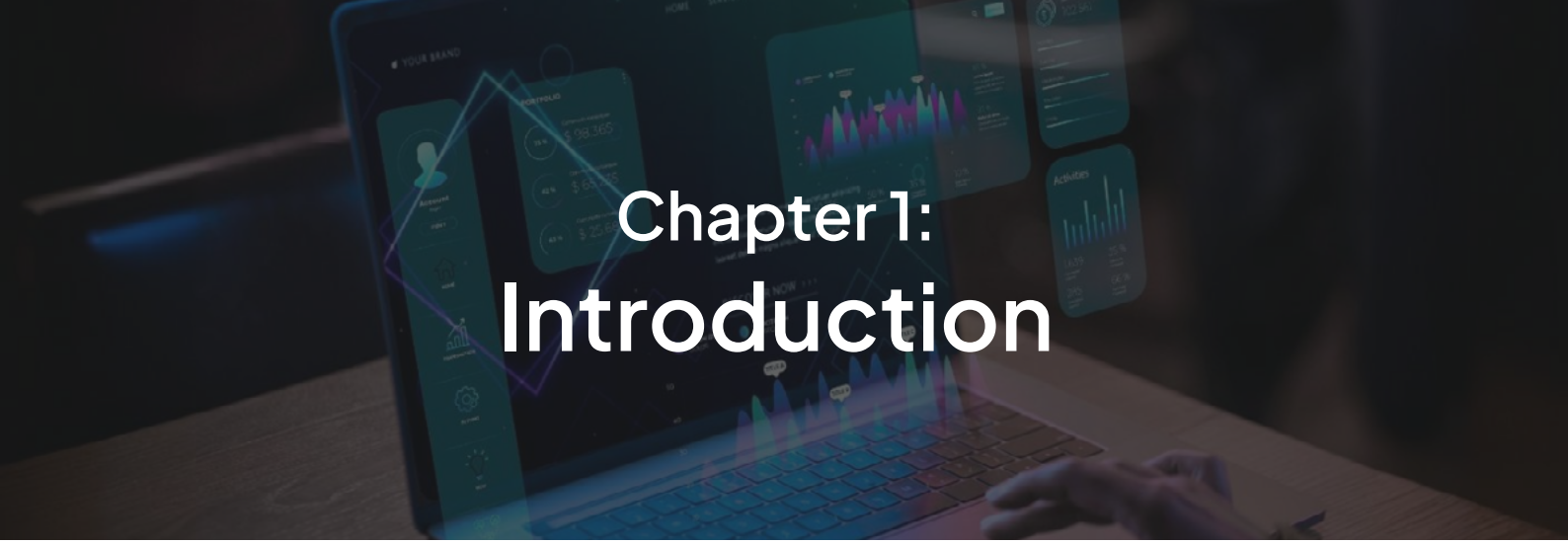
onix wingspan

A Data-Centric Approach that Turns Legacy Modernization into a Launchpad for Scalable Innovation

Why and how enterprises need to reevaluate their cloud modernization practices using Agentic AI in 2025 and beyond

Table of Contents



Chapter 1: Introduction

Key statistics driving the urgency for data modernization

$15 million annually

Average loss for businesses still relying on legacy data infrastructure due to inefficient data processing and missed opportunities.

25% faster decision-making

Reported by companies implementing comprehensive data modernization strategies.

40% improved operational efficiency

Reported by companies implementing comprehensive data modernization strategies.

Image source

In 2025, data is "omnipresent" across all business domains and processes. Whether small-volume or real-time data, modern enterprises are powering their next phase of digital transformation and modernization with data-driven insights and trends. According to the International Data Corporation (IDC), data will intensify the following 5 business trends in 2025 and ahead:

- Data accessibility and its importance to business decisions and industry trends.
- The rapid proliferation of IoT-connected devices and embedded systems.
- There is a growing demand for real-time data, available wherever and whenever business decision-makers need it.
- The mainstream business use of AI models and systems.
- Data security – with the growing volume, variety, and complexity of generated data.

These trends point to a single, undeniable truth: the future of business agility, innovation, and resilience lies in how organizations manage, govern, and activate their data. When businesses move away from legacy systems and take a data-first approach, real change follows. Here's a quick look at how Pelmorex made it happen.

Pelmorex, a global weather data provider known for delivering real-time weather intelligence to millions, was facing mounting challenges. Their legacy data warehouse struggled with the high volume of weather data, required too much manual effort, and came with rising operational costs. Performance issues made it difficult to deliver fast, reliable insights to their enterprise clients across agriculture, logistics, and utilities.

By modernizing their architecture with a scalable, cloud-based BigQuery solution, the company transformed how data moved through their systems.

This eBook presents:

- The current challenges in legacy data warehouses.
- Benefits and best practices of data modernization in 2025.
- How to accelerate cloud modernization with a data warehouse assessment tool.
- How Onix's Wingspan can transform the future of data warehousing. And much more..

