Business Analytics

Presented by Hasan Ali

Instructor

Hasan is a **Senior Data Scientist** and **Deep Learning Researcher** with 5+ years of experience. He has worked with various fortune 500 companies like Indian Oil, GAIL (Gas Authority of India Ltd.) and startups like Doorstead (Silicon Valley). His areas of interest and research include image processing, signal processing, computer vision, image classification & segmentation, deep learning architectures and GAN's.

He is a Data Science instructor as well and helps professionals/students make a transformation into Data Science/ Artificial Intelligence. He has taught companies like Barclays, SHELL,PDO Oman etc.

Introduction

Analytics is the use of data, information technology, statistical analysis, quantitative methods, and mathematical or computer-based models to help managers gain improved insight about their business operations and make better, fact-based decisions.

Scope of Business Analytics

- **Descriptive analytics**
  - Use data to understand past and present
- **Predictive analytics**
  - Analyzes past performance
- **Prescriptive analytics**
  - Use optimization techniques

ME AFTER KNOWING THAT BUSINESS ANALYTICS ISN'T JUST ANALYZING DATA

Importance ?

There is a strong relationship of BA with:
- Profitability of businesses
- Revenue of businesses
- Shareholder return

BA enhances understanding of data

BA is vital for businesses to remain competitive

BA enables creation of informative reports

Example 1

- Most department stores clear seasonal inventory by reducing prices.
- The question is:
  - When to reduce the price and by how much?

- Descriptive analytics: examine historical data for similar products (prices, units sold, advertising, …)
- Predictive analytics: predict sales based on price
- Prescriptive analytics: find the best sets of pricing and advertising to maximize sales revenue.

Example 2

Harrah's Entertainment

- Harrah's owns numerous hotels and casinos
- Uses analytics to:
  - Forecast demand for rooms
  - Segment customers by gaming activities
- Uses prescriptive models to:
  - set room rates
  - allocate rooms
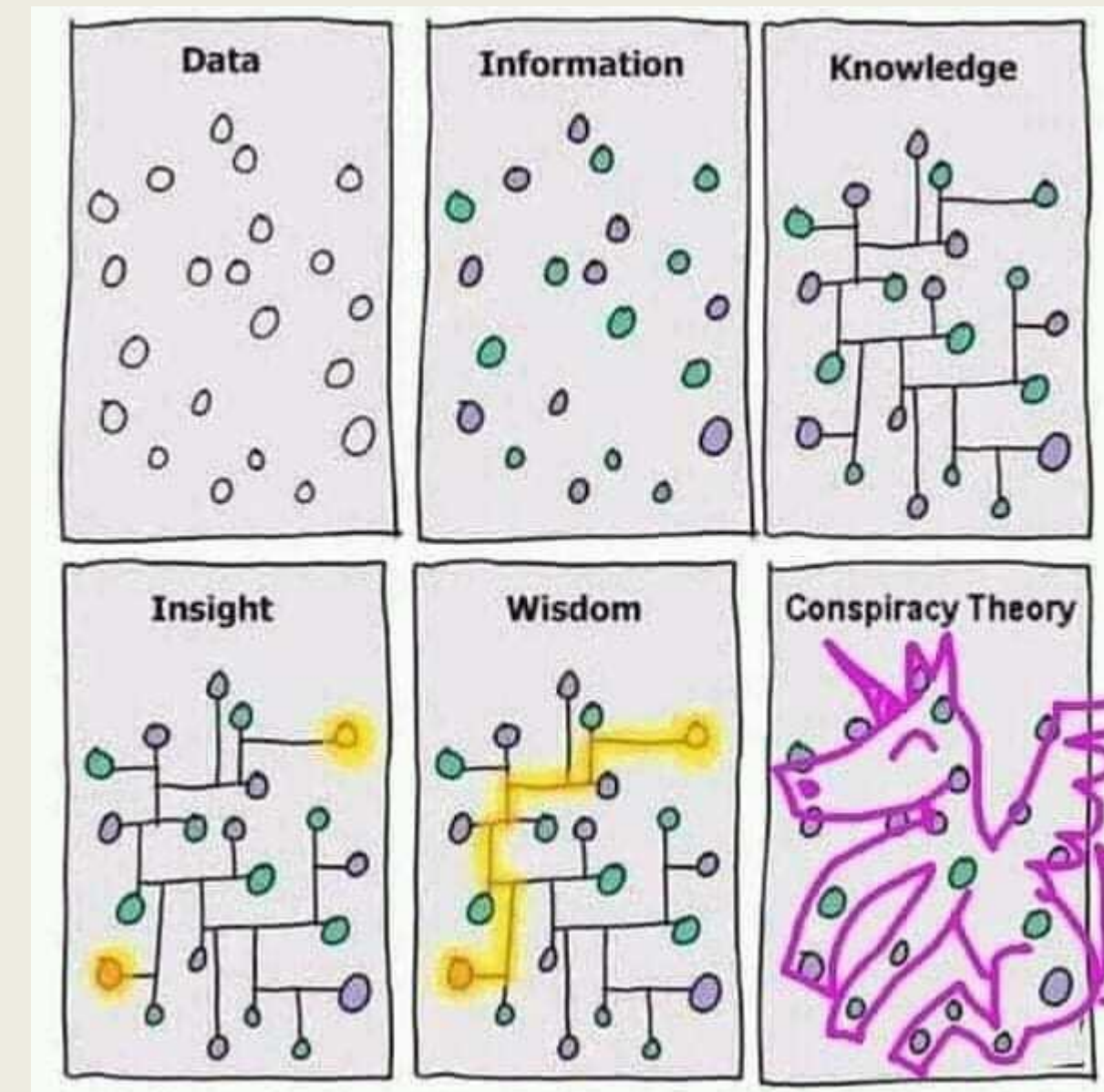 - offer perks and rewards to customers

