

Data Modernization: What You Need to Know

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Modernization moves mountains

Organizations make better decisions with data. From operations to performance to nurturing customer relationships, exceptional data use drives exceptional outcomes. Once the purview of only the largest, most well-funded enterprises, all organizations today need effective data use to thrive and keep pace with change.

Everyone has data, but outmoded systems and processes will prevent your organization from utilizing it to its full potential. Data modernization can provide needed insights while cutting costs, but those benefits won't come without first getting clear about strategy and objectives.

A **recent Forrester survey** revealed that data-driven companies are 58% more likely to beat revenue goals than those not focused on data. A **BARC research report** showed that businesses using big data realize a 10% reduction in costs and at least 8% increase in profits.

Data modernization means making data more accessible and easier to work with so organizations can take advantage of evolving technologies like visual analytics, machine learning (ML), and artificial intelligence (Al). It starts with strategy and depends upon updating infrastructure, because without infrastructure architected specifically to accommodate new approaches—both existing and those yet to be developed—none of the rest is possible. From there, much more becomes possible, including insight that helps your organization thrive.

Data modernization happens in stages,

across these key components:



THE PROBLEM WITH TRADITIONAL INFRASTRUCTURE

The big problem with old data infrastructure is that it's hard to maintain. Organizations that still use it are constantly asking for enhancements that become more and more difficult to execute; adding anything to these systems is challenging and the opposite of timely.

Traditional data warehouses are also not well documented, which prevents an accurate data model. They're usually on-prem, which imposes capacity and performance speed limitations by the physical machine. "Often, people with these warehouses don't know how bad they've got it," says Resultant National Sales Director Michael Tantrum. "They've reconciled themselves to the limitations of speed, space, and power without realizing there's a better way. We can help them improve in ways they didn't know were possible."

A Data Infrastructure Primer

DATA WAREHOUSE

A large store of data accumulated from a wide range of sources within a company and used to guide management decisions.

Data warehouses date back to the late 1980s and originated at IBM. They provide an architectural model for the flow of data from operational systems to decision support environments (analytics). Traditional data warehouses were designed to handle a smaller data volume of fewer types with minimal reporting requests. As a result, data systems that use them today create process strain and can no longer meet the demands of competitive organizations.

DATA PIPELINE

A set of actions that ingest raw data from disparate sources and move the data to a destination for storage and analysis.

Data pipelines as we know them today only came about with the advent of the cloud. Prior to that were extract, transform, load (ETL) pipelines, each serving a purpose for a specific use case.

HOW MODERN DATA PIPELINES AND WAREHOUSES IMPROVE YOUR ORGANIZATION

The evolution to a modern data infrastructure can produce significant return on investment, including:

- Fewer staff hours devoted to prepping and moving data and maintaining data environments
- Reduced cost of ownership—significantly lower CAPEX
- Improved analytics
- Improved access to data across the team
- Faster time to insight
- Data democratization

Some of the most important benefits are realized from making your data available to the people who need it most at the times they need it most—producing insights that were previously not possible with older, slower, more cumbersome infrastructure.

The modern data pipeline loads, integrates, and cleans your data. It's flexible, expandable, and versatile. It is the backbone of how you move the data. And there isn't anything like this modern data pipeline in legacy systems. Cloud-based modern data warehouses are almost infinitely scalable, and since you only pay for what you use, they're practically a no-brainer.

With modern infrastructure in place, a whole world of process automation opens up, freeing valuable team members to focus their efforts where they will make the greatest impact. No longer do they need to devote time to tasks that technology can execute automatically. Processes in development, documentation, CI/CD, testing, and data governance can all be automated.

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Human beings who understand the tribal knowledge are the scarcest resource in every organization. You don't want them constrained by having to write code. You want them to focus on things technology can't do, like talking to users and understanding their requirements, talking to source system people about what data is available and what can be done with it. and coming up with a data model and transforming the data into something meaningful.

