Data Analytics and Business Intelligence

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Data Analytics (DA) Defined

"The **qualitative** and **quantitative** techniques and processes used to **enhance productivity** and business gain."

What Does That Mean?

- Basically, it means that companies **extract** and **categorize** data to identify and analyze behavioral **data and patterns**
- Techniques used to analyze data vary according to organizational requirements

What is Business Intelligence (BI)?

- Business Intelligence uses software and services to **transform data** into **actionable intelligence** that informs an organization's **strategic business decisions.**
- Business Intelligence also uses **data** to present findings in **reports, graphs, and charts** to provide users with **detailed intelligence** about the state of the business.

How do Business Analytics and Business Intelligence Relate to Each Other?

- **Data Analytics** is a type of data science, used to figure out *what* questions to ask about gathered data
- **Business Intelligence** refers to companies using previously analyzed data to make business decisions
- **The bottom line** - Companies use Data Analytics to reach Business Intelligence when making decisions that will affect the future of the company
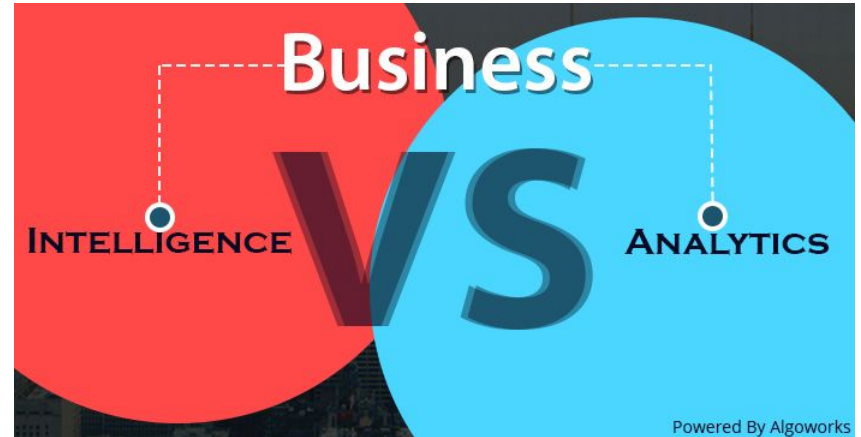
A Brief History of DA and BI

Generation 1: Developed in the 1990's, data inputted manually, time consuming and error prone

Generation 2: Appeared during the 2000's, utilized data warehouses, computer memory systems, and Internet technologies to create intuitive and accessible reports

Generation 3 (present day): data is more accessible than ever before, determining which data is relevant is key
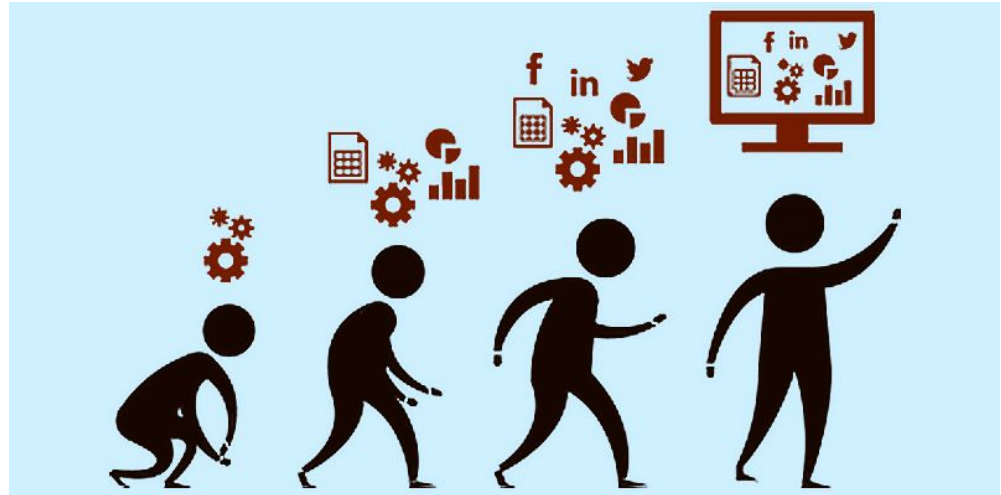
Data Collection & Storage

- Increase in Data Analytics and Business Intelligence is thanks to increased storage capacities and computing power
- Growing capacity to house data helps businesses and organizations analyze their businesses and increase efficiency and effectiveness of business decisions

Examples of Use:

- Advertisment
- Supply Chain
- Health Services
- Natural Disasters
- Much more!

