Smartbridge

Modern Data & Analytics Architecture with Azure

Smartbridge's business-focused reference architecture for modern data warehousing, business intelligence and agile analytics

Featuring

Azure

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The Traditional BI Architecture is No Longer Cutting It

The digitization of business, the explosive growth of data and compute resources have drastically changed the appetite and ability of organizations to leverage data for strategic business purposes.

This goal of leveraging data strategically and monetizing it is driving traditional data and analytics architectures obsolete.

On the next page are some of the other major drivers behind the changing data architecture landscape.

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Major Drivers in the Changing Data Architecture Landscape

Digital Transformation

Digital Transformation is disrupting all industries and intelligence is at the core of the change, from ideation to implementation.

Data-Driven Culture

More companies are moving to a data-driven culture and adoption of an experimental mindset when it comes to analytics.

Business Agility

Augmented data discovery capabilities will grow at 2Xs the rate (and deliver 2Xs the business value) of those that are not.

Business Enablement

The number of citizen data scientists is growing faster than the number of expert data scientists.

Data Explosion

Most of today's data warehouses process just 20% of the enterprise's data; New data volumes are growing at 60% annually.

Scalability & Elasticity

Performance demands from data scientists and self-service business power users are ever increasing. Fixed capacity systems don't scale and can't keep up with business demand.

Ref: Gartner BI Critical Capabilities Report

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Many companies are changing their people, process, and technology components of their business intelligence and analytics organization to drive more value and competitive advantage.

Big data analytics are core to Uber's business and key to enabling the seamless experience of connecting drivers with riders every day. Uber has over 100 petabytes of data that is leveraged in most aspects of its business. From the algorithm that connects the rider with the closest driver to analyzing supply and demand and implementing surge pricing.

Information collected from their point of sale as well as other enrichment systems add up to 85,000 sources of data pouring into their big data framework every day. Statistical modeling is used to customize offers to individual customers and households, as well as many other use cases to drive value and growth at Domino's 10,000 locations.

Being the largest package shipping company in the world, UPS has a massive amount of data from their operations that they collect at every possible opportunity. UPS has 16+ petabytes of data already and growing and this data is used at almost every aspect of their business. From creating unique services for their customers, to monitoring and optimizing environmental impact, to route optimizations, and predictive maintenance of delivery trucks.

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How Do We Meet the Needs of Current Business Users?

We Have to Change the Way We Think About Data and Analytics

This is not just about technology; it's an entirely new operating model and involves people, process, and technology changes.

People

New roles and skill sets are required to realize the vision. Many companies are talking about applying artificial intelligence and machine learning, but few have the true resources and skills to apply and operationalize them in practice. New organizational structures and IT / Business engagement models are also required to be successful. Finally, a culture of data and analytics innovation must be fostered across all areas of the business, not just small pockets.

Process

The technology and architecture can only enable the change, the right processes and governance have to be put in place to drive the value from those investments. For example, leveraging agile delivery methodology and tools or establishing the data governance required to ensure you are not creating a data swamp. Processes must also be overhauled or created to enable rapid experimentation and speed to insights.
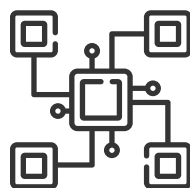
Technology

The right technology architecture needs to be established that supports all data sources at speed and scale. The architecture also needs to be right-sized and accommodate the true business need and avoid just implementing technology for technology's sake. For example, as big data became more prevalent Hadoop became synonymous with big data and many companies implemented Hadoop without true use cases or needs where a much simpler solution may have actually worked better.
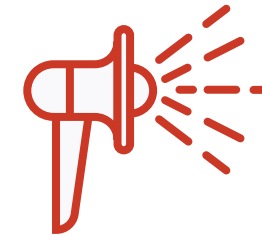
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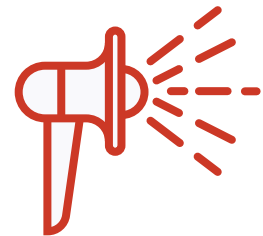# Business Users Are Demanding More from Their Technology Partners
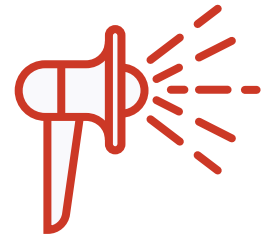
Access
"We need to access all the data as soon as it's available!"
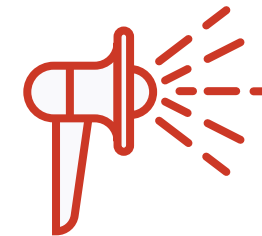
Speed
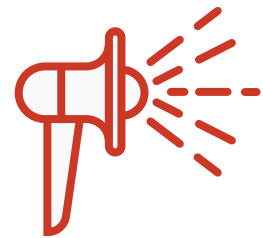*"It takes a minimum of three months to get a new data mart!"*

Scale
"Anything outside of the cubes takes forever to run."

