ModernEBook

# The Latest Look in Retail

## Powering Sales and Strategy with Advanced Analytics

And How to Achieve It All with DataOps

# Table of Contents



TheModern DataCompany


The Modern Data Company
306 Cambridge Ave
Palo Alto, CA 94306
**TheModernDataCompany.com**
**info@TMDC.io**



**Retail** eBook C28M

# Retail Challenges

There are few industries that must face the constant changes and pressures that retail faces. Within a single year, its players could see everything from drastic shifts in consumer behavior to trend explosions that fuel a new breed of competitors to supply chain issues that are completely out of their hands. But that doesn't mean retailers don't have ammo for their arsenal. Rather, it largely remains an untapped resource that could be key to thriving during demanding times — data.

As the challenges become more complex and unpredictable, retailers must rely on deep insights to effectively respond. Traditional siloed, historical analysis is simply not enough to answer these questions. Which vendors are currently putting our product chain at risk and who can we rely on at the last minute? Why are we on the verge of losing some percentage of our customers? How are demographic shifts affecting our performance? Which customers are our biggest advocates? Retail has always been driven by information but to keep up with the pace of change and consumer behavior, that information must now be powered by real-time data from a number of sources that most individuals in a retail organization simply don't have access to.

While it's taken the retail industry plenty of time and resources to get here, we are currently in a stage where strategies and decisions are made in hindsight, on historical data. But as we've seen in recent years, analyzing historical data well after it has been generated simply isn't enough. Advanced analytics require information including not only historical data, but near real-time data, from across the enterprise. And as the enterprise expands its consumer base, that information pool will also multiply, covering everything from advertising to social media to email to internal and external customer information. And that's simply the beginning. Increasingly complex and costly supply chains and all the players in it also mean an entirely new challenge in data. But, for those able to rein in the chaos, that also means new opportunities.

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. After reviewing these important applications of analytics in the retail industry, we'll discuss how the scale and performance of these analytics can be enhanced through the adoption of a modern DataOps environment.

# Advanced Analytics Use Cases

**Personalized Experiences**

Consumers are constantly bombarded with information — including sales emails, social media ads, in-app product alerts, and more — from hundreds of retailers. The competition for their attention has trained consumers to become incredibly adept at tuning out the noise. For retailers to stand out, they need to better understand customer needs, increase relevance, and create delightful experiences that have been personalized for each customer.

**Customer Segmentation**

Collecting and cross-referencing data within specific customer groups can help retailers understand customer needs and how to meet them — including what they buy, how much they've bought, and the context surrounding the purchases. Being able to understand and predict customer demands enables retailers to more successfully upsell and cross-sell.

**Marketing Attribution and Optimization**

As marketing platforms become walled gardens and cookie-less browsing makes attribution even more difficult, it becomes more important than ever for retailers to put the right analytics tools in place to ensure they can be self-sufficient when it comes to understanding customer activity against their marketing efforts. Customer journeys are not a straight line from research to purchase. Having the right tools in place can help retailers understand what customers are looking for, where they lose interest, and the most effective ways to bring them back — enabling the retailer to respond accordingly to cut costs and focus on revenuegenerating opportunities.

**Scale Supply Chains and Logistics**

Advanced analytics can give retailers visibility two to three tiers deep into their supply chain, enabling businesses to incorporate risk into their planning process. The right tools can also leverage the tens to hundreds of data sources that a single retailer has access to — including internal ERP, SCM, and MES systems and external sources like market trends, weather patterns, and consumer pricing indexes — for better demand forecasting.

**Sustainable and Predictive Pricing**

Regardless of the organization's size, determining the right price for products and services will always remain a daunting task. Too high and that reduces market share; too low and that's a race to the bottom against competitors — and that's putting it simply. Pricing strategy must also account for location, customer segment, brand image, channel, and more. Advanced analytics can dramatically improve the way retailers determine pricing. Accounting for a broad dataset means retailers can develop a highly flexible pricing framework that modifies pricing with precision at the most granular levels.

**Effective Inventory Management**

Ongoing pressure from changing market demands can sometimes push retailers to bear unjustified costs. To enable effective inventory management, sales and inventory data from multiple systems must be integrated to identify items at risk of stocking out, items at risk of being overstocked, bestsellers, and those that don't drive as much revenue. Predictive analytics can also help with the allocation of incoming inventory as well as shifting excess inventory to other locations.

# Scaling Analytics Through DataOps

Based on just the few use cases we shared, it's easy to see why advanced analytics, including artificial intelligence, offers a big opportunity for the retail industry. McKinsey Global Institute estimated in a study the potential annual value of artificial intelligence for the retail industry at $400 billion to $800 billion globally.

