# Information Systems

## IT1106

**Level I - Semester 1**

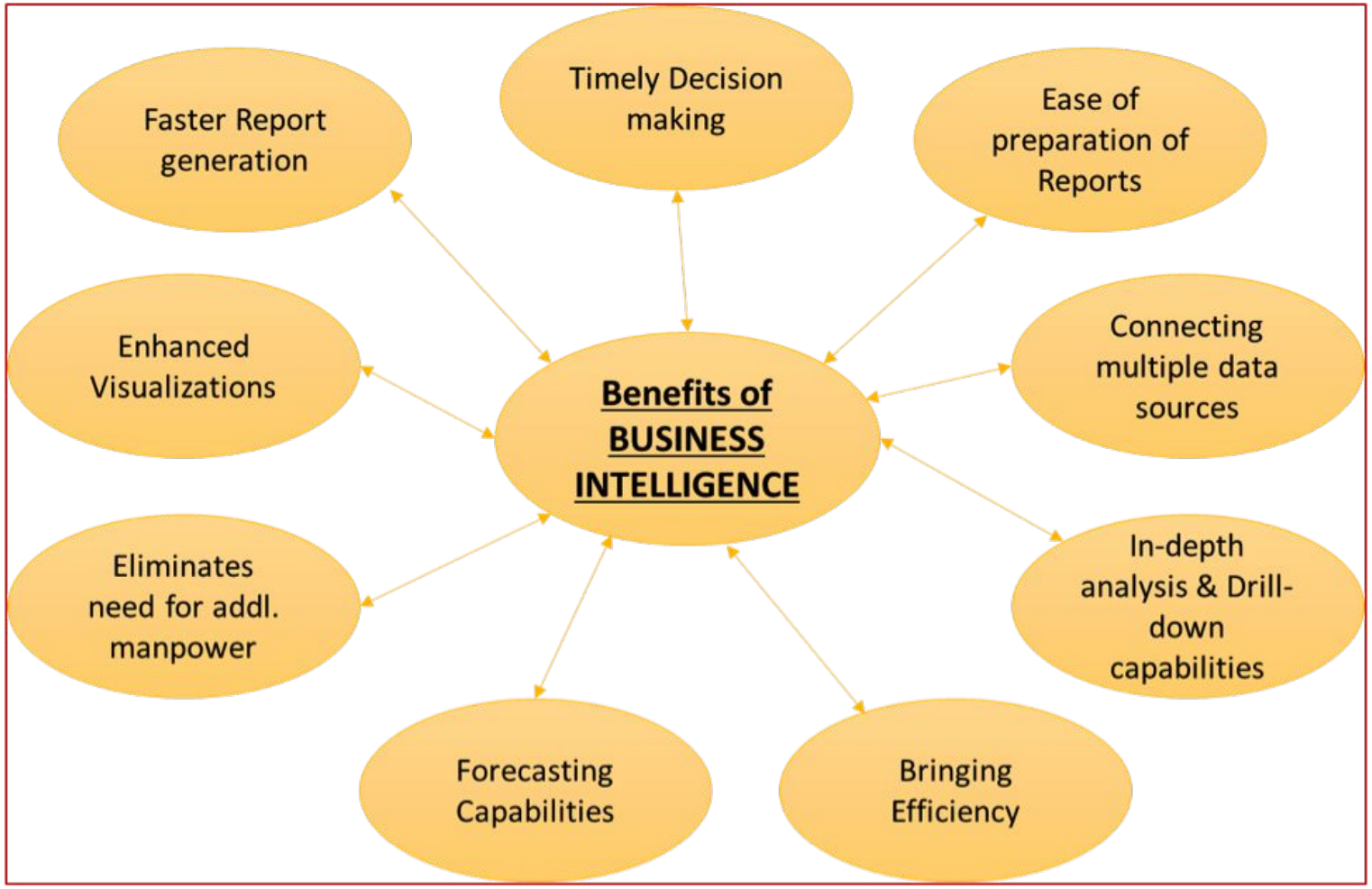
# 5. Specialized Systems and New Technologies

