



Digital Technology Implementation

Chalermpol Tapsai

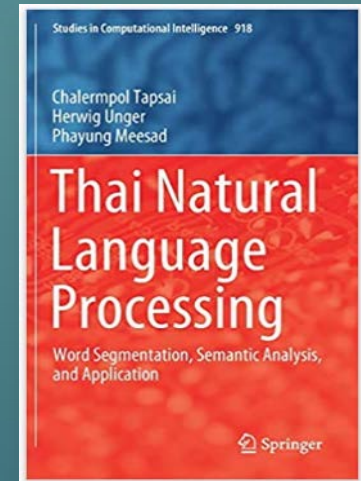
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Digital Technology \Leftrightarrow Computer System

- Hardware
- Software
- Peopleware
- Process
- Data
- Network & Communication

Digital Technology \Leftrightarrow Computer System

- **Hardware**

- Computer

- Device



Digital Technology \Leftrightarrow Computer System

- Hardware

- Computer

- Microcomputer/personal computer(PC)
- Minicomputer
- Mainframe
- Supercomputer
- Cloud computing

- Device

Digital Technology \Leftrightarrow Computer System

- Hardware

- Computer

Desktop



Laptop/Notebook



Tablet



Smartphone

- Device

- Microcomputer/personal computer(PC)



Digital Technology \Leftrightarrow Computer System

- Hardware

- Computer

- Minicomputer

- Device



Digital Technology \Leftrightarrow Computer System

- Hardware

- Computer

- Mainframe

- Device



Digital Technology \Leftrightarrow Computer System

- Hardware

➤ Computer

○ Super computer

➤ Device



Digital Technology \Leftrightarrow Computer System

- Hardware

➤ Computer



○ Cloud computing

➤ Device



Digital Technology \Leftrightarrow Computer System

- **Hardware**

- **Computer**

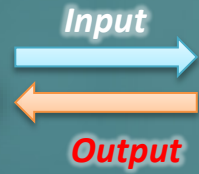
- **Device**

- Input Device

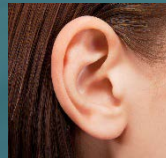
- Output Device

User Interface (UI)

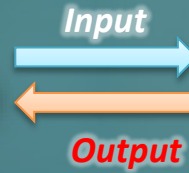
User Interface (UI)



5 Human senses



User Interface (UI)



Eye



Input

- Face recognition
- Retinal scan

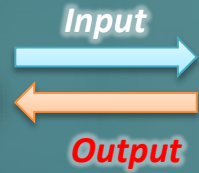


Output

- LCD monitor
- LED monitor
- Smart TV
- Projector
- Hologram



User Interface (UI)



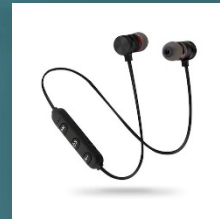
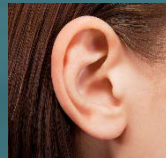
Input

Output

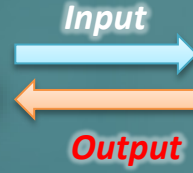
- Speaker
- Earphones



Ear

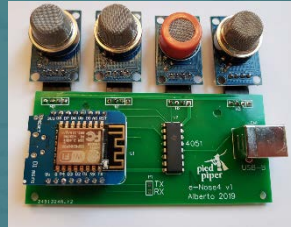


User Interface (UI)



Input

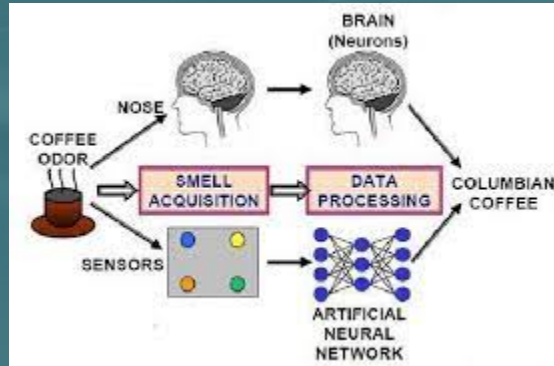
- Enose sensor



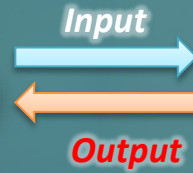
Nose

Output

- smell synthesizer



User Interface (UI)

