Disclaimer

- This presentation is purely for academic purpose and does not carry any commercial value.
- All images and photos used in this presentation are property of respective image holder(s) and due credit is provided to them. Images are used only for indicative purpose and does not carry any other meaning.
- All information and data in this slide are collected from open domain.

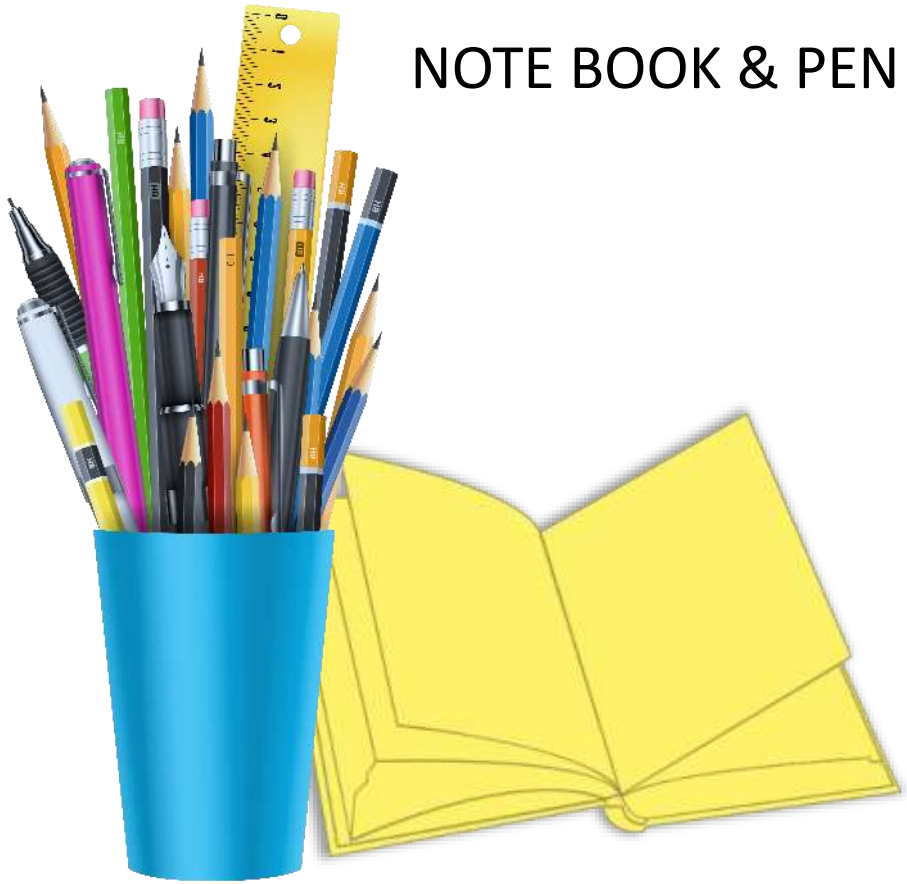
MANISH GODSE, Ph.D.(IIT Bombay)

Request & Instructions

PLEASE OPEN

CALCULATOR

NOTE BOOK & PEN



LAPTOP OR DESKTOP,
IF YOU HAVE.

PLEASE FOLLOW THIS

SILENCE

MUTE MIC

RAISE HAND

NO CHAT

SILENT MODE

BUSINESS ANALYTICS & TYPES

BOOKS & REFERENCES

- NO

Table of Contents

BUSINESS ANALYTICS

1

WHAT IS BUSINESS ANALYTICS?

Business analytics is the scientific process of transforming **data** into **insights** for making business better *(increase performance & profit)*.

WHY BUSINESS ANALYTICS?

