

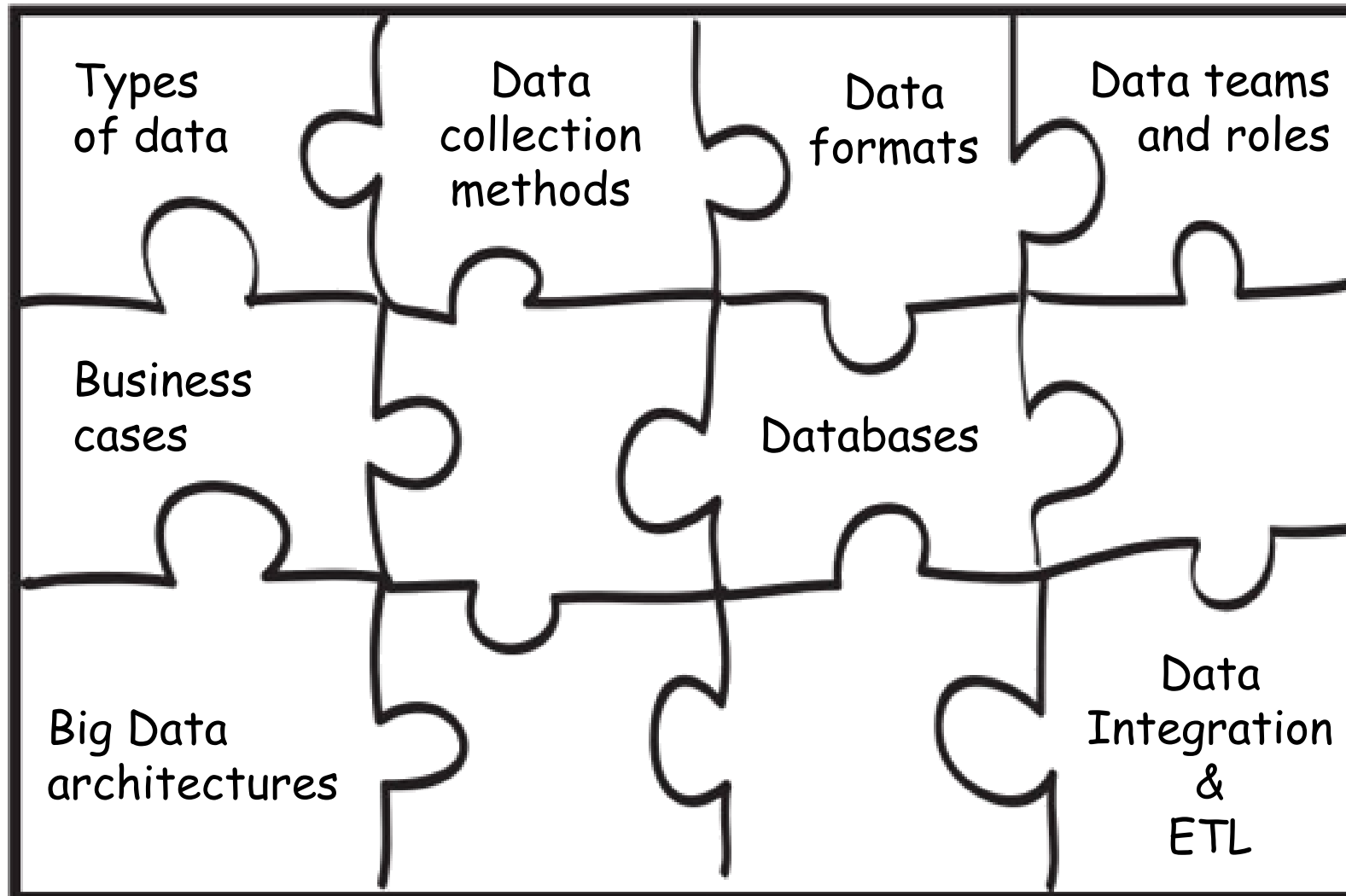
# **Big Data Business Cases and Data Collection CEBD 1150**

