# Chapter 6
# Next Generation Data Warehousing for Destination Marketing With Big Data Technologies

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## ABSTRACT

*This chapter will discuss evolution of traditional legacy data warehousing into modern big data technology for efficiently managing and analyzing data. Data warehousing brings together structured data from diverse sources on a business. Traditional systems have changed from batch processing to cloud computing and machine learning when handling large unstructured data and real-time information.*

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*Big data tools such as Hadoop and Apache Spark make traditional data warehousing faster. Cloud-based data management solutions, such as Amazon Redshift and Google BigQuery, scale and manage cost-effectively. This hybrid approach allows organizations to gain insights, adapt to market directions, and stay competitive in digital transformation.*

# 1. INTRODUCTION TO DATA WAREHOUSING

## 1.1 Overview of Data Warehouse

Data warehouses are essential for behavioral scientists who want to combine and share data without the need for an integral analytic system. These warehouses were designed to store data in a merging manner. Different systems provide data through a common layer to the central storage. It does not matter if the system is near or scattered. During this process, the data are cleaned and structured; however, as a result, some original details can be lost. On the positive side, centralized data warehouses can be split into smaller ones. These data are focused on sections called "data marts", which are similar to BioMart, meaning biological data. In neuroscience, data warehouses typically support data collection and sorting. For example, BrainMap (Alivisatos et al., 2023; Brainmap.org | Home, 2017) reserves brain imaging research, and PubBrain (Martone, 2024) ties up to the PubMed data warehouse. Furthermore, the Neuroscience Information Framework (NIF) allows researchers access to over 4, 800 data sources and metadata. Community Data warehouses offer important tools for researchers to explore and analyze large datasets. These systems boost research efficiency by providing centralized and structured data for easy access and analysis. Moreover, data warehouses provide major advantages in terms of decision support and data analysis. In addition, these warehouses allow behavioral scientists to make better data-driven decisions from a broader perspective of unified datasets.

## 1.2 Importance of Data Warehouses in Decision Making

A Data Warehouse (DW) plays an important role in decision making by providing a centralized system. In this system, large volumes of data from many sources are stored, processed, and made available. The ETL process refers to Extract, Transform and Load, in which data are cleaned and structured, and managers have the right to access accurate and uniform information. Thus, organizations can increase data quality, which is very important for making decisions. Another advantage is its ability to store historical data to explore current trends and make predictions for the future, such as in banking and telecommunications, where data-driven decisions