5.1. Business Intelligence (BI) Systems
  5.1.1. Business Reporting and Analytics
  5.1.2. Business Intelligence Tools
  5.1.3. Online Analytical Processing
  5.1.4. BI Analytical Techniques
  5.1.5. Information Visualization
5.2. Assistive Technology Systems
  5.2.1. Artificial Intelligence
  5.2.2. Multimedia and Virtual Reality
  5.2.3. Informatics

# 5.1. Business Intelligence (BI) Systems

- BI systems deals with the extraction, transformation, integration, visualization, analysis, interpretation, and presentation of data to support improved decision making.
- Business intelligence is more associated with querying, reporting, online analytical processing, and “alerts.”

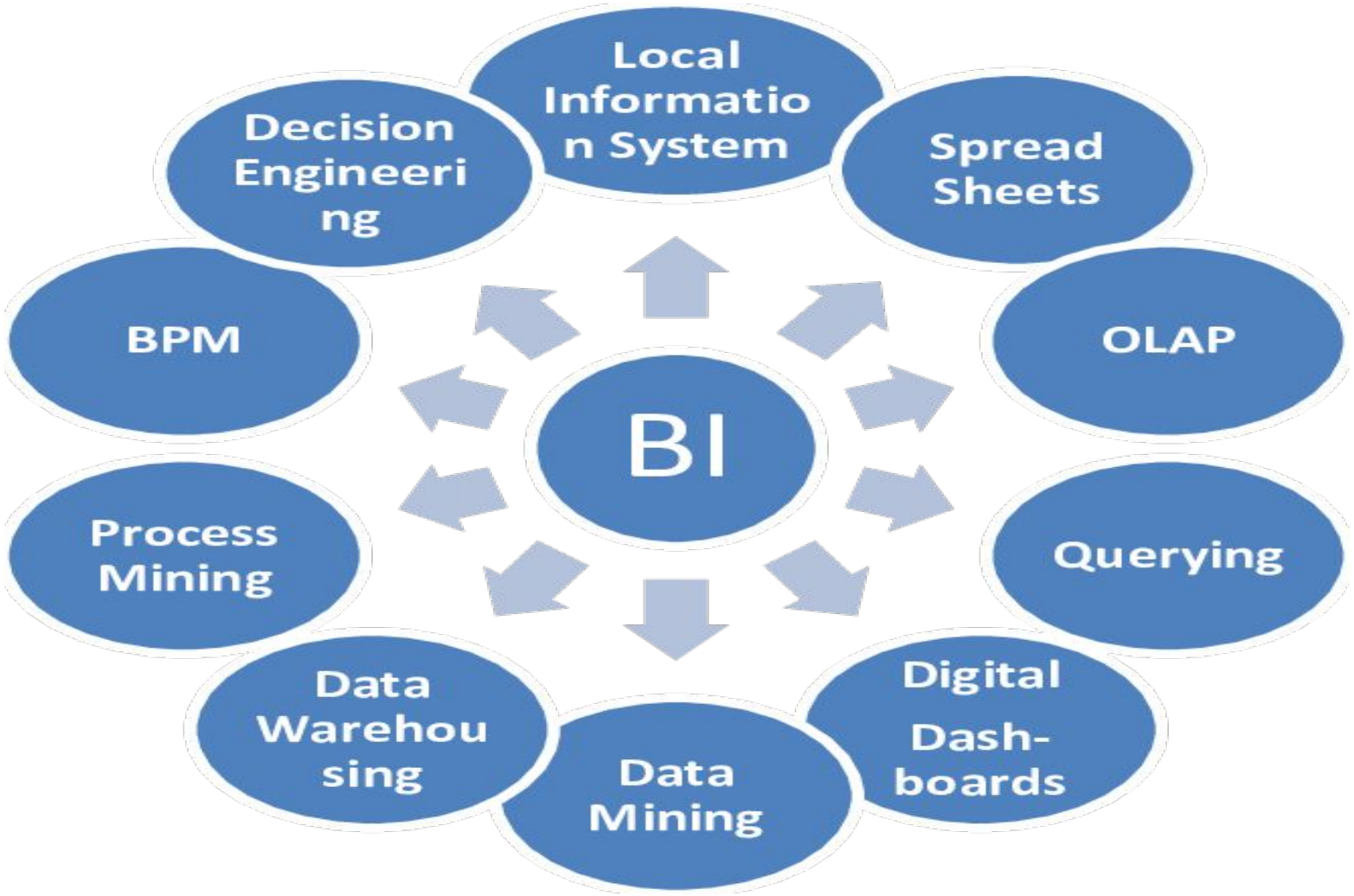
# 5.1. Benefits of Business Intelligence



