Big Data Analytics in the Management of Business

Big Data in Big Companies: How New?

- It’s not the “bigness” that impresses them.

- Instead it’s one of three other aspects of big data:

  - the lack of structure,
  - the opportunities presented, and
  - low cost of the technologies involved.

Objectives for Big Data

- **Cost Reduction from Big Data Technologies**
  - Hadoop clusters
  - Largely technical and economic criteria.
- **Time Reduction from Big Data**
- **Developing New Big Data-Based Offerings**

Big Data at UPS: Cost Reduction

- Tracks data on 16.3 million packages per day for 8.8 million customers
- With an average of 39.5 million tracking requests from customers per day.
- The company stores over 16 petabytes of data.
- Big data, however, comes from telematics sensors in over 46,000 vehicles.
- The data on UPS package cars (trucks), for example, includes their speed, direction, braking, and drive train performance.
- The data is not only used to monitor daily performance, but to drive a major redesign of UPS drivers' route structures.

- This initiative, called ORION (On- Road Integrated Optimization and Navigation) - world’s largest operations research project.
- It also relies heavily on online map data, and will eventually reconfigure a driver’s pickups and drop-offs in real time.
- The project has already led to savings in 2011 of more than 8.4 million gallons of fuel by cutting 85 million miles off of daily routes.
- UPS estimates that saving only one daily mile driven per driver saves the company $30 million, so the overall dollar savings are substantial.
- The company is also attempting to use data and analytics to optimize the efficiency of its 2000 aircraft flights per day.

Macy's : Time Reduction from Big Data

- Macy's merchandise pricing optimization application - classic eg.
- Reducing the cycle time for complex and large-scale analytical calculations from hours or even days to minutes or seconds.
- The department store chain has been able to reduce the time to optimize pricing of its 73 million items for sale from over 27 hours to just over 1 hour.
- This capability set obviously makes it possible for Macy's to re-price items much more frequently to adapt to changing conditions in the retail marketplace.

- This big data analytics application takes data out of a Hadoop cluster and puts it into other parallel computing and in-memory software architectures.
- Macy’s also says it achieved 70% hardware cost reductions.
- Another key objective involving time reduction is to be able to interact with the customer in real time, using analytics and data derived from the customer experience.
- If the customer has “left the building,” targeted offers and services are likely to be much less effective. This means rapid data capture, aggregation, processing, and analytics

LinkedIn: Developing New Big Data-Based Offerings

- Develop a broad array of product offerings and features, including People You May Know, Groups You May Like, Jobs You May Be Interested In, Who's Viewed My Profile, and several others.
- These offerings have brought millions of new customers to LinkedIn.

Google: Developing New Big Data-Based Offerings

- Uses big data to refine its core search and ad-serving algorithms.
- Google is constantly developing new products and services that have big data algorithms for search or ad

Big Data at Caesars Entertainment (Harrah's)

- Caesars (formerly Harrah's) Entertainment has long been a leader in the use of analytics, particularly in the area of customer loyalty, marketing, and service.
- Caesars pays fanatical attention— typically through human observation—to ensuring that its most loyal customers don't wait in lines.
- With video analytics on big data tools, it may be able to employ more automated means for spotting service issues involving less frequent customers.
- Caesars is also beginning to analyze mobile data, and is experimenting with targeted real-time offers to mobile devices.

Examples

- Hospitals: Carolina health care
- Recorded Future
- Railways
- Government:
  - Healthcare,
  - Agriculture,
  - Education
  - Poverty
  - Transport