- MICHAEL TANTRUM National Sales Director, Resultant





OVERCOME LIMITATIONS WITH MODERNIZATION

The absence of a modern data infrastructure is very limiting to a company wanting to make better use of its data and prevents moving and processing data efficiently. Organizations tend not to think about data modernization until they find themselves needing to add capacity or add or renew licenses and come up against surprising associated costs. **Here's how modernization helps.**

+ Distributed Computing

Processing data can happen in parallel and is seamless. You're not limited by the capacity of your physical on-prem servers, in either space or performance speed.

+ Automation

There's no such thing as the server being down. Multiple redundancies are in place to prevent such a crisis. Other automated processes take the load off team members so they can focus on work that has real impact. The system needs fewer separate infrastructure components and requires fewer technical skills to operate.

Flexibility

Processes can batch different types of data in real time. Whereas in the past, maintenance increased along with the footprint of the code, that's no longer the case. You don't have to keep modifying your system when adding new data sources anymore, and you can address multiple use cases without having to build different solutions for each one.

+ Cost Savings

Physical hardware is expensive. Organizations formerly had to guess at needed compute power and capacity with onprem servers and buy for the maximum they'd ever need (which always eventually increases). When they weren't using the full capabilities of the hardware, it was just sitting there dormant. Compute abilities are still the expensive part of cloud infrastructure, but you can separate the compute functions from the data development functions. Since you only pay for the compute capacity you use—when you use it—it's a big savings.





Poor data quality costs organizations an average of \$13 million per year.

- GARTNER

TRUSTING YOUR DATA SYSTEM IS EVERYTHING

To make data-driven decisions, it's essential to trust that your data is moving from source systems through the pipeline as designed, and that what you receive at the data warehouse is what's expected. That's data quality.

Poor data quality can have a devastating impact across your organization, resulting in:

- Stakeholders not trusting data
- Business leaders making poor decisions based on bad data
- Extra expenditure of time and money to troubleshoot and correct data issues
- Increased data security and privacy issues

A sustainable data governance strategy as part of your data modernization project ensures data quality, helps break down data silos, increases data trust, bolsters security, and turns information into actionable insights that support your goals.

Data modernization allows users to combine all types of data, at any scale, more easily than in traditional systems. Data sources used to be limited to files and relational databases. Today companies use various data sources of disparate types like CRMs, marketing platforms, email automation tools, and business intelligence applications, usually connected via a range of APIs.

Your data modernization project is most successful when you lay the groundwork to help your teams thoroughly adopt it. Organizational change management builds an organizational culture that embraces data as an asset. When the value of data is integrated into each role, your team utilizes and maintains trusted, reliable data to reach organizational goals more effectively and efficiently.

Modernization enables much deeper business analytics and intelligence for a broader base of users at a lower cost. It also usually includes moving from an on-prem data center to the cloud, with a data platform optimized for cloud-based analytics.

43% of IT decision makers fear their IT infrastructure won't be able to handle future data demands.

- DELL TECHNOLOGIES

95% of businesses cite the need to manage unstructured data as a problem for their business.

— FORBES

The average company doesn't use 60-73% of its data.

- FORRESTER

Data analytics makes decision making **5** times faster for businesses.

- BETTER BUYS

Only **32%** of executives say they can currently create useful value from data.

- ACCENTURE

Poor data quality costs the U.S. economy \$3.1 trillion.

— FORBES

Understanding the kinds of analysis you want to do at the outset has a great bearing on how you want to structure your data.

- JOSHUA MILLIGAN Principal Consultant, Resultant

YOUR MODERNIZATION APPROACH MATTERS

While the benefits are compelling, it's critical to implement your modernization project correctly to avoid missteps.

According to recent research from Boston Consulting Group, over 70% of digital transformation projects fail. The top reasons for failure include lack of executive support, a culture that can't or won't adopt broader collaboration, and failure to bring in talent that has experience executing a data transformation.

Enlisting the help of people who have taken this journey before will significantly increase your likelihood of success. "People trust people, not data," says Tantrum. "They don't adopt new technology readily without a human motivation."



