

Why Data Warehouses are **Critical** For Ecommerce Businesses



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INTRODUCTION

Here are five reasons why data warehouses are critical for Ecommerce businesses:



1 Moving data to a data warehouse can solve the problem of siloed data existing in multiple systems that don't communicate with each other. Data warehousing can make data analysis easy for Ecommerce organizations like yours.



3 Using a data warehouse for analytics helps you make sense of day-to-day workflows in your organization. You can access business insights about Ecommerce processes such as sales, marketing, customer service, and inventory management.



2 A data warehouse lets you generate insights about your Ecommerce company through BI tools like Looker and Power BI. These tools provide dashboards, reports, charts, and data visualizations that help you identify patterns and trends in Ecommerce data.



4 Data warehousing for analytics helps you make better decisions in your organization. You can identify business risks, know your customers better, improve inventory processes, and more.





Integrate.io is a low-code/no-code data warehouse integration platform that can move data to a warehouse of your choice, even if you lack data engineering experience.

The Ecommerce industry is still booming: There will be [291.2 million](#) online buyers in 2025, up from 256 million in 2020. As the sector grows, more enterprises need a single source of truth (SSOT) for all the data that flows in and out of their organization. A data warehouse provides these enterprises with a centralized target system for Ecommerce data storage and analytics, allowing users to run data through third-party business intelligence (BI) programs for better decision-making.

In this whitepaper, learn why a data warehouse is critical for your online business and can generate insights into day-to-day Ecommerce activities such as sales, marketing, customer service, and inventory management.



Integrate.io is a new data warehousing integration platform for the Ecommerce industry. It moves data from multiple systems to a centralized data warehouse for analysis without lots of code or programming, helping businesses that lack data engineering skills. With its click-and-point drag-and-drop interface, it's never been easier to accumulate Ecommerce data and generate insights into your business activities.

Email hello@integrate.io to learn more about how Integrate.io optimizes and automates data warehousing.

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WHAT IS A DATA WAREHOUSE?

A [data warehouse](#) is a central repository of information that pulls data from siloed systems in your Ecommerce organization. It serves as an SSOT for all the data that facilitates sales, marketing, customer service, inventory management, and other day-to-day Ecommerce tasks. Data warehouses collect data sets from relational databases, transactional databases, social media platforms, customer relationship management (CRM) systems, enterprise resource planning (ERP) systems, and other Ecommerce data platforms.

After moving data to a warehouse, you can run that data through BI tools such as Looker, Power BI, and Tableau and use these programs to identify patterns and trends in data sets. That helps you make better decisions in your Ecommerce organization and grow your business. Some of the most popular data warehouses on the market include Snowflake, Microsoft Azure, Amazon (AWS) Redshift, PostgreSQL, and Google BigQuery.

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HOW DOES A DATA WAREHOUSE WORK?

A data warehouse typically contains several databases that organize data into columns and tables.

When data moves to (or becomes 'ingested' by) a warehouse, the system stores data in tables defined by schemas. That process helps the warehouse decide which tables to analyze. Data warehouses organize data in a tabular format so the programming language SQL can query that data.

A data warehouse usually only handles data in a structured or semi-structured format. Ecommerce organizations with unstructured data might use a data lake instead of (or in conjunction with) a data warehouse.

As you can see, data warehouses are complicated systems with many moving parts. Generally, data engineers and data scientists with lots of coding and programming knowledge help Ecommerce

organizations use warehouses like Snowflake or Redshift. However, a data warehousing integration platform like Integrate.io allows any Ecommerce organization to benefit from a warehouse, even if they lack programming skills. The tool automates many processes associated with data warehousing, allowing users to move data to a warehouse of their choice and run data through BI tools without lots of code. Integrate.io can also move Ecommerce data to a data lake like Amazon Simple Storage Service (S3).



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WHY DO YOU NEED A DATA WAREHOUSE IN ECOMMERCE?

Data analysis is essential for any Ecommerce business to succeed.

By analyzing data sets, business owners can extract insights about their organization, monitor performance, identify risks, improve workflows, and learn more about customers who purchase their products and services.