**Session 05 – Alteryx Workshop**

Session: Fall 2019

Instructor: Adrian Gonzalez Sanchez

# Previously... on CEBD1150



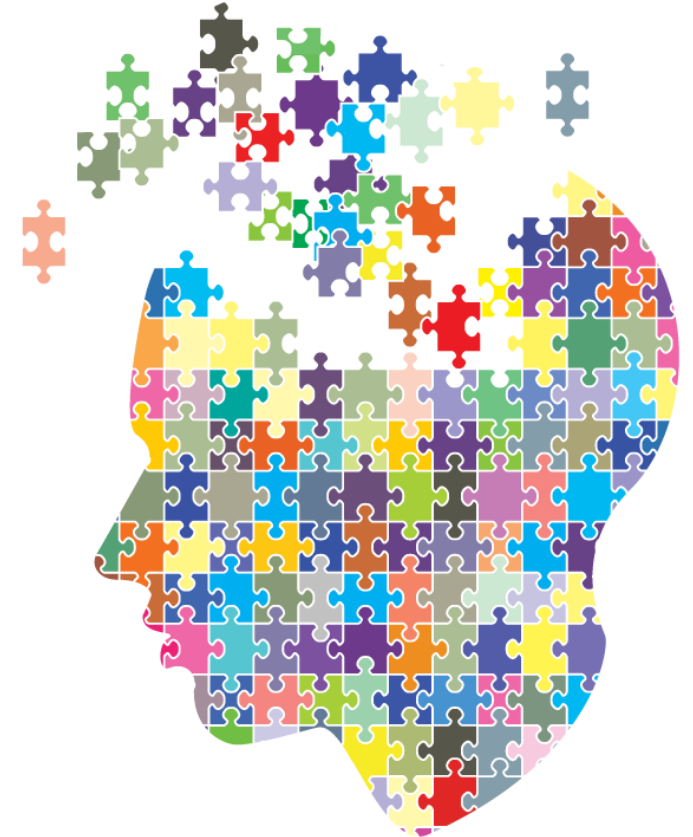
# Schedule

- Session 01 (Sep 22) – Intro to Big Data Business Cases
- Session 02 (Sep 29) – Understanding Data Sources
- Session 03 (Oct 06) – Working with Data Teams  
-- THANKSGIVING WEEKEND --
- Session 04 (Oct 20) – ETL and Integration Tools
- **Session 05 (Oct 27) – Alteryx Workshop**
- Session 06 (Nov 03) – Business Models for Big Data Projects
- Session 07 (Nov 10) – Strategic Analysis
- Session 08 (Nov 17) – Legal and Ethical Aspects
- Session 09 (Nov 24) – Data Tools Overview
- Session 10 (Dec 01) – Pitching a Big Data project

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# Our learning goals today

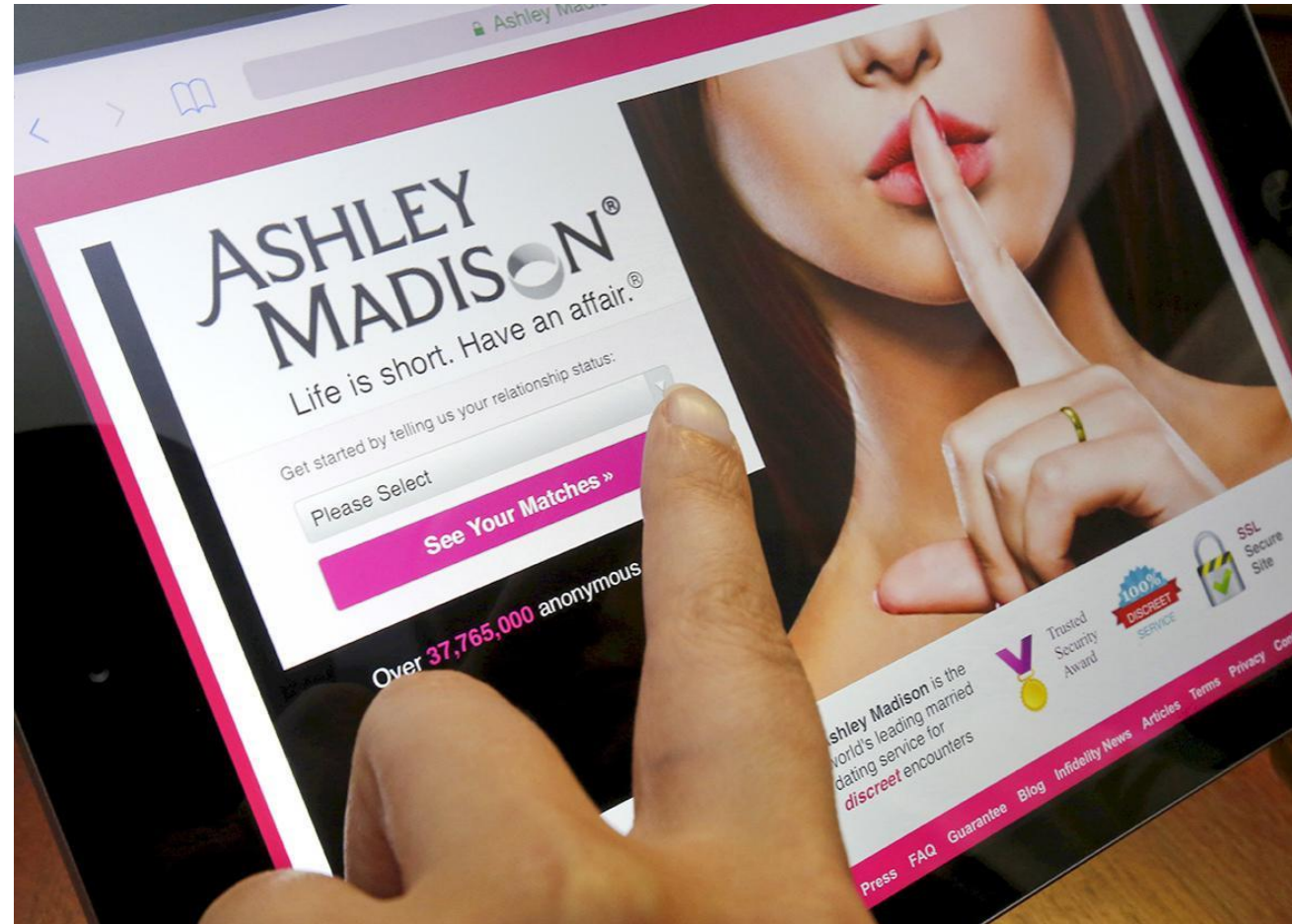
- Discussing data-centric companies: **Walmart**
- Working with **Alteryx** for data collection, transformation and analytics