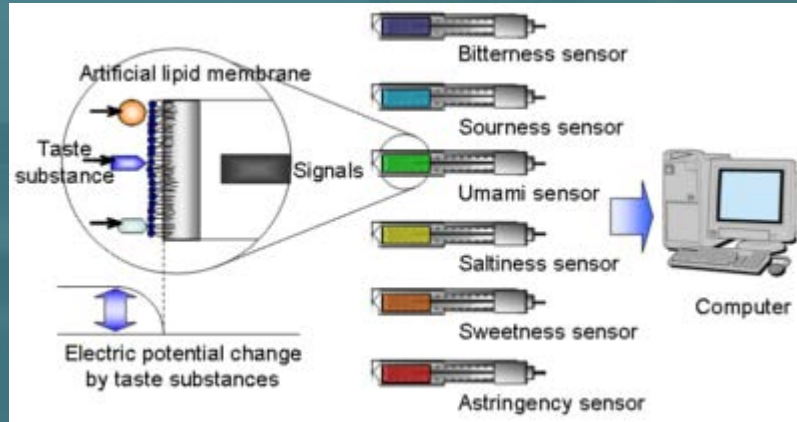


Input

- Microphone
- Taste sensor



Mouth and Tongue



Output

- ?

User Interface (UI)



Input

- Touch screen
- Fingerprint scan
- Keyboard
- Mouse
- ?

Output

- Augmented Human



Body

Digital Technology <=> Computer System

- Software

- Operating system (OS)
- Application software

Google map

Tiktok

SPSS

Word

Wechat

Windows

IOS

Linux

Line

Excel

Android

Photoshop

Harmony

Expedia

Youtube

Unix

Powerpoint

Facebook

Digital Technology \Leftrightarrow Computer System

- Software

- Operating system (OS)
- Application software

Computer languages

- C
- Java
- Python
- R
- HTML
- SQL
- XML
-

Natural Language?