# 5.1.1. Business Reporting and Analytics

- BI analytics makes much more extensive use of data, statistical and quantitative analysis, explanatory and predictive modeling, and fact-based management to drive decision making.
- Analytics may be used as input for human decisions or may drive fully automated decisions.

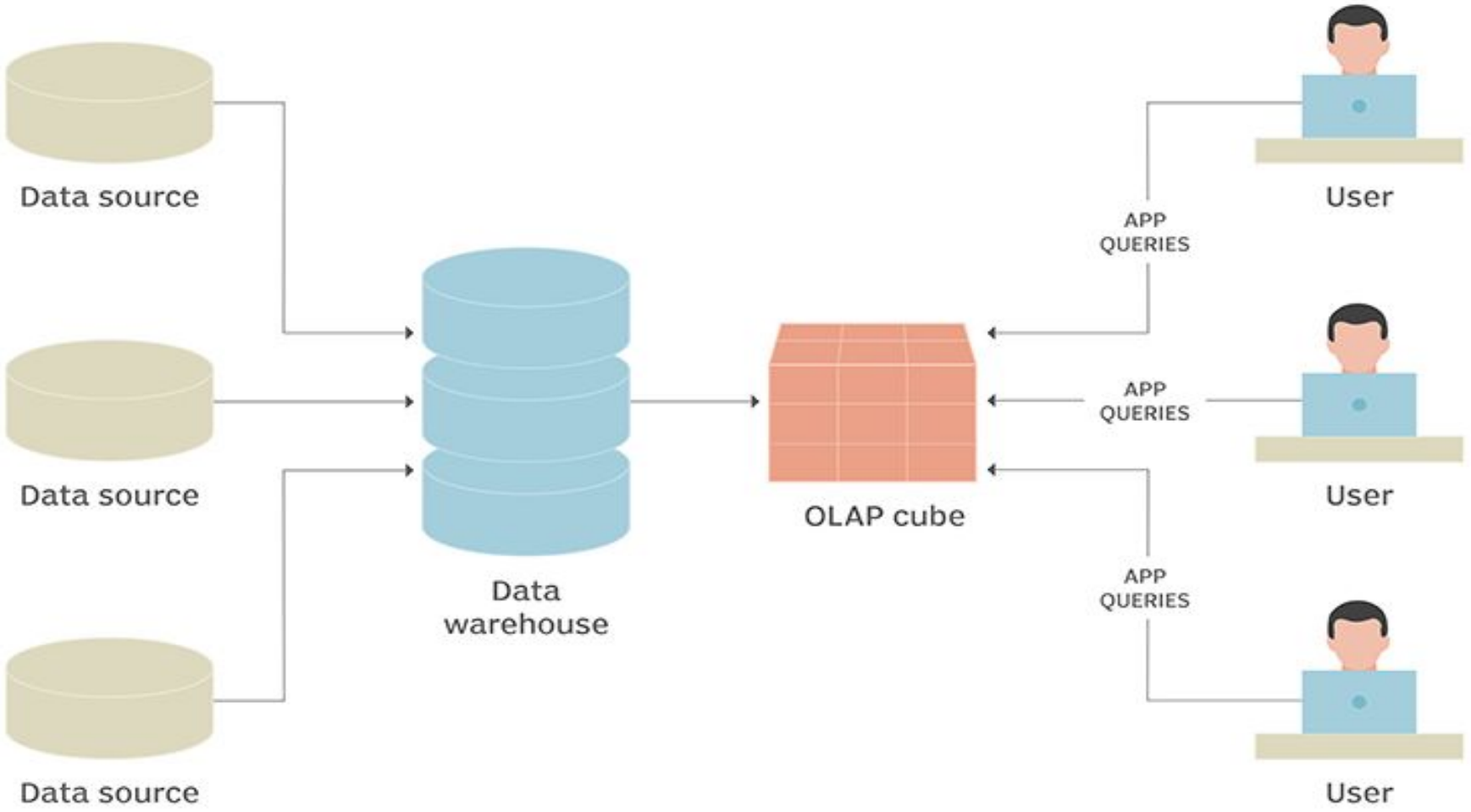
# 5.1.2. Business Intelligence Tools



# 5.1.3. Online Analytical Processing

- Online analytical processing (OLAP) is a method to analyze multidimensional data from many different perspectives.
- Online analytical processing involves several basic analytical operations.
  - e.g. consolidation, “drill-down,” and “slicing and dicing.”
- An OLAP session takes place online in real time, with rapid responses to a manager’s queries.