# BEFORE STARTING...

# Data-driven: Ashley Madison



# Another example: Telecom operators

## Big Data – why now

*For Bell, to remain a recognize high value services company, we need to better understand our customers needs and demands, see how our network influence those, how we interaction with them, what they say about us, ....*

*We need to be able to answer the impossible questions like ...*

- *What happen with the customers in the week before they decided to “churn” and go with a competitor?*
  - *Did they call our Help Desk? How many time?*
  - *Did we visit them? What did we do? What was the problem?*
  - *Did our network failed them( maintenance or impromptu )?*
  - *Did a competitor changes its price for similar services?*
  - *What is social media is saying about it?*

*Data scientist at Bell are working to answer those impossible questions... with Big Data*



- **BI Big Data: Customer Operations**  
BI team with 2.5PB & 125 nodes of Cloudera Hadoop ingesting 30 customer related data sources.
  - ▶ FibeTV audience measurement
  - ▶ Predictive churn modelling
  - ▶ Customer type & proximity derived from Cell tower & retail store location
  - ▶ Etc.
- **Governance process evolving to co-ordinate efficient platform use across organizations.**
  - ▶ BI teams involved to share data sources, analytics and avoid duplication
- **Moving towards derived analytics to support Business Process Management and Next-Best-Action programs**

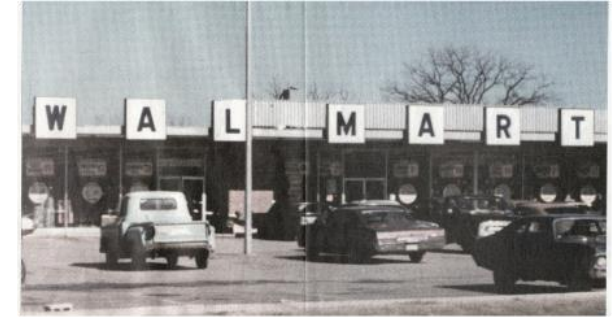
# INDUSTRY CASE

**Walmart** 

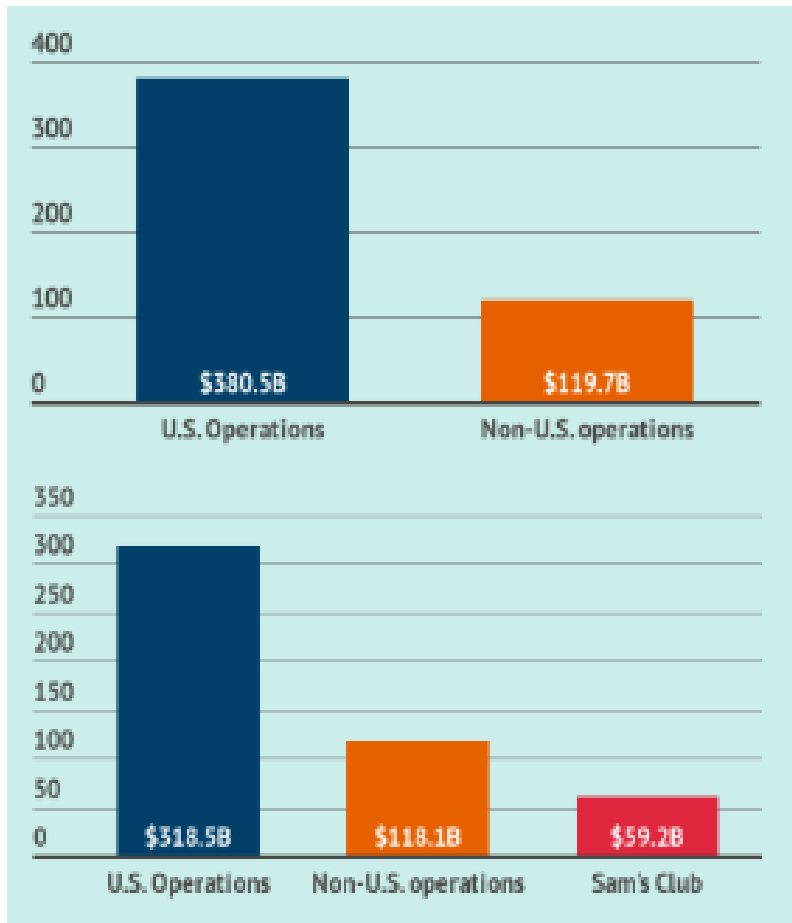


# Who is Walmart?

- Largest retailer and company in the world
- Over 20,000 stores in 28 countries
- Started in 1962 in Arkansas
- Didn't become very successful until 1970, the year it issued its first IPO
- Now employs 2.2 million associates around the world
- For the fiscal year ended January 31, 2018, Walmart's total revenue was \$500.3 billion
- Walmart's mission: To help people save money so they can live better
- Slogan: Save Money. Live Better



# Walmart's structure



Walmart operates a business model with 3 primary units in 2018

- Walmart U.S. (64% of net sales)
- Walmart International (24% of net sales)
- Sam's Club (12% of net sales)

