Big data analytics

in

Domain : Retail & E-Commerce

by,

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BIG
DATA
Analysis
Distribution
Cloud
Mobile
Risk

What is Big data ?

Any voluminous amount of structured, semi- structured and unstructured data that has the potential to be mined for information.

Large/complex data sets that traditional data processing applications cannot deal with.

Big data is analyzed computationally to reveal,

- Patterns,
- Trends and
- Associations

How Big Data Is Changing
The Face of Retail

Before big data,

Data Analysis in Retail:

Collection of large amount of data, looking at past data and general averages across wide swaths of customers → estimate future inventory needs.

Using sales from previous years to estimate next year's inventory or for future sales forecasts, average cart size and items most often purchased together to target offers, etc. → attempt to make predictions.

Cons:

Heavy investment on surveys which were time consuming

Revealed only macro-level predictions based on averages or generalities

Not-so-accurate predictions

Why big data, in Retail ?

Big data enabled retailers to do **micro-level predictions** - that is down to a specific individual.

Retailers could look at each individual and evaluate their purchases in real time to accurately predict their next purchase (what they would buy based on their specific buying habits).

Big data – Algorithms and Tools

Big data Tools, like, Hadoop provides large amounts of storage for all sorts of data along with the ability to handle virtually limitless concurrent jobs or tasks. Also, provides the ability to scale your data without the worry of hardware failures.

Other Tools: Cloudera, Hive etc.,

Big data Algorithms, like, Association Rule Mining Algorithm looks for associations that co-occur with a high degree of frequency. It in turn aids inventory management.

Other Algorithms: K-means clustering algorithms, Linear regression algorithms

Predictive Analysis

Predictive analytics run statistical algorithms and machine-learning techniques on large historical data sets to **identify the likelihood** of future outcomes.

And predictive analytics can do all of the below automatically and at scale.,

- Pricing
- Inventory management
- Recommendation engines
- Smart revenue forecasting

Source: https://blog.dataiku.com/4-big-challenges-for-retailers-solved-with-predictive-analytics

Cost reduction
BIG DATA ANALYTICS
Faster, better decision making
New products & services

The Big Data Analytics

Big data analysis is the process of inspecting, cleaning, transforming, and modeling the data with the goal of discovering useful information, suggesting conclusions, and supporting decision making.

The Big Data Analytics in Retail

Big Data analytics is now being applied at every step of the retail process - right from predicting the popular products to identifying the customers who are likely to be interested in these products and what to sell them next.

Impact of Big Data Analytics in Retail

Enhanced customer experience by,

- Generating Recommendations
- Making strategic decisions
- Optimizing pricing
- Predicting trends

The
Big Data
Shift

The Big Data Shift

Target

Targets pregnant women even before they share the baby news

Analysis on historical buying data of all the ladies who had signed up for Target baby registries in the past.

This resulted in a noticeable Data pattern.

Target was able to identify that women buying large quantities of unscented lotion, cotton balls, supplements and washcloths might mean that she's anywhere from a few weeks pregnant, to very close to her due date.

Target used this to promote baby products and mail discount coupons to such customers.

The Weather Channel

The Weather Channel takes advertising by storm

The predictive weather analytics looked at trends based on location, and guide advertisers on how and when to deliver their message to help spur action.

One such example was the partnership between Pantene, Walgreens and the Weather Channel. Using data collected by the Weather Channel, Pantene and Walgreens were able to anticipate when humidity in the air would be at its highest, prompting women to seek out a product at their local drugstore to prevent frizzy hair.

This was branded as a #haircast and lead to a 10% increase in sales of Pantene at Walgreens for the months of July and August, along with a 4% sales lift across the entire hair care category at Walgreens.

Source: https://www.datapine.com/blog/big-data-in-retail-examples/

Amazon's recommendation secret

According to a source, 35% of Amazon's revenue is now generated by its recommendation engine.

Amazon analyzes, what a user has bought in the past, which items they have in their virtual shopping cart, items they've rated and liked, and what other customers have viewed and purchased.

Amazon calls this "item-to-item collaborative filtering" and uses this algorithm to customize the browsing experience.

- Recommended for you
- Frequently bought together
- You recently viewed these items and featured recommendations
- Related to items to viewed
- Customers who bought this also bought

The company reported a 29% sales increase to $12.83 billion during its second fiscal quarter, up from $9.9 billion during the same time last year.

Source: http://www.cs.umd.edu/~samir/498/Amazon-Recommendations.pdf

Costco

Costco solidifies customer loyalty with fast warnings circulation

Costco is known to be collecting reams and reams of user data even before big data. But, with big data Costco was able better streamline the user data.

A California fruit packing company warned Costco about the possibility of listeria contamination in its stone fruits. Instead of a blanket warning to everyone, Costco was able to notify the specific customers that purchased those particular items.

Costco was able to help CDC pinpoint the source of salmonella outbreak back in 2010.

Source: https://www.datapine.com/blog/big-data-in-retail-examples/

Starbucks

Retail winner having uncanny ability to open a number of branches on the same block

By using big data analytics to its advantage, Starbucks can predict the growth potential of each new store by analyzing the metrics such as location, traffic, area demographics and customer behavior.

Moreover, Starbucks gathered insights from their 90-plus million transactions per week and used this data to deliver a personalized experience to its customers,

- Collecting data about customer orders
- Personalizing ads and vouchers
- Recovering lost customers

Source: https://www.datapine.com/blog/big-data-in-retail-examples/

FUTURE OF
BIG DATA
IN RETAIL INDUSTRY

Big data and IoT:

Stores will be enabled with sensors that detect a nearby shopper with the app on their phone or tablet.

The app will deliver timely incentives and offers to help

- Turn over more products
- Introduce shoppers to new products that they were not aware of

Big data and Social Media:

With better data analytics, retailers can filter out all of the useless noise and zero in on real data which applies to what they need to know

- Their customers
- Public perception of their brands
- How people respond to their products

Source: http://customerthink.com/big-data-analytics-and-the-future-of-retail/

Big data and Store layout:

Big Data can help with,

- Product placement
- Floor plans
- Arrangements of cash registers

Some stores have improved revenue significantly by making minor adjustments to the layout of their retail stores

Big data and Supply chain Management:

Determine the region where a new product is going to be the most/least popular and the best route to get more stock delivered there.

Source: http://customerthink.com/big-data-analytics-and-the-future-of-retail/

So, Questions ?

Thank You