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 retailers 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.

## 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

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.

# Scaling Analytics Through DataOps (continued)

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.

# Scaling Analytics Through DataOps (continued)

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

1. Making the upfront data 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.

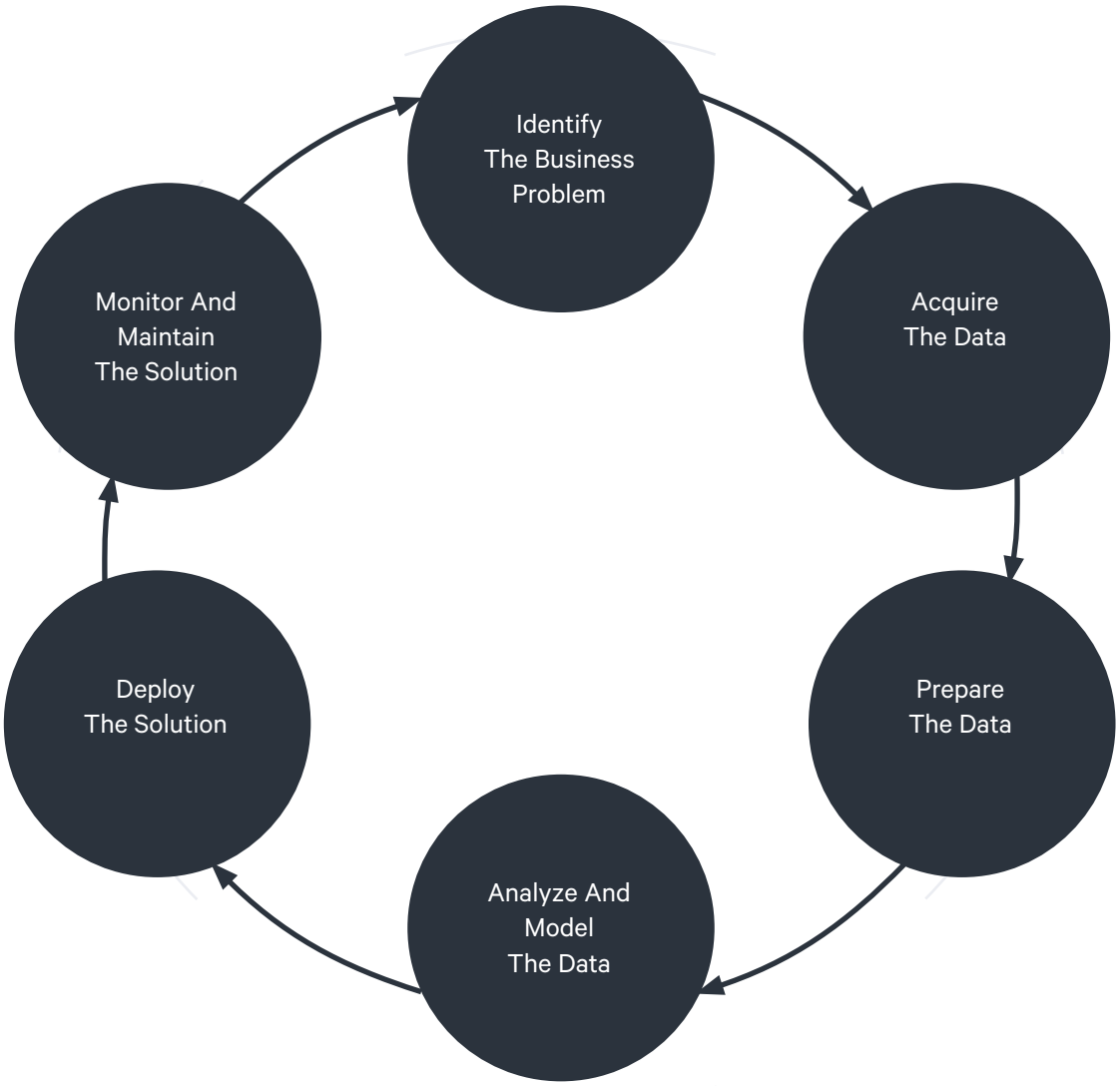


**Figure 1.** A typical analytical process flow

# Scaling Analytics Through DataOps (continued)

## 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.

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, retailers 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. 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.

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 →**

# 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.

TheModern DataCompany

The Modern Data Company
306 Cambridge Ave
Palo Alto, CA 94306
**TheModernDataCompany.com**
**info@TMDC.io**

**Retail** eBook C28M