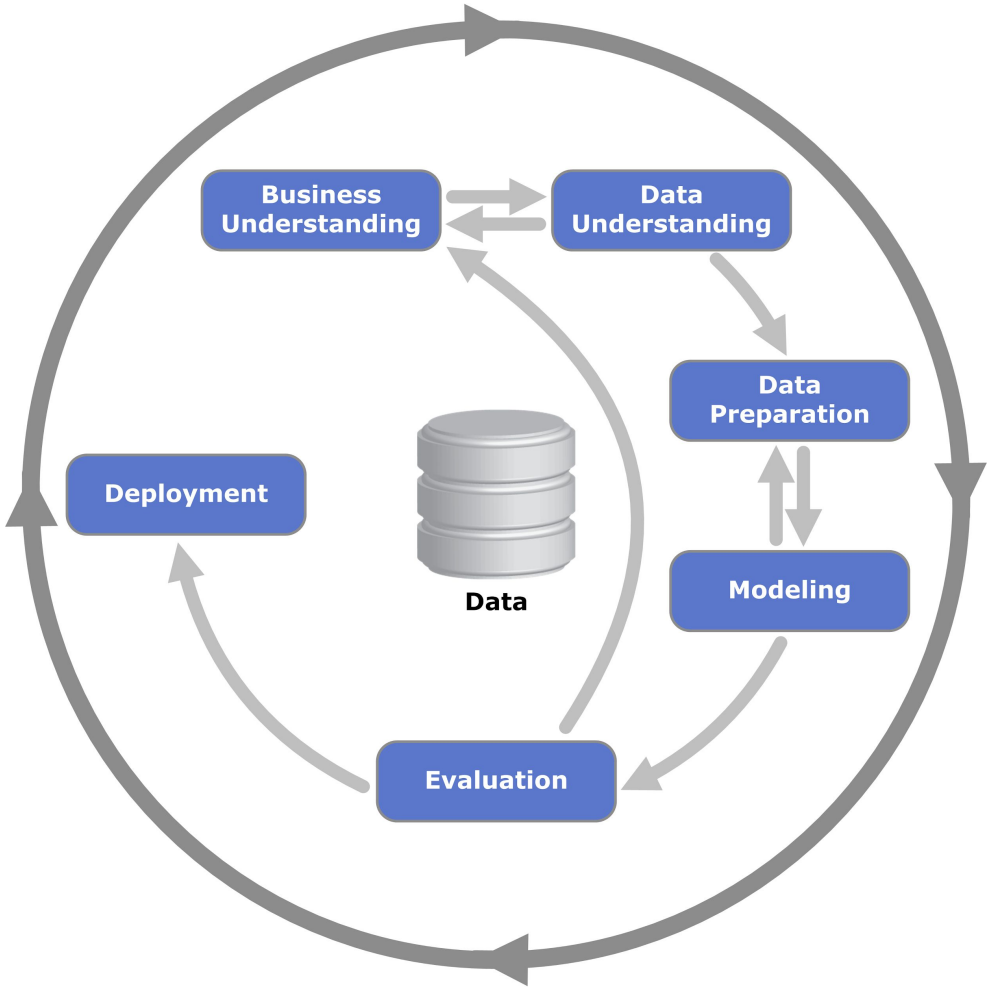
# 5.1.3. OLAP Process



# 5.1.4. BI Analytical Techniques

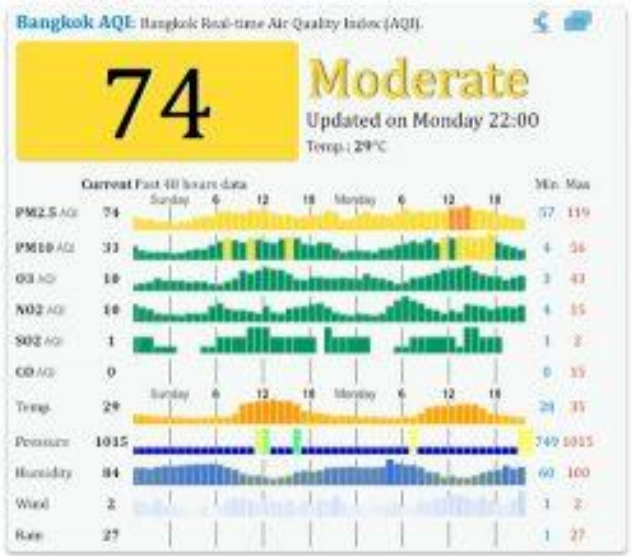
- Spreadsheets
- Reporting and querying tools
- Data visualization tools
- Online analytical processing (OLAP)
- Drill-down analysis
- Linear regression
- Data mining
- Dashboards

# 5.1.4. CRISP-DM Process



# 5.1.5. Information Visualization

- Visualization represent complex data using interactive, three-dimensional, graphical forms.
- Presenting analytical results visually helps users discover patterns, links, and anomalies in business data.