Chapter 2: Challenges with legacy data warehouses

Organizations are failing to address their complex business problems with "traditional" legacy data warehouses. 94% of enterprises are using cloud platforms to store data – while 81% of large and mid-sized companies use the cloud for data storage and backups.

Further, 60% of enterprises plan to modernize their legacy warehouses to the cloud – while another 60% are using automation to modernize their data infrastructure.

While there are multiple limitations, here's a look at three key challenges of traditional data warehouses.

Three functional limitations of traditional data warehouses

1. High investment costs

Unlike cloud platforms, on-premises warehouses attract a high degree of initial hardware and software licensing costs. Further, as business decisions demand more data, enterprises need to upgrade their data storage and infrastructural expenses in the long run. Overall, legacy warehouses incur more maintenance costs as compared to modernized cloud systems.

2. Business agility

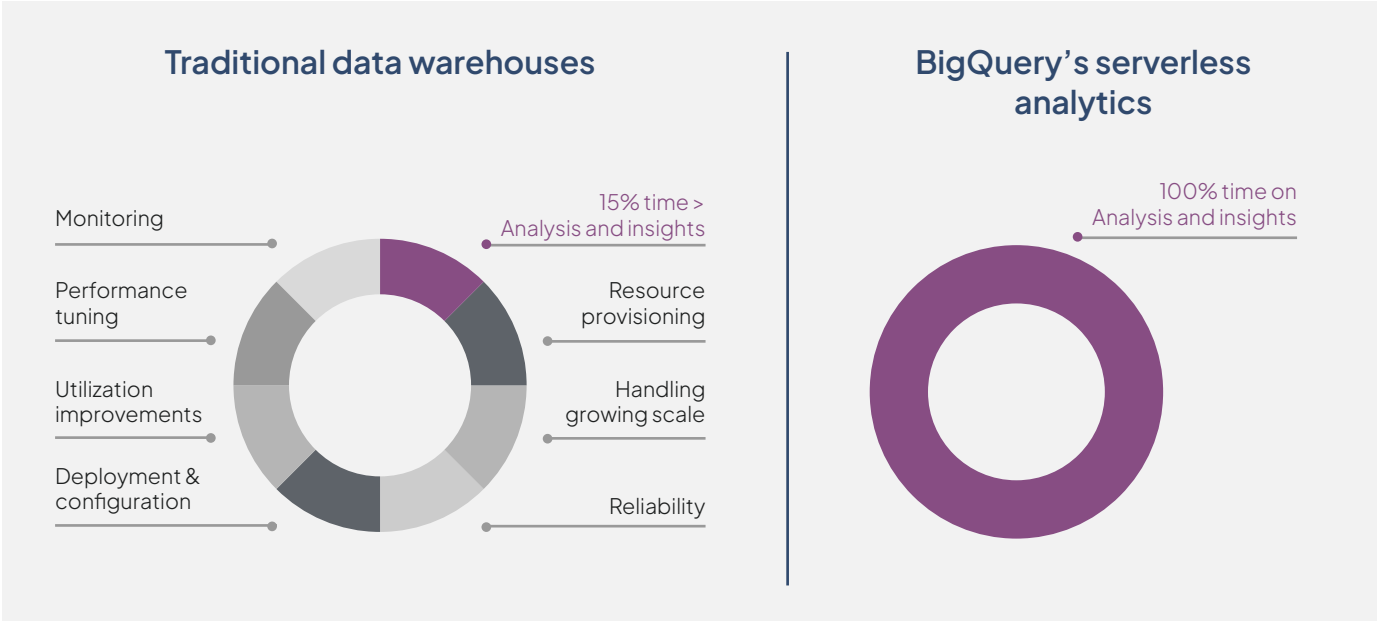
According to Google Cloud, legacy warehouses are operating at 95-100% of their maximum workload capacity. In today's dynamic business landscape, enterprises need business agility to stay ahead of their business and customer demands. For instance, customer-centric companies in the eCommerce sector need real-time data analysis to adapt to their shoppers' changing preferences.

Legacy warehouses cannot separate their computing and storage layers – necessary for business flexibility and agility.

3. Lack of real-time data analytics

Modern enterprises need "time-sensitive" reports to explore the possibilities of effective data analytics. The challenge with traditional warehouses is that data engineering teams spend most of their time on maintenance work instead of data analysis.