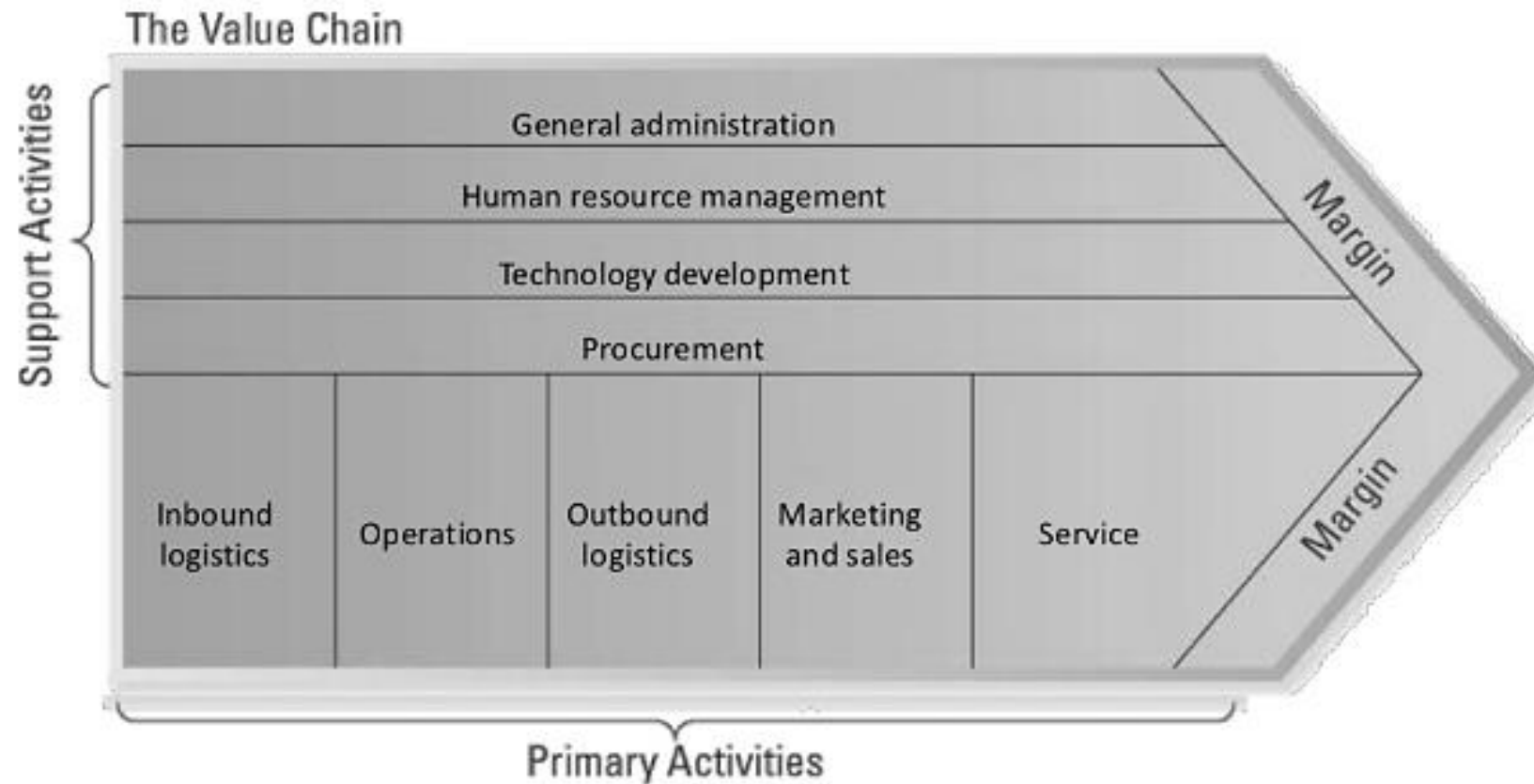
(Plus e-Commerce)

✓ **Success International Expansion: China, Canada, Mexico**

× **Failed International Expansion: Germany**

Source: <https://fourweekmba.com/walmart-business-model/>

# Walmart's value chain



Source: <https://www.slideshare.net/lpmontesa/walmart-analysis>

# Primary Activities

Inbound Logistics	Operations	Outbound Logistics	Marketing and sales	Service
<ul style="list-style-type: none"> <li>-VMI system (Vendor managed inventory) continuous replenishment</li> <li>-EDI (Electronic Data Interchange)</li> </ul>	<p>3 business segments:</p> <ul style="list-style-type: none"> <li>a)WalMart stores               <ul style="list-style-type: none"> <li>- Super centers</li> <li>- Discount centers</li> <li>- Neighborhood markets</li> </ul> </li> <li>b) SAM'S Club</li> <li>c)WalMart international</li> </ul>	<ul style="list-style-type: none"> <li>-Hub and spoke distribution system.</li> <li>- CROSS DOCKING: logistic technique to make the distribution process more efficient</li> </ul>	<ul style="list-style-type: none"> <li>- Word of mouth communication.</li> <li>-focuses on everyday low prices</li> <li>"Save money, live better"</li> <li>-Sales are on a self-service, cash-and-carry basis.</li> </ul>	<ul style="list-style-type: none"> <li>-accepting returned goods</li> <li>-Satisfaction guarantee</li> <li>- Opening hours(24/7)</li> </ul>

Source: <https://www.slideshare.net/lpmontesa/walmart-analysis>

# Support Activities

**Firms infrastructure:** close connection between headquarter and local stores.

**Human resources:**

- Based on Interaction practices between company and employees
- Low pay but other benefits (health care plans, retirement plans, or promotion opportunities)
- 2.2 million associates globally.
- Every time we open a supercenter, we provide roughly 300 jobs
- Women 57% of our U.S. workforce, 27% of corporate officers, and 20% of our Board of directors.