Informed Decision

Data driven decisions making

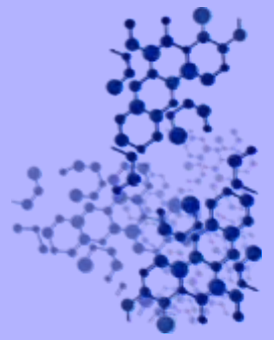
Reduce Risk

Calculate & minimize risk

Discover Patterns

Discover hidden patterns

Learn from History



Understand the past & learn from mistakes

Predict for Future

Foresee future & be prepared

Increase Profit

Increase stakeholders value of business

TYPES OF ANALYTICS

2

BASIC TYPES OF ANALYTICS

1 Descriptive Analytics

2 Diagnostic Analytics

ADVANCED TYPES OF ANALYTICS

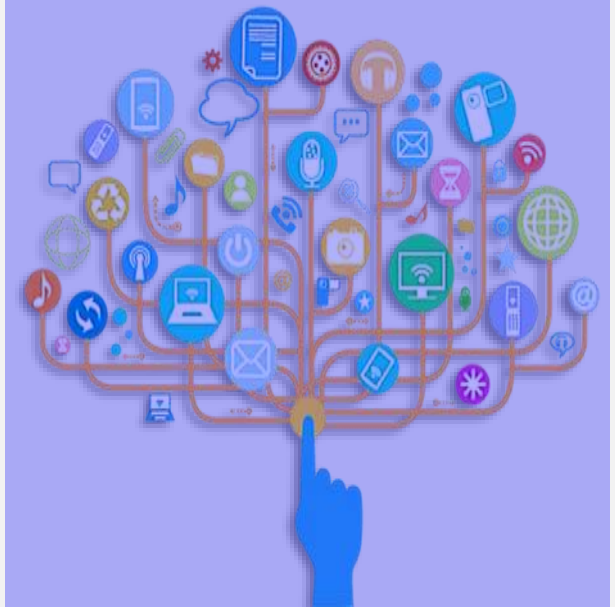
3 Predictive Analytics

4 Prescriptive Analytics

DESCRIPTIVE ANALYTICS

1

- Describes what has **HAPPENED** and what is **HAPPENING**?
- Explore & understand data
- Use **DESCRIPTIVE STATISTICS** and visualization techniques
- Use of real time dashboards, charts, and reports

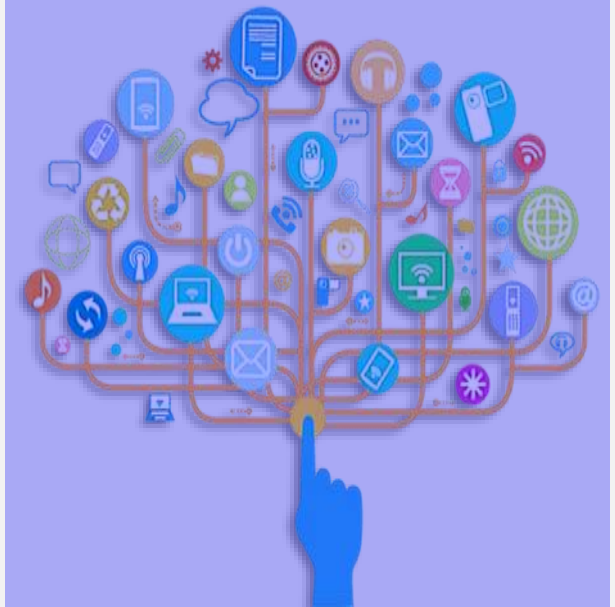


Examples

- What is current sales in terms of volume and revenue?
- Performance of sales team as per region
- Number of patients in OPD and ICU
- Patients volume per week, month

2 DIAGNOSTIC ANALYTICS

- Deeper analysis of descriptive data to answer the question: Why did **THIS HAPPENED**? Why **THIS IS HAPPENING**?
- Identify an accurate **CAUSE-AND-EFFECT RELATIONSHIP** by Drill-Downing Data, Data Discovery, Data Mining and Correlations.