Here's a comparative analysis:



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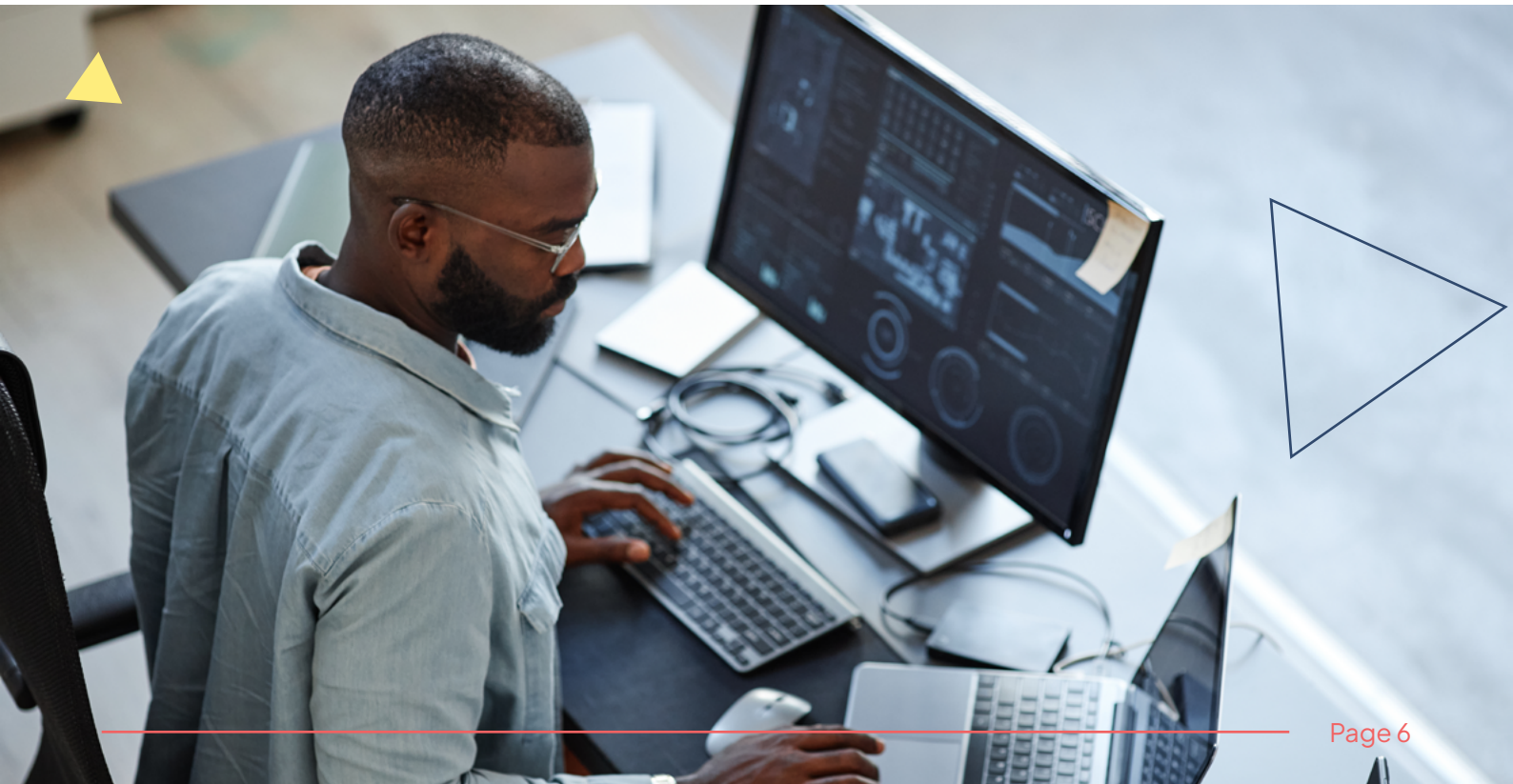
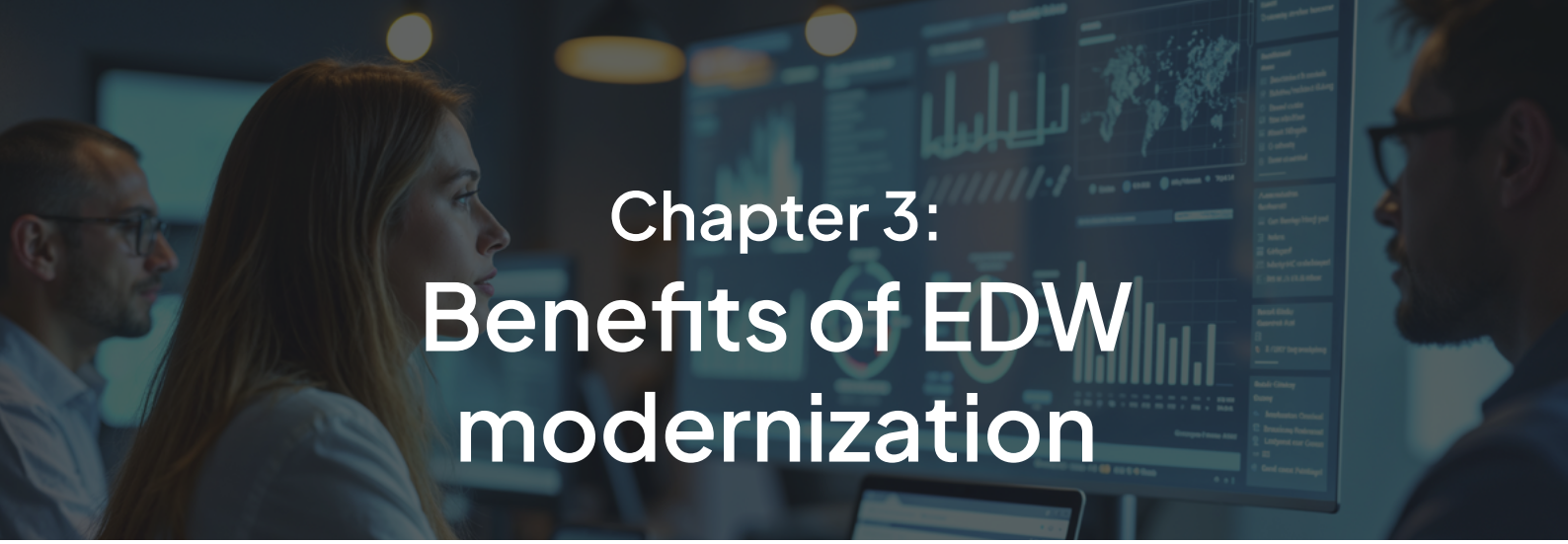
With its serverless architecture, Google BigQuery can overcome the most common challenges faced by traditional warehouses.

