZE PROPER RESOURCES, PROCESSES, AND TOOLS

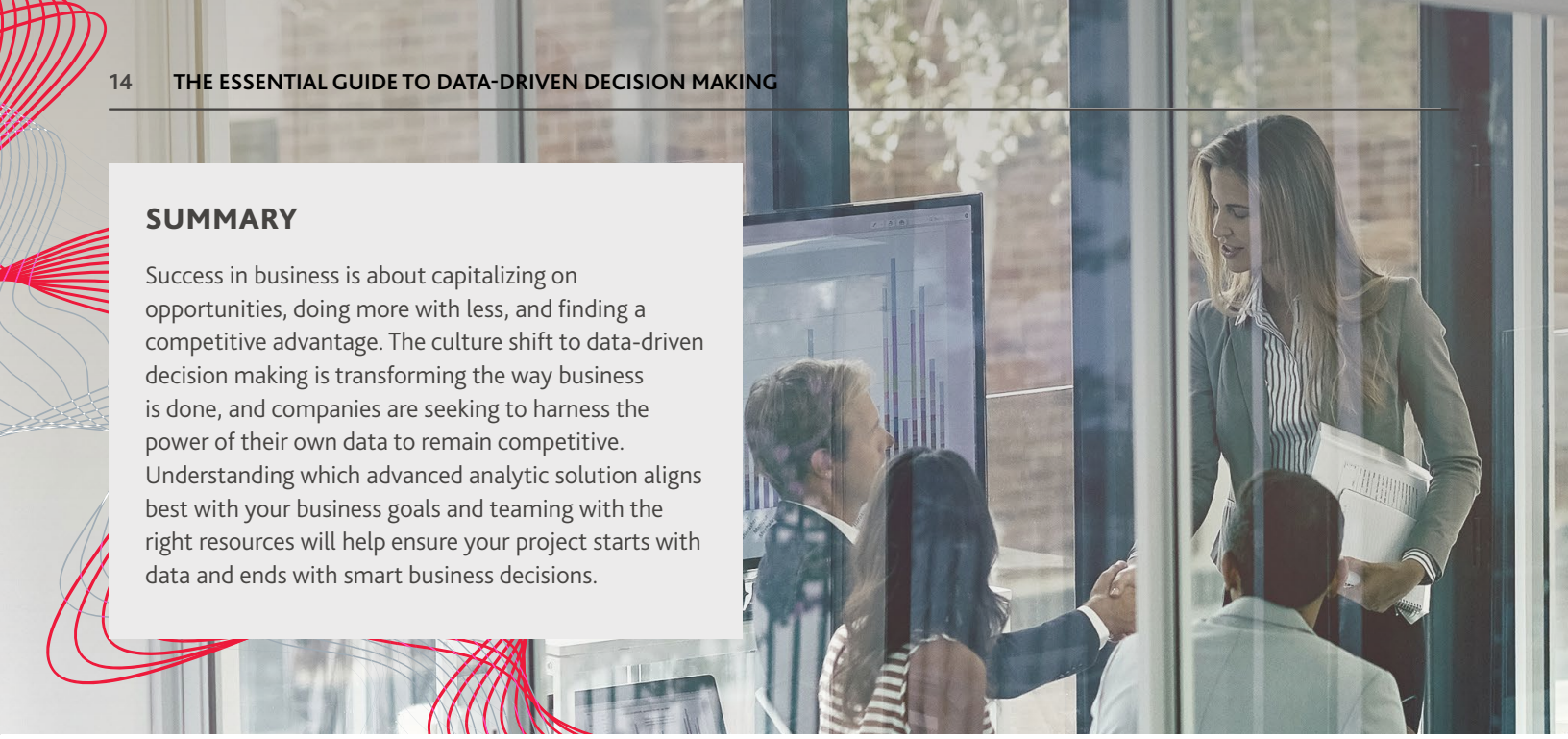
Before jumping into any project, you must start with the right approach and defined processes. There are now a plethora of sleek, self-service tools out there - but be careful. Tools can cause more harm than good if the right people aren't behind it, and tools themselves don't create a data-driven culture. As we've stated previously, cloud-based data analytics tools have put this in reach for any organization, however, the missing piece is often the methodology, process, and people with the expertise to identify the gaps and roll this out the right way.

IMPLEMENT A STRATEGIC CHANGE MANAGEMENT STRATEGY

Too many companies hope user adoption will happen after a few emails announcing the change and maybe offering some basic training. But true user adoption is achieved by gaining buy-in and commitment from a diverse workforce, no matter their level of tech savviness. This will require organizations to make their people a priority in their plans to innovate. Organizations must have a strategic operational change management strategy to prepare for, manage, and support change.

BDO Digital's Data & AI Blueprint can help you better understand your business pain points and focus areas and connect Data & AI solutions to help you achieve immediate impact and value.

SEE HOW



SUMMARY

Success in business is about capitalizing on opportunities, doing more with less, and finding a competitive advantage. The culture shift to data-driven decision making is transforming the way business is done, and companies are seeking to harness the power of their own data to remain competitive. Understanding which advanced analytic solution aligns best with your business goals and teaming with the right resources will help ensure your project starts with data and ends with smart business decisions.

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