Productivity
"All of these insights are produced manually today."

Simplicity
"We spend too much time finding and wrangling the data."

While daunting, these demands can be met by modernizing the people, process and technology aspects of your data and analytics organization.

Which brings us to the next section that focuses on modernizing data and analytics technology to enable this transformation.

BI & ANALYTICS ORGANIZATIONAL MODELS ARE CHANGING

Read our blog post to find out more!

🌐   smartbridge.com/bimodels

Modernizing the Architecture

# So What Makes a Data Analytics Architecture "Modern"?

Data & analytics "modernization" is a buzz word that's used a lot, but what exactly does it mean? Below is a list of characteristics and capabilities we believe defines a modern architecture.

In the following pages, we will walk through our agile analytics logical reference architecture that meets all of these criteria for enabling your future state analytics organization.

☑ Handles all varieties of data sources

☑ Large data volumes

☑ Automatic elasticity

☑ Cloud/hybrid data integration

☑ Data virtualization & federated analytics

☑ Near real-time streaming capability

☑ Supports democratization of data and analytics

☑ Agile delivery

☑ Search and NLP-based insights

☑ Enables data science and ML

☑ Data catalog and ability to search data assets

☑ Promotes self-services

☑ Business-enabled data engineering

☑ Data exploration & analytics sandbox

☑ Just-in-time provisioning and scalability

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Smartbridge's Agile Analytics Reference Architecture

From handling all varieties and volumes of data to promoting self-service and democratization of data, it is important that the technology architecture supports key modern capabilities. Smartbridge's reference architecture supports business enablement with agility and scale. We typically use this logical reference architecture as a starting point and then refine further based on a number of factors to eventually get to a physical architecture to be implemented.


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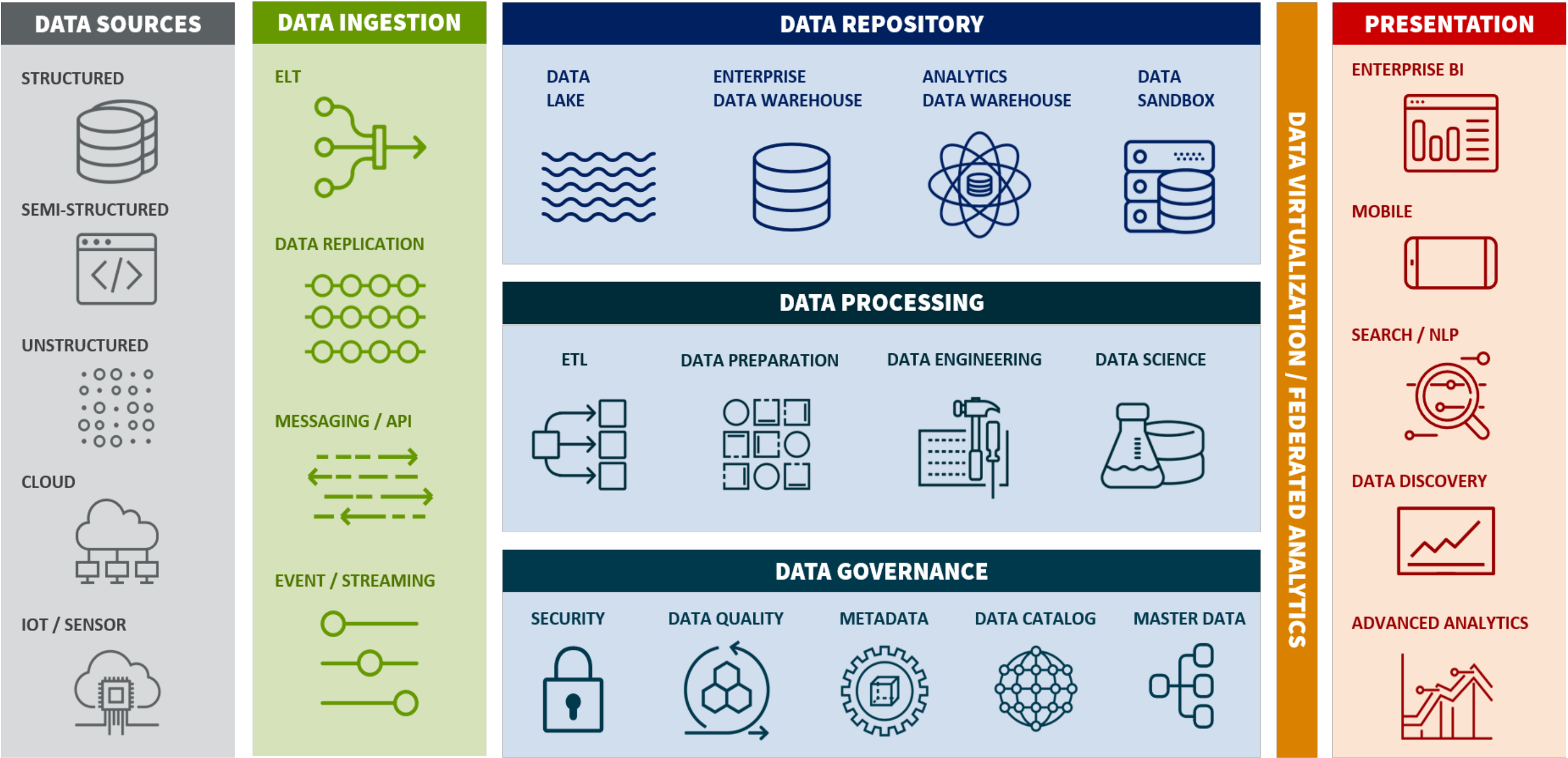
Implementing an Agile Data & Analytics Architecture in Azure