Digital Technology \Leftrightarrow Computer System

- **Peopleware**

- Computer engineer
- System Analyst
- Programmer
- Operator
- User

Digital Technology <=> Computer System

- **Peopleware**

Requirements for Digital Technology transformation

- Mindset
- Knowledge
- Skills

Digital Technology \Leftrightarrow Computer System

- Data

- Files

- Database

- Data warehouse

- Big Data

- Local data

- Global data

- Website

- Social network

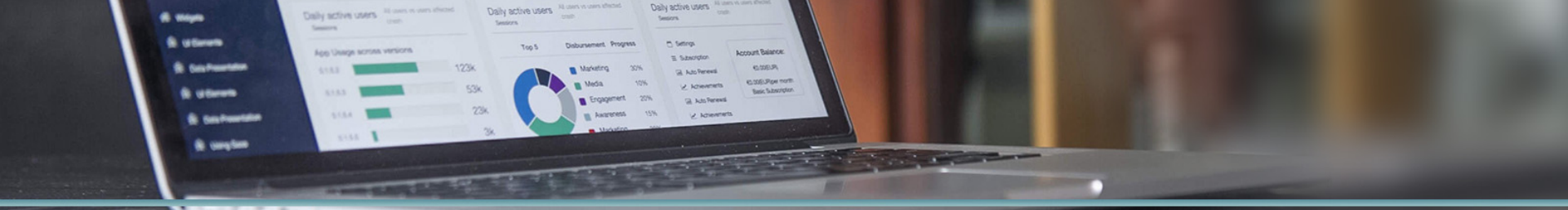
- Facebook

- Tiktok

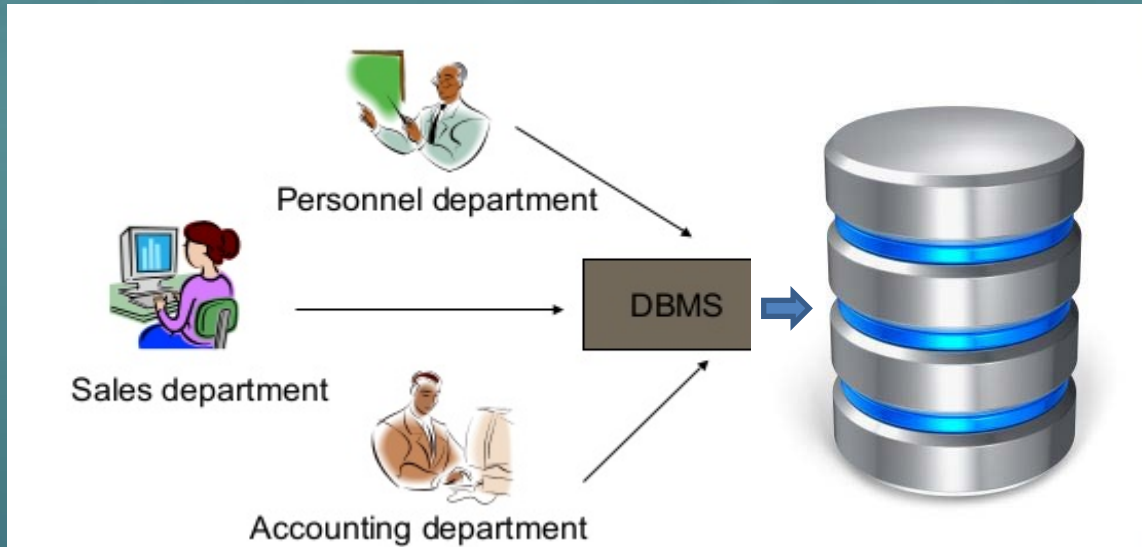
- Youtube

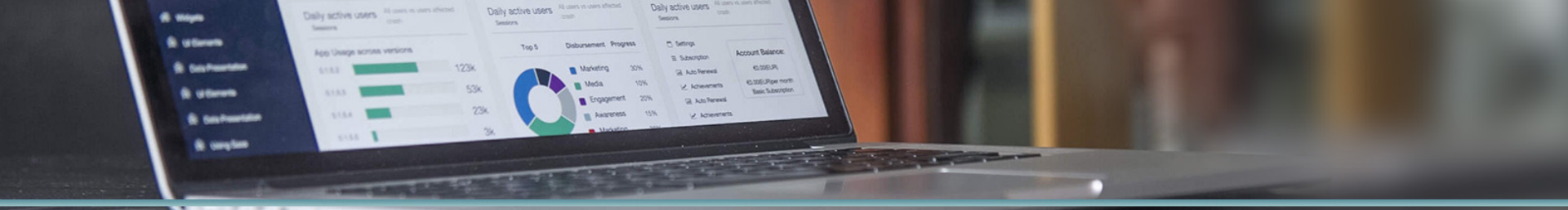
- Wechat

- Line



Database





- VOLUME
- VARIETY
- VELOCITY

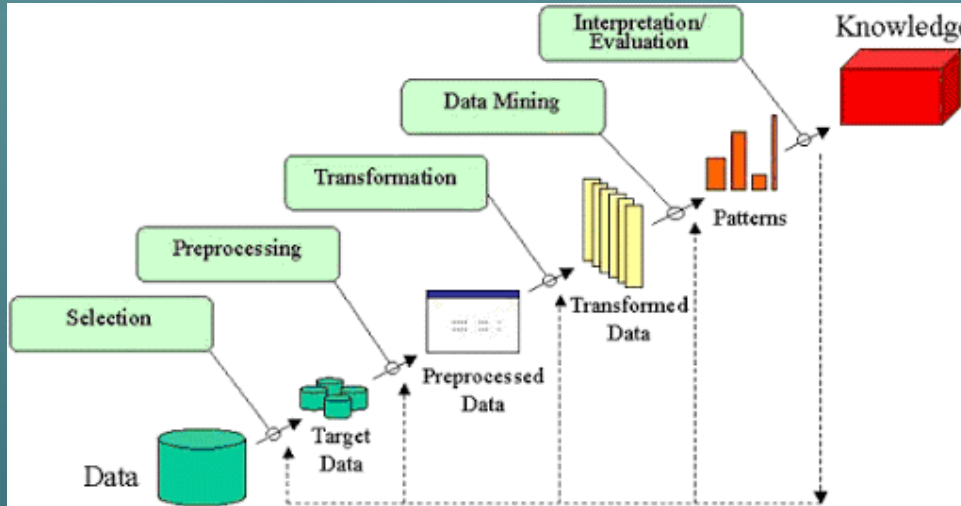
Digital Technology \Leftrightarrow Computer System

- Processing

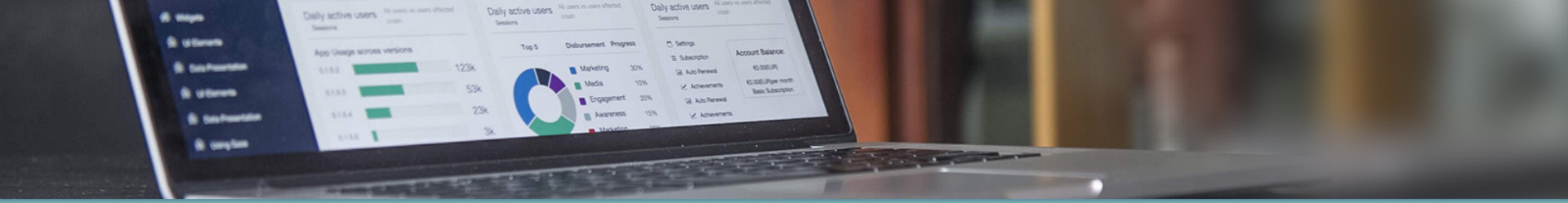
- Data Science
- Data mining
- Text processing
- image processing
- Video Processing
- Natural Language Processing
- OCR (Optical Character Reader)
- Voice Recognition (Speech to text)
- Voice Synthesis (Text to Speech)



