

A Modern

Data Strategy for Government Organizations

 Modern White Paper

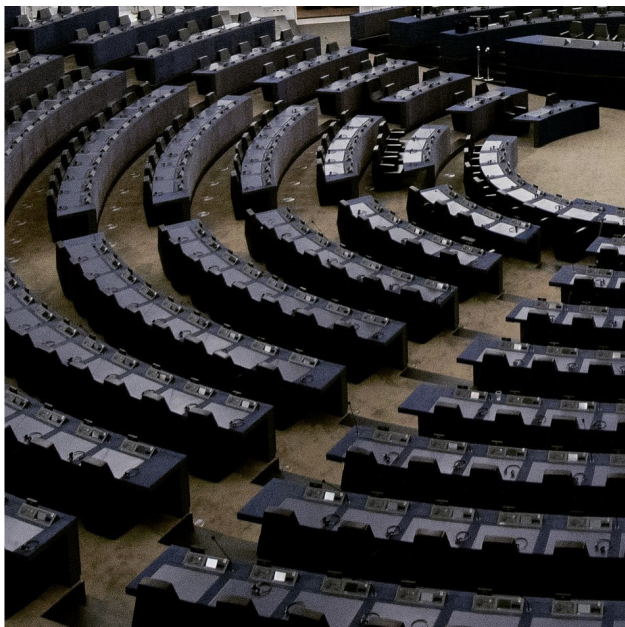
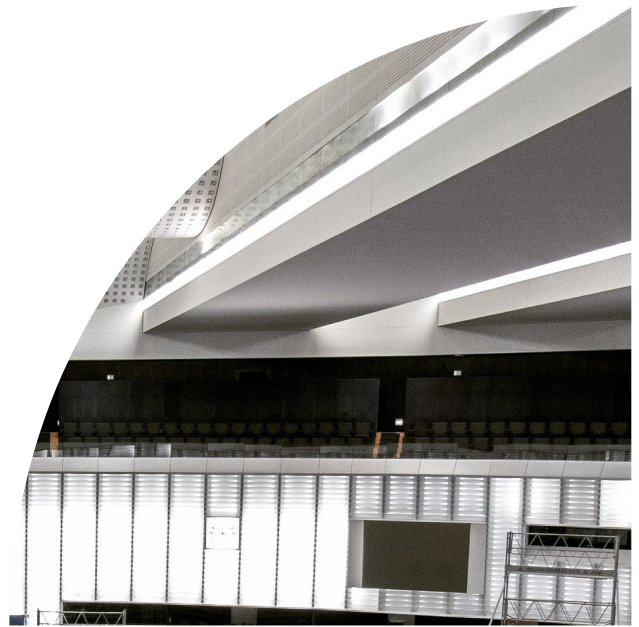
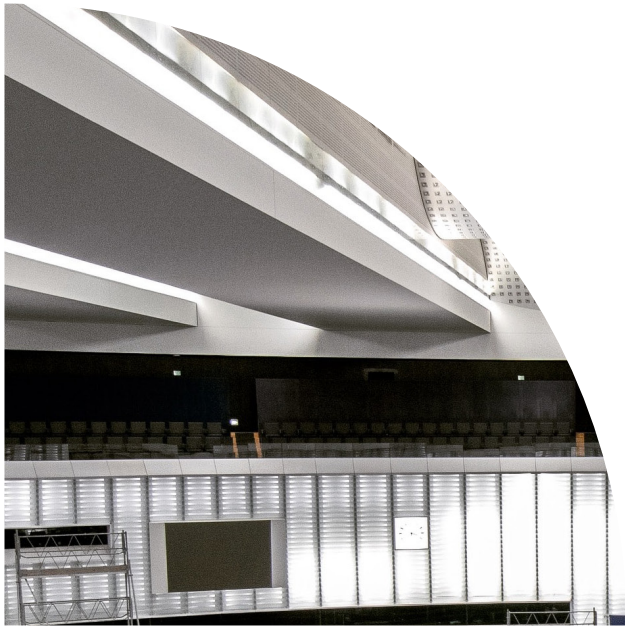


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Government organizations face the same critical challenge that enterprises across every industry currently face: regardless of how much data you have, is the data actually usable?

The Modern Data Company (Modern) believes data usability requires three things:

- data quality – high-quality data for analysis;
- data access – access for everyone to the data they want whenever they want it and with the right permissions;
- data meaning – semantics of the data and context of every data element.

Data has no value unless it is usable and accessible.

Based on this definition, Modern developed a solution to maximize the usability of data — regardless of velocity, volume, and variety — called DataOS, the world's first data operating system.