**Technology development:** It is the key factor of the company. It constitutes a competitive advantage against competitors.

- Computer-based technology
  - POS (Point of sales) system
  - Satellite System

**Procurement:**

- Wal-Mart deals directly with manufacturers, by passing all intermediaries.
- EDI : Electronic data interchange

MANUFACTURER – WALMART - CUSTOMERS

Source: <https://www.slideshare.net/lpmontesa/walmart-analysis>

# Understanding Walmart

- Better than others at: **Supply Chain management**
- Vendor Managed Inventory (VMI) - manufacturers became responsible for managing their products in Walmart's warehouses. As a result, Walmart was able to expect close to 100% order fulfillment on merchandise.
- Strategic sourcing for low price, established partnership with suppliers
- Advanced Inventory and cross docking system to keep inventory and transportation costs down.

## Wal-Mart : A Simple Business Model

Walton figured out that most of the costs gets added *after* the product leaves the factory and moves through the supply chain:

Mfg. → Wholesaler → Retailer

- 20% - 30% of retail price spent on keeping inventory in 3 warehouses
- Walton eliminated the wholesaler
- He instituted JIT inventory practices using "real-time" flow of information from store's sales floors to plants that dictated:

**What to produce? When to ship? To which stores?**

Dr. Lakshmi Mohan

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SOURCE: <https://www.tradegecko.com/blog/incredibly-successful-supply-chain-management-walmart>



# Five Ways Walmart Uses Big Data

1

## TO MAKE WALMART PHARMACIES MORE EFFICIENT

Walmart uses simulations at the pharmacy to find out how many prescriptions are filled in a day and to determine the busiest times during a day or month. This data helps the pharmacy with staff scheduling and to reduce the amount of time it takes a prescription to be filled.



Source: <https://blog.walmart.com/innovation/20170807/5-ways-walmart-uses-big-data-to-help-customers>

# Five Ways Walmart Uses Big Data



2

## TO IMPROVE STORE CHECKOUT

Walmart is testing how to use big data to improve the store checkout experience. By using predictive analytics, stores can anticipate demand at certain hours and determine how many associates are needed at the counters. By analyzing the data, Walmart can determine the best forms of checkout for each store: self-checkout and facilitated checkout.

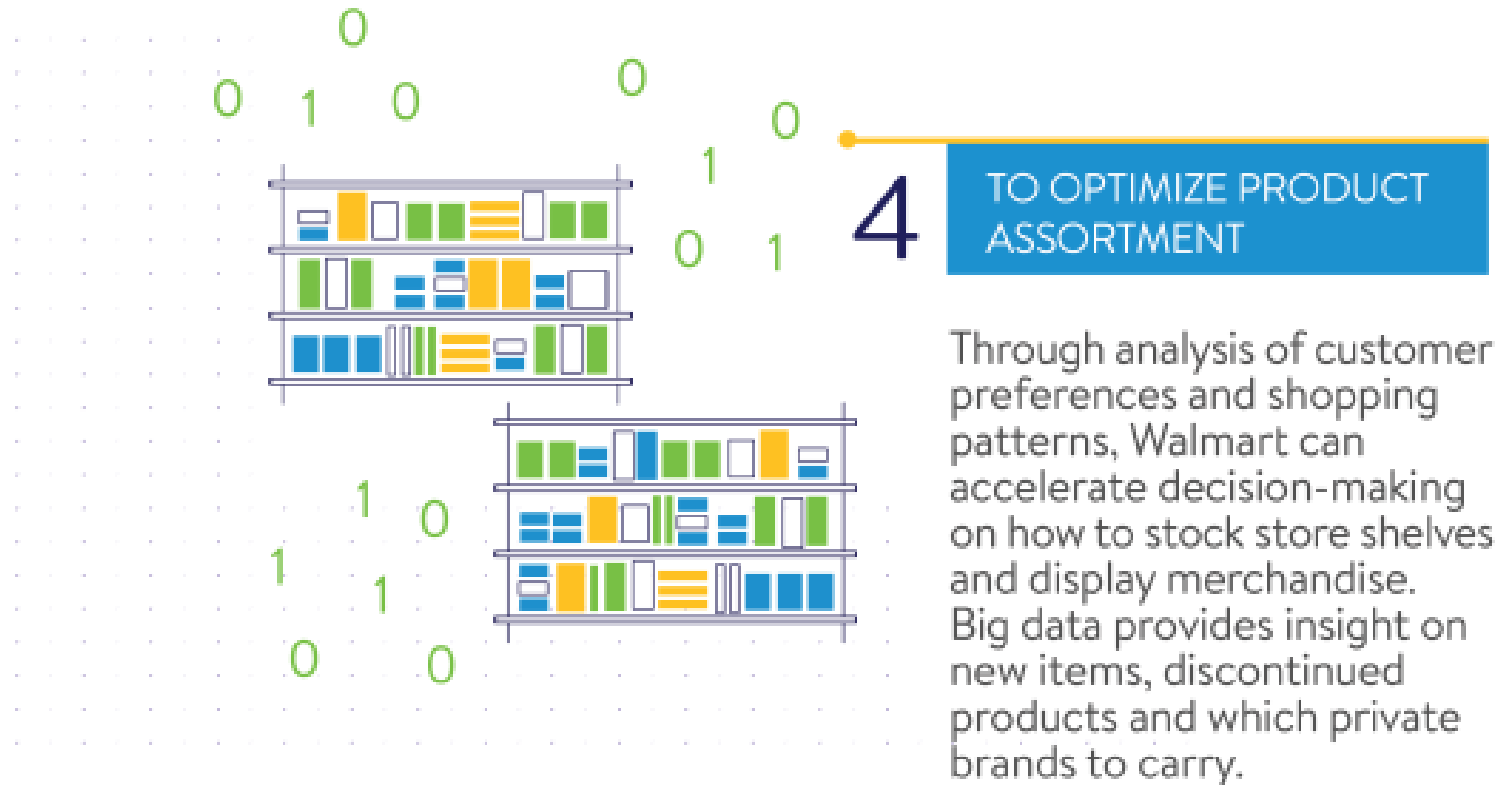
Source: <https://blog.walmart.com/innovation/20170807/5-ways-walmart-uses-big-data-to-help-customers>



