

WHITE PAPER:

How a Modern Data Architecture Will Revolutionize the Financial Services Industry



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INSIGHTS

Introduction

The role of data in the financial services landscape has grown exponentially in recent years and is advancing rapidly. Unfortunately, many organizations are ill-equipped to take advantage of all the benefits their data has to offer. From our own experience working with commercial and retail banks, most can't even access, let alone process, all the data they've already amassed. Traditional data solutions were built based on the demands of yesterday using technologies available at that point in time. However, the ever-growing amount of data and the insights that can now be extracted from it, have rendered these solutions obsolete.

Data Challenges in Financial Services

Financial Services is a heavily regulated industry, and organizational complexity is driven by business segments, product lines, customer segments, a multitude of channels and transaction volumes. Data is incredibly siloed in multiple dimensions.

It resides in various departments, legacy mainframe applications, databases and special purpose marts, due to a combination of historic and functional reasons. Understandably, the integrity, consistency and structure of this data vary dramatically, limiting the feasibility and potential to make data driven business decisions. Further complicating this morass of data is the deluge of new forms and sources of information, including mobile and social media.

Traditional data infrastructures have mostly failed to keep up with these current demands, while costing the banks dearly. Costs manifest themselves both in terms of higher Capex and Opex, as well as opportunity costs from lost revenue streams. Banks have struggled to handle the enormity and complexity of the body of data, unable to store and process the information available to the organization. As banks spend money and IT resources simply trying to keep up, the opportunity costs of using outdated architectures accumulate quickly. Traditional systems are inhibiting the growth and limiting the potential of such organizations. Organizations that are slow to adopt a modern data architecture stand the risk of losing out to more nimble competition.

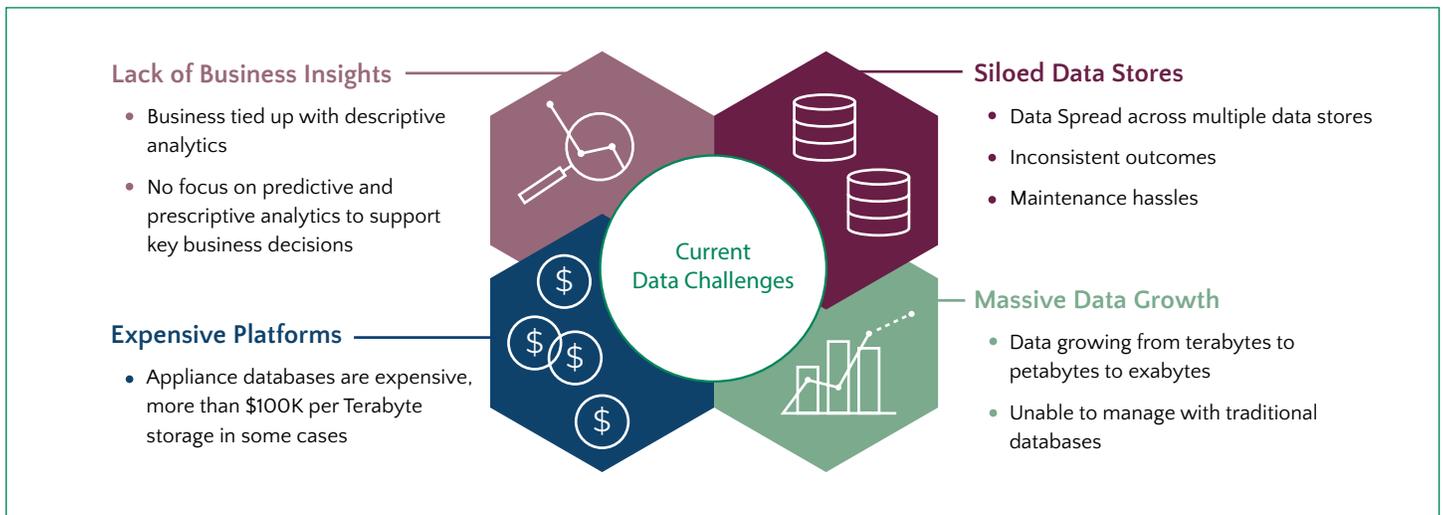


Figure 1: Current data challenges

What Is a Modern Data Architecture?

