Shaping the Future

of Business with Advanced Analytics

How Tech Organizations Can Embrace
the Next Generation of Data Insights
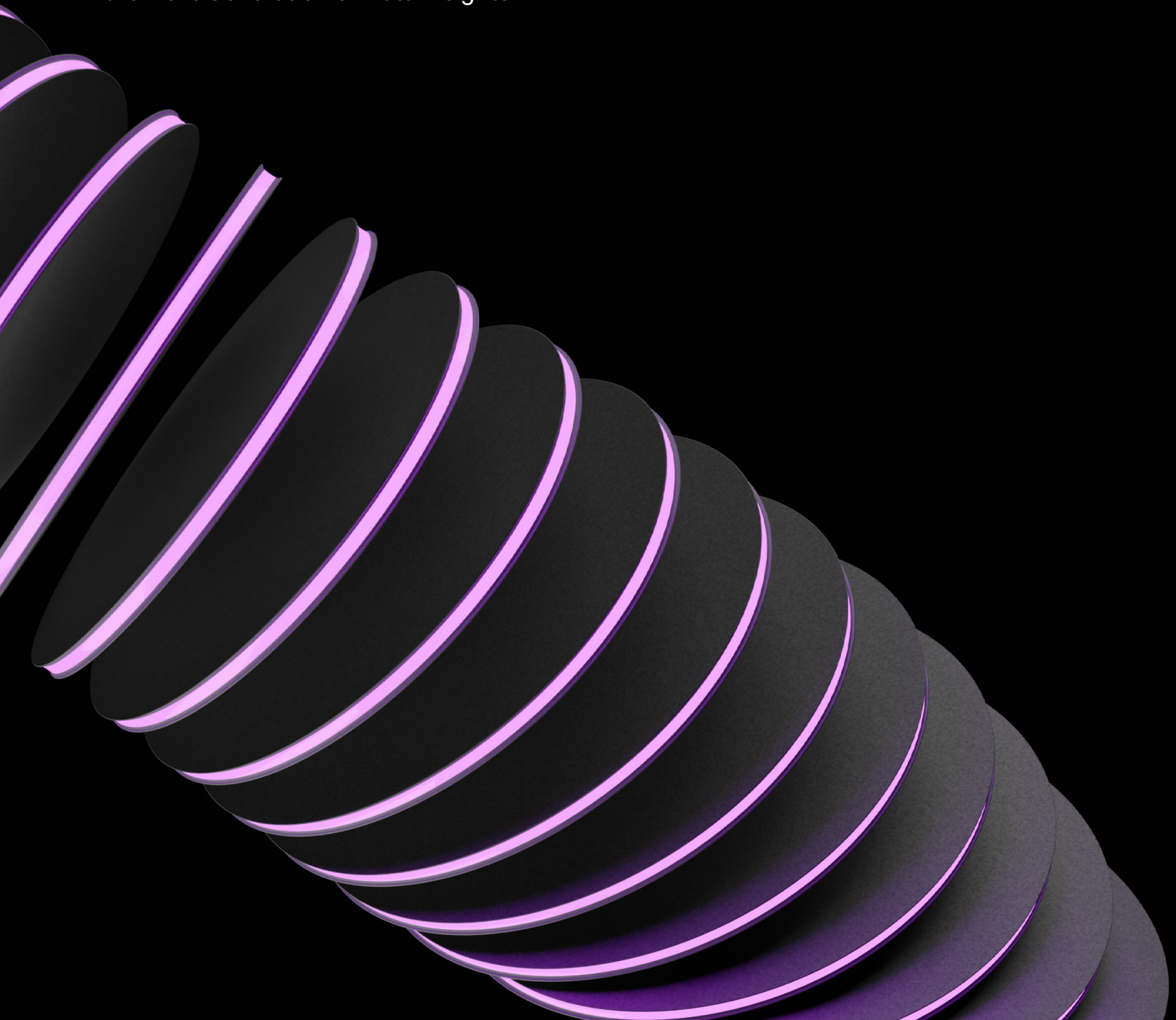
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TheModern DataCompany

Tech eBook

Advanced Analytics in Tech

Technology companies, just like companies across all other sectors, are generating more data than ever before. Advanced analytics, when applied to this data, can provide companies with incredible insights on processes, product development, quality control, and resource utilization — enabling teams to answer fundamental questions like:

- Where will the next surge in growth come from?
- How can we increase the value of our current business?
- What are current customers looking for and how do we become the ones to provide it?
- Are there risks that we haven't even considered?
- How do we keep sales momentum going?
- How do we optimize limited resources?

