taos
an IBM Company

Unearthing Transformational Business Value With a Modern DataOps Practice

The perfect eBook to explore DataOps for your company.

Intro to DataOps
Key drivers and goals
Keys to success
How DataOps works
Real cases and stories
Why Taos

Free ½ day workshop →

| **Intro to DataOps** | **Key drivers and goals** | **Keys to success** | **How DataOps works** | **Real cases and stories** | Why Taos |

Intro to DataOps

Data is the food of the business. The data operating environment needs to be prepared before it is planted, watered, fed, weeded and cultivated if the organization is going to extract the most value from its data. It needs room to grow, and only when ready can it be harvested and ingested by the business. This doesn't happen by chance; organizations that make the most of their data invest in a formal data operations program.

Coined in 2015[1], the term DataOps (Data Operations) refers to a development model that takes the best practices found in agile engineering and DevOps. DataOps applies these best practices to a data management program, enabling data access and utilization throughout the organization. This model promotes collaboration amongst business leaders, DevOps, data scientists, data engineers, and analytics teams to organize, analyze, and leverage data. The goal is to accelerate the collection and implementation of data-driven insights so the organization can unlock otherwise untapped business value.

The value-add coming from DataOps is so evident that every (100%) enterprise surveyed by 451 Research claims to already have a plan in place or is pursuing initiatives to deliver more agile and automated data management within their organization. The top 3 investment areas include analytics and self-service data access (40%), data virtualization (37%), and data preparation (32%).[2]

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Intro to DataOps

Typical DataOps objectives include:[3]

Fueling continuous and fast innovation for the business by enabling self-service access to trusted, high-quality data for all data citizens.

Enabling continuous data delivery by automating data governance and integration while safeguarding regulatory concerns.

Providing a feedback loop for continuous learning from all data citizens by monitoring and optimizing the data pipeline.

Correcting the misalignment of people and goals by fostering closer links between IT system support, operations, and the business.

Accelerating the delivery of changes and improving delivery quality by introducing automation throughout the data delivery cycle.

Improving insight into the actual value of metadata and data by using results to drive optimization.

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Key drivers and goals

When asked to predict what the next 24 months might look like at their organization, 71% of 451 Research survey participants said they believe data will become more important to their organization's decision-making.[4]

Modern organizations leverage advanced data operations coupled with a modern cloud and agile development to continuously transform their business to deliver more value to their customers, shareholders, partners, and employees. DataOps is critical in their strategy to proactively manage and integrate analytics to reveal new business opportunities, minimize risk to revenue, quickly respond to operational issues, and perhaps even predict what could happen next.
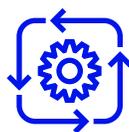
Ultimately, it's all about uncovering new ideas and opportunities and converting them to production processes to extract value financially, operationally, or both:

Grow revenue

Expand profit

Increase operational efficiencies

Create new business opportunities

Raise the value for the customer

Improve operational agility

Simplify operations for a number of data sources

Empower the entire organization to be data-driven

Adhere to data governance requirements

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Key considerations for success

Sometimes a story presents itself without much effort. If looking in the right place at the right time, some organizations can spot the obvious low-hanging fruit in their data. However, the big, innovative, game-changing, insight-driven stories are likely buried deep in your widespread collection of data residing across multiple systems in multiple formats. Getting access to and harnessing this data in a timely manner requires a deliberate data operations program that considers not only the data itself but also the applications, analysis, and the environment in which the program resides.