We use the term modern data architecture interchangeably with cloud-based data lakes and the surrounding ecosystem of tools and technologies. Where traditional systems flounder, outpaced by data growth and processing needs, a modern data architecture excels. Advanced data solutions not only handle current demands but are built to be future-ready, and they enable you to connect multiple hardware or software devices, to work as a single entity. By taking advantage of the cloud, these innovative systems deliver on-demand storage (vertical scaling) and expand to accommodate increased processing loads (horizontal scaling).

Unlike the multiple, disparate sources used by traditional platforms, a single data lake is the cornerstone of the modern data architecture. Creating this lake begins with a clear data governance program that ensures only the highest quality data is gathered, processed and funneled into your lake. Once the single source of data is established and governance guidelines are in place, the focus turns to ingestion and cataloging of metadata—mapping fields and defining how to parse data from all sources.

Another important feature of this type of data architecture is a robust search function, which facilitates enterprise-wide data accessibility and empowers data stewards—employees who act as gatekeepers to maintain the stringent quality of the data lake. For example, if the decision is made to migrate customer data into the lake, but some customer data already exists, data stewards make sure there are no errors or duplication of data (or effort).

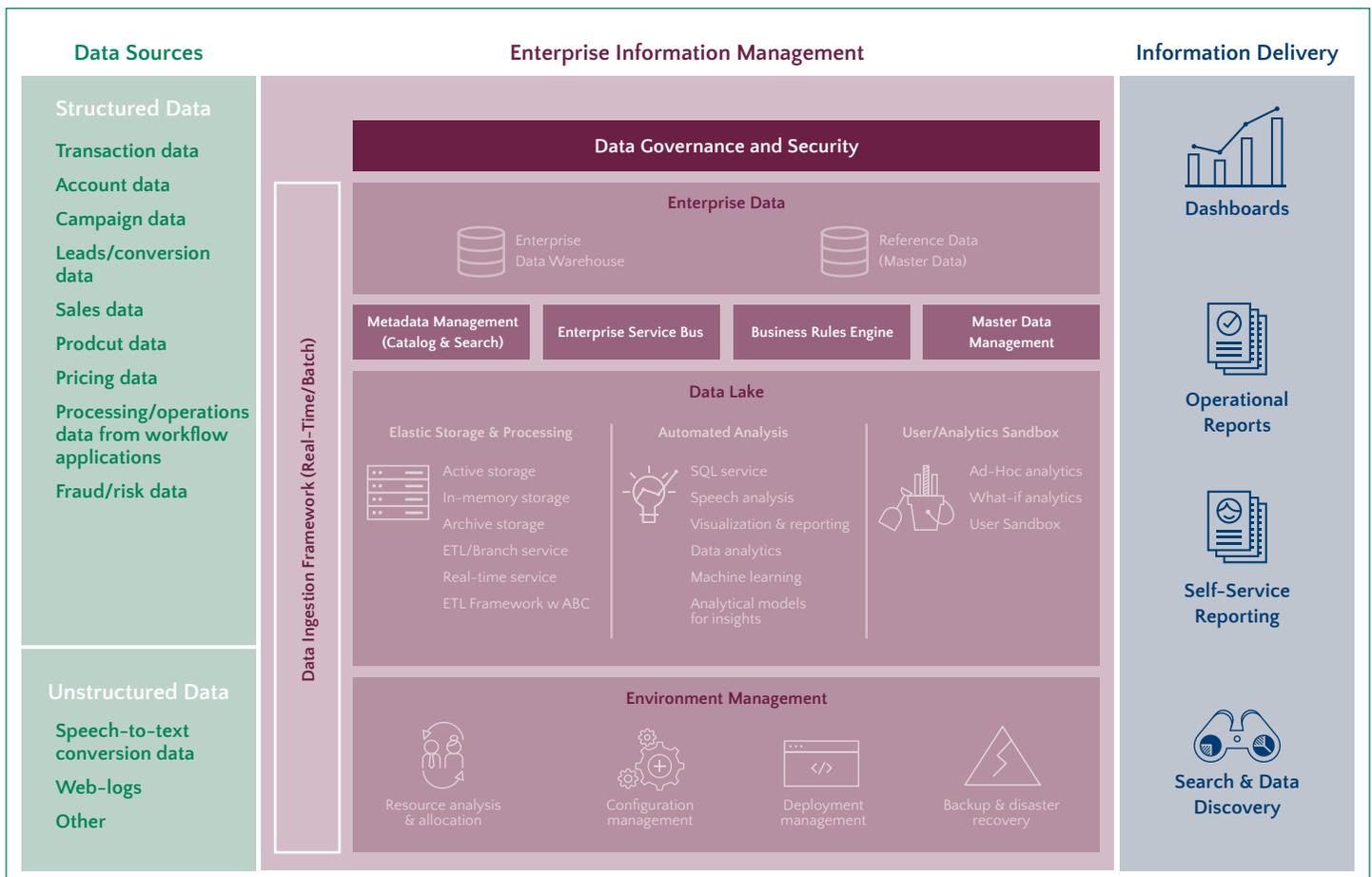


Figure 2: Conceptual modern data architecture

Advantages for Financial Services Industry

Financial services organizations present some of the best opportunities to take advantage of the capabilities offered by modern data architecture. First, these organizations deal primarily with digital assets of notional or contractual value, as opposed to logistically complex, physical assets. Secondly, timely interventions and real-time, even-driven decisions can both increase revenue and save cost. In the world of financial services, customers make buying decisions on the fly when they visit a website or branch. Fraud, money laundering and catastrophes also happen in real-time.

Modern data architecture, at a high level, does offer three capabilities that fundamentally revolutionize the way financial services organizations operate.

Ability to process real time data:

Modern data systems can ingest real-time data and process this data as it comes. Machine learning pattern recognition logic, statistical models or business rules can be applied over this data to drive business decisions. This opens several frontiers, including what advertisements to display to a customer when she is on your website, to flagging a fraudulent POS transaction as it is in progress. There is also potential to automate a number of internal workflows, improve straight through processing and reduce delays.