Data Analytics and Business Intelligence Strategies

amazon

- E-commerce/cloud computing/largest internet retailer in the world

- Uses extensive DA and BI to collect, store, process, and analyze customer information

- Collaborative Filter Engine (CFE)
  - Analyzes items you've previously purchased, in your shopping cart, on your wishlist, reviewed and rated products, and your most searched items

Collaborative Filter Engine
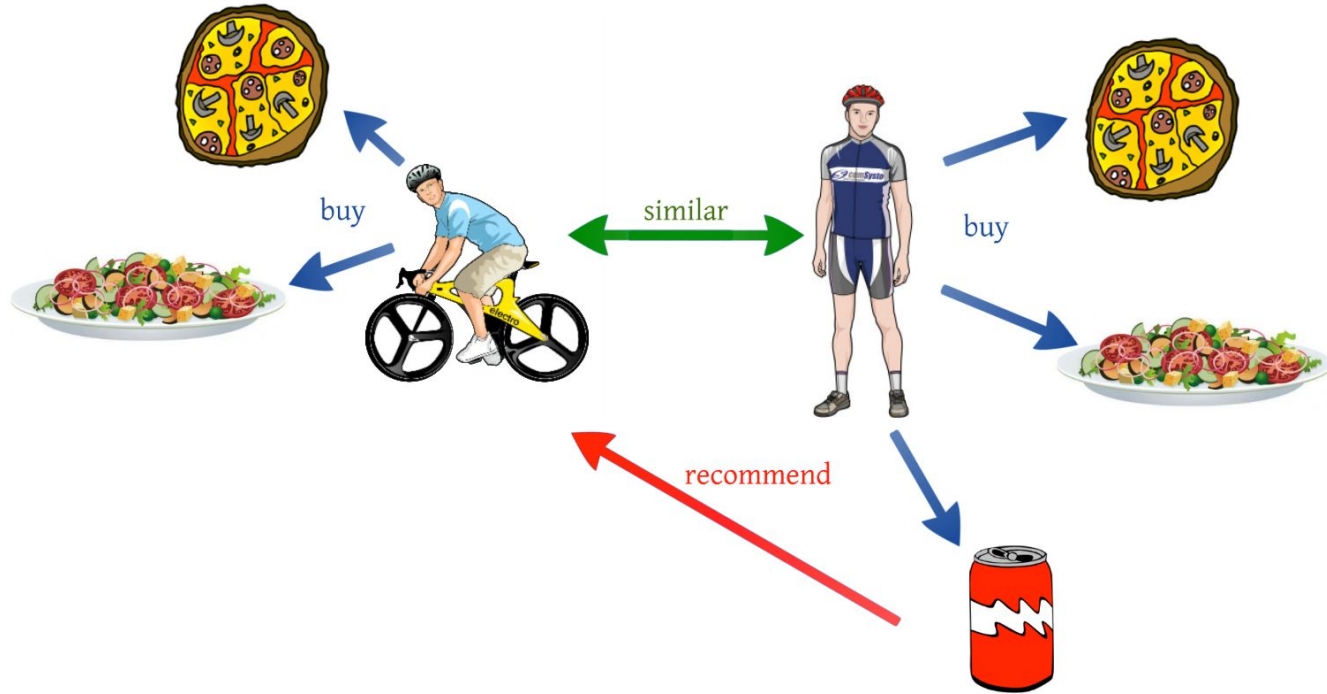
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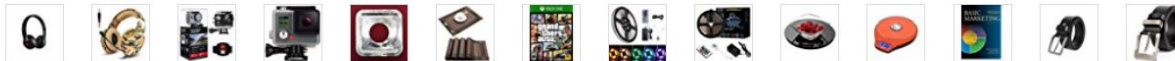Ubisoft
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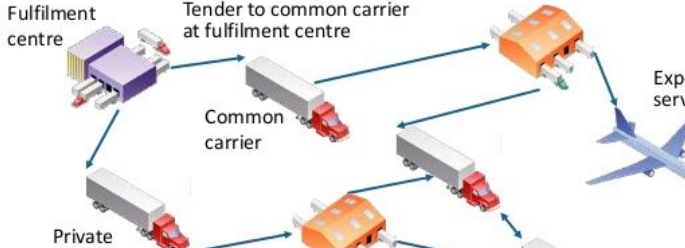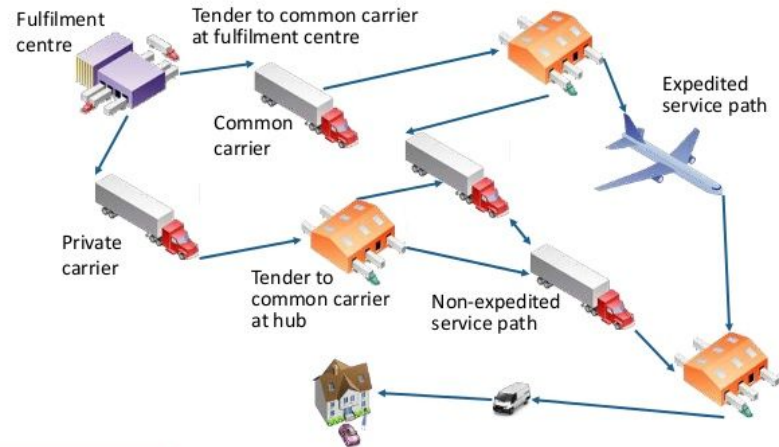★★★★½ 28,490
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Anticipatory Shipping Model