Unfortunately, analysis is complicated when storing data in several 'siloes' systems that don't communicate with each other. These systems might store data in different formats and types, making it hard to compare data sets across your organization. That's why a data warehouse is critical for analyzing data. It gathers data from multiple systems and transforms it into the correct format for analysis. After moving data to a warehouse, you can push data through BI tools and create reports, dashboards, and charts that provide real-time intelligence about your Ecommerce operations.

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WHAT BI INSIGHTS CAN YOU GENERATE AFTER DATA WAREHOUSING?

Running data through BI tools after data warehousing uncovers insights about Ecommerce functions such as:

1 SALES

BI tools provide graphs and data visualizations that reveal information about sales processes such as lead generation, lead nurturing, prospecting, and upselling. You can use these insights to improve sales activities and generate more revenue from your Ecommerce business.

2 MARKETING

BI tools help marketers identify patterns and trends in customer data. Marketers can use this information to improve engagement and move customers through marketing funnels. You can also learn which marketing campaigns provide the most value for money and the greatest return on investment.

2 CUSTOMER SERVICE

You can run data through BI tools to predict future customer service outcomes and learn how to improve the customer experience. That helps you enhance service in your Ecommerce organization and improve customer retention and brand loyalty.

4 INVENTORY MANAGEMENT

BI tools help you better understand inventory management processes such as logistics and supply and demand. By identifying trends in inventory management data, you can improve warehouse organization, prevent overstocks, and enhance productivity.

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ECOMMERCE DATA WAREHOUSING USE CASES

Here are some use cases for Ecommerce data warehousing:

An online fashion retailer wants to find out its most popular products during the holiday season to prevent understock in its warehouse. The retailer decides to move customer data from Salesforce and data from an inventory management platform to Amazon Redshift and generate insights about holiday sales through a BI tool. This process provides the retailer with actionable business insights it can't find anywhere else.

An online electronics retailer wants to learn which products are most popular with specific age demographics. The retailer moves customer data from its CRM and sales data from a transactional database to Snowflake and generates insights from a BI tool. This process helps the retailer discover that most of its products are purchased by a younger demographic.

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DIFFERENT ANALYTICAL TECHNIQUES

BI tools use different analytical techniques to operationalize and analyze data after the warehousing process.

Here are some of the most popular methods:

1 PREDICTIVE ANALYSIS

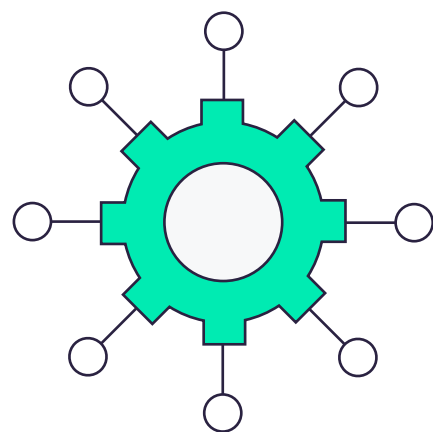
Predictive analysis is a technique that analyzes historical and statistical data to forecast future outcomes. You can use predictive analysis to identify future risks or cost-cutting opportunities in your business.

2 MACHINE LEARNING

Machine learning (ML), a subset of artificial intelligence (AI), is a process that automates predictive models by creating algorithms that automatically identify patterns in data with limited human intervention. Like predictive analytics, ML can forecast future outcomes and help you scale your business.

2 CLUSTERING

Clustering involves finding related data points in clusters of information. These data points might share common characteristics, making them useful for data analysis.



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HOW DO YOU MOVE DATA TO A WAREHOUSE FOR ECOMMERCE ANALYTICS?

There are various data warehousing or data integration methods for Ecommerce:

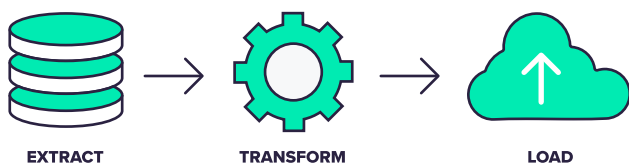
ETL

[Extract, Transform, Load](#) (ETL) is a technique that involves the following processes:

- It extracts data from a data source such as a transactional database, relational database, or other data management platform.
- It cleanses the data by removing inaccuracies and then transforms it into the correct format for data analysis.
- It loads the data to a warehouse of your choice.

