MAKERERE UNIVERSITY BUSINESS SCHOOL

ACC 7212: Business Intelligence and Data Analytics

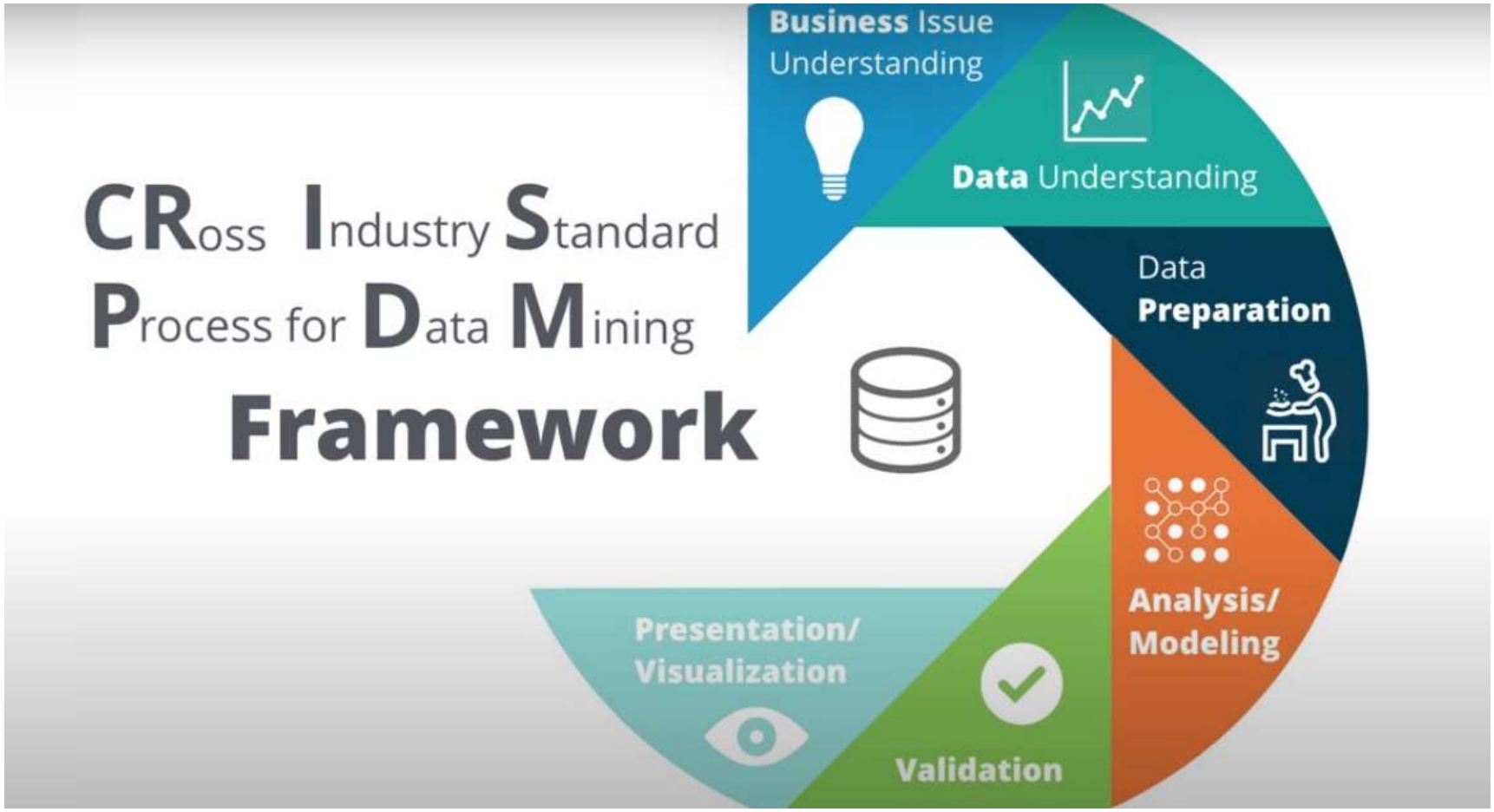
TOPIC 3

Introduction to Data Analytics

Outline

- The CRISP-DM Framework for Data Analytics
- Data Concepts:
  - Conceptual, Logical, and Physical Data Models
- Stages in the Data Lifecycle
- Big Data:
  - Definition, Technologies, and the 5Vs
- Types of Data Analytics:
  - Descriptive, Diagonostic, Predictive, and Prescriptive
- Analytics: The New Path to Value