Data Consolidation:

Data lakes, the central feature of a modern data architecture, help break down organizational and data silos and bring all data to one place. There is one single source of truth for data, based on which various business views can be created using technologies such as Hive. Access to these views of data can then be provided to users or user groups based on business need. This centralized model reduces cost, improves data governance and security, and improves data quality, as long as governance aspects of modern data systems are not ignored.

Speed to insights and analytics:

In the traditional world, business has been dependent on IT to provision or extract the data needed for analysis and business decisions. Often when data was made available, it wasn't fast enough. Modern data systems, even when they ingest data in batch mode, do this much faster, cheaper and more effectively. Data scientists and business analysts can access data they need with little time lag, in a streamlined and automated fashion. Data scientists can access the raw data via SQL interfaces to test their hypotheses or build models. Business users can also be given access to a data warehouse implementation such as Hive or can access curated data using visualization tools such as Tableau or Qlik.

In short, modern data architecture empowers employees at all levels to extract the valuable insights from data that are necessary to achieve business goals and propel your organization's success. It powers several financial services use cases. An illustrative, non-comprehensive set of use cases are represented in Fig. 3, categorized by functional area.



Figure 3: Financial Services capabilities enabled by modern data architecture

Cost Advantages

Your organization can also realize significant cost savings with a modern data system. A cloud-based platform offers extensibility and a variable cost model. Implementation and upfront costs are a fraction of traditional on-premises systems, and a full rip-and-replace is usually unnecessary as a modern architecture bridges your existing infrastructure to augment what you already have in place. In addition, by eliminating data silos and creating a “single source of truth,” data is available to all teams to drive decision-making, reduce expenses and increase efficiency. The following are some of the noteworthy advantages offered by a cloud-based modern data platform, from a cost standpoint:

The ability to separate compute from storage and scale both storage and compute capacity on-demand. Storage capacity tends to be much cheaper than compute.

Easy setup of the end-to-end environment. An experienced vendor such as Clarity brings in automation tools, scripts and frameworks to complete set-up in hours. This enables organization to reap benefits and cost savings quicker.

