

# 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



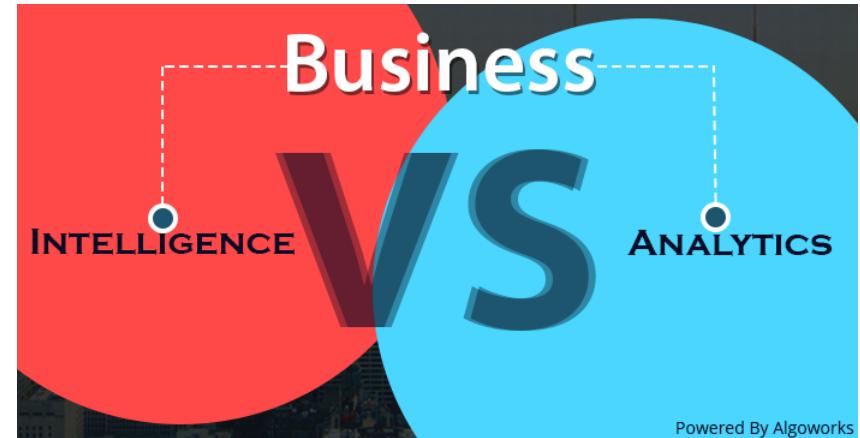
# What is Business Intelligence (BI)?

- 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



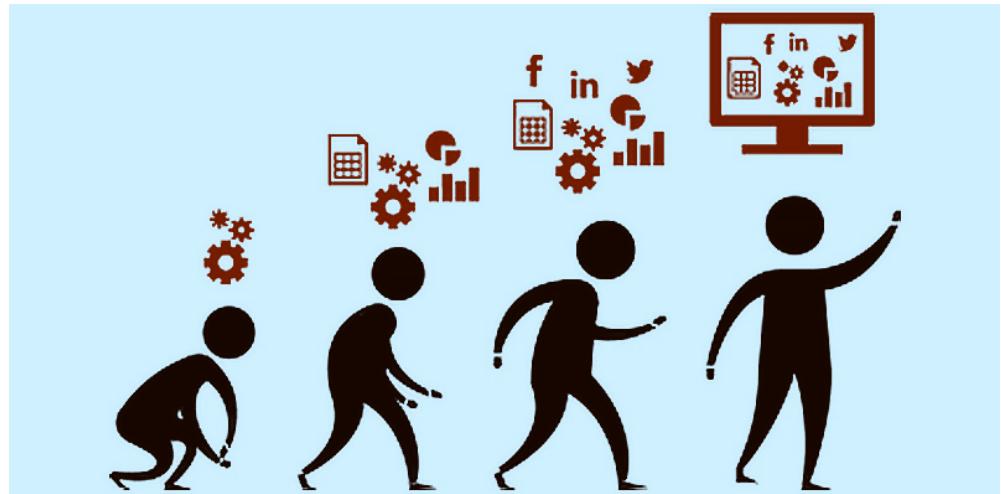
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# A Brief History of DA and BI

**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:

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

Frequently bought together



Total price: \$41.02

Add all three to Cart

Add all three to List

- This item: KIND Bars, Dark Chocolate Nuts & Sea Salt 12ct, Gluten Free, 6g Protein, 5g Sugar \$13.04 (\$0.78 / Ounce)
- KIND Bars, Peanut Butter Dark Chocolate, 8g Protein, Gluten Free, 1.4 Ounce Bars, 12 Count \$13.99 (\$0.83 / Ounce)
- KIND Bars, Caramel Almond and Sea Salt, Gluten Free, 1.4 Ounce Bars, 12 Count \$13.99 (\$0.83 / Ounce)

Customers who bought this item also bought

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KIND Bars, Peanut Butter Dark Chocolate, 8g Protein, Gluten Free, 1.4 Ounce Bars, 12 Count  
★★★★★ 5,495  
\$13.99 prime