Next, let's discuss the scope of enterprise data warehouse (EDW) modernization – and its benefits.





Chapter 3: Benefits of EDW modernization

Here are some relevant statistics on the importance of enterprise data warehouse (EDW) modernization:

- 44% of survey respondents are concerned about the lack of agility in their warehouse development process.
- 60% of companies are operating 2-5 data warehouses – while 60% of employees work in enterprises with 6 (or more) warehouses.
- 58% of employees realize the importance of EDW modernization – while 89% consider modernization as an opportunity.

In the face of the massive data explosion and variance, more enterprises are prioritizing data warehouse modernization to extract in-depth business insights from their data. Enterprises that continue to scale their on-premises warehouse platforms face high setup and operational costs. Similarly, traditional analytics platforms pose major integration-related challenges.

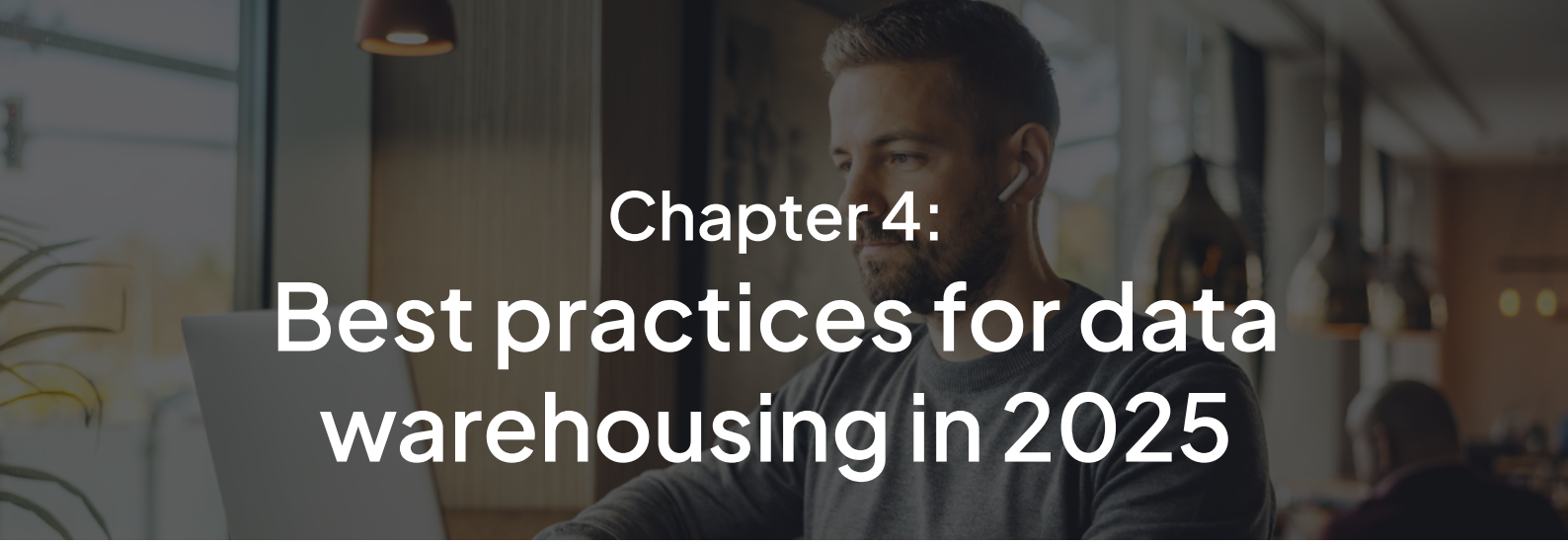
Here are some primary benefits of warehouse modernization initiatives:

1. Cost savings – in the form of less time and effort for cloud migration.
2. Automation – that reduces human efforts and simplifies data migration.
3. Continuous monitoring – of modernized warehouses along with timely recommendations for any improvement.