Rapid ingestion of data using mature ingestion tools save time, effort and hence money. Robust ingestion frameworks like the ones provided by Clarity, will funnel, catalog ingested data and enable search for both data and metadata.

Considerations in setting up your Modern Data Architecture program

A powerful, modern solution that can keep up with current and exponentially increasing data demands is foundational to your organization's success. When setting up a modern data program and designing the solution, organizations need to be mindful of the following:

- A comprehensive data governance program, coupled with data stewards, to ensure data quality and reduce inefficiency and errors
- IT and business must jointly own the modern data platform and associated processes to take full advantage of this new technology

Given below is a depiction of the key facets of a modern data architecture program, including conceptualizing the overall strategy and roadmap that aligns with business goals, and the creation of an architectural blueprint that tailors to the business needs.

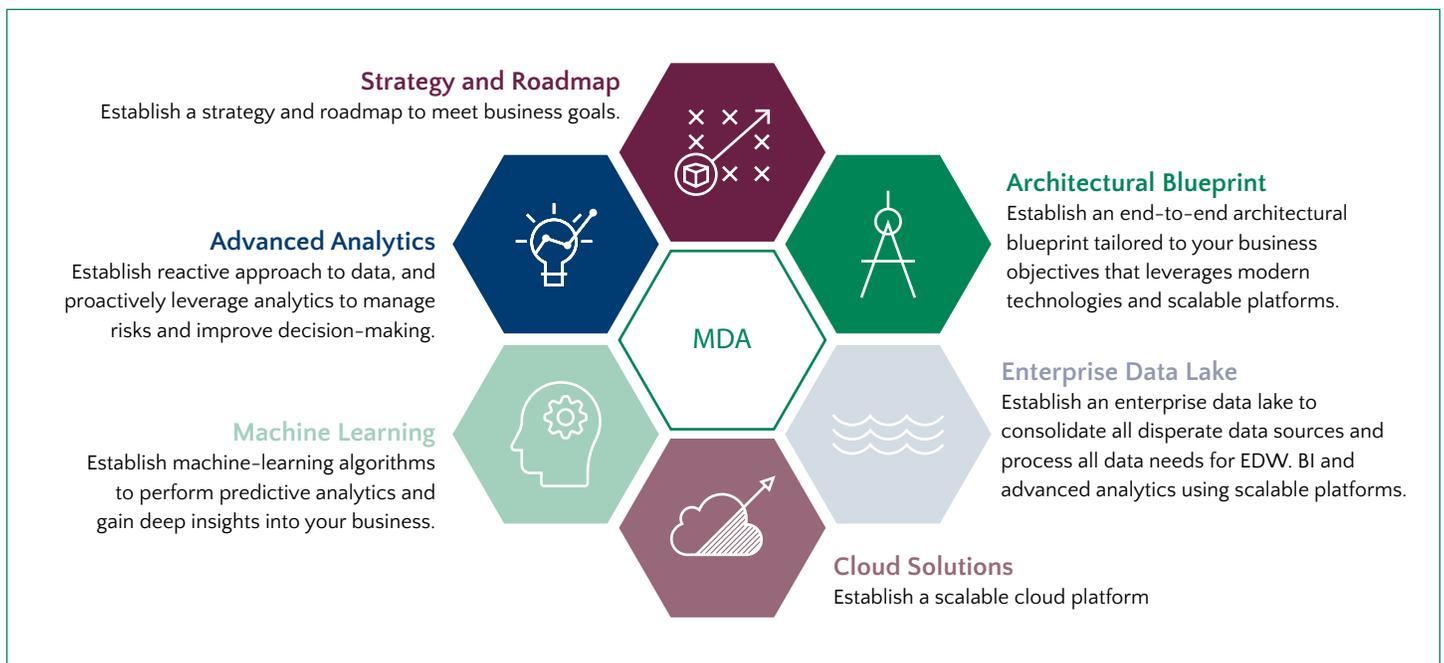


Figure 4: Establishing a modern data architecture

Choosing the Right Technology Partner

Another key consideration is choosing a technology partner that offers technical mastery as well as business and functional expertise in financial services. Clarity Insights is peerless in this regard. We offer repeatable data ingestion, data lake transformation and machine-learning frameworks that have already processed petabytes of information from your industry—data from retail and commercial banks, capital market entities, asset and wealth management firms, credit unions and payments service providers. Clarity’s expertise, coupled with a technology-agnostic approach, positions us to extract the maximum value for your existing technology investments while deploying modern solutions.

