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Analytics Modernization

Data & Analytics Strategy

Contents

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Why Modernize ?

THE CHALLENGE

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Technology is Rapidly Changing

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Big Data: Traditional data warehouses are not scalable enough or cost-effective to support the petabytes of data now generated. And that amount that will only increase with the Internet of Things and other new sources in the future.

Storage & Cost: Increasing need to expand on-prem data warehouses to accommodate increasing volume and velocity significantly increases costs in both hardware costs and staff resources. As well as lengthy sales and procurement processes, being locked in to a static contract.

Various Data Types: With a traditional on-premises data warehouse, integrating existing operational data with semi-structured and unstructured 'Big Data' can be a major technical challenge. Legacy warehouses aren't designed to consume unstructured data.

Scale & Speed: On-premises data warehouses weren't designed to anticipate the massive amounts of data we see today–either in speed or scale. As for speed, the bigger your data is and the more jobs you're running at once, the greater impact it will have on performance

Business Users Need Increased Speed to Insights

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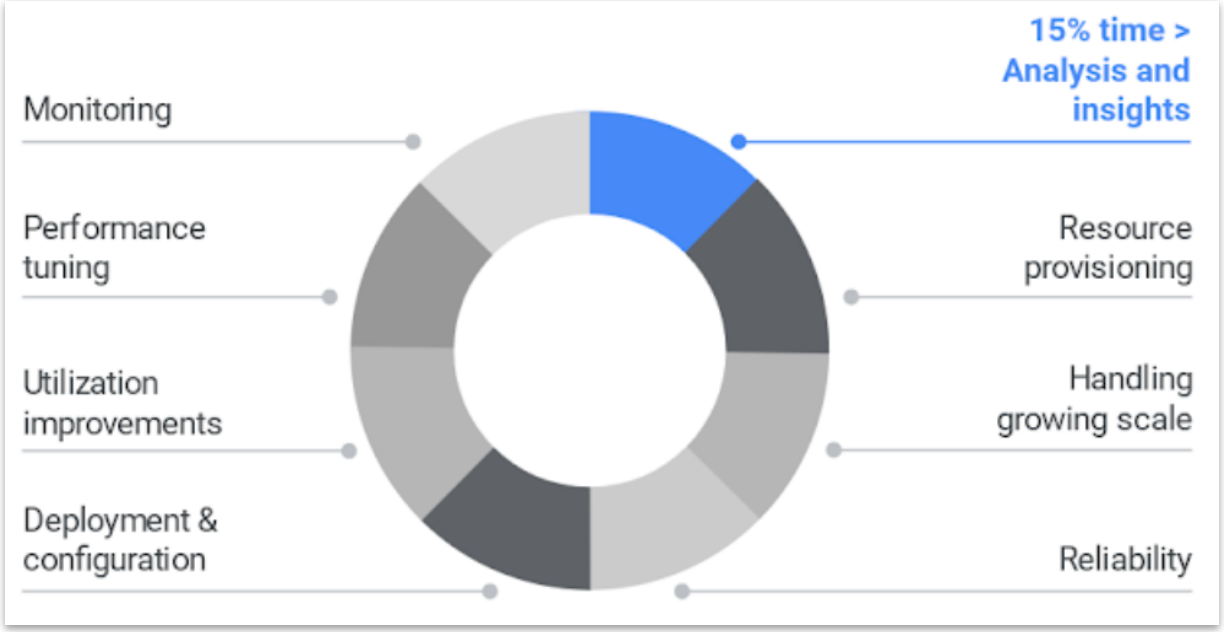
Why does it take so long to get my reports?

Traditional data warehouses aren't keeping up with all the data requests from end users. Managing and preventing these issues can take up a lot of IT time, and the problems often compound over time. Hitting capacity limits slows down users and ties up database administrators too.

Traditional infrastructure lack built in modern capabilities like AI, ML and self-service analytics for business users.

That's a lot of time spent on maintenance work. Because legacy infrastructure is complex, businesses must invest in hiring people to manage outdated systems, without advancing data strategy or agility.