Data for BA

- **DATA**
  - Data are observations or measurements (unprocessed or processed) represented as text, numbers, or multimedia.
- **DATABASE**
  - organized collection of data stored as multiple datasets. Those datasets are generally stored and accessed electronically from a computer system that allows the data to be easily accessed, manipulated, and updated.
- **INFORMATION**
  - Comes from analyzing data

BI vs BA

What is **Business Intelligence**?
- Infrastructure that helps in the process of collecting, storing, and analyzing data from business operations.
- BI provides comprehensive business metrics, in near-real-time, to support better decision making. You can create performance benchmarks, spot market trends, increase compliance, and improve almost every aspect of your business with better business intelligence.

What is **Business Analytics**?
- A subset of BI, business analytics (BA) refers to the process of taking your company's raw data and turning it into useful information, including identifying trends, predicting outcomes, and more. Some common methodologies in business analytics are:
- Data mining: sorting through large amounts of data to identify patterns and trends
- Aggregation: the process of gathering and organizing data prior to analysis
- Forecasting: analyzing historical data estimate future outcomes
- Predictive modeling: extracting information from data sets to identify patterns and estimate future trends
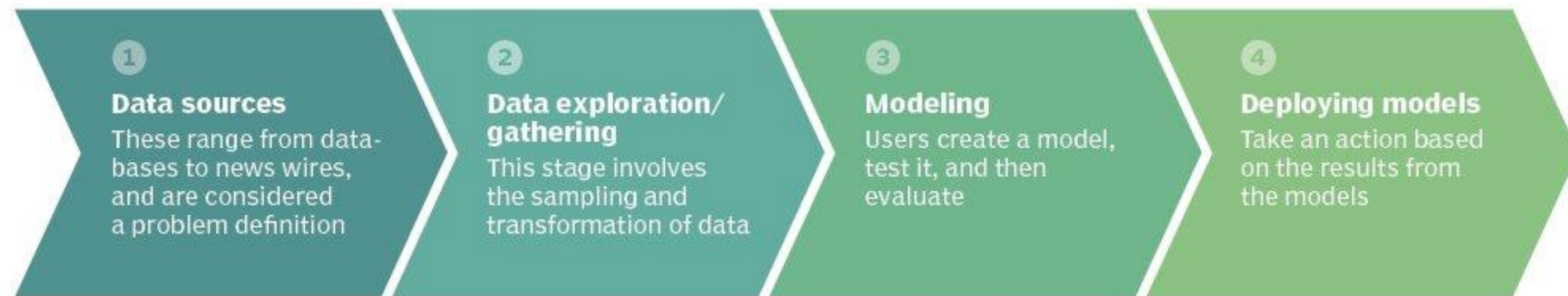- Data visualization: creating visual representations of data analysis, such as charts, tables, or graphs

BI vs BA

Data Mining

Four stages of data mining

1 Data sources	2 Data exploration/ gathering	3 Modeling	4 Deploying models
These range from data-bases to news wires, and are considered a problem definition	This stage involves the sampling and transformation of data	Users create a model, test it, and then evaluate	Take an action based on the results from the models

Data mining is the process of sorting through large data sets to identify patterns and relationships that can help solve business problems through data analysis. Data mining techniques and tools enable enterprises to predict future trends and make more-informed business decisions.

Decision Making

- BA represents only a portion of the overall problem solving and decision making process.

- 6 steps in the problem solving process:
  1. Recognizing the problem
  2. Defining the problem
  3. Structuring the problem
  4. Analyzing the problem
  5. Interpreting results and making a decision
  6. Implementing the solution

Q & A

Thank You