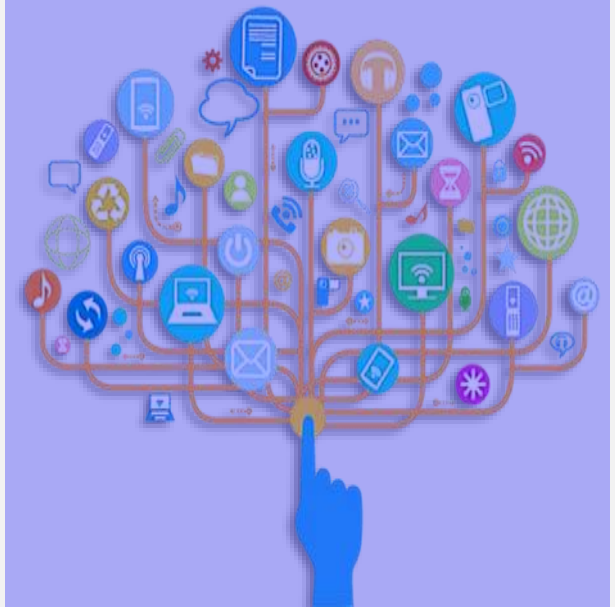
Examples

- Why sales have decreased or increased for a specific year?
- Why sudden spike in volume at the ICU?
- Why more resignations in last quarter?
- Why sales target missed?

PREDICTIVE ANALYTICS

3

- Predict what is **LIKELY TO HAPPEN** in the future?
- Statistical models, Forecasting Techniques, Machine Learning, and Deep Learning can be used to predict **LIKELY SCENARIOS** and **PROBABILITY** of what might happen based on insights from past data.

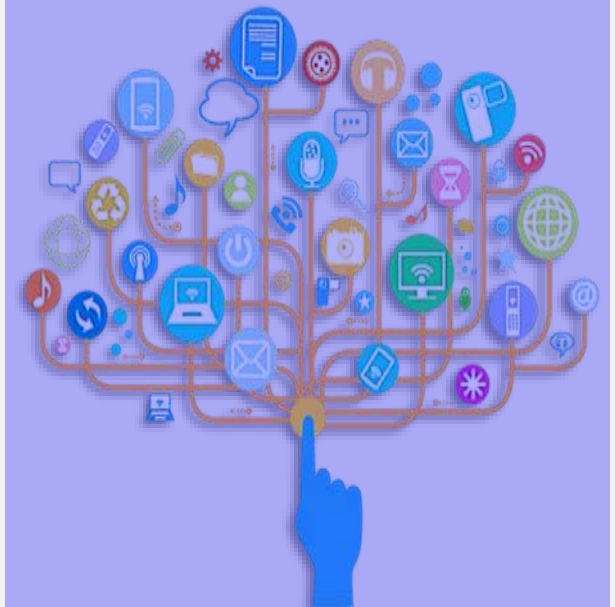


Examples

- Sales forecast for quarters
- Market basket analysis
- Sentiment analysis posts on social media
- Predict next employee exist
- Forecast number of beds required in hospital
- Credit score