With a modernized data warehouse, companies can now manage vast data volumes and complex data types. Modernization effectively unlocks scalability and data processing capabilities through modern cloud frameworks.

Modernized warehouses are also better equipped to handle data quality issues commonly found in traditional warehouses. Through data transformation and validation, these warehouses can eliminate any data inaccuracies or discrepancies. Improved data quality is a crucial ingredient for AI-powered solutions and business intelligence (BI).

Before delving into how enterprises can modernize their warehouses, let's first look at some of the best practices for warehousing in the next chapter.



Chapter 4: Best practices for data warehousing in 2025

Inefficient data warehousing can be disastrous to any enterprise looking to modernize their legacy systems. Here are four best practices for a successful modernization process:

1. Define the objective or goal.

For successful modernization, enterprises must first define a clear objective or goal of undertaking this exercise - for example, to improve data quality or address the customer's pain points. Based on the requirement, they can determine the type of data that would be relevant to this use case. With this practice, organizations can ensure stakeholder buy-in by aligning business objectives with the modernization effort.

2. Assess your existing data warehouse.

Among the best practices, organizations must assess their existing warehouse environment and identify areas of improvement. The entire warehouse assessment process must include areas such as the data framework (or architecture), customized tools, and level of required integration.

With an automated data warehouse assessment tool, enterprises can streamline their cloud migration process.

3. Organize data into data models.

Another essential practice is to organize the data into a proper data model for effective querying and reporting. Data models are the "heart" of data analytics in any enterprise, and help reshape raw data into a business story. An efficient data model helps deliver data consistency in any warehouse by defining:

- The structure of database schemas and tables.
- The names of each data model and table.
- The relationships between various entities.

4. Ensure optimum data quality.

Data quality is a crucial practice in any warehouse modernization process. Data quality management is needed to detect and resolve any issues including data duplication, errors, and inconsistencies. A synthetic data generator tool like Kingfisher can help enterprises generate high-quality and accurate data.

Besides these four best practices, enterprises must also focus on continuously optimizing their warehouse performance. This is essential to improve the response time to queries and fine-tune the overall performance of the warehouse.

Now that we understand the value proposition of EDW modernization, let's next discuss how a cloud platform like Google Cloud can facilitate this process.