Hoping to uncover game-changing value in the data without a formal program could result in less-than-desirable outcomes. Organizations serious about transforming their business with data need to embrace and invest in a formal DataOps model where many elements must be aligned:

Data access: Availability, speed, and scalability of the cloud storage and other services are critical. 92 percent of enterprises have a multi-cloud strategy; 61% plan to optimize their cloud use.[5]

Data integrity: Trust in the data and the outcomes is non-negotiable. 90% of organizations believe data quality and trust will become more important than volume or quantity.[6]

Data protection: Keeping the data safe from prying eyes and compromise is critical but often limits the ability to use the data effectively. 84% of organizations believe that data privacy and security requirements limit their access to data.[7]

DataOps culture: Looking beyond the data, technology, and algorithms is critical. Similar to establishing a DevOps culture, organizations need to think and act differently when it comes to a DataOps practice, building a culture where "failure is accepted and expected in order to foster innovation."[8]

DataOps lifecycle: It is critical to understand how and when the data is available, relevant, and suitable. Well-managed data is ingested, stored according to usefulness and any regulatory requirements to which it must adhere, shared with a minimum set of consumers, and then destroyed.[9]

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Key considerations for success

Below you'll find a few key benefits of a well-managed data lifecycle:[10]

Data quality is maintained for consistent, clean, and accurate results

Data is delivered in the shape and form that's consumable by those who want to gain insights

Cost control is achieved by eliminating junk and not paying for excess storage

Access controls and appropriate security levels are maintained to ensure privacy and data safety

Change control, change management, and audit history are possible, preserving the chain of custody and data records

Data sovereignty and residency requirements are met while also allowing your policies to evolve with laws and regulations that might be enacted or changed in the future

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How DataOps Now works

1 DataOps Now is a partner to help you manage your data operations. We help keep the flow moving across the pipelines leading to a more consistent data experience. You are likely consuming data from various sources in various formats:
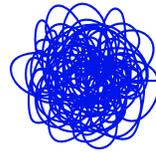
Unstructured   Semi-Structured   Structured

2 The process that takes that data from generation to storage is the data pipeline. The main goal of Taos DataOps Now is to make sure that process is secure, cost-optimized, reliable, efficient, operationally excellent, and performant. This means that solutions are created in a 6 pillars sustainable model and maintained by the engineering staff to always meet those characteristics. This is accomplished by allocating the tasks to a pod of data experts consisting of:

Data Architect

Senior DataOps Engineers

DataOps Engineers

DevOps Engineers

3 The pod shares a common set of clients. This allows them to have an incredible breadth of capability that a single resource would otherwise struggle to obtain, including:

- Queued Messaging
- RDS
- S3
- API Gateway
- AWS Glue
- AWS Kinesis
- AWS Athena
- AWS RedShift
- AWS Aurora
- AWS Neptune
- Apache Spark
- Airflow

- GCP Data Fusion
- GCP Big Query
- GCP Looker
- Beam
- Azure Data Bricks
- Azure SQL
- QuickSight
- PowerBI

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Real cases and stories

Bring on the Big Data

Many organizations looking to get the most out of their data turn to Taos for help identifying which best-in-class data products and services are the right fit for their business. Taos works with all the major hyper scalers, including AWS, GCP, Azure, IBM, and Oracle Cloud.

The Taos team has deep experience developing a solution with the confidence that it will work for your business wherever your data is stored and consumed. From data security to how best to harness the power of the cloud for your own big data solutions.

DataOps use cases

A business-ready DataOps practice can drive value and competitive advantage throughout the organization. Below you will find some sample use cases:

Public services ⬈

Sonoma County uses technology to fight the forces of inequality. A 360-degree view of the client helped the county break down information barriers and provide improved citizen services delivery.

Product development ⬈

State Farm's test data management benefits a governed organization's data mining, application development, and product development processes in the insurance industry.

Data science ⬈

Vanguard successfully implemented data governance strategies to provide trusted data to data scientists and analysts in predictive analytics and new product development in the financial services industry.

Client experience ⬈

Localiza Rent-A-Car is driven by a mission to provide personalized service to its customers by providing a single, 360-degree view of customer interactions across four unique business units.

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Real cases and stories

We can get some additional motivation to embrace DataOps by exploring some of the case studies presented in Bernard Marr's book, Data Strategy: How to Profit From a World of Big Data, Analytics and Artificial Intelligence:[11]

Data-driven, evidence-based decision making

Bacardi used data analytics to address the problem of "shrinkage" across its supply chain. A larger amount of product than was acceptable was being lost during production, transit, and retail. The majority of the shrinkage occurred at the retail level due to shoplifting.