The CRISP-DM Framework



CRISP-DM

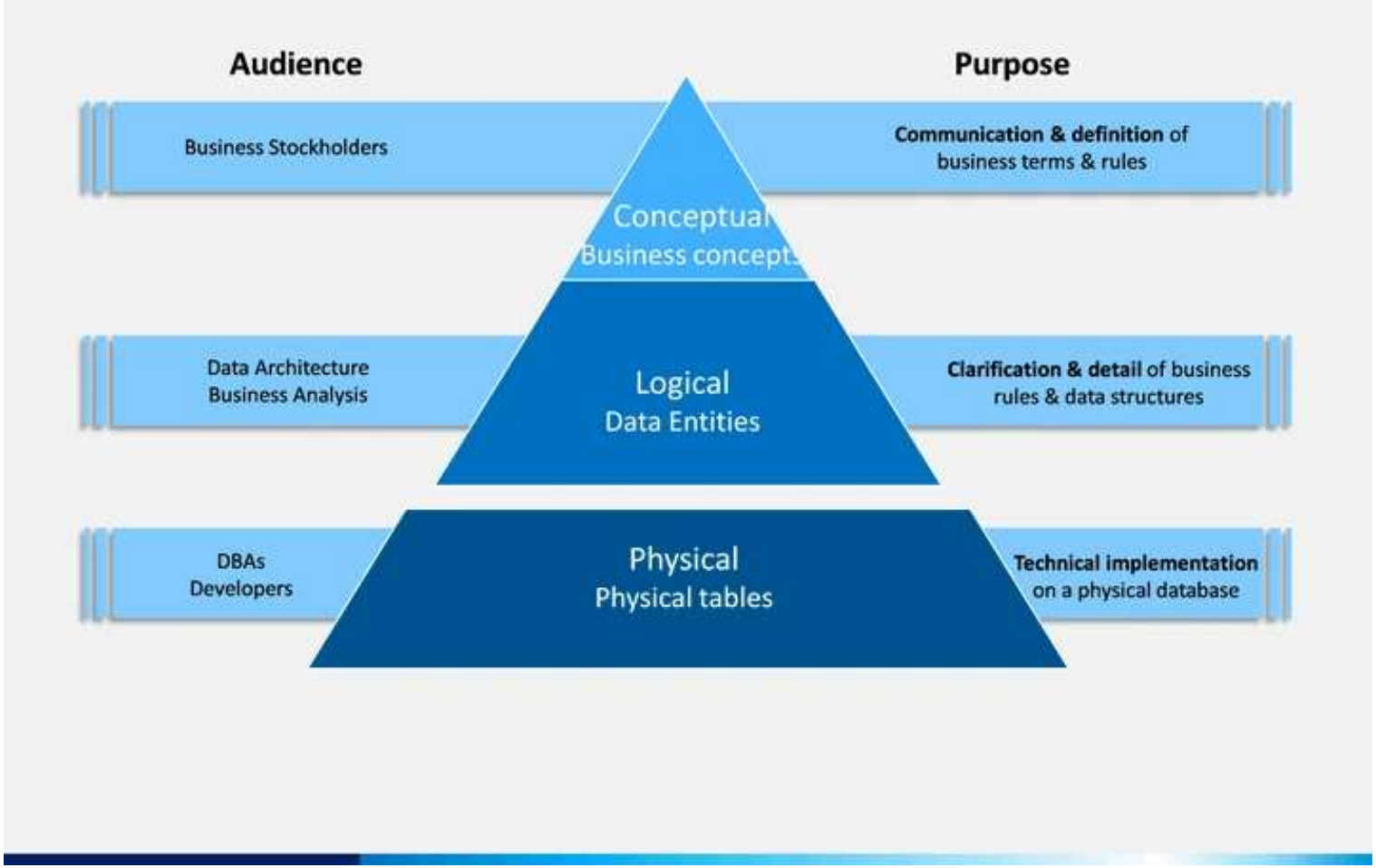
- Phases
  - Business Understanding
    - Define objectives and requirements
  - Data Understanding
    - Collect and explore initial data
  - Data Preparation
    - Clean and format data for modeling
  - Modeling
    - Select and apply modeling techniques
  - Evaluation
    - Assess model performance against business goals
  - Deployment
    - Implement and monitor the model in production

- **Why use it?**
  - Provides a structured approach for planning data mining projects