Data mining



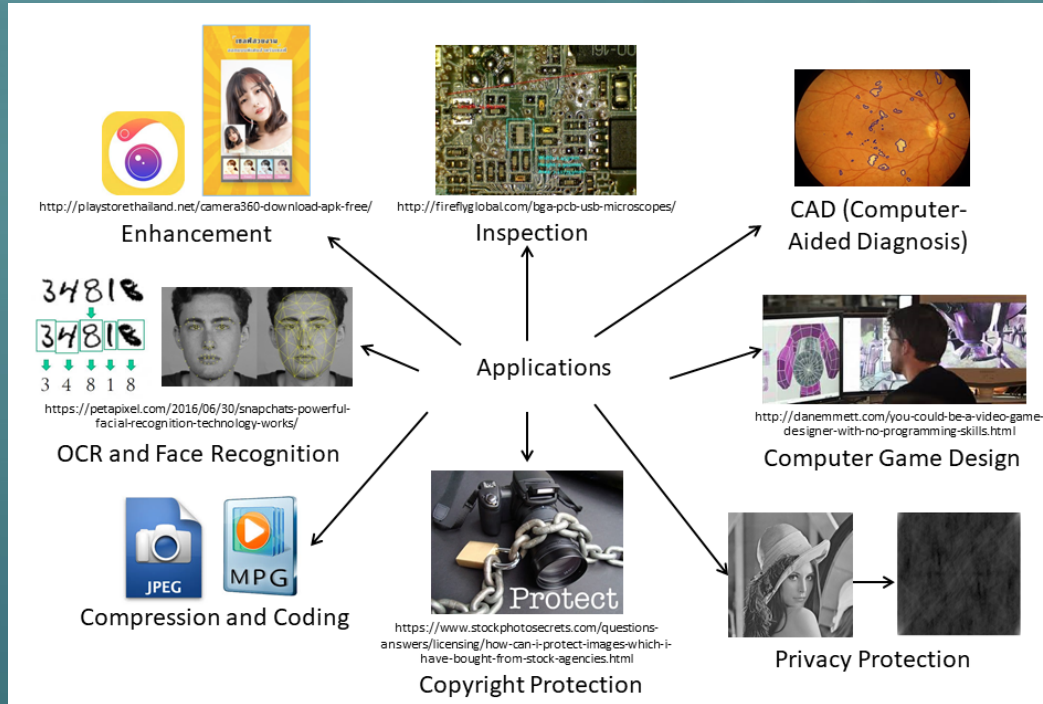
- Prediction model
- Clustering
- Association rules