Traditional Data Warehouse

Linear Processes & Technical Debt

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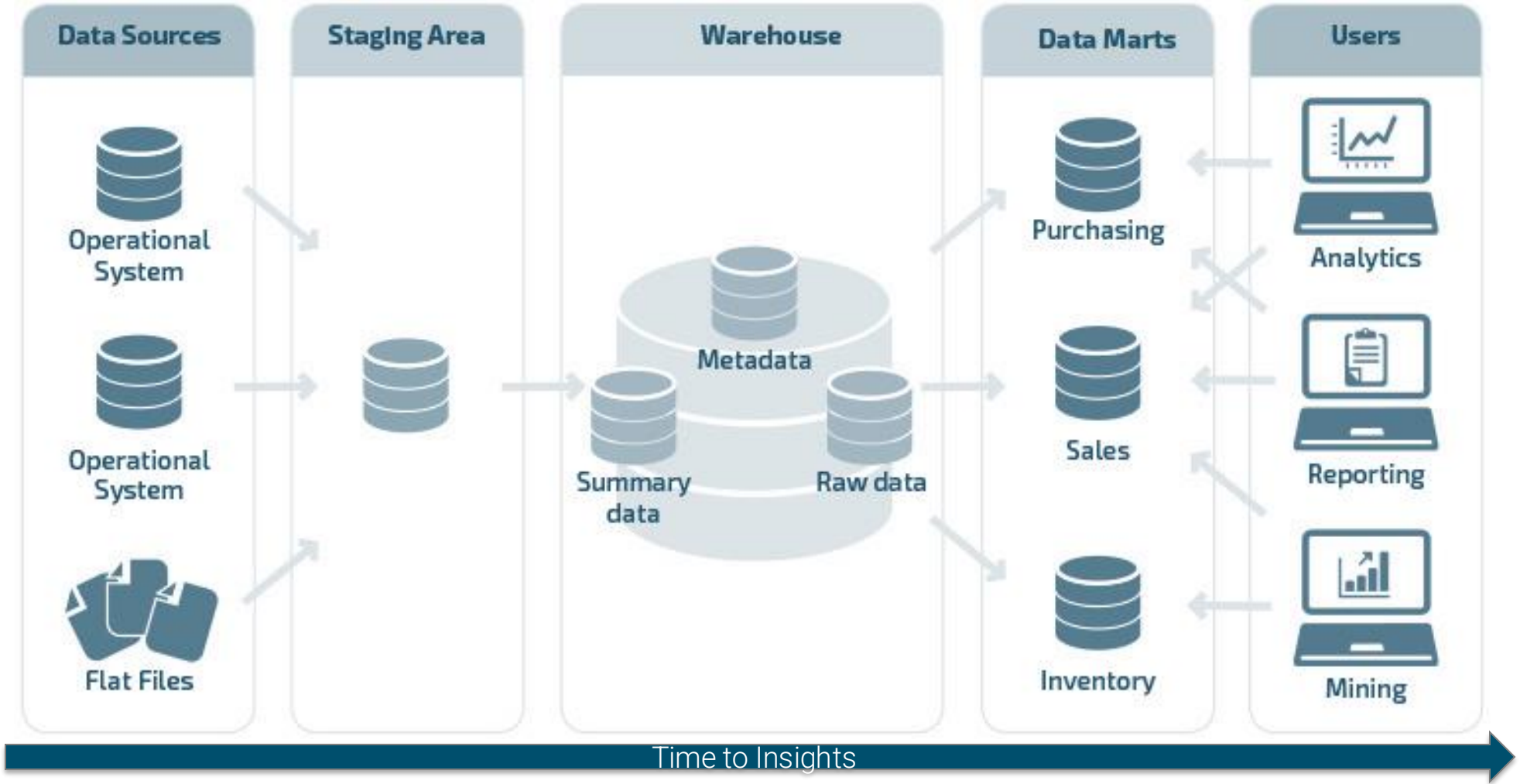
Traditional data warehousing involves lengthy and linear processes, with a multitude of “application hops” through the data pipeline.



THE SOLUTION – MODERNIZE !

Traditional vs. Modern Solutions

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Harness the Value of Data

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VIEW DATA AS A SHARED ASSET - Instead of allowing departmental data silos to persist, having a centralized data platform allows a consistent, singular and more accurate view of the company.