START WITH STRATEGY

Beginning your data modernization project with strategy helps avoid pitfalls that will lead to failure. Understanding where you stand now and where you want to go to form your strategy requires an evaluation of these and other elements that lead to a more

impactful transformation:

- People and processes
- Data models and structures
- Data architecture and platforms
- Visual analytics and reporting
- Advanced analytics

It's important to keep a big-picture, people-first perspective at the outset of strategy development and ask questions like

- Who's the main audience for this transformation?
- What are we trying to change?
- Why are we trying to change this? (The most important question!)
- What are we open to changing?
- Who are the key decision makers?
- What are the goals of these decisions?
- Who needs to be on the team to accomplish this?
- What will be the benefits of the data transformation project?
- What are the risks involved?





CHOOSING THE RIGHT TOOL FOR THE JOB

In the past, data systems carried considerable cost and maintenance needs. They were hardware-based and performance limited, and any changes or added capacities took a long time to implement.

"Modern data infrastructure saves costs and requires less maintenance and less technical expertise onsite to operate," says Resultant Director of Data Engineering and Architecture Bernardo Unzueta. "Many tools take care of the management and maintenance for you, and the time to implementation is very fast."

Never lose sight of the fact that it's people who are ultimately affected by data. It's all about recognizing that this is not just data, it's not just numbers; it's impacting people and lives and decisions.

> - JOSHUA MILLIGAN Principal Consultant, Resultant

Numerous tools for data transformation are on the market, each with their own strengths and specifics. **Choosing the right tool is an area of the project where using a consultant can make a big difference to your outcomes.**

To select the best warehouse/pipeline tool for your modernization project, start by answering these questions.

- How many different sources of data do you have?
- What types of data sources are you working with?
- Where does your data live today?
- How much transformation is required to convert raw data into a form ready for analysis?
- Who are the resources who will build your data pipelines, and what are their skillsets?
- Are you building a tactical, business unit-focused solution, or an enterprise-class solution?

"Create use cases to select the best tool for the modernization project," says Unzueta. "The volume of data your organization has and use case specifics (some may need data streaming for near-real time updates), are important considerations."





Seeing that the data represents real lives and real outcomes really does make a difference. Data visualization drives home the point that this isn't just data, it's not just numbers, it really has meaning, and really has an impact on the organization in ways that maybe we knew up front, maybe we didn't.

> - JOSHUA MILLIGAN Principal Consultant, Resultant



GETTING TO THE PROMISED LAND: VISUAL ANALYTICS

Modernizing infrastructure is the prerequisite for data visualization. Visual analytics tools simplify raw data and put it in an easy-to-understand, visual format so data can reach professionals at any level in an organization—not just the data engineers and network architects.

It's challenging for team members outside of the IT department to fully understand which types of data exist, the quality of data, and what it can mean for them without these visualizations. The entire cycle of analytics should have a visual aspect to clearly communicate to every stakeholder. Often, the questions organizations have are just the starting point; Visualization leads to other questions they didn't know they had.

Milligan reminds decision makers, "People are often lost in a technical solution, but data represents real lives and real outcomes. Ask questions around strategy. What can we see in the data? What will it do for us as an organization?"

Start your visual analytics tools selection process by asking these questions:

- What are your data visualization needs?
- Who will be using these tools?
- What types of reports are used today in your organization?
- How could these reports be improved to provide better business intelligence?

MODERNIZATION MOVES MOUNTAINS (AND DOESN'T HAVE TO BE A DAUNTING CLIMB)

Data modernization helps solve complex business problems and enables organizations to take advantage of new and emerging technologies essential to staying relevant and consequential in today's marketplace. All trends point toward modernization and cloud-based applications, operations, and storage. They're scalable, cost-effective, and as future-proof as anything can be. Getting clear first on strategy, beginning your data modernization project with infrastructure, and thoroughly committing to organizational change management will give your company the greatest chance of success.

About Resultant

Our team believes solutions are more valuable, transformative, and meaningful when reached together. Through solutions rooted in data analytics, technology, and digital transformation, Resultant serves as a true partner by solving problems with our clients rather than for them.