Chapter 5:
Role of cloud platforms in EDW modernization

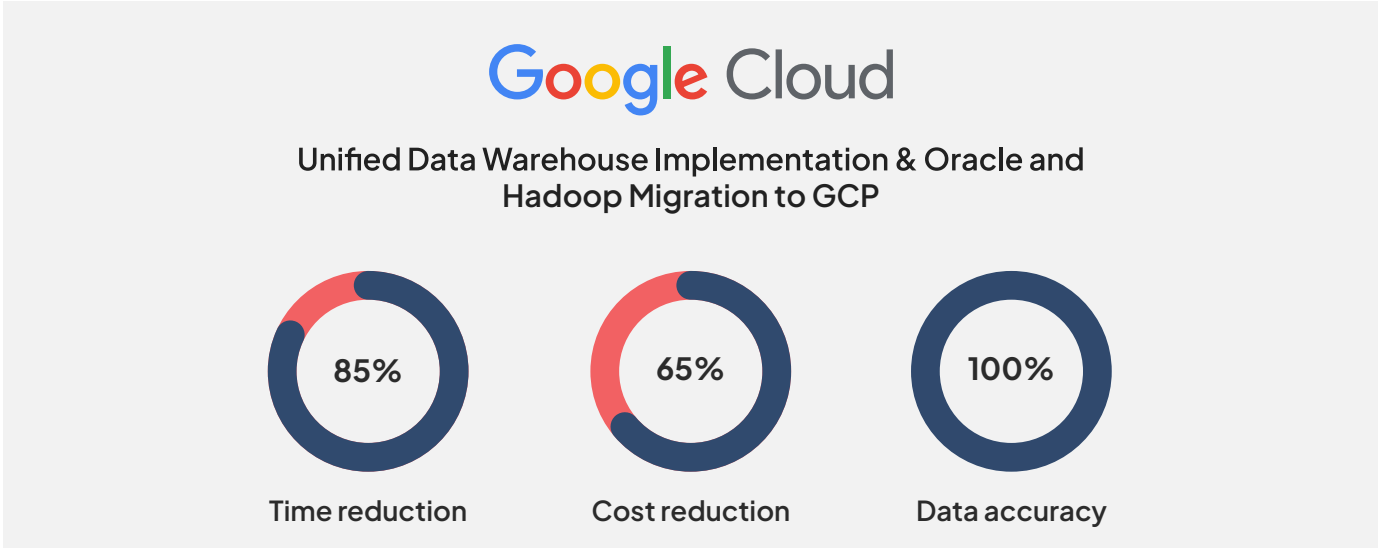


Image source

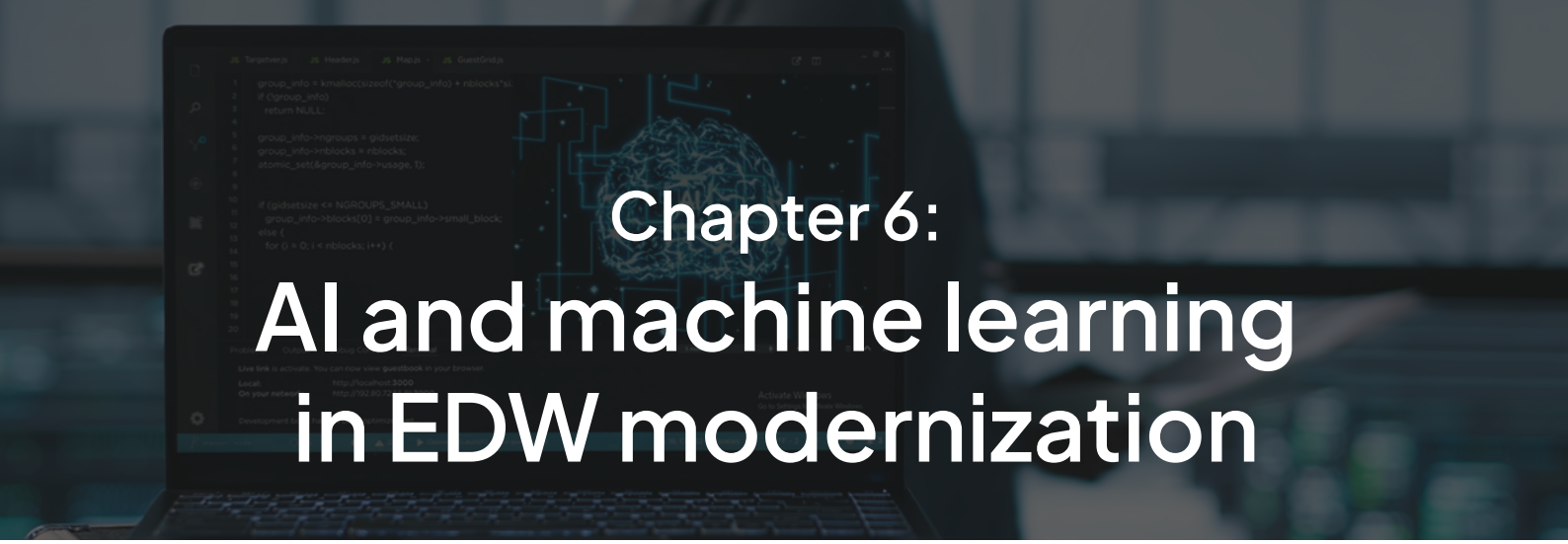
Why are more companies moving away from legacy warehouses and modernizing their infrastructure on cloud platforms like Google Cloud? Here are some of the core benefits of a cloud platform:

- Leveraging BigQuery's serverless architecture (on Google Cloud) designed to meet business demand for powerful analytics.
- A BigQuery-powered data warehouse that's fully scalable and cost-effective – with a cloud infrastructure that's easy to set up and manage.
- Enables enterprises to focus on their core business objectives and assign all the maintenance operations to the Google Cloud team.
- Ensures optimum data security and compliance on the cloud – with an end-to-end cloud computing security risk assessment strategy.

As an efficient cloud platform, Google Cloud enables EDW modernization through its BigQuery data warehouse, which enables business agility through its scalable and cost-efficient architecture. Here are some of the Google Cloud features that help the cloud modernization process:

- Improved data management and cloud provisioning using BigQuery – which enables valuable human resources to focus on effective decision-making and strategizing.
- BigQuery's decoupled architecture – computing and storage – improves both availability and scalability.
- Embedded BI and analytics enable enterprises to understand their customer behavior and empower business users with data visualization tools.
- Faster ingestion of batch and real-time data using data lakes and marts.
- Improved data governance and security – using the Data Catalog tool.

Next, let's discuss the role of AI and machine learning in EDW modernization.



Chapter 6:
AI and machine learning in EDW modernization

How global companies are planning to deploy AI with data warehousing?

66%	55%	56%	67%	42%	39%
Plan to invest in AI-based automation	Plan to use AI to increase Business	Report increased business in the past year	State that cloud technologics improve cient interaction	Sae their role with clients as increasingly strategic	Consider themselve early adopers of technology

Image source

According to McKinsey, data-dependent enterprises can automate nearly 70% of their data processing – including data storage, manipulation, and preparation. With AI and machine learning integration, modern data warehouses can enhance a variety of functions, including:

- Improving the processing of vast data volumes and complexities.
- Automating data-intensive tasks in warehousing, including data integration, performance monitoring, and data validation.
- Simplifying data schema management by eliminating human errors.
- Identifying data patterns and trends often overlooked by human analysts.