As they shift focus from hockey stick growth to establishing long-term value, tech companies are realizing that the ever-growing mountain of data they've amassed holds important clues to sustained innovation and responsible management. Advanced analytics is a powerful tool that can make sense of it all to enable several key benefits.

- **Money**
  Advanced analytics is not theoretical; it can generate real-world bottom-line revenue, cost-savings, and more working capital.

- **Innovation**
  While they may start with one idea, hidden insights gleaned from their data can help tech companies enter entirely new markets or compete for a new segment of customers.

- **Resources**
  From talent to investments, analytics can help executives make smarter decisions across the entire organization.

Applying advanced analytics tools, techniques, and organizational behaviors to business strategy and decision-making will deliver key benefits to vital areas of the business and its stakeholders. We've highlighted a few major focuses in the next section. After reviewing these important applications of analytics in tech, we'll discuss how the scale and performance of these analytics can be enhanced through the adoption of a modern DataOps environment.

Use Cases

Customer Acquisition and Retention

Tech companies understand that every customer interaction generates important data points. Advanced analytics can combine this information with market research and customer feedback to identify trends and changes in customer habits. Equipped with the insights, businesses can quickly identify the actions needed to meet customer expectations as well win over new customers.

Marketing

The meteoric rise of ad platforms gave marketers access to an incredible wealth of consumer information — from age and income to interests and recent life events. However, as lawmakers and consumers push back for more privacy, that access and visibility is quickly getting walled off.

Advanced analytics ensures that tech organizations can still develop and execute sophisticated marketing campaigns — but this time it's on their own terms. Grounded in verifiable transactional data, in-app activity, and online behaviors, marketers can adapt messaging and targeting in real-time across all owned environments instead of the micro-level view of Google's or Facebook's walled gardens. The detailed data based on actual, known, and verifiable customer activities is also more predictive than more generalized classifications offered by the ad platforms.

Risk Management

Risk is a part of doing business. However, successful organizations are the ones who can effectively manage those risks as they scale. Advanced analytics tools can provide powerful forecasting capabilities and model scenarios to serve smart, strategic risk management plans. Advanced analytics can support the quantification of potential future risks as well as the mitigation of current risks that need to be addressed.

Product Development

Product design and development is always best grounded in customer needs. Today's analytics tools provide a more accurate picture of those needs than ever before, enabling organizations to explore revenue streams in new markets or improve existing products. With the ability to deeply vet and validate new ideas even before development, tech companies can save on resource costs and increase the prospects of higher ROI at launch.

Scaling Analytics Through DataOps

Based on just the few use cases we shared, it's easy to see why advanced analytic offers a big opportunity for tech companies. In fact, the global market for advanced analytics is expected to grow from $248.0 billion in 2019 to $281.0 billion by 2024, with big data and predictive analytics making especially significant gains.

That's great news in the long run, but it has also eclipsed companies' abilities to effectively scale their current processes and approaches for developing and deploying analytics processes. The fast-expanding adoption of DataOps is one way that tech organizations are trying to enable their scale to meet their demand.

To understand how to best scale analytics through DataOps, retailers need to understand why DataOps is needed, what DataOps is, and how implementing DataOps successfully within an organization adds value.

For example, it is widely accepted in the field — even today — that between 70% and 80% of time spent developing advanced analytics processes is still spent acquiring, cleaning, and wrangling data. To outsiders that might seem shocking, but it is the unavoidable consequence of companies managing their data in ways that are not friendly to advanced algorithms and complex computational requirements.

Why DataOps Is Needed

For many years, companies have struggled to unlock the full potential of analytics. One big cause of this issue is the inefficiency and lack of repeatability of traditional analytical process development and deployment methods.

Another major headwind for further progress is the often-painful, inefficient, and time-consuming procedures that are in place for deploying analytical processes once they are built. In many cases, a lot of custom work is required to take a proven prototype and deploy it into operational systems so that the process can be run at scale. Messy handoffs between the analytics team that builds processes and the IT team that deploys them are made worse by the fact that advanced approaches like artificial intelligence push the limits of what today's systems can handle. The combination of unusual complexity paired with massive processing requirements strains all aspects of deployment and management to their limits.