- This assists interactive knowledge discovery and decision support process.




# Activity

*Fill the blanks with the appropriate word given in the list below.*

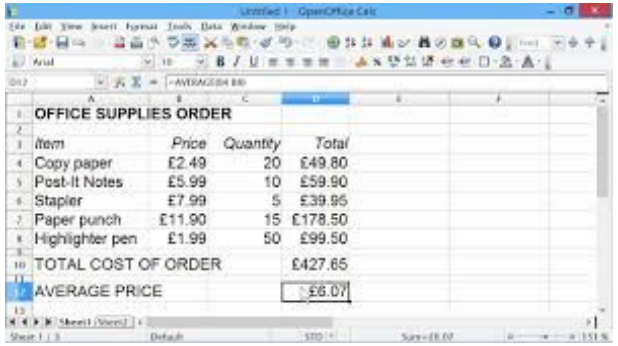
(Word cloud, Data cubes, Data mining)

1. _____ is a visualization technique.
2. Databases built to support OLAP processing consist of _____.
3. _____ is a BI analytics tool used to explore large amounts of data.

# Activity

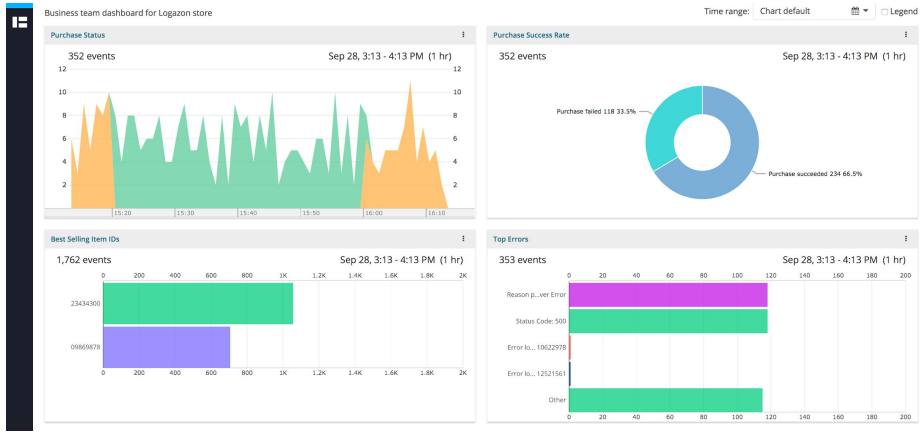
*Name the BI and Analytical Tool/Technique demonstrated below*