Besides, data warehouses are growing in complexity, which requires the deployment of AI-powered solutions. 91% of companies have observed a steep increase in available data sources – while 55% of experts have identified over 1,000 data sources.

By integrating AI with data analytics, modern warehouses can use cloud applications to generate new insights – as well as secure sensitive data on a cloud-enabled firewall.

Additionally, AI-powered agents (or Agentic AI) can perform specialized tasks in data warehousing. For instance, consider a company leveraging AI-enabled analytics to improve reporting on Google Cloud. Here are some specific tasks where AI agents can deliver value:

- Automation of ETL and ELT processes.
- Predictive analytics and anomaly detection.
- Real-time reporting.
- AI-powered data optimization.

As the pioneer in Agentic AI platforms, Onix's Wingspan deploys a host of AI agents to accelerate the "data-to-AI" journey. With its "smart" agents, Wingspan overcomes a AI-related challenges in enterprises including:

- Delivering tangible value in AI implementations.
- Improving model accuracy with contextual information.
- Elevating data observability and traceability.
- Overcoming cost overruns in warehouse modernization processes.

Along with efficiency, data security and governance are also crucial for modern data warehouses. Next, let's see how to implement a proper framework.

Chapter 7:
Data governance and security in modern EDWs

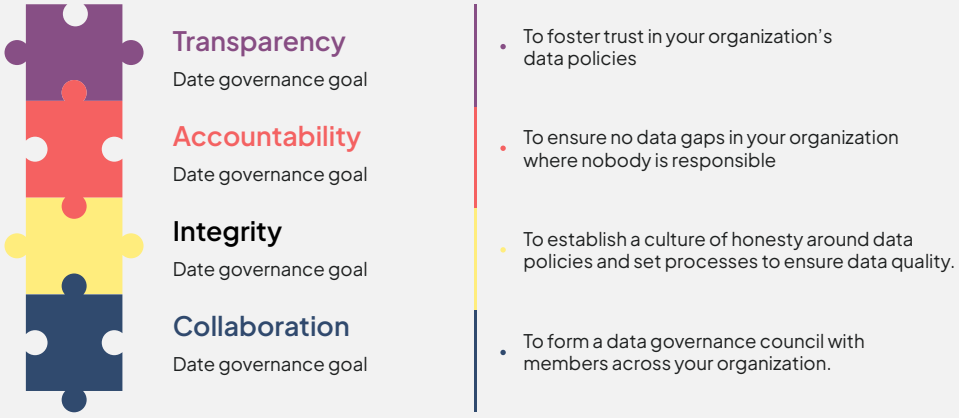
In modern data warehouse environments, enterprises need a robust data governance and security approach aligned with their business objectives. This approach defines how they are collecting, utilizing, and sharing data – while maintaining their security norms.

To boost data governance and security, Google has adopted a robust framework driven by the following 3 essential zero-trust security principles:

- All network traffic is a threat – until each device, network, and user is authenticated and validated to be granted network access.
- Each authorized user is granted the least privilege access to cloud resources needed to complete their assigned task.
- Continuous monitoring and analysis of every network activity to identify any potential threat or security incident.

To support these zero-trust principles, a strong foundation in data governance is essential. The following four governance goals help ensure your data is trusted, secure, and usable across the organization.

Top four data governance goals supporting zero-trust security



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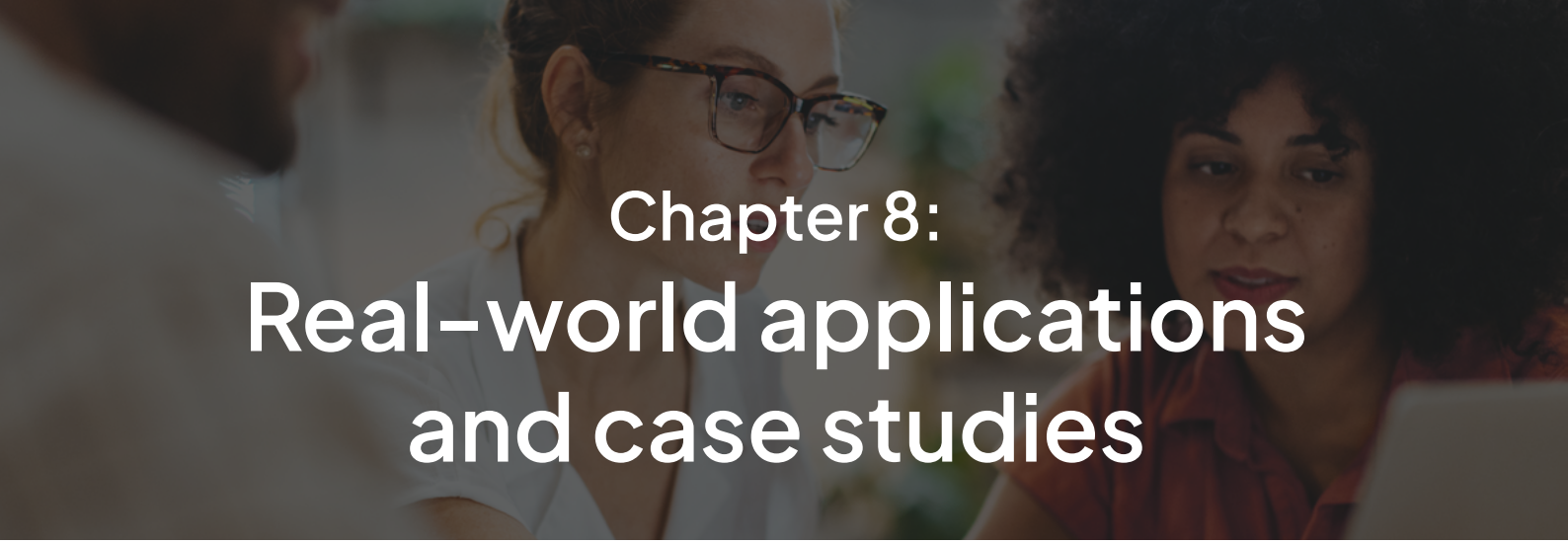
Among the necessities of effective data governance, organizations need to ensure the safe and ethical use of their sensitive data – in compliance with data privacy regulations. Thus, data governance practices must maintain the fine margin between data privacy and control – as well as ensure data-driven innovation.