Now you can run data through BI tools and generate insights into your Ecommerce organization.

EL



ELT

[Extract, Load, Transform](#) involves these processes:

- It extracts data from data sources.
- It loads the data to a warehouse (or data lake).
- It cleanses the data by removing inaccuracies and then transforms it into the correct format for analysis.

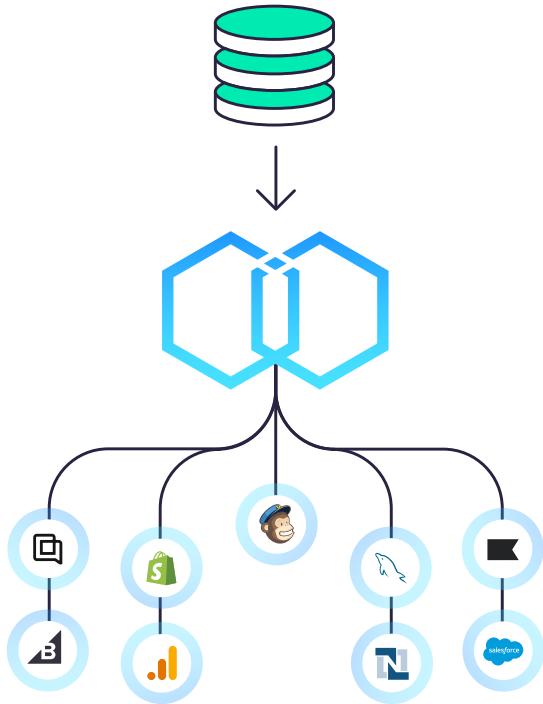
Now you can run data through BI tools and generate insights into your Ecommerce organization.

ELT is the preferred data integration method when moving unstructured data to a data lake. However, you can also use this technique to transfer data to a warehouse through Hadoop or a NoSQL database management system (DBMS).



REVERSE ETL

ReverseETL moves data from a warehouse to an operational system of record, such as a SaaS Ecommerce platform. This data integration technique lets Ecommerce teams analyze data in their favorite software tools.



CHANGE DATA CAPTURE

Change Data Capture (CDC) observes changes made to two or more databases, such as updates to columns or deleted data sets. You can view these changes in real-time and take quick action if someone makes unauthorized modifications to a database.

Integrate.io is a data warehousing integration solution that offers ETL, ELT, ReverseETL, and super-fast CDC, providing you with multiple data integration methods for Ecommerce analytics. Typically, data engineers need to build complex data pipelines to transfer data to or from a warehouse via the above methods, requiring lots of code and programming. However, Integrate.io makes data warehousing easy with its out-of-the-box connectors that require no or low code, helping you warehouse data with no data engineering experience. The platform has native connectors for the most popular data warehouses such as Snowflake, Redshift, and Google BigQuery.

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CHALLENGES OF MOVING DATA TO A WAREHOUSE FOR ECOMMERCE ANALYTICS

There are various challenges associated with moving data to a warehouse in an Ecommerce context:

DATA GOVERNANCE

Data governance frameworks like [GDPR](#), CCPA, and HIPAA stipulate expensive penalties for incorrectly processing customer data and moving it between locations.

Ecommerce companies need to be wary of data governance when warehousing data and abide by legislation and guidelines in their jurisdiction and niche.

Integrate.io can help Ecommerce organizations navigate the complexities of data governance legislation such as GDPR. The platform ensures data remains compliant when transforming it into the proper format for analysis.

DATA LOSS

One of the biggest problems that occurs during warehousing is data loss. Ecommerce organizations unfamiliar with data integration processes such as ETL might lose data when transferring it to a warehouse. In some cases, it can be difficult to recover this lost data.

DATA QUALITY

Data quality is another issue that happens during warehousing. Moving data from legacy systems to a warehouse, for example, might cause data to become corrupted.