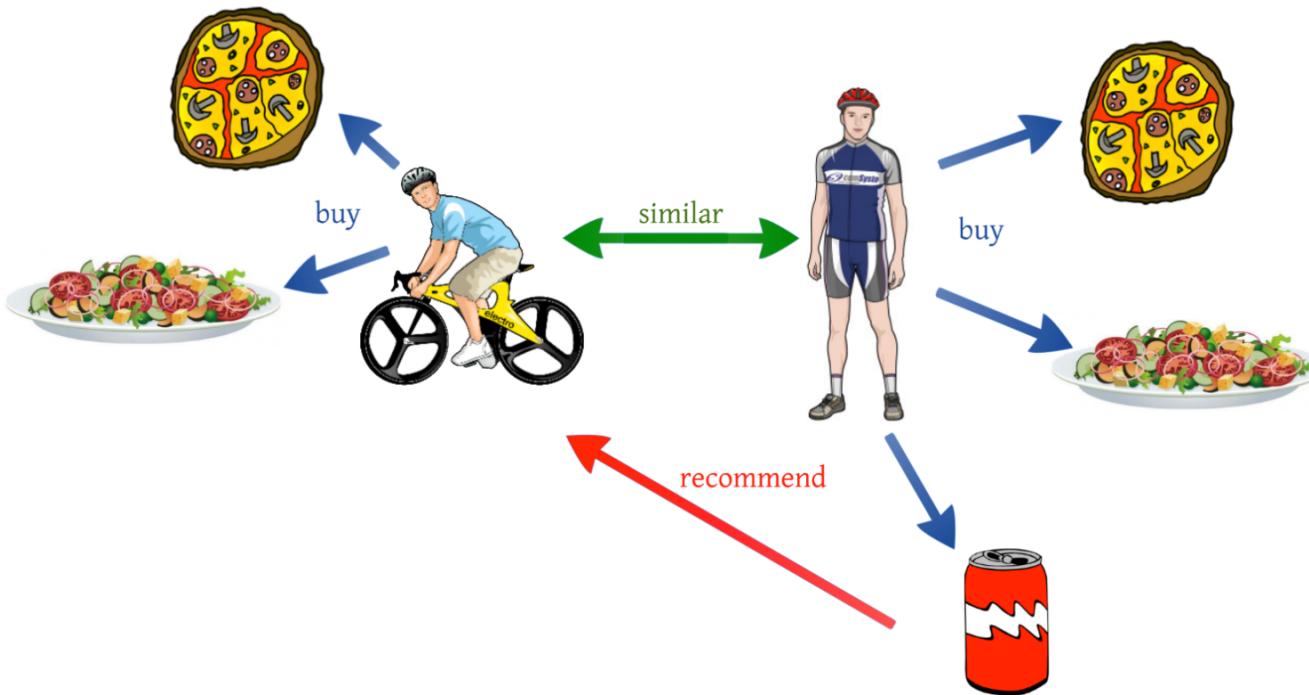
KIND Bars, Caramel Almond and Sea Salt, Gluten Free, 1.4 Ounce Bars, 12 Count  
★★★★★ 1,604  
\$13.99 prime

# Data Analytics and Business Intelligence Strategies



- 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



## Your recently viewed items and featured recommendations

Inspired by your browsing history

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Samsung 128GB 100MB/s (U3) MicroSD EVO Select Memory Card with Adapter...  
★★★★★ 3,662  
\$44.99



SanDisk Extreme 32GB microSDHC UHS-I Card - SDSQXA0-032G-GN6MA...  
★★★★★ 190  
\$18.99



Sandisk Ultra 32GB Micro SDHC UHS-I Card with Adapter - 98MB/s U1 A1...  
★★★★★ 781  
\$12.99



DualShock 4 Wireless Controller for...  
Sony  
★★★★★ 4,008  
PlayStation 4  
\$52.85



Samsung 32GB 95MB/s (U1) MicroSD EVO Select Memory Card with Adapter...  
★★★★★ 3,662  
\$12.99



For Honor - Xbox One  
Ubisoft  
★★★★★ 234  
Xbox One  
\$25.00



Call of Duty: WWII - PlayStation 4...  
Activision  
★★★★★ 365  
PlayStation 4  
\$39.99



SanDisk Ultra 64GB microSDXC UHS-I Card with Adapter, Grey/Red, Standard Packaging...  
★★★★★ 28,490  
\$22.99