These same processes, once deployed, are often not documented well enough for long-term support purposes and can require substantive manual intervention to address the inevitable bugs or desired upgrades that are identified. The analytics team that builds processes also typically can't escape being an integral part of the ongoing management of those processes. This means that as more successful processes are completed, there is a higher and higher percentage of time spent maintaining and managing existing processes and a lower and lower percentage of time spent creating innovative new processes that will drive value. This is frustrating and demoralizing for analytics organizations while simultaneously being a misuse of high value (and expensive) resources by the company.

What Is DataOps?

DataOps is aimed at helping companies derive more value, faster from their advanced analytics initiatives by making the development, deployment, and management of analytics processes more standardized, automated, and scalable. It is a set of process-oriented methodologies that can take full advantage of the latest available technologies in combination with people who are open to changing some of their traditional ways of working.

DataOps focuses on automating much of the testing, monitoring, and maintenance of a process so that less time is required on all fronts. It borrows heavily from agile methods and DevOps approaches. The reason for the combination of agile and DevOps is because of the unusual requirements of advanced analytics processes. In a traditional DevOps environment, most of the processes being deployed and managed are fairly standard in their processing requirements, complexity, and consistency. With advanced analytics, things are much more fluid. In fact, many advanced analytics processes literally update themselves over time. This means that what works best for a process or set of processes today may not be the best tomorrow.

This is where agile methodologies come into play. By incorporating agile, DataOps recognizes the need for flexibility and rapid adaptability that goes beyond what most DevOps environments require. The rules in place are kept to a minimum so that adjustments can be made. These adjustments, of course, come with risks and implications of their own. By following an agile approach, DataOps teams can tackle challenges quickly and incrementally. However, there is no doubt that DataOps is a difficult and complex approach to implement.

In the end, DataOps implemented properly can help streamline the core phases of the analytical development process. This includes:

1. Making the upfront data acquisition and preparation phases more efficient,
2. Better standardizing the development phase,
3. Streamlining the deployment phase, and then
4. Automating the ongoing monitoring and maintenance phase.

A typical analytical process flow can be seen in Figure 1.
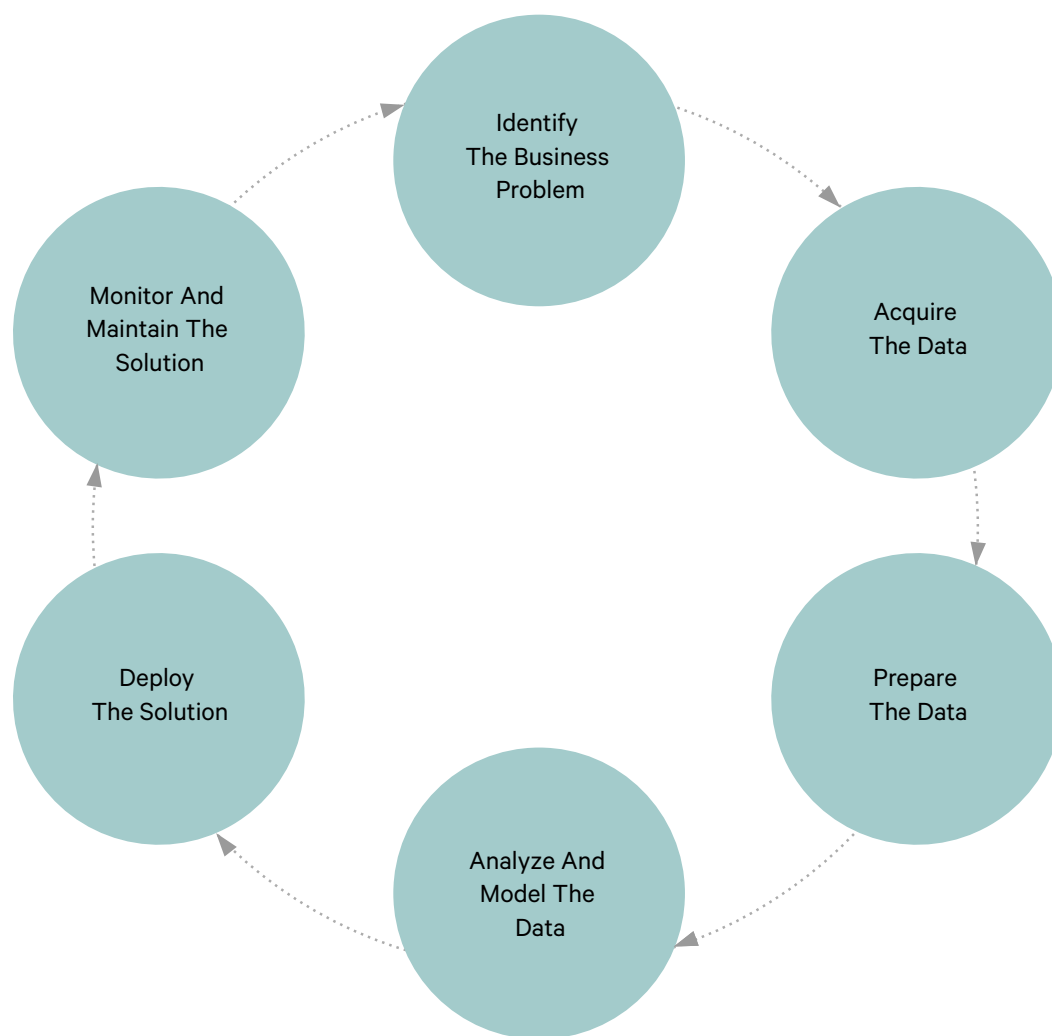
Scaling Analytics Through DataOps