Walmart uses simulations to track the number of steps from the dock to the store. This allows the company to optimize routes to the shipping dock and track the number of times a product gets touched along the way to the customer. The company also uses data to analyze transportation lanes and routes for the company's fleet of trucks. The data helps Walmart keep transportation costs down and schedule driver times.



# Five Ways Walmart Uses Big Data



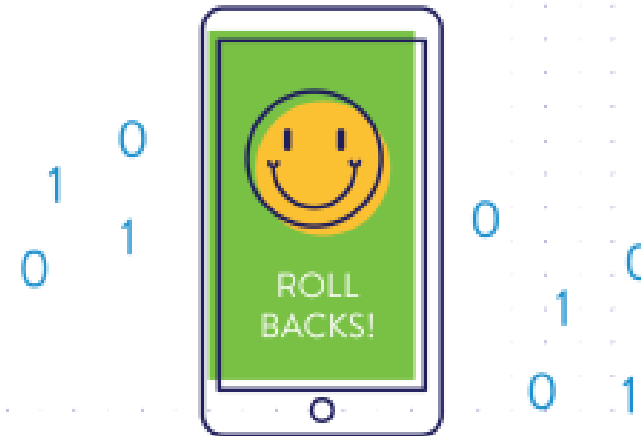
Source: <https://blog.walmart.com/innovation/20170807/5-ways-walmart-uses-big-data-to-help-customers>

# Five Ways Walmart Uses Big Data

5

## TO PERSONALIZE THE SHOPPING EXPERIENCE

Big data allows Walmart to identify a shopper's preferences to develop a consistent and delightful shopping experience. If a user is shopping for baby products, Walmart can use data analysis to personalize mobile rollback deals for parents and help them live better by anticipating their needs.



Source: <https://blog.walmart.com/innovation/20170807/5-ways-walmart-uses-big-data-to-help-customers>

# Size matters...

- Walmart generates 2.5 petabytes of data every hour
  - That is more than the total hard drive space manufactured in 1995!
- That's why Walmart is building the world's largest cloud facility to cope with all this data
- To process it, Walmart created Data Café, which is a state-of-the-art analytics hub located within its headquarters
  - Data Café analyses over 200 billion rows of transaction data
  - Pulled from 200 sources, including meteorological data, economic data, Nielsen data, telecom data, social media data, gas prices, and local events databases.
- Walmart's algorithms are designed to blaze through them in microseconds to come up with real-time solutions
- Not able to generate insights means that lost sales, which means quick analysis is vital

# Real time insights from data analytics

## EXAMPLE 1

There is a grocery team who could not understand why sales had suddenly declined in a particular product category. By drilling into the data, they were quickly able to see that pricing miscalculations had led to the products being listed at a higher price than they should have been.



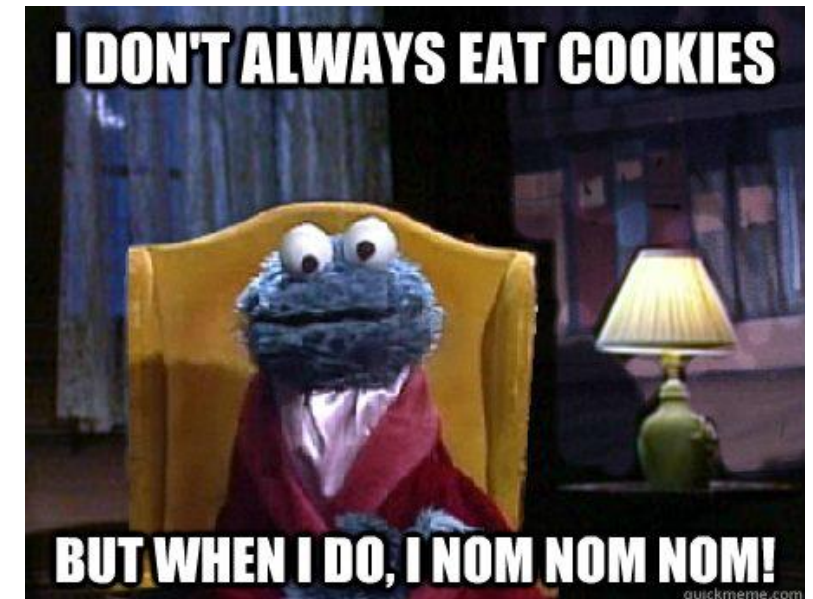
Source: <https://www.bernardmarr.com/default.asp?contentID=690>