Although Microsoft's Azure cloud platform has been around for a while, in the last 5 years the capabilities of the platform have matured and grown, particularly in the data & analytics space. This makes Azure the strategic choice for organizations large and small.

There are some benefits to the entire data & analytics solution architecture being on Azure including tightly-coupled service integration and cost management. However, you can also be successful with a hybrid solution architecture. Some common examples are using Snowflake as the cloud data lake and/or data warehouse and using other BI platforms (MicroStrategy, for example) rather than Power BI.

CONTACT US!

Smartbridge is happy to provide a deeper dive into the various components in our reference architecture. We'll share key considerations for Azure services as well as Azure-alternatives to consider when architecting your Azure data & analytics solution architecture.

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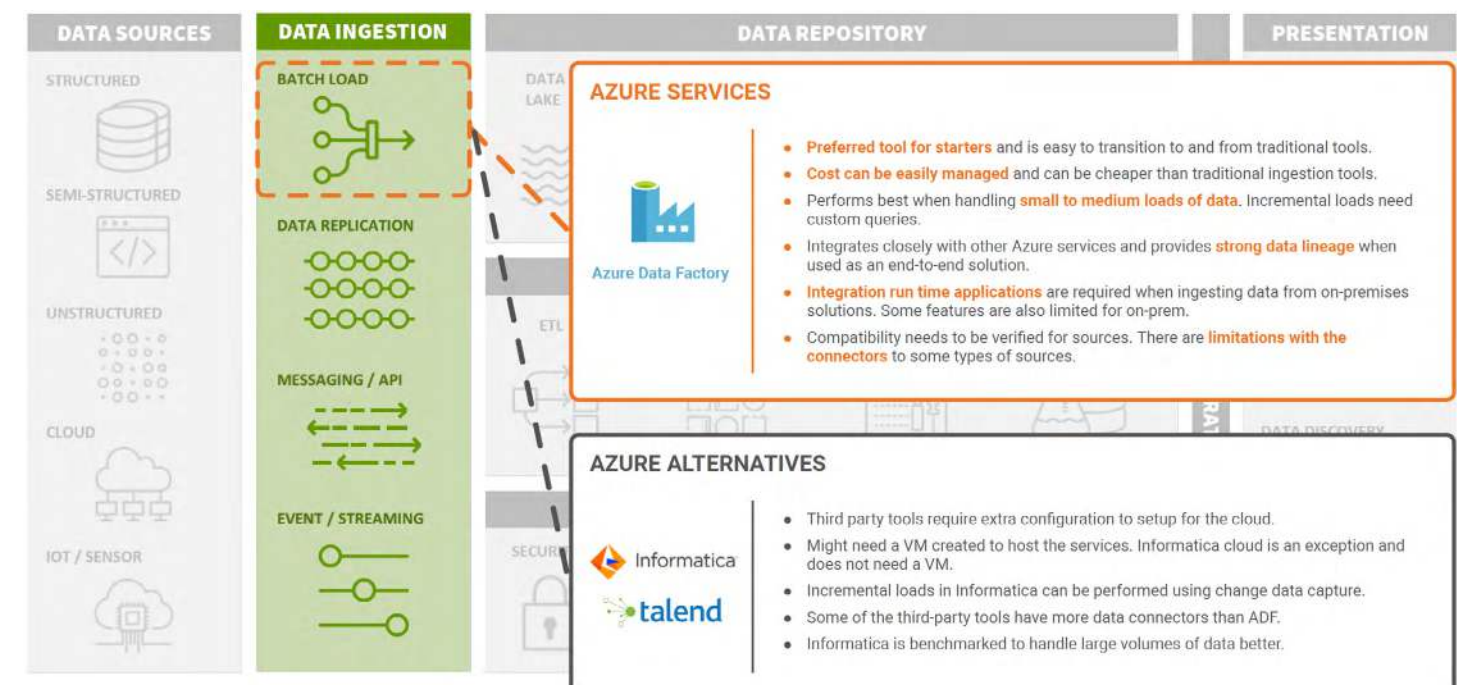
The Right Technology to Meet Your Needs