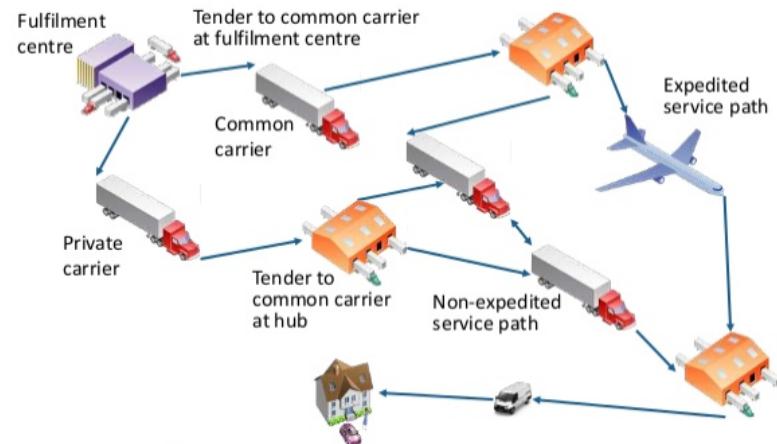
You viewed



View or edit your browsing history

# 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 centers
  - quicker shipping times



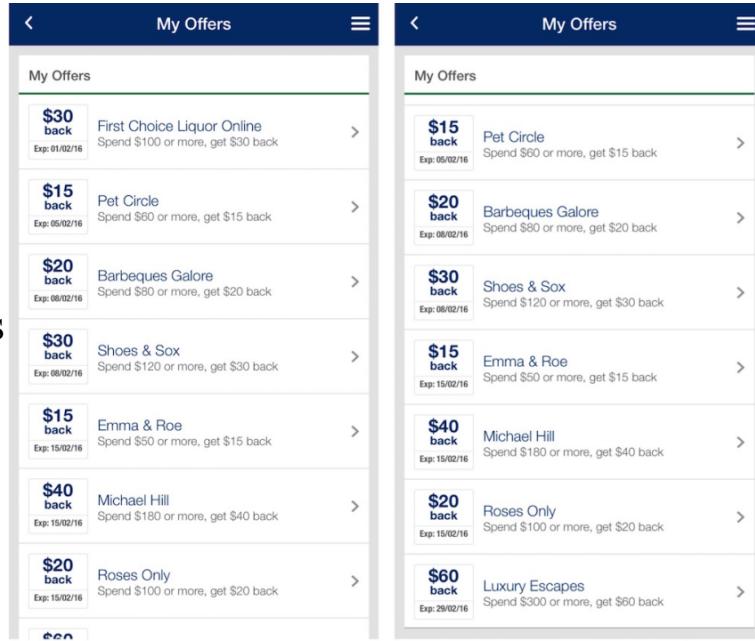
# Data Analytics and Business Intelligence Strategies



- 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

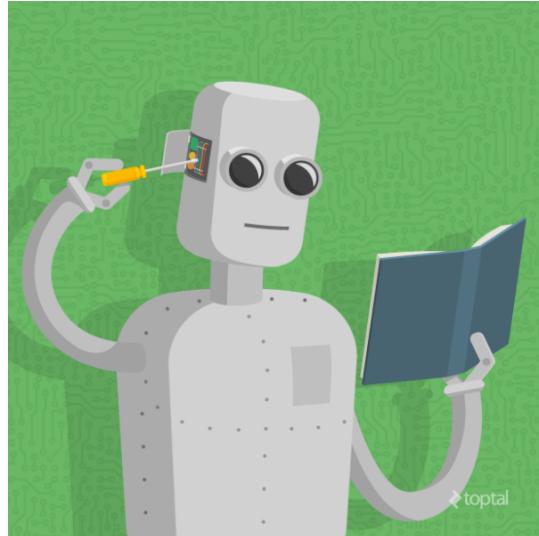
# Fraud Detection and Prevention Department

- 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

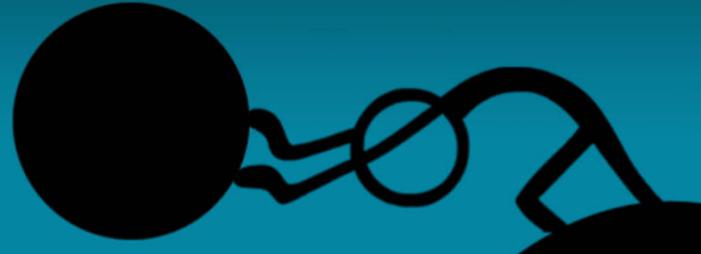
1. Information Quality
2. Compliance
3. Governance
4. Inappropriate and premature use of analytics
5. Counter-cultural impact



# 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

**WHY DO  
EMPLOYEES  
RESIST CHANGE?**



# 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