Data Models Explained

- Conceptual Data Model:
  - High-level, abstract view of organizational data
  - Focus on business concepts and relationships
- Logical Data Model:
  - Detailed structure without considering physical implementation
  - Defines entities, attributes, and relationships
- Physical Data Model:
  - Implementation-specific model
  - Involves tables, columns, indexes, and storage details

Data Models .. Audience and Purpose



The Data Lifecycle Stages

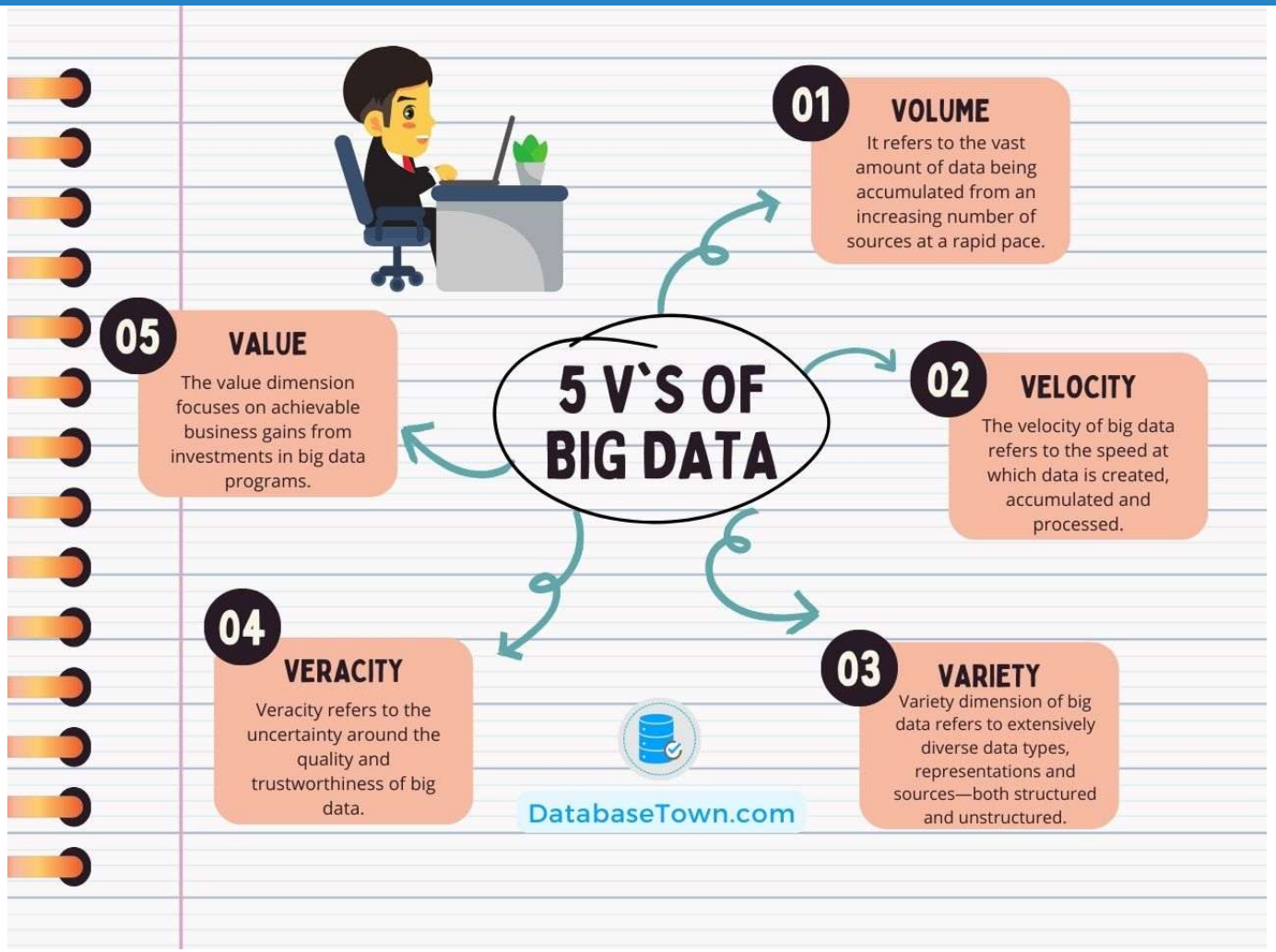
- Identifying Data Sources:
  - Determine where data originates (internal/external)
- Modeling Data Requirements:
  - Define what data is needed to meet business goals
- Obtaining Data:
  - Collect and extract data from sources
- Recording Data:
  - Store data in databases/data warehouses
- Using Data for Decision Making:
  - Analyze and leverage data insights for business strategies
- Removing Data:
  - Archive or delete data based on retention policies