PROVIDE THE RIGHT INTERFACES FOR USERS TO CONSUME THE DATA - Putting data in one place isn't enough to achieve the vision of a data-driven organization. Developing user-friendly interfaces makes it easy for users to consume that data

ENSURE SECURITY AND ACCESS CONTROLS - enforcement of data policies and access controls that allow you to architect for security, and deliver broad self-service access, without compromising control of your student data

ESTABLISH A COMMON VOCABULARY - users of this data analyze and understand it using a common vocabulary, such as Product, Student and KPI definitions all need to be common, regardless of how users consume or analyze the data

ELIMINATE DATA COPIES AND MOVEMENT- Every time data is moved there is an impact; cost, accuracy and time. Leveraging modern file systems in a multi-structure, multi-workload environment for parallel processing of massive data sets can easily scale linearly as workloads and data volumes grow

PAY AS YOU GROW - As your data grows, cloud services are charged based on usage, storage and compute for more flexibility and transparency to spend, allowing you to ramp up and down resources as needed quickly.

Driving Value Through Intentional Design

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12 Components of Successful Modern Data Architecture:

Flexible
Support multiple types of business users, load operations and refresh rates

Smart
Uses ML and AI to build the data objects, tables, views, and models to keep data flowing

Customer Centric
Design starts with business users and their requirements and flows backward

Governed
Defines access points for each type of user to meet their information requirements

Collaborative
Responsibility for acquiring and transforming data between IT and the business

Simple
A uniform database platform, data assembly framework, and analytic platform

Automated
Adaptable architecture in which data flows continuously, automate as much as possible

Resilient
High Availability, Disaster Recovery, Backup/Restore Capabilities

Elastic
Architecture that adapts to changing data processing requirements on demand

Secure
Provides authorized users ready access to data while keeping hackers and intruders at bay

Adaptable
Creation of interconnected and bidirectional data pipelines that serve various business needs

Accelerated Learning
Hands-on, real-time change management and empowerment with tool education

Conceptual Modern Architecture

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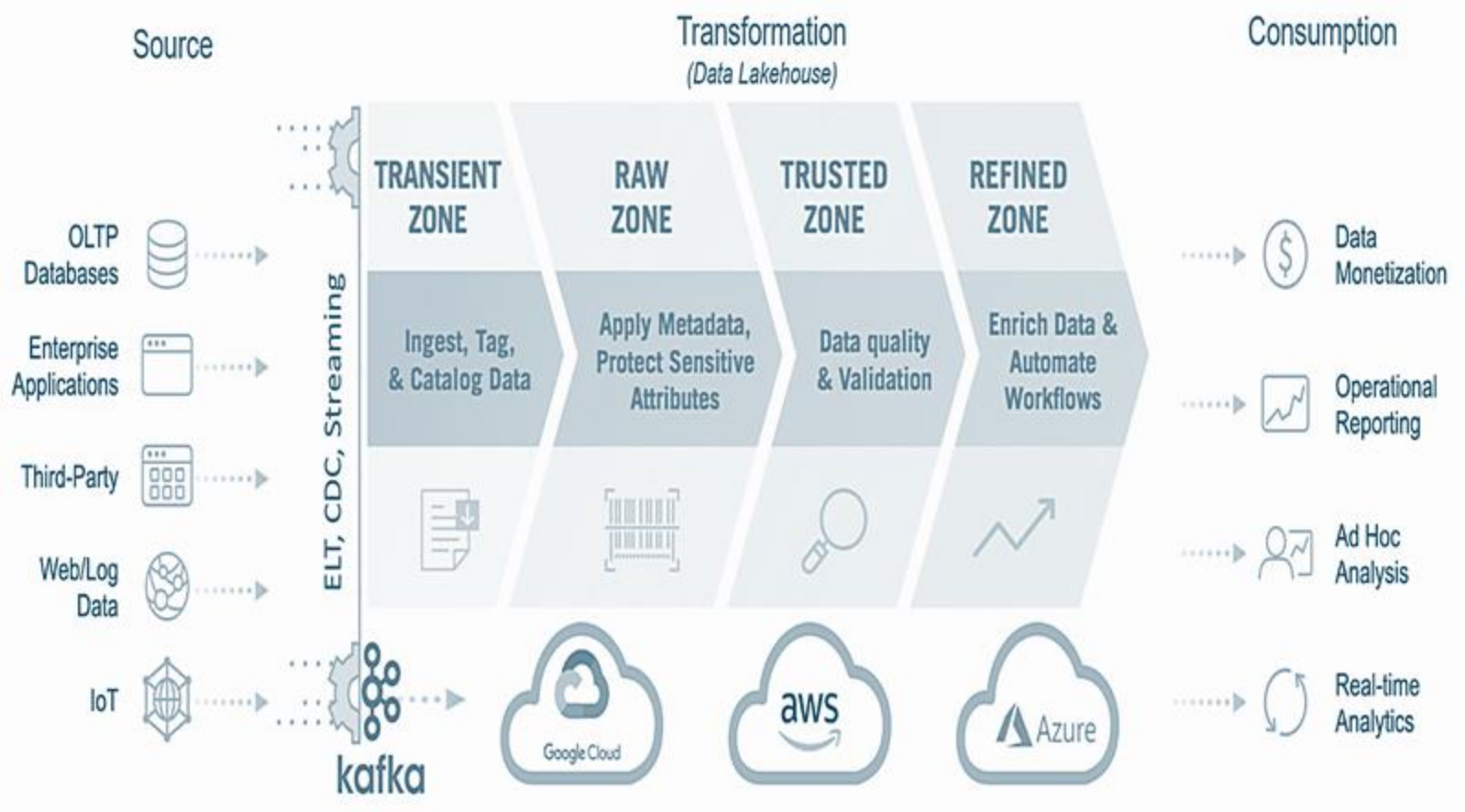