1)

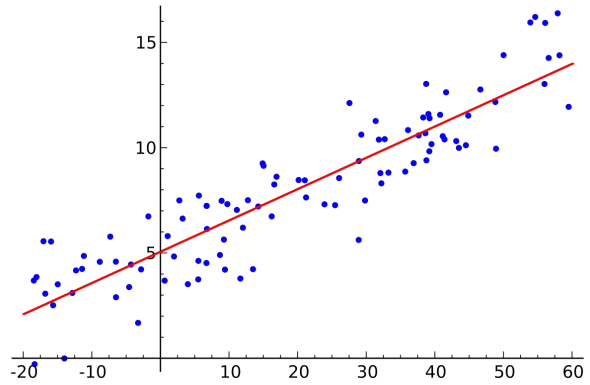


| OFFICE SUPPLIES ORDER | | | |
|---|---|---|---|
| *Item* | *Price* | *Quantity* | *Total* |
| Copy paper | £2.49 | 20 | £49.80 |
| Post-It Notes | £5.99 | 10 | £59.90 |
| Stapler | £7.99 | 5 | £39.95 |
| Paper punch | £11.90 | 15 | £178.50 |
| Highlighter pen | £1.99 | 50 | £99.50 |
| TOTAL COST OF ORDER | | | £427.65 |
| AVERAGE PRICE | | | £6.07 |

2)




3)