DataOS®: The World's First Data Operating System DataOS is a complete and composable, modern data stack, out of the box. It maximizes the value of data and accelerates digital transformations, enabling enterprises to ingest, process, transform, govern, and orchestrate data from disparate data sources to deliver a trusted and real-time view of customer and business data.



The Need for a Data Operating System

Organizations are spending heavily on a range of data products and stitching them together to attempt a modern data platform and architecture. Unfortunately, these data products require significant integration and customization work just to achieve a final solution that still lacks fundamental characteristics like flexibility and ease of use. Their rigidity and limited scalability have left many organizations saddled with technical debt, to the tune of thousands of unmaintainable ETL jobs, tables, and reports that only a small specialized group can understand.

This is where DataOS comes in.

By converting data into information, DataOS adds meaning and context to data, the ability to securely access the data, and quality assurance. It converts data (tables, columns, and values) into a usable product that can be treated as an asset. Managing data as a powerful network of information enables organizations to move away from point-to-point integrations via ETL (extract, transform, load) and APIs and pivot towards a more modern way of powering all their data needs from one place.

Once data has been converted into a powerful information network, agencies need to be able to put this data to use. This level of flexibility allows agencies to quickly and easily deploy new architectures (e.g., data fabric, lake house, CDP) in weeks instead of years, try any data application, and adopt ML models or 3rd party data products without the need for extensive integrations. By powering data products (e.g., Tableau, Power BI, Adobe, Snowflake) with trusted high-quality data, agencies can finally start to see the ROI they expect and need from their investments.



DataOS[®], the Integrated Data Platform for Today and Tomorrow

DataOS maximizes the value of data and accelerates digital transformations. It enables enterprises to ingest, process, transform, govern, and orchestrate data from disparate data sources to deliver a trusted and real-time view of all data. DataOS embodies a set of core principles.

Core Principle #1: Data Is an Asset

Treat data sets the same way e-commerce businesses treat products and services — with great care. Every data element and set needs a description, schema definition, profile, quality index, sort tags, similarity markers, user profiles, and most common query reporting.

This means that all data carries a semantic meaning, enabling DataOS to move any data element to any user or system in the format that the recipient requires.

Core Principle #2: Data Quality Should Be Measurable

The key to extracting value from data lies first in knowing its quality level and second in the capacity to transform it into higher quality information. Facilitate this by automatically profiling all data and then performing a detailed analysis of quality attributes such as cardinality, completeness, missing values, and uniqueness.

DataOS runs business-specific data validation rules that enable agencies to objectively measure the quality of their data, rank it, and — most critically — factor data quality into their analytics.

Core Principle #3: Data Should Be Searchable

Currently in most organizations, data is not actually available for use — it is segmented and siloed and access is sporadic. These challenges along with fragmentation across the entire organization all constitute huge impediments to productivity and make data less valuable and less useful than it should be. DataOS must be able to catalog all data (data sets, jobs, metrics, and KPIs), which makes them available through a simple search interface. This provides instant access and enables agencies to understand what they have and how to make the most of it.

Core Principle #4: Data Must Be Interoperable

Agencies need the ability to intake data in any format — including data from mainframes, streaming systems, apps, IoT, sensors, and 5G — in structured, unstructured, or semi-structured formats. They must be able to ingest it all in batch or in real time, from one-time loads to any time loads, and they must be able to make all data available in a secure and compliant manner, so that it is ready out-of-the-box to be used in any format.

DataOS makes data truly interoperable.



Core Principle #5: Data Must Be Fit for Purpose

Data must be made available for analytics, data science, and automation in the relevant format with security classifications suited for particular use cases. Ultimately, teams need to be able to use data for a variety of purposes without having to code case specific data pipelines, transformations, governance, etc.

Core Principle #6: Data Access Is Key

Data ownership is an artificial constraint that hinders data usability in many organizations. It leads to data prisons across the organization, which are difficult to govern and impossible to manage. It also creates a considerable number of vulnerability points and increases the risk of data breaches.

Data ownership must be shifted to a data access enabling paradigm. When data is owned by the organization instead of individual teams, users and systems can leverage built-in foundational security capabilities to access necessary data in a compliant manner. These security features must include row and column level redactions, data abstraction, data masking, and data observability to ensure that every user and system has access to the data they need in the format they need with proper governance rules applied automatically.