# Real time insights from data analytics

## EXAMPLE 2

The system also provides automated alerts, so, when particular metrics fall below a set threshold in any department, the relevant team is alerted so that they can find a fast solution.

In one example of this, during Halloween, sales analysts were able to see in real time that, although a particular novelty cookie was very popular in most stores, it wasn't selling at all in two stores. The alert prompted a quick investigation, which showed that, due to a simple stocking oversight, the cookies hadn't been put on the shelves. The store was then able to rectify the situation immediately.



Source: <https://www.bernardmarr.com/default.asp?contentID=690>

# Walmart's Data Infrastructure

- **Data cleansing** – Data must be kept appropriately and anonymized. Some details are encrypted or segregated so that they are available for multiple users without worrying about violating privacy issues.
- **People make data work** – The team comprises of developers, data scientists and business analyst who uses the data effectively.
- **Access** – Big data democracy. No data bureaucracy. It doesn't take months to get access to data.
- **Choice** – They combine different tools from a variety of partners, vendors, open source and in-house developers. Using different technologies helps them go from data to prototypes to launching at scale.

Source: [https://www.sas.com/en\\_ca/insights/articles/analytics/how-walmart-makes-data-work-for-its-customers.html](https://www.sas.com/en_ca/insights/articles/analytics/how-walmart-makes-data-work-for-its-customers.html)

# Putting customer data together

## Mobile app for non-online shoppers

- 240 million customers visit brick-and-mortar Walmart store each week
- “We wanted to develop mobile apps to give our in-store customers the best experience possible” Jaya Kolhatkar VP of Global Data for @walmartlabs
- The Walmart app *enhances the shopping experience* in Walmart stores with features that include checking in to pick up an online order at a Walmart store, refilling pharmacy prescriptions and finding an item’s store location
- An in-store mobile navigation system was developed so that customers can search for items and see exactly where they are located in the store
- Another app, e-receipts helps customers eliminate the pain of keeping up with printed receipts

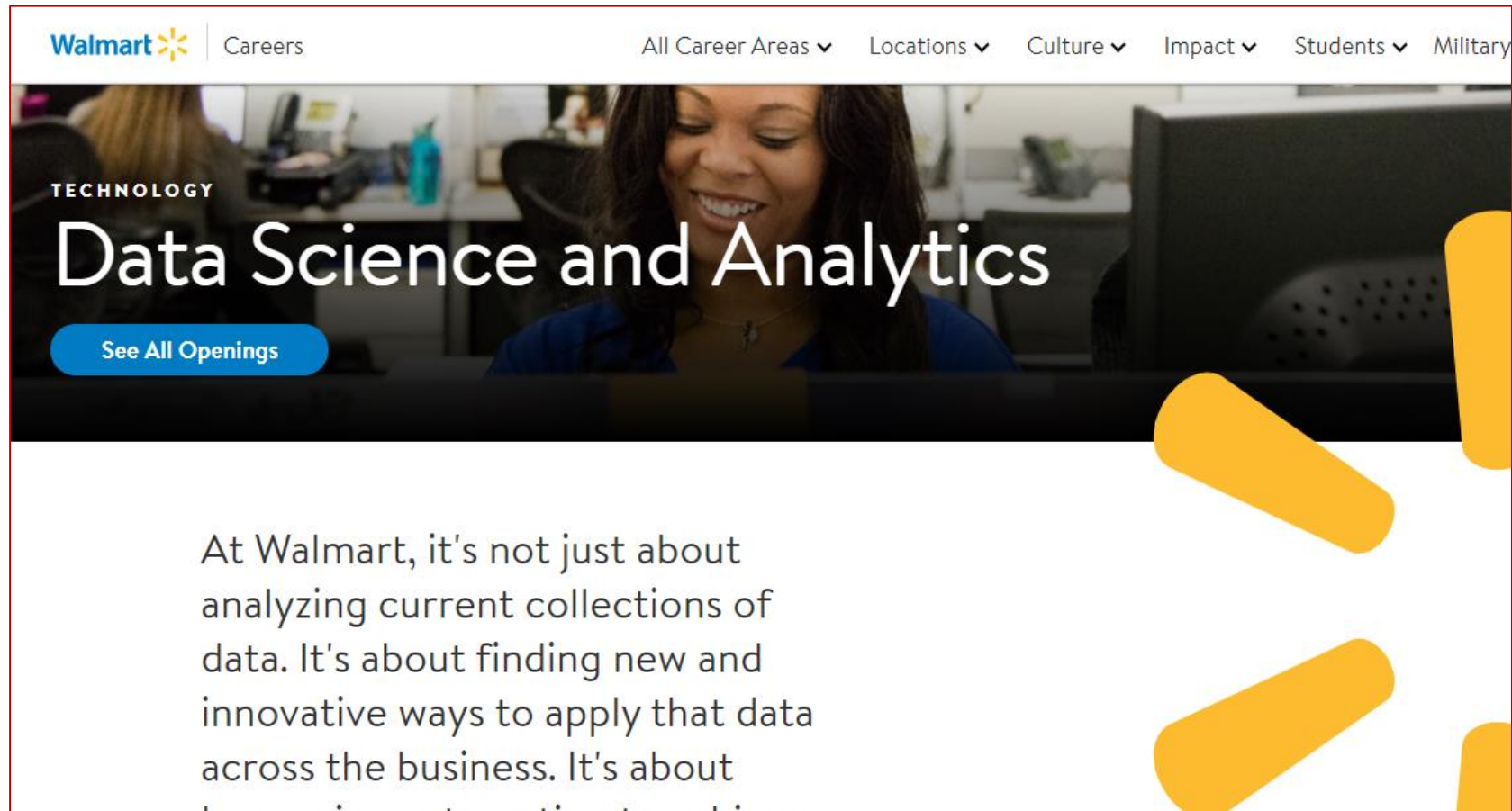
Source: [https://www.sas.com/en\\_ca/insights/articles/analytics/how-walmart-makes-data-work-for-its-customers.html](https://www.sas.com/en_ca/insights/articles/analytics/how-walmart-makes-data-work-for-its-customers.html)