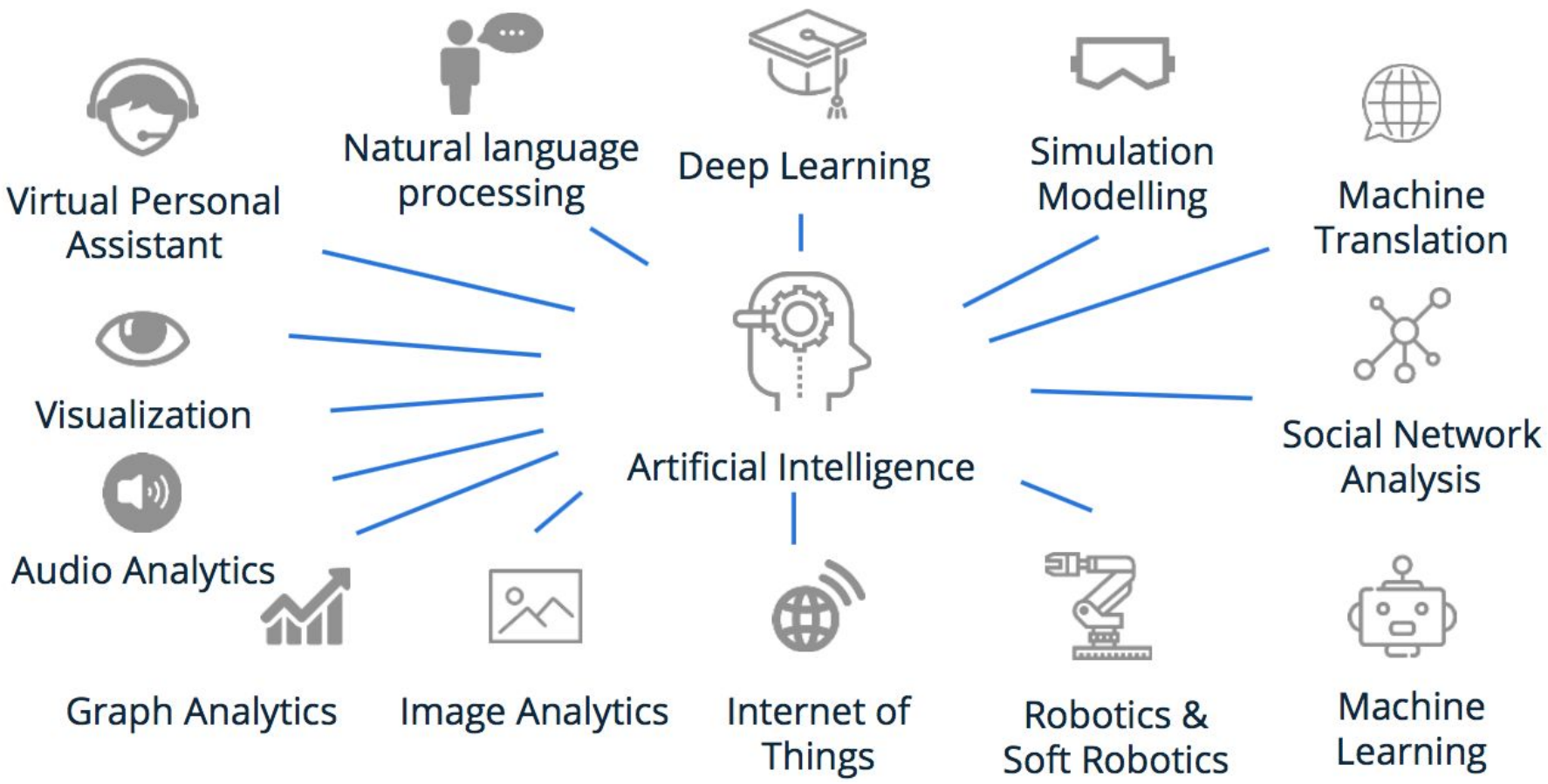
# 5.2. Assistive Technology Systems

- An assistive, adaptive, or rehabilitative device designed to help people with disabilities perform tasks that they were formerly unable or had difficulty to accomplish.
- Many assistive technology products are designed to enhance the human-computer interface.

# 5.2.1. Artificial Intelligence (AI)

- AI is concerned with the development of computers with the ability to mimic or duplicate the functions of the human brain.
- AI is a complex and interdisciplinary field that involves several specialties.
- AI can be used in a variety of ways to improve the decision support provided to managers.

# 5.2.1. Artificial Intelligence Applications



# 5.2.2. Multimedia and Virtual Reality

- The approach and technology used in multimedia is often the foundation of virtual reality systems.
- Multimedia is content that uses more than one form of communication.
- A virtual reality system enables users to move and react in a computer-simulated environment.

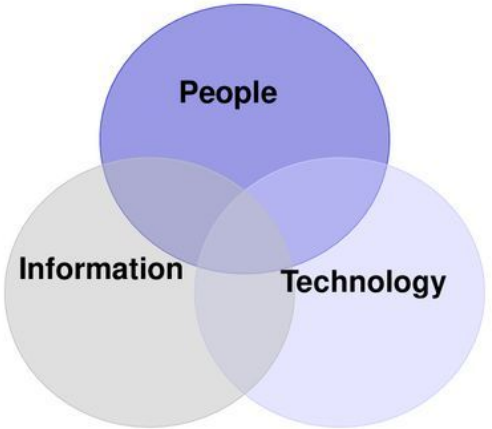
Forms of Multimedia

# 5.2.2. Virtual Reality Applications

- Sports
- Healthcare
- Military
- Entertainment
- Education and Training
- Construction
- Scientific Visualizations

# 5.2.3. Informatics

- Informatics is the combination of information technology with traditional disciplines.
- Informatics engineer information systems that provide users with the best possible user experience.
- Informatics represents the intersection of people, information, and technology.



# Filling the Blanks

1. Industries use _____to create machine slaves that can automatically perform various activities regularly.
2. _____enables people to live healthy, productive, independent, and dignified lives, and to participate in education, the labour market and civic life.
3. A _____enables an end user to view a three-dimensional simulated environment

- (**virtual reality system / artificial intelligence / Assistive technology )**