(continued)

Identify
The Business
Problem

Acquire
The Data

Prepare
The Data

Analyze And
Model The
Data

Deploy
The Solution

Monitor And
Maintain The
Solution

Figure 1. A typical analytical process flow

The Benefits of Implementing DataOps

Implementing a DataOps team, platform, and philosophy is not an easy task.
Multiple teams that focus on distinct, but interconnected, disciplines will have
to come together and coordinate effectively to make DataOps become a reality.
This includes, among others, the core skills and people within the analytics and
data science team, the data engineering team, and the IT and systems team.
Each team must ensure their needs are met and each will be impacted by the
DataOps processes and technologies that are implemented.

Scaling Analytics Through DataOps
(continued)

As discussed previously, even if robust DevOps capabilities already exist, there will still be significant work to do to implement DataOps. This is due to two primary causes. First, analytical processes are often more complex and less rigid than the typical processing managed by a DevOps environment. These differences need to be accounted for. Second, tools to support DevOps are evolving rapidly and there are some good solutions out there to help teams of all sizes get started. The same is true for DataOps, but DataOps is further behind on the maturity scale. As a result, organizations can expect more customization and bespoke development to get a DataOps solution implemented in the near future. Over time, as DataOps matures, this issue will lessen.

All the hard work can pay off in the end from a variety of angles, however. Having standardized data pipelines will make new processes more consistent and lessen the chance of major bugs. This also allows more rapid development of new analytics processes. At the same time, those building an analytics process will be aware of the standards they need to follow as they build, which will lead to more transparency and consistency across processes.

If your organization has increasing demands for analytics and is struggling to scale what you've got, you shouldn't be asking if you need DataOps today. Rather, you should be focused on how to get started implementing DataOps right away. DataOps is rapidly going mainstream and will be a critical component of any organization's efforts to better scale, govern, and automate analytical processes.

Learn More.

Let's talk about data solutions that deliver business results.

Contact us at info@tmdc.io →

For more resources like this,
visit our Resources page →

Cataloging each model and its purpose, as well as tracking changes made to it over time, helps tremendously with identifying outdated processes and keeping governance standards enforced. Finally, having automated processes to monitor and assess data quality and integrity along with analytical process output provides the ability to catch problems early.

About DataOS®

DataOS is an operating system that consists of a set of primitives, services and modules that are interoperable and composable. These building blocks enable organizations to compose various data architectures and dramatically reduce integrations. Enterprises can have the same data-driven decision-making experience akin to data-first tech companies in days and weeks instead of months and years.

About The Modern Data Company

Founded in 2018, The Modern Data Company began with the realization that enterprise-wide data access has been siloed. Data engineers and database administrators have been the longstanding data gatekeepers who funneled data to analysts and data scientists. We aim to change that by freeing enterprises to make better data driven decisions by democratizing access to data. When all employees, irrespective of their technical skills or background, can easily explore and analyze enterprise data, then both productivity and market expansion are realized at a faster pace.

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