4 PRESCRIPTIVE ANALYTICS

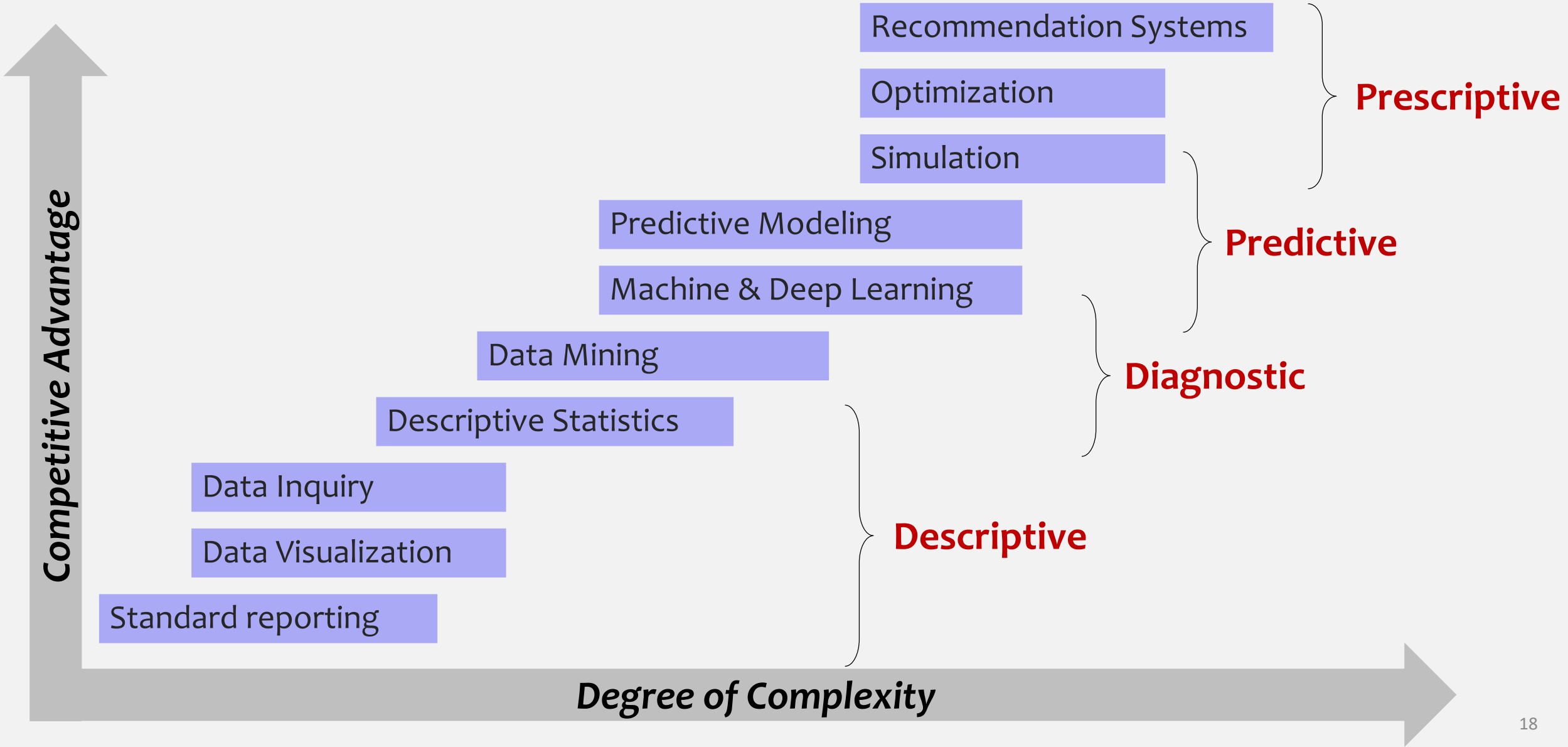
- Recommends **Actions that Affect Future** outcomes.
- It uses a **FEEDBACK SYSTEM** to continuously learns & updates the relationship between the action and the outcome.
- Simulation, Optimization and Recommendation Systems are used for Prescriptive Analytics



Examples

- How to reduce loss of customers?
- How to control spreading of illness?
- Self-driving car analyzes the traffic data and decides the direction
- Understand payment behavior of customer and decides plan for defaulters