Clarity’s Data Ingestion Framework captures the best practices and learning from hundreds of modern data implementations and has been built out in several technology platforms and tools.

This data ingestion accelerator will enable:

- A single framework to perform all data ingestions consistently into the data lake
- Tracking metrics, events and notifications for all data ingestion activities
- A single consistent method to capture all data ingestion along with technical metadata and data lineage
- Strong data governance with search and catalogue features to find data within data lake

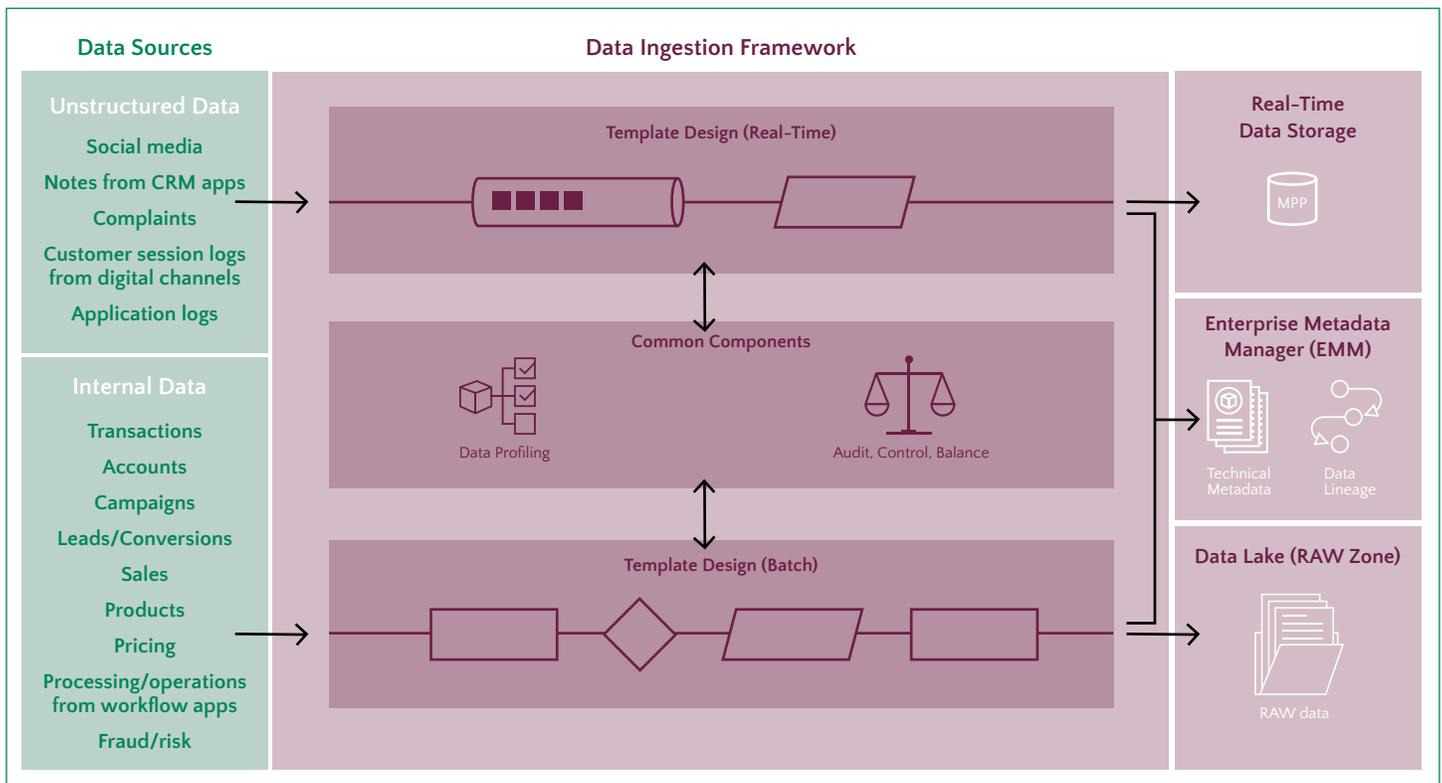


Figure 5: Clarity's Ingestion Framework

Another key accelerator offered by Clarity is the Data Transformation Framework. **The centralized Data Transformation Framework can be quickly customized to your data context, to handle all transformations centrally and enable:**