Key Benefits:

- Reduced Data Redundancy
- Simplified Governance
- Cost Reductions
- Speed to Insights
- Self-Service Analytics
- Rapidly Scalable

TRADITIONAL vs. MODERN APPROACH

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	Traditional	Modern (Cloud)
COST	• Large upfront cost to purchase and install an on-prem system. • You need hardware, server rooms, and specialist personnel (that you pay on an on-going basis). • If you are unsure how much storage space you need, there is a risk of high sunk costs that are hard to recover.	• No need to purchase hardware, server rooms, or hire specialists. • No risk of sunk costs - buying more storage in the future is easy. • Plus, the cost of storage and computing power are decreasing over time.
SCALABILITY	• Once you max out your current server rooms or hardware capacity, you may have to purchase new hardware and build/buy more places to house it. • You need to buy enough storage to cope with peak times; thus, most of the time, most of your storage isn't used.	• You can easily buy more storage as and when you need it. • Often just have to pay for what you use, so there is little to no risk of overpaying.
INTEGRATION	• As cloud computing is the norm, most integrations you want to make will be to cloud services. • Connecting your custom data warehouse to them can prove challenging.	• As cloud data warehouses are already in the cloud, connecting to a range of other cloud services is simple.
SECURITY	• You have total control of your data warehouse. • Comparing the amount of data you house to Amazon or Google, you are a smaller target for thieves.	• Cloud data warehouse providers have teams full of highly skilled security engineers whose sole purpose is to make their product as secure as possible. • The most prominent companies in the world manage them and therefore implement world-class security practices.

TRADITIONAL vs. MODERN APPROACH

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	Traditional	Modern (Cloud)
GOVERNANCE	• You know exactly where your data is and can access it locally. • Less risk of highly sensitive data inadvertently breaking the law by, for example, traveling across the world on a cloud server.	• The top cloud data warehouse providers ensure they are compliant with governance and security laws, such as GDPR. Plus, they help your business ensure you are compliant. • There have been issues regarding knowing exactly your data is and where it moves. These problems are actively being addressed and solved.
RELIABILITY	• If your on-prem data warehouse fails, it is your responsibility to fix it. • Your IT team has access to the physical hardware and can access every software layer to troubleshoot. This quick access can make solving problems much faster. • However, there is no guarantee that your warehouse will have a particular amount of uptime each year.	• Cloud data warehouse providers guarantee their reliability and uptime in their SLAs. • They operate on massively distributed systems throughout the world, so if there is a failure on one, it is highly unlikely to affect you.
CONTROL	• Your data warehouse is custom built to suit your needs. In theory, it does what you want it to do, when you want it to, in a way you understand.	• You do not have total control over your data warehouse. • However, the majority of the time, the control you have is more than enough.
SPEED	• If you are a small company in one geographic location with a small amount of data, your data processing will be faster. • However, we are talking milliseconds vs. seconds for some processes to complete • A large company operating in multiple countries is unlikely to see significant speed gains with an on-prem system.	• Cloud data warehouses are the result of years of research and testing to create resources optimized for speed and performance. • It may be slightly slower than on-prem in some cases, but these delays are often negligible for humans (seconds vs. milliseconds).