Core Principle #7: Security, Compliance, and Flexibility Are Mandatory

As a post-GDPR solution, DataOS cannot have the baggage of rigid architectures or old technologies that inhibit large systems from achieving compliance with regulatory standards. Extensive tagging capabilities enable security and priority classifications at the most atomic level, which makes new regulatory compliance needs a simple business logic solution rather than a prohibitively expensive re-architecture that could take months or years.

This innovation transforms the management of data governance with a tag-based governance engine that provides users with the flexibility to institute role-based, attribute-based, and tag-based access controls. This empowers teams to set up conditional access controls, such as the ability to access a given data set on a specific network or during a certain period of time. All of this provides organizations with unprecedented flexibility and security.

Core Principle #8: High-Performance Collaboration

In this new era where many teams work remotely, the ability to collaborate on data workloads in the same way that teams work together using tools like Slack, Asana, Jira, and Google Docs provides essential leverage. DataOS must have a powerful collaboration layer that reaches across the entire platform to allow teams to join forces on everything from data prep to data blending to dashboarding to data quality.

Built on these principles, DataOS successfully removes complexity and future-proofs data ecosystems by unifying data management under one roof.



The Modern Advantage

Plug and Play Data Products

Modern's approach to data allows for the addition of value-driving data products (e.g., Snowflake, Google Tensor Flow, Azure ML, and C3.ai) in a plug and play fashion without the need for extensive integrations. Gone are the days of managing hundreds of thousands of ETLs without knowing where all of the data and jobs are. This new world allows agencies to bring on additional products without having to think about factors like architecture changes, implementation challenges, and the cost of professional services.

Agility

For agencies to succeed post-Covid, it's essential that they understand changes happening to the organization in real time and can respond and innovate. This requires a data infrastructure that makes technology transparent while they focus on putting data to use.

Regain Control

Modern's centralized approach to data management, data quality control, governance, etc. ensures that the organization remains in control of their data and makes front-end products replaceable, without big vendor lock ins. The Modern Data Company is creating a data future that is not limited by legacy infrastructure, which can be expensive to maintain and hard to replace.

Real Time

DataOS not only identifies changes in data patterns and anomalies in data values in real time, but also provides multiple ways to act on these insights by empowering other systems like SAP Hybris and Salesforce to react to these real-time alerts.

Experimentation

The business agility that the Modern approach brings to data management creates an environment that makes it easy for organizations to launch multiple vendor PoC's at the same time and to share data with vendors in a scalable and compliant fashion. DataOS enables data experimentation and makes it easy for agencies to launch these experiments in a matter of days (instead of the months currently required).



DataOS[®] Features for Government Organizations

Data Discoverability

Locate all the data needed with a seamless search.

Data Accessibility

Retrieve data with a simple interface.

Data Semantics

Examine descriptions of data to recognize its content, context, and applicability.

Data Lineage

Explore all of the steps that influenced the data.

Data Relationships

Leverage complementary data elements through innate relationships.

Data Quality

Data consumers can be confident in all aspects of data for decision-making.

Data Interoperability

Data consumers and producers have a common representation and comprehension of data.



The Modern Approach

DataOS is the world's first fully integrated data operating system. It delivers a data infrastructure that rapidly moves organizations from data to trusted decisions in weeks — instead of years.

It builds a connective tissue across all data, without any changes to legacy systems, to enable a complete view of enterprise data.

DataOS employs a composable data architecture that eliminates the need for constant integrations and rigid architectures. It delivers a scalable and agile data infrastructure that is driven by right to left modeling instead of conventional ETL or ELT pipelines.

DataOS is tailor made for the post-COVID data world.

Data and analytics are essential to faster and better decision making. However, data capitalization is not easy. The extreme disruption in the aftermath of COVID-19 has invalidated many prediction models that are based on historical data. Organizations that relied on machine learning to power their strategy will now have to rethink their approach, keeping in mind that the new normal is still emerging which means significant challenges in the validation of predictive models.

To make accurate decisions in an uncertain and complex environment like now, experimentation needs to be at the forefront. DataOS and its applications allow for quick and easy testing, enabling organizations to quickly surface solutions in turbulent times.

A trends report from Gartner states: “By 2021, proof-of-concept analytic projects using quantum computing infrastructure will have outperformed traditional analytic approaches in multiple domains by at least a factor of 10.”⁴

With its ability to integrate and support end-to-end data pipelines along with providing real-time data governance and sharing abilities, DataOS is the answer.



100x: DataOS[®] provides 10x the value at 1/10 the cost. Get a truly integrated, composable, and interoperable data stack out of the box.

Contact us at info@TMDC.io →

Visit us at TheModernDataCompany.com →

Sources

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