- An automated configurable template to manage all type-1 and type-2 dimensions without any line of code
- Tracking SLAs, metrics, events and notifications for all transformations activities
- Parallel execution, fault tolerant and restart ability
- Built-in audit control, data lineage and trackability
- Integration with central metadata management and data governance process

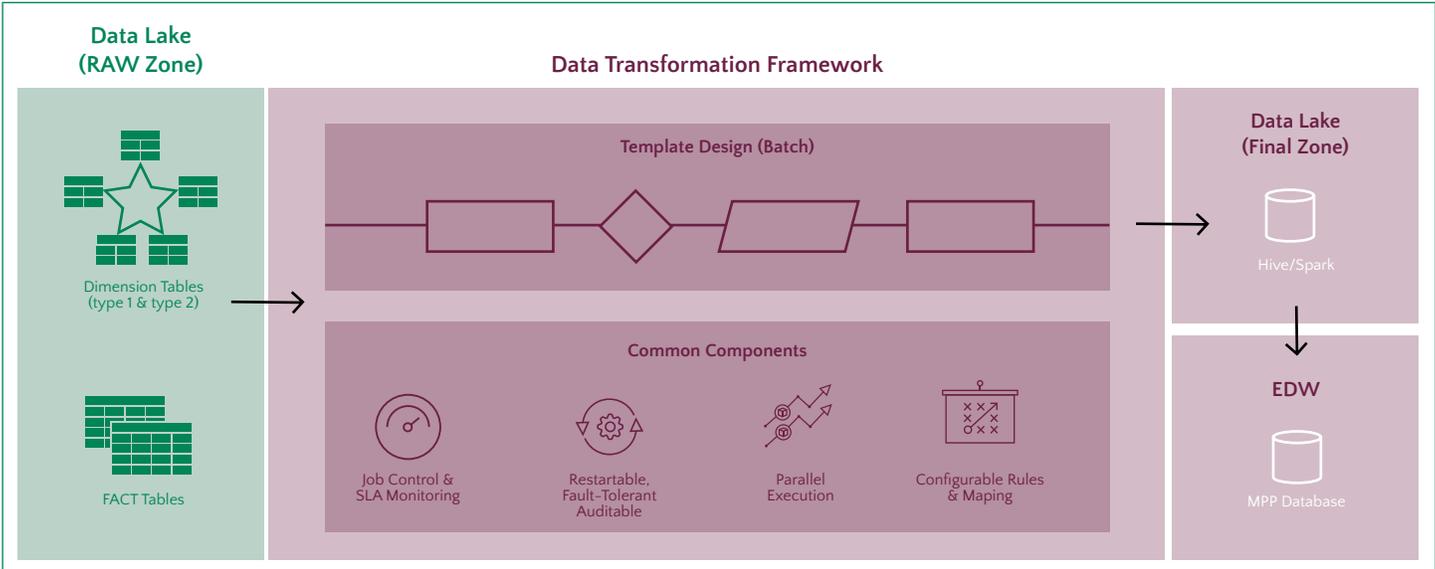


Figure 6: Clarity's Transformation Framework

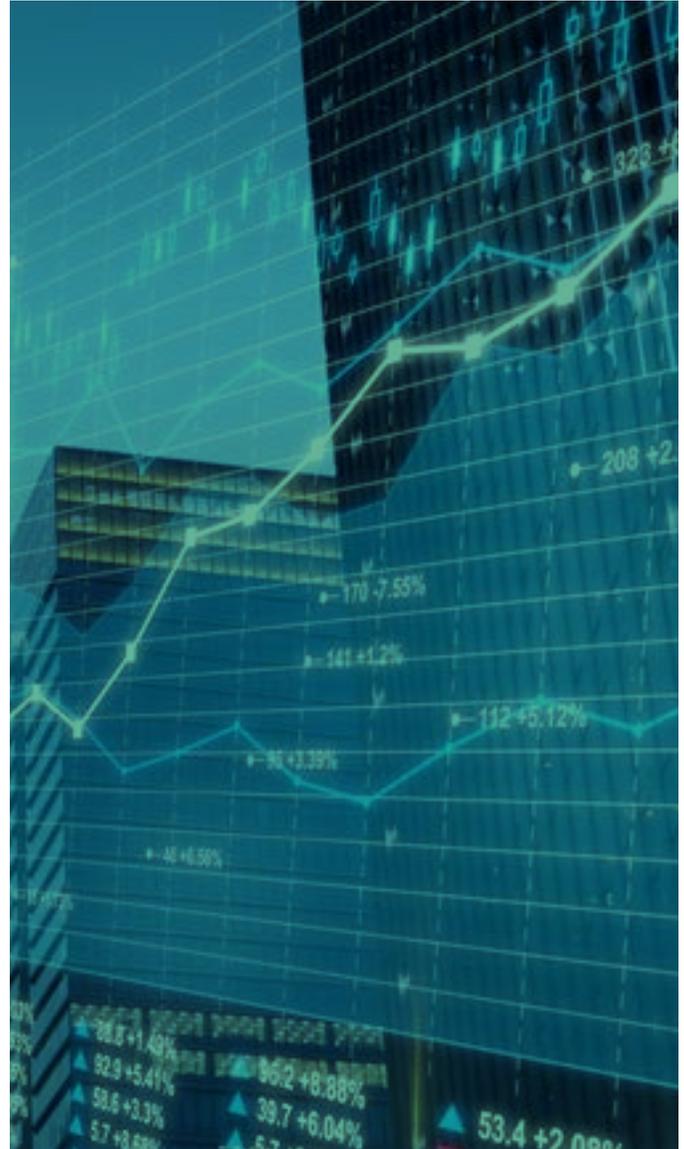
Conclusion

In today's market, business and data complexity are increasing, and technology alternatives are becoming more sophisticated. Massive volumes of data, stringent regulations and tightening competition mean that financial services organizations must evolve to survive. Flexibility and adaptability are vital to your success, and a modern, cloud-based data architecture delivers both with less investment and more capabilities than traditional, on-premise systems.

Data belongs to everyone within your enterprise. With a modern solution that starts with a pristine data lake and includes strong governance, flexible processing power and data stewardship, your data becomes democratized, while allowing for centralized security and controls. By investing now in your company's future and adopting a long-term strategy, your organization will be driven by data and insights and will outpace the competition.

Clarity Insights has executed numerous data modernization projects, and as part of this process, we have built repeatable frameworks for data ingestion, data consumption and advanced analytics. These frameworks accelerate the modernization of data architecture and modern data initiatives by ingesting and transforming data with minimal coding.

To learn more about how we can help modernize your data architecture, please contact us at info@clarityinsights.com or by phone at 800-920-6648.



Why Clarity

At Clarity Insights, we use data strategy, engineering, science and visualization to help companies action their insights.

Why? Because a majority of Chief Analytics Officers say that their biggest challenge is overcoming cultural barriers to new insights, as well as getting business buy-in. It is no longer enough to take an “if we build they will come” approach when it comes to insight systems—be it a data lake or a machine learning model. It takes an approach that will help build an insights driven culture.

How do we help clients do this?

We start any project by understanding our client’s business strategy, then understand how data can make it a success.

This way we are always focused on the business outcomes and not what data actually exists. This approach also ensures business buy-in.

When we help you find the insights to achieve those business outcomes, we don’t down our tools. Rather, we help you embed them in your processes, and use change management to obtain adoption. We also focus heavily on knowledge transfer to our clients, ensuring they are empowered to take action faster and with more confidence.

These are just some of the reasons that more than 80% of Clarity’s customers hire us for additional engagements. We have been trusted partners to the most exacting, data-intensive organizations in the nation for years.