As more enterprises are grappling with issues like data quality and security, synthetic data has emerged as a "game-changer." As a replica of real-world data, synthetic data ensures data privacy while also ensuring the optimum quality of data used to train innovative AI-powered models.



Chapter 8: Real-world applications and case studies

Data warehouse modernization has a host of real-world applications and use cases across industry domains. Here are a few of them:

E-commerce

In the fast-evolving E-commerce sector, EDW can accelerate data processing and analysis to provide real-time insights into customer behavior and their website interactions. With these insights, E-commerce brands can personalize their online content and make relevant product recommendations to their shoppers.

Manufacturing & supply chains

In the manufacturing and supply chain industry, a modernized data warehouse can support business functions like real-time inventory management and quality control. Manufacturers can dynamically adjust their production schedules based on real-time market demands.

Healthcare

As the healthcare sector shifts more towards improving patient care, modernized data warehouses enable healthcare providers with instant access to patient records and medical history. Healthcare specialists can also respond immediately to any sudden changes in the patient's condition.

Telecom

Data warehouses can play a crucial role in telecom network management, which can directly impact customer satisfaction. Telecom companies can continuously monitor their network performance or any systemic issues. Real-time data insights enable them to proactively address network problems.

TELUS partnered with Google Cloud and Onix to modernize data storage and use AI for innovation

Based in Canada, TELUS is a leading telecom technology company with over 100,000 global employees. In 2021, the company was running an on-premise legacy infrastructure (powered by Hadoop and Exadata technologies).

In association with Google Cloud and Onix, TELUS modernized its legacy warehouse on GCP and BigQuery with the following benefits:

- 30% reduction in operating expenses by decommissioning obsolete and unused data.
- Leveraging over 14 petabytes of enterprise data for AI and data analytics.
- Modernization of over 200 data pipelines and 100 records.

Similarly, a U.S.-based telecom provider (in association with Onix) modernized their legacy warehouse from Teradata to BigQuery and GCP. Here's the complete case study.

Chapter 9: Future trends in data warehousing

Going forward, enterprise data warehousing will continue to evolve in the face of changing technologies. Cloud-powered data warehouses are gaining popularity thanks to their cost-efficiency, scalability, and in-built flexibility. Warehouse solutions like Google BigQuery are providing enterprises with the ability to manage massive data volumes and variety.

Does the emergence of cloud-powered warehouses mean the end of on-premises data warehouses? Not likely. Companies will adopt a "hybrid" approach that includes both on-premises and the cloud. With this approach, enterprises can balance their data governance and control with cloud-enabled flexibility and scalability.

Among the future trends, data warehouses will converge with data lakes to provide enterprises with a holistic view of all their data assets. Also, by integrating AI technology with data warehousing, enterprises can automate data-driven insights and predictive analytics for more accurate decision-making.

Why Agentic AI is the future of data warehousing

Agentic AI platforms are transforming data warehousing by bringing advanced AI capabilities to data warehouse management - without any human intervention. Effectively, AI-enabled autonomous agents can "intelligently" manage the following key elements of data warehousing namely:

- Autonomous data integration
- Real-time analytics and insights
- Data governance and compliance

Conclusion

As a long-term partner of Google Cloud, Onix can help streamline your cloud migration and modernization process with minimum business disruption. Our innovative Wingspan platform suite can accelerate your modernization process by:

- Deploying multiple AI agents to accelerate your modernization process.
- Providing end-to-end visibility into your modernization process.
- Reducing the modernization costs by making autonomous decisions.
- Improving productivity by minimizing human intervention.

Get in touch with our experts to learn more.

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