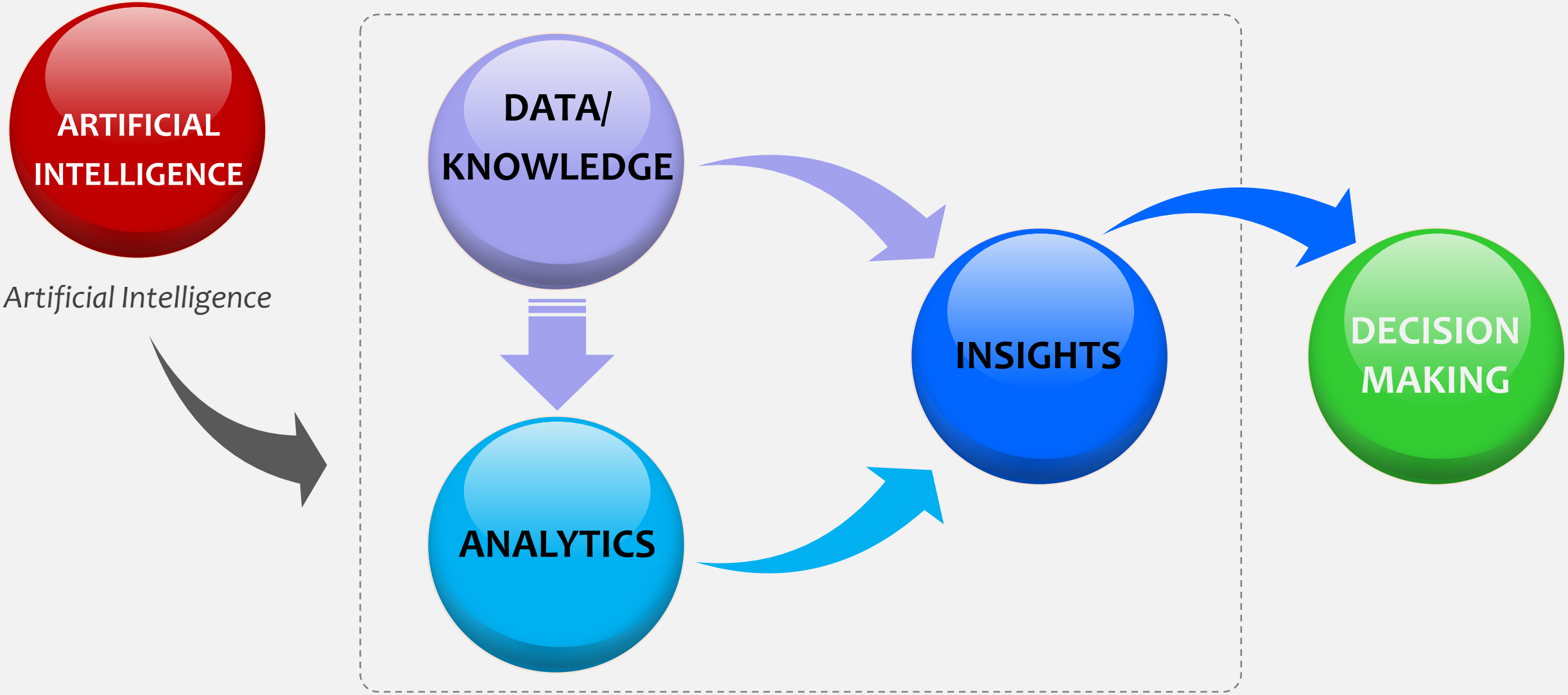
SPECTRUM OF BUSINESS ANALYTICS



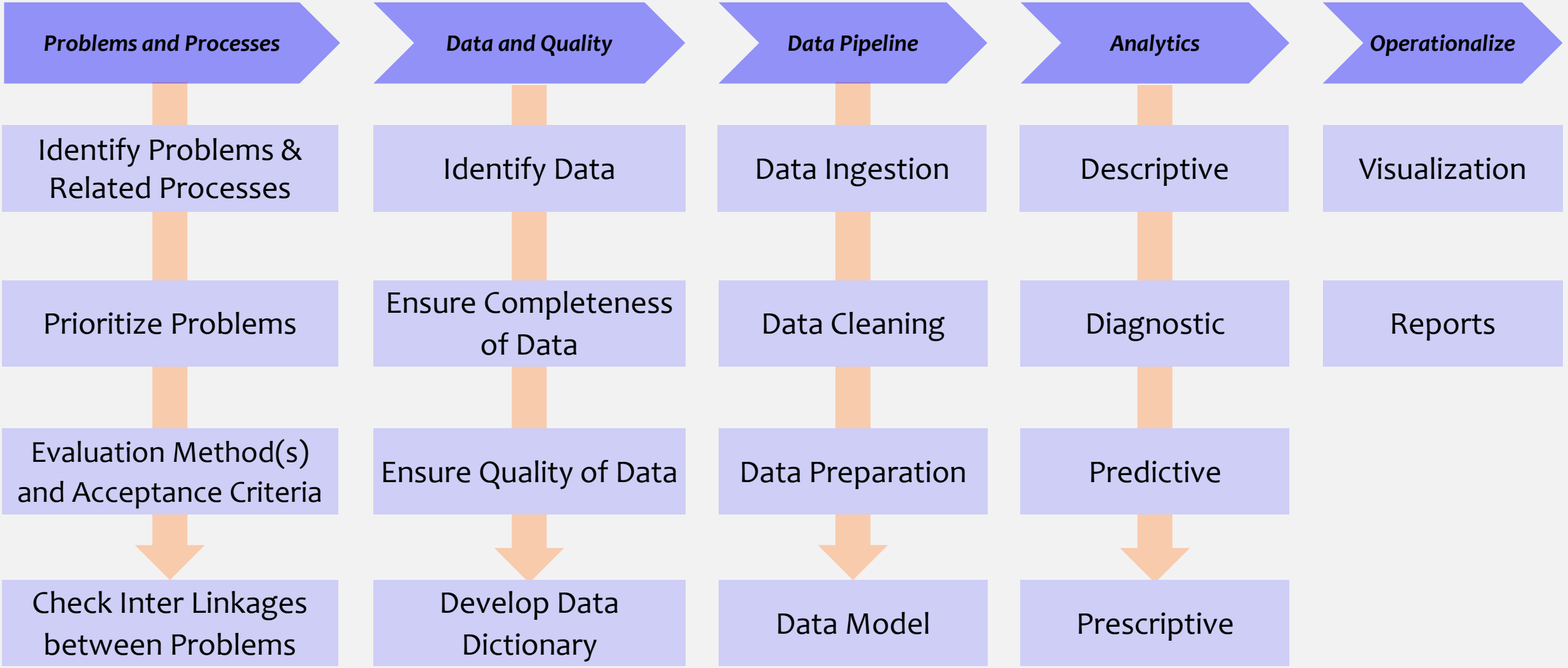
ANALYTICS IN PRACTICE

3

(AI + DATA/KNOWLEDGE) = DECISION



STEPS IN BUSINESS ANALYTICS



ANALYTICS STEPS AND ACTORS (1/2)

1

DISCOVERY

Discovery Steps	Actors
Identify Use-case/ Problem and Process	
Define Evaluation Method(s) and Key Acceptance Criteria	
Identify Data, Do Quality Check, Study Data	
Finalize Data Requirements & Data Dictionary	
Check data availability	
Do technical feasibility analysis	


Domain/Business Expert


Data Scientist

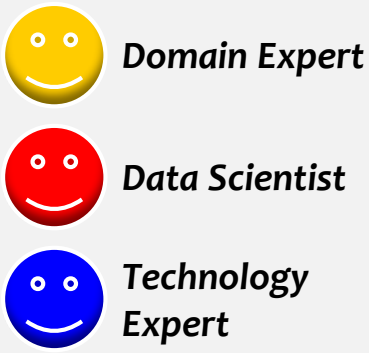

Technology Expert

ANALYTICS STEPS AND ACTORS (2/2)

2 IMPLEMENTATION

Implementation Steps

Data Ingestion	Data Scientist, Technology Expert
Data Cleaning & Preparation	Data Scientist, Technology Expert
Data Modelling	Domain Expert, Data Scientist, Technology Expert
Analytics Modelling	Domain Expert, Data Scientist
Model Evaluation & Tweaking	Domain Expert, Data Scientist
Visualization and Reports	Domain Expert, Data Scientist, Technology Expert
Deployment	Domain Expert, Data Scientist, Technology Expert



HURDLES IN SUCCESS OF DATA SCIENCE

Problem & Process Understanding	▪ Unrealistic expectation from analytics ▪ Unclear problem definition ▪ Erroneous evaluation criteria
Data	▪ Incomplete data ▪ Poor quality of data ▪ Poor understanding of data ▪ No relation between data quality and evaluation criteria
Systems	▪ Poor mechanism of data capture and store ▪ IT owns the data ▪ IT reluctant to share data ▪ Applications are in silos.

QUESTION AND ANSWERS