Data-driven, evidence-based customer insights

Disney's "Magic Bands" wristbands provide the resort operator with a real-time stream of information about where its guests are, what they are doing, and how they are using the attractions and facilities. Disney uses this to leverage as much value as they can from each visitor by maximizing opportunities to identify what they want to buy next and making sure it's conveniently on hand at the right time.

Creating better products, creating smart products, creating intelligent products

Airbus successfully demonstrated the take-off capability of its Autonomous Taxi, Take-Off and Landing (ATTOL) system, which uses computer vision to understand the movement of the aircraft as well as spot hazards on the runway while taxiing or on approach to land.[2] Airbus is working on the taxiing and landing functions, but has said that it is not rushing ahead to deliver fully autonomous aircraft. Instead, its focus is on creating technology that will assist human pilots in making better decisions.

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Real cases and stories

Data-driven, evidence-based service enhancements

Uber started out with a simple mission—disrupt the private hire vehicle market by using data to allow anyone to become a cab driver in their own car. In the days when taking a taxi generally meant waiting in the street for one to drive past and trying to hail it, the ability to use an app to match people needing a ride with drivers in their vicinity was revolutionary. As success led to greater and greater volumes of data, it expanded into food delivery with Uber Eats, and introduced a machine learning-driven customer service system for quickly resolving issues ranging from disputes over fares to lost property left behind in vehicles.

Data-driven, evidence-based business process optimization

Macy's and other leading retailers say that AI and data analytics are now being applied at every stage of the retail process: working out what the popular products will be by predicting trends, forecasting where the demand will be for those products, optimizing pricing for a competitive edge, identifying the customers likely to be interested in the products and working out the best way to approach them, taking their money and, finally, working out what to sell them next.

Creating a new revenue stream selling internally generated data

John Deere aggregates data from sensors attached to the farming machinery it sells worldwide and then sells the data to farmers to help them make decisions about planting crops and using pesticides.

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The value of taking your DataOps journey with Taos by your side

DataOps is a crucial component within the entire Taos solutions portfolio that enables the full lifecycle of the Digital Transformation and Digital Optimization journey.
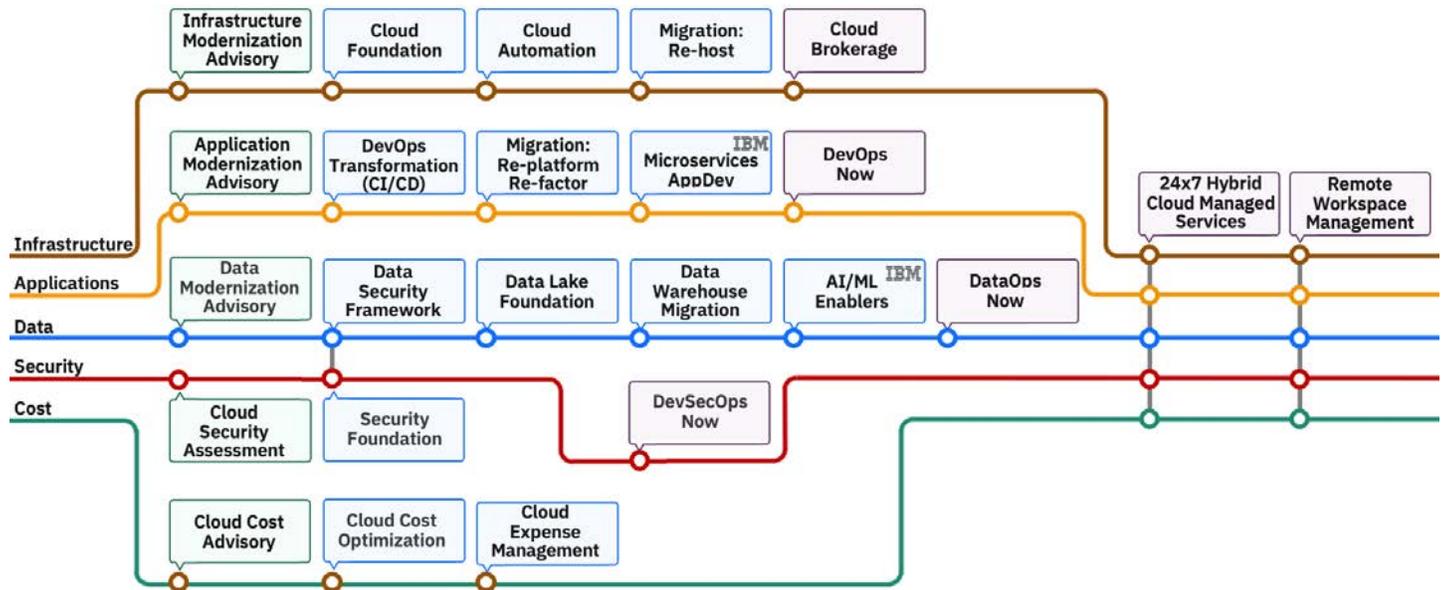
With the DataOps journey underway, it's essential to focus on the data pipeline. The pipeline ensures that the data is accessible, current, relevant, complete, trustworthy, hasn't been accessed by unauthorized users or systems due to spillage or a lack of proper access controls, and is decommissioned when its value in the data chain has ended.