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OUR APPROACH

We Bring a New Point of View

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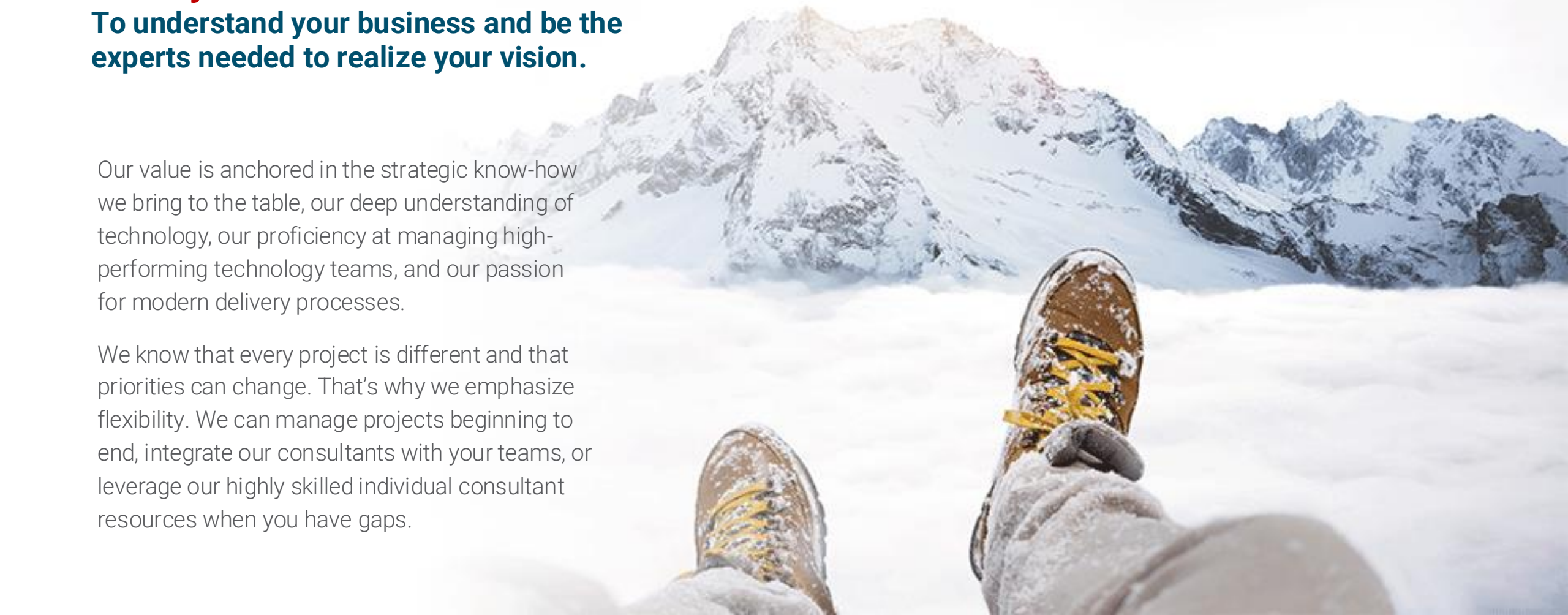
We take a consultative approach to technology projects.

Our Objective?

To understand your business and be the experts needed to realize your vision.



Our value is anchored in the strategic know-how we bring to the table, our deep understanding of technology, our proficiency at managing high-performing technology teams, and our passion for modern delivery processes.

We know that every project is different and that priorities can change. That's why we emphasize flexibility. We can manage projects beginning to end, integrate our consultants with your teams, or leverage our highly skilled individual consultant resources when you have gaps.