There are also concerns like duplicated data transferring over to a warehouse. Using a tool like Integrate.io can solve the problems of data loss and data quality by cleansing data before analysis takes place.

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HOW TO CHOOSE A DATA WAREHOUSE FOR ECOMMERCE

With so many data warehouses on the market, it's sometimes hard to choose a platform that matches your Ecommerce requirements.

Here are some factors to consider before [deciding on a warehouse](#):

CLOUD/ON-PREMISES

Data warehouses fall into two main categories:

Cloud warehouses

On-premises warehouses

The most popular data warehouses tend to be cloud-based, allowing you to move data to a target system without any physical infrastructure. However, you might opt for an on-prem system if valuable data exists in legacy software tools, and it's too challenging to move that data to a target system via the cloud.

PRICING

There are lots of costs involved in data warehousing. Most warehouses will charge you for storage and computing power; however, the major warehouses have different pricing structures, making it difficult to compare them. Also, consider the cost of implementation. Incorporating a warehouse into your organization can set you back a few thousand dollars, and you might want to hire a consultant to help you with this process. Regardless, the costs of setting up and maintaining a warehouse will often pay for themselves once you start generating powerful data insights about your business.



SCALABILITY

The best data warehouses scale as your business grows, allowing you to add more features, computing power, and storage. Choose a warehouse that easily scales and can handle all your data management requirements.

SUPPORT

Good customer support is crucial for data warehouse users, especially if you have never used one of these systems before. Choose a warehouse provider that offers documentation, tutorials, and ways to contact a support rep if you require additional help when implementing or maintaining its system.

DATA SECURITY

Data security should be one of your greatest concerns when choosing a data warehouse. After all, you will be moving sensitive customer data to a new platform and possibly exposing yourself to data breaches and other cybercrime events. The most reputable data warehouse providers update their architecture with the latest security patches and use encryption, access controls, and other protocols, providing you with ongoing peace of mind.

UPTIME/DOWNTIME

Data warehouses, like other technologies, can experience downtime and impact your business. Such events will make it hard to analyze data and achieve your Ecommerce goals. Compare uptime/downtime percentages for several data warehouse providers before deciding on a system.

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HOW TO GET MORE VALUE FROM YOUR ECOMMERCE DATA WAREHOUSE

After deciding on a warehouse for your Ecommerce business, there are various ways you can get more value from your system:

DECIDE WHAT DATA YOU WANT TO MOVE TO YOUR WAREHOUSE

Big data is probably everywhere in your Ecommerce organization, existing in databases, operational systems, SaaS tools, and other platforms. However, you don't have to move all your data to your warehouse. Decide what data sets you want to analyze for Ecommerce to generate more accurate metrics and key performance indicators (KPIs) that benefit your business.

DECIDE HOW YOU WILL MOVE DATA TO YOUR WAREHOUSE

If you lack data warehousing experience, use a platform like Integrate.io to simplify the process and move data to your target system via no-code/low-code connectors. However, even if you use a data warehousing solution, you still need to decide on a data integration method to warehouse data. As previously mentioned, ETL is the most suitable technique for transferring data from data sources to a warehouse when dealing with structured or semi-structured data; ELT is the better option when managing unstructured data and moving it to a data lake. However, you can still ETL data to a warehouse via Hadoop or a DBMS.



ALLOW TIME FOR TRAINING

You might not be able to generate BI insights straight away after implementing your warehouse. You need to be familiar with the data warehouse architecture and train your team to use your new system. Some warehouses have steeper learning curves than others, but the best ones will provide you with all the training resources you need.

CHOOSE A BI TOOL

The most popular BI tools include Looker, Tableau, and Microsoft Power BI. However, many products on the market provide powerful dashboards, charts, and data visualizations for Ecommerce data. Remember, not all BI tools will be compatible with your warehouse of choice, so research products before paying for them.



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We hope that you have enjoyed reading this whitepaper.

If so, be sure to [check out our other Whitepapers](#) related to "[How Data Warehousing For Analytics Has Transformed E-Commerce](#)".

Interested in learning more about Integrate.io?

[Chat with an Expert!](#)