As referenced earlier, the process that takes that data from generation to storage is the data pipeline. To ensure these requirements are met, the data pipeline must be managed with the following elements:

- Data lifecycle management
- Articulated ingestion, transformation, and load requirements
- Clear lines of demarcation between Data Producer, Data Broker, and Data Consumer
- Data freshness, availability, integrity monitoring
- Spill remediation for data backfill and replay

- Quality control to prevent bugs and failures
- Drain and update to maintain the pipeline's integrity
- Infrastructure troubleshooting with integration into native monitoring tools
- Ongoing optimizations

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The value of taking your DataOps journey with Taos by your side

To ensure your DataOps journey and data pipeline are in proper working order, your organization likely requires the expertise of a data architect and data engineer to optimally use native hypescaler services to run, maintain, and evolve dozens or hundreds of data pipelines throughout the ongoing DataOps journey. To address this need, Taos has you covered:

Results-based delivery
Integration with your environment, product, and operations roadmaps help solve inefficient data-generation and processing problems, improving poor data quality caused by errors and inconsistencies.

End-to-end efficient data
Access agile software to curate, govern, manage, and provision data—connected and optimized at every data lifecycle stage—across the entire supply chain.

Secure and compliant data
Apply controls for automated, customizable data quality, masking, tokenization, and more so data is protected and compliance-verified at every step of its journey.

Lower data costs
Offer stakeholders self-service access. This quality will make data easily discovered, selected, and provisioned to any destination while reducing IT dependence, accelerating analytic outcomes, and lowering data costs.

Drive business insights
Discover DataOps solutions that can monetize your data and deliver up to 87% savings in development costs with automated design.

Communication
DataOps outcomes need to be presented in story form to those that can make the change to harness the data, from the executives (for funding) to practitioners (for execution) to employees (for empowerment).

Virtual Workforce
Taos becomes an extension of your engineering team to continuously scale and improve operations, avoiding a single point of failure and protecting employees from burnout.

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Workshop

Join Taos for a half-day workshop where the Taos team will design an agenda selecting from key activities to meet your organization's needs. Taos will assess and analyze your requirements, align them with your roadmap for the future, and recommend solutions to produce results that are truly meaningful for your organization's big data goals.

Sources

1 - From DevOps to DataOps, By Andy Palmer, May 2015

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3 - Deliver business-ready data fast with DataOps, IBM, April 2020

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8 - Leap to a Higher Level of Business with Taos DevOps Services, Taos, January 2021

9, 10 - Data Blog #1: The Four Pillars of the Data Landing Zone, Taos, January 2022

11 - Data Strategy: How to Profit from a World of Big Data, Analytics and Artificial Intelligence, Bernard Marr, October 2021

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