Our Approach

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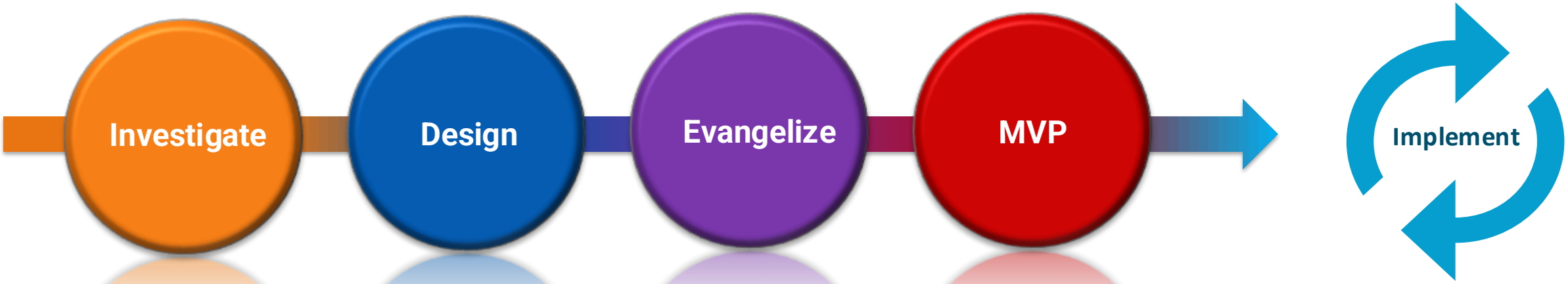
A X-week engagement focused on laying a solid foundation before ramping up resources. We tailor teams, skillsets and releases to meet our client's business objectives, leveraging business and technical architectures to ensure shared vision and reduce risk.



What do we have today?

Where do we want to go?

How do we get there?

How do we get started?

Step 1 / 4

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Investigate

Conduct research to develop an understanding of use cases, tooling, stakeholders and techniques to gain alignment on the upcoming journey.

Activities:

- Mobilize - Refine Scope and Plan
- Schedule & Conduct collaborative interviews focused on data, tools, teams and processes
- Establish Enterprise Data Ecosystem requirements
- Identify a key business group/sponsor for BI MVP
- Organizational / Skills Assessment

Coalesce
Align on the problem, success, project details, and goals

Discover
Trace critical processes to uncover all core elements

Interview
Unbiased interviews to understand use cases, needs, pain points, and wish lists

Analyze
Assess data, applications and processes, compare to industry best practices, evaluate rigor of methods

Step 2 / 4

Design

Determine optimal tools, architectures and processes for joining data sources across the ecosystem. Identify challenge areas and requirements and evaluate against modern solution designs.

- Assess architecture, platform & tools
- Analyze Existing Data Sources
- EDA of Loft data
- Data ingestions-automated vs manual
- Assess existing EDW
- Evaluate cloud platforms
- Infrastructure Requirements

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Compare Design Patterns

Propose a roadmap that brings standardization and transparency to metrics through shepherding agreement around definitions

Evaluate Value and Risk

Consider impact, complexity and likelihood of success to empower prioritization

Prototype

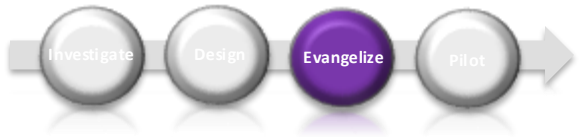
Design multiple architectures that optimize for different features; combine when possible; retain distinction elsewhere

Ingest / Automate

Mapping of data ingestions and pipeline prototypes based on technical and business needs/processes. Opportunities to automate.

Architecture Refinement

Evaluation of cloud platforms, existing tools and business processes to align to enterprise needs



Step 3 / 4

Evangelize

Socialize future state solution and recommendations across key stakeholders and enterprise (where applicable) to gain alignment on go forward strategy, vision and implementation.

Activities:

- Propose High Level Data Ecosystem Recommendations
- Propose High Level Analytics Platform Recommendations
- Propose Change Management, Evangelism & Feedback Loop
- Deliver proposal for implementation of recommended solution

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Active and Robust Discussion

Stakeholders and interested parties should be aware of the logic behind all proposed designs

Clearly Communicated Value Proposition

Prototype and design will have well-stated connections between time and materials invested, and ability to enhance marketing spend decisions

Implementation Proposal

Leveraging the efforts of the engagement to provide an estimate of work for the Implementation phase of the initiative.

Step 4 / 4

MVP

Design and develop a minimum viable product for a small, existing client use case that leverages the proposed recommended solution.

Activities

- MVP cloud data platform capable of scaling to Client's needs
- Develop light data architecture, leveraging existing modeling and integrations, capable to support use case solution.
- Develop MVP BI report to demonstrate self-service analytic capabilities

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Connect Existing Data to New Architecture

Execute existing report and data model to proposed cloud solution in a static development environment.

Develop BI Report

Prototype and design will have well-stated connections between time and materials invested, and ability to demonstrate existing report in new solution architecture.

Solution Empowerment

Demonstrate the basic functions and features of MVP, while evangelizing art of the possible future state solutions.