- Analyzes big data for:
  - predicting what products you are likely to purchase
  - when you may buy them
  - where you might need the products
- Items are sent to a local distribution center so they will be ready for shipping once you order them
- Uses BI to develop:
  - cost efficient shipping routes
  - better locations for new distribution center
  - quicker shipping times

Data Analytics and Business Intelligence Strategies

- American multinational financial services corporation

  - Known for its: credit card, charge card, and traveler's check

  - Accounts for 22.9% of the total dollar volume of credit card transactions in the US

  - Over 110 million credit cards in force

Fraud Detection and Prevention Department

- Detect fraudulent transactions as quickly as possible to minimize loss

- Use DA in a machine learning model to analyze:

  - card membership information, spending details, and merchant information

  - detect suspicious events and compare these events to a large dataset

- BI uses the information and trends from their DA to build algorithms
  - customize offers to attract and retain customers and maintain relationships with merchants

Risks: Methods

- Amazon

    - Collaborative Filter Engine

    - Anticipatory Shipping Model

- American Express

    - Machine Learning
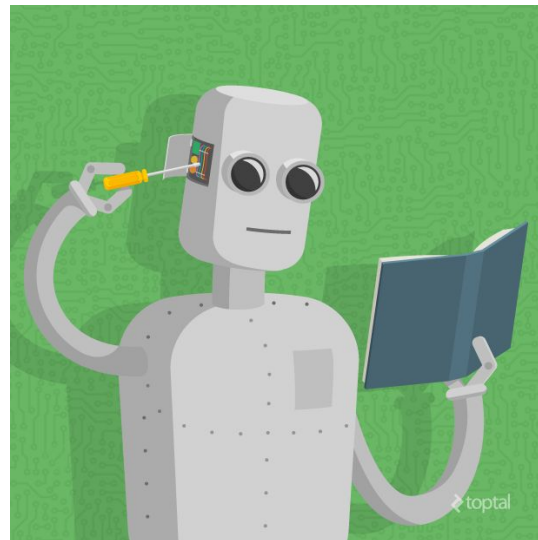
Risks of Data Analytics

1. Information Quality

2. Compliance

3. Governance

4. Inappropriate and premature use of analytics

5. Counter-cultural impact

Risks of Business Intelligence

1. Resistance to change

2. Failing to account for change

3. Over promising and under-delivering

4. Poor data quality

5. User adaption poor

Advantages of BI

1. Faster reporting

2. More accurate reporting,

3. Better business decisions

4. Improved data quality

5. Reduced costs

6. Increased revenues

Advantages of DA

1. Optimizing and improving the customer experience

2. Proactivity and anticipating needs

3. Mitigating risk and fraud

4. Delivering relevant products

5. Personalization and service

Future for BI and DA

- SQL is most frequently used tool, more competitive tools will be created with more exposure and comfort
- Create more jobs, departments, companies
- Faster real time decision making (easier access)
- Decreases in "gut" decisions
- The cloud will create more efficient companies
- Digitalization
- Increase in cyber security

Dangers of relying on vast amounts of information

- Time spent sorting through all the data
- More useless information
- Incorrect Information
- More information = Bigger Target
- Being hacked could destroy a company