*“Figure out what data to collect and then look at areas that will deliver the most value. That’s how we’re building the next generation of e-commerce for our customers.”*

- Jaya Kolhatkar VP of Global Data for @walmartlabs

# Data-driven innovation



The image shows a screenshot of the Walmart Careers website. At the top, the Walmart logo is on the left, followed by a 'Careers' link. To the right are several dropdown menus: 'All Career Areas', 'Locations', 'Culture', 'Impact', 'Students', and 'Military'. Below the navigation bar is a large banner featuring a smiling woman in an office setting. The word 'TECHNOLOGY' is written in small capital letters above the main title 'Data Science and Analytics'. A blue button with the text 'See All Openings' is positioned below the title. The background of the banner is dark, and there are several large, stylized yellow brush strokes on the right side. Below the banner, the text reads: 'At Walmart, it's not just about analyzing current collections of data. It's about finding new and innovative ways to apply that data across the business. It's about'.

Walmart  Careers

All Career Areas ▾ Locations ▾ Culture ▾ Impact ▾ Students ▾ Military ▾

TECHNOLOGY

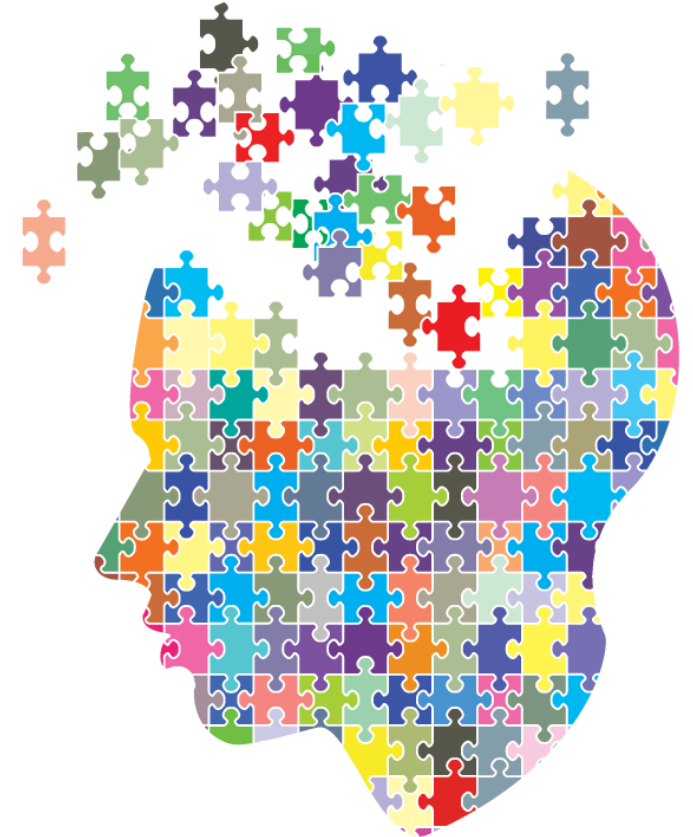
## Data Science and Analytics

[See All Openings](#)

At Walmart, it's not just about analyzing current collections of data. It's about finding new and innovative ways to apply that data across the business. It's about

# Our learning goals today

- ✓ Discussing data-centric companies: **Walmart**
- ✓ Working with **Alteryx** for data collection, transformation and analytics





FOR NEXT WEEK...

# For next week

- ✓ Submit the **Weekly Learning Journal** for Session 5 (ASAP)
- ✓ Submit your second individual assignment
  - ✓ Deadline: Saturday (November 2, 23h45)
- ✓ Reminder: Install **Alteryx** and enter the license key

An abstract graphic featuring overlapping, wavy shapes in a vibrant blue and a deep red. The shapes create a sense of movement and depth, with a dark blue/black area in the center where the text is located.

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