Using Data for Decision Making

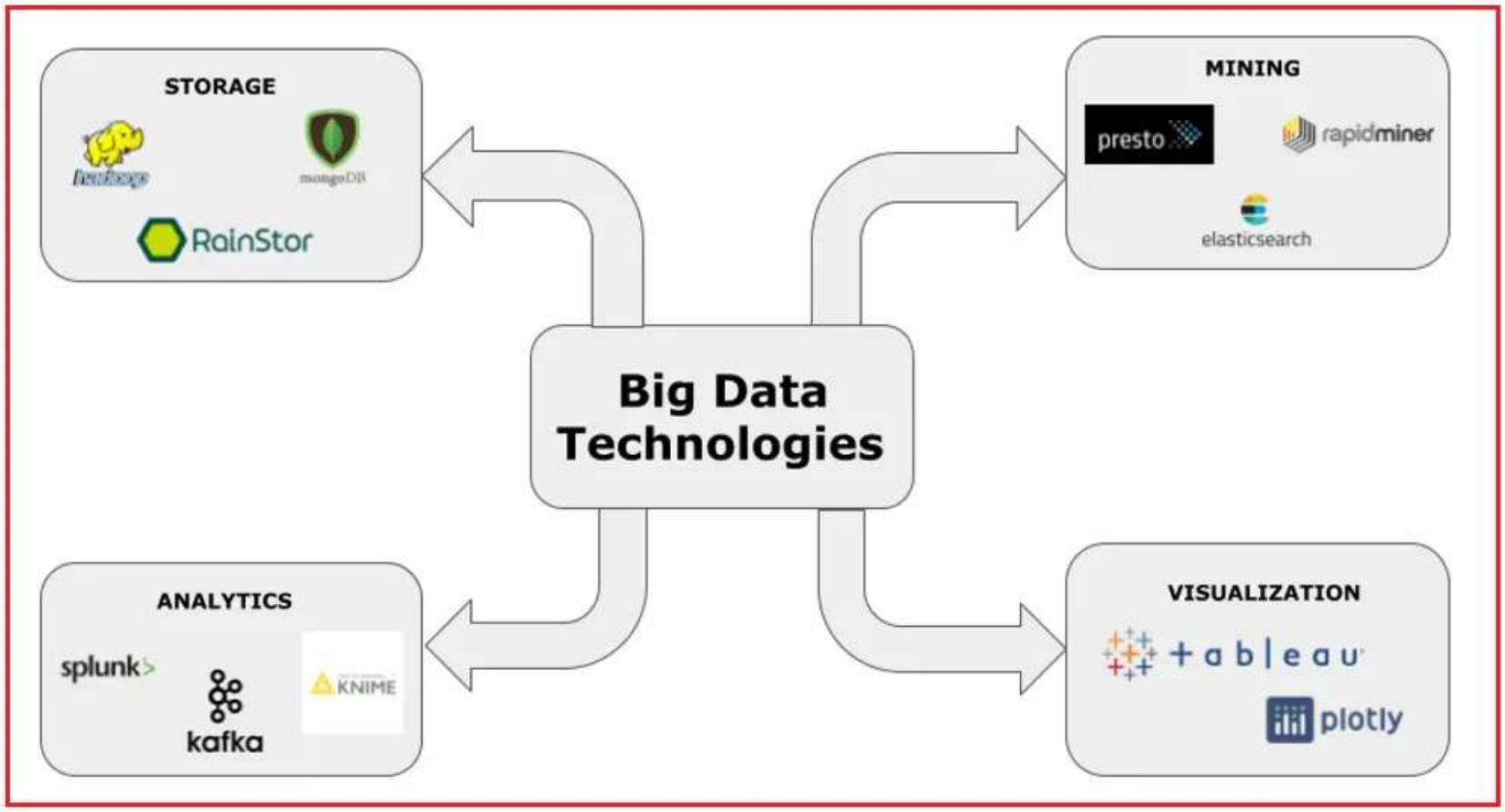
7 Steps of Data-Driven Decision-Making

by BSC Designer

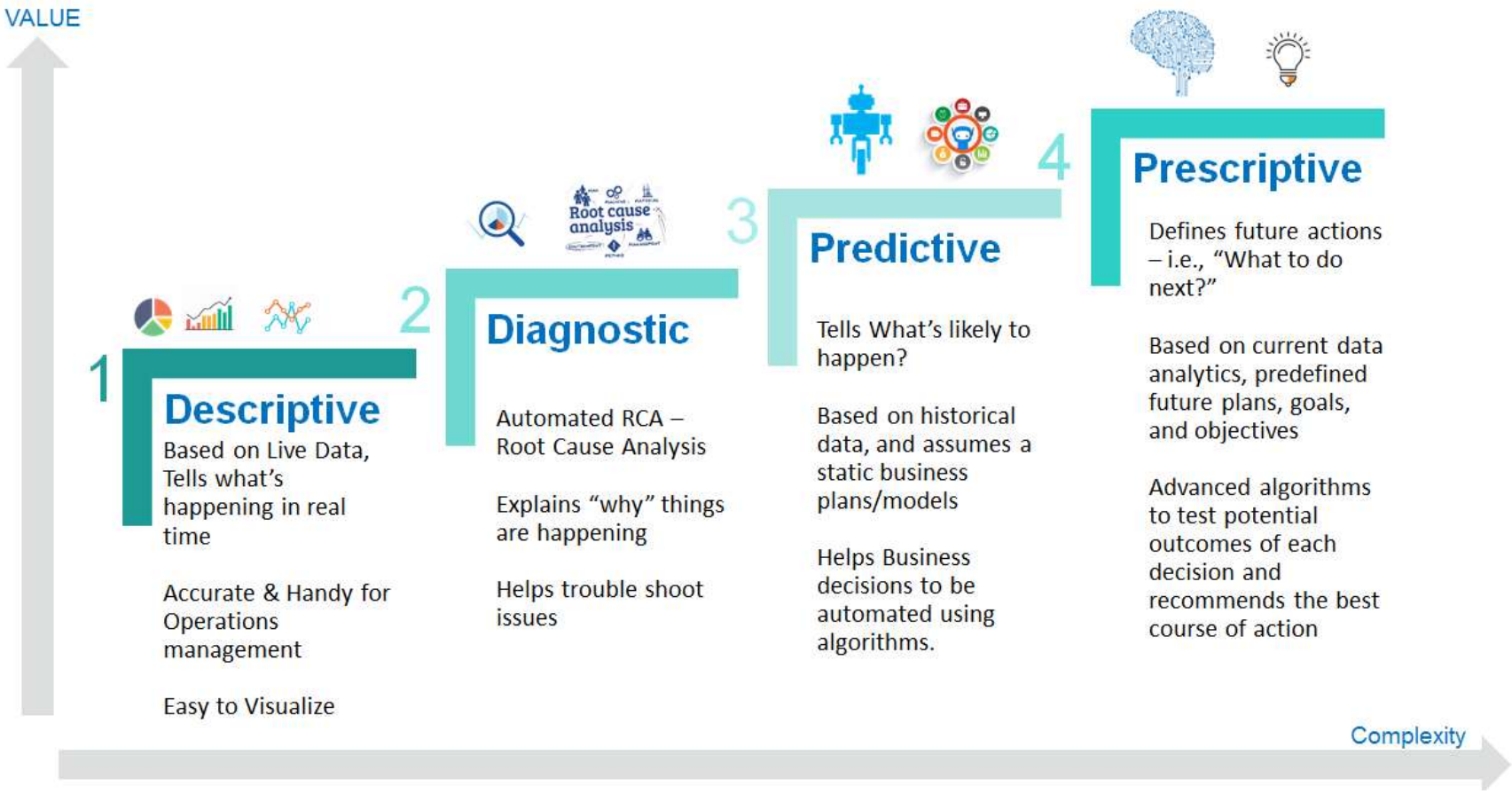
Big Data .. Characteristics



Big Data … Technologies



Types of Data Analytics



Analytics – The New Path to Value

- Driving Business Value:
  - Transform raw data into actionable insights
- Competitive Advantage:
  - Informed decision making leads to improved strategies
- Examples:
  - Customer segmentation, operational efficiency, market forecasting
- Future Trends:
  - Increased automation, AI integration, real-time analytics

Key Takeaways

- CRISP-DM provides a robust framework for data mining
- Understanding data models is crucial for effective data management
- The data lifecycle ensures proper data governance and utilization
- Big Data and advanced analytics unlock new business opportunities

Thank you