We maintain a strong, connected technology ecosystem to architect the right modern agile and cloud solutions for our client business needs.

Azure

Power BI

snowflake

MicroStrategy®
Implementation Partner & Reseller

+ableau®
PARTNER

databricks

Informatica™

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Accelerating Agile Analytics

Tactics For Approaching Modernization: Where to Start?

It rarely makes sense and is hard to justify implementing the entire future state architecture all at once. The behemoth you walked through in the previous section is a daunting task to consider. It's likely you don't have the time, budget, or resources necessary to deploy such a significant change.

Smartbridge has found that there are a few common options that can be a starting point on your journey to modernization which can provide quick wins. Below are those options in no particular order:
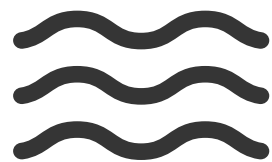
Create a Data Lake

First establish a foundation for bringing in all data into the analytics ecosystem. Then start to bring in previously untapped sources of data. There will likely always be a prerequisite for several downstream initiatives.

Implement a Cloud Data Warehouse

You can start small and move fast by implementing a cloud data warehouse that supercharges your current analytics initiatives while only paying as you go. A new opportunity will emerge to simplify data pipelines and decrease time to value for new subject areas.

Establish a Standard with Federated Analytics

By doing so, initiates an enterprise standard framework for analytics metadata. This allows for extension of access to other internal or even external data sources that were previously unavailable to the business.
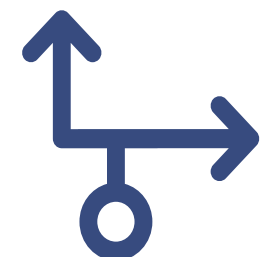
Options for Implementation

Once you select a tactic or starting point, there are several options for implementing the selected component.
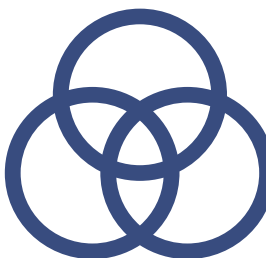
New
If there is no current state for the capability, then we approach this as a new implementation that has minimal dependency on legacy components.

Lift & Shift
When existing data or analytics capabilities need to move to the new platform, the lift and shift will focus on minimal re-engineering.

New Hybrid
The new solution is implemented only for new or segmented requirements. For example, a new data mart or reporting subject area, or a partial re-architecture of an existing subject area.

SEE OUR DATA & ANALYTICS IN ACTION

Read our case studies and learn how we have successfully helped our clients!

smartbridge.com/ azuremigration-powerbi

smartbridge.com/ azurewarehouse-pbireporting

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Options for Implementation

	New	**Lift & Shift**	**New Hybrid**
Pros	• Least complicated • Allows for best practice without constraints	• Allows for full realization of value without constraints of migration • Allows for segmentation of certain areas that are more ready for modernization	• Lower change management needs • Can allow for retirement/ rationalization of legacy solutions
Cons	• Can extend delivery if first-time capability • Increased change management needs	• Additional resource needs to support legacy and new systems	• Adds complexity and constraints to implementation • May not be able to realize full benefits and value of new solution

Next Steps

Your cloud analytics journey awaits!

In this eBook, we briefly touched on what the journey to cloud analytics looks like and why it matters. Realizing this future state vision and the desired business outcomes are not a one-time event but a journey or program that needs to be planned accordingly. However, it is possible to accelerate that journey and get some quick wins along the way.

At Smartbridge, we usually recommend starting with a proof of concept (POC) or pilot for a high value analytics use case to demonstrate value, while in parallel building a future state architecture and roadmap to get there. Let Smartbridge be your partner and guide in accelerating your journey to cloud analytics.

The road is long. You don't have to go alone. Let Smartbridge be your partner and guide in your modern data & analytics journey.

Set up a call to discuss the Smartbridge approach

T: 877-627-8274 │ **W:** smartbridge.com/contact

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Smartbridge focuses on simplifying business transformation. We apply thought leadership and innovation to bring our customer's digital agenda to reality.

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