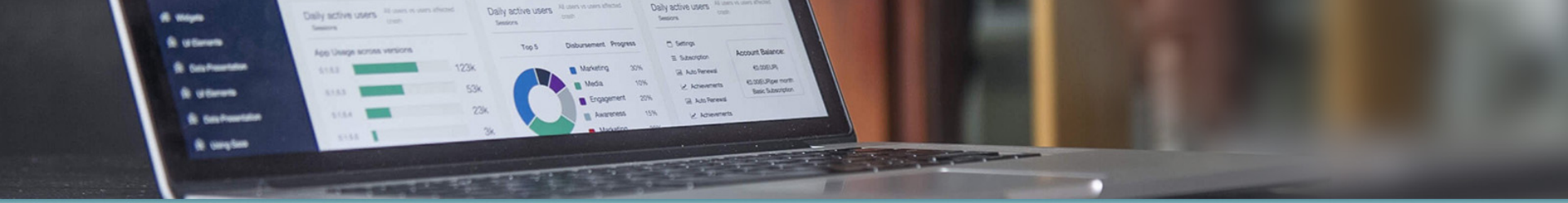


Text processing



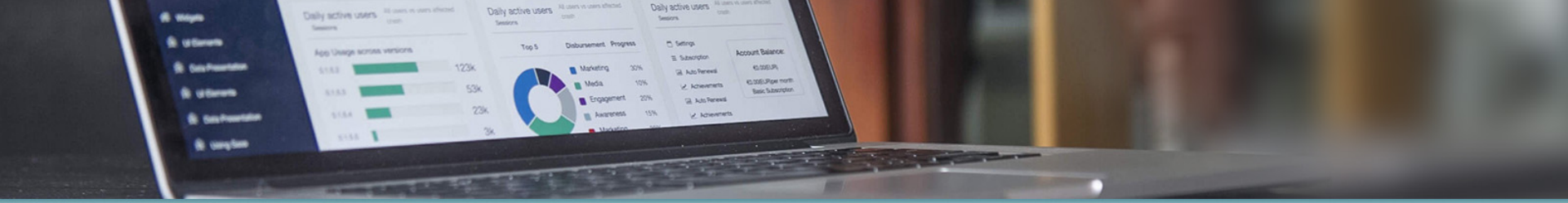
Image processing





Video processing





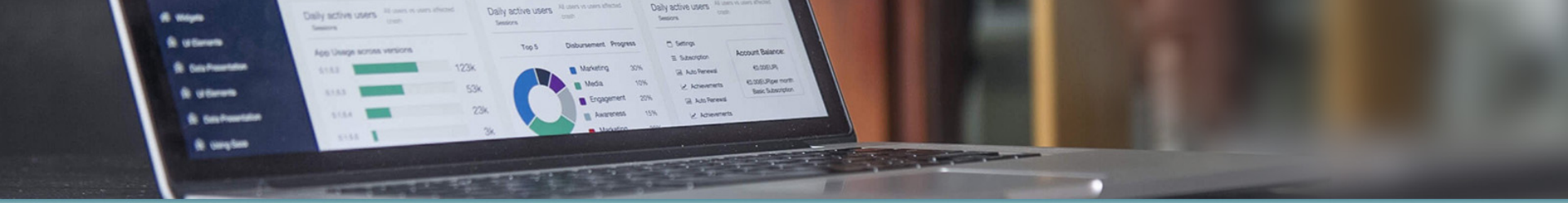
Speech processing

Text to Speech

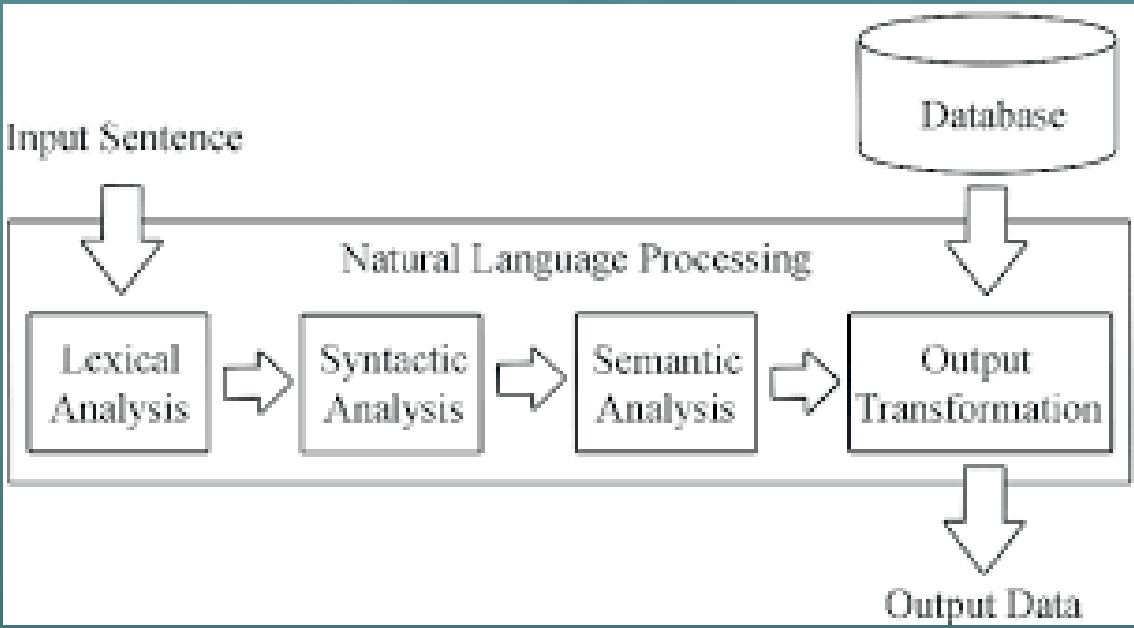


Speech recognition

Speech to text



Natural Language Processing (NLP)



Digital Technology <=> Computer System

- **Network & Communication**

- **Computer network**

- LAN (Local Area Network)
- WAN (Wide Area Network)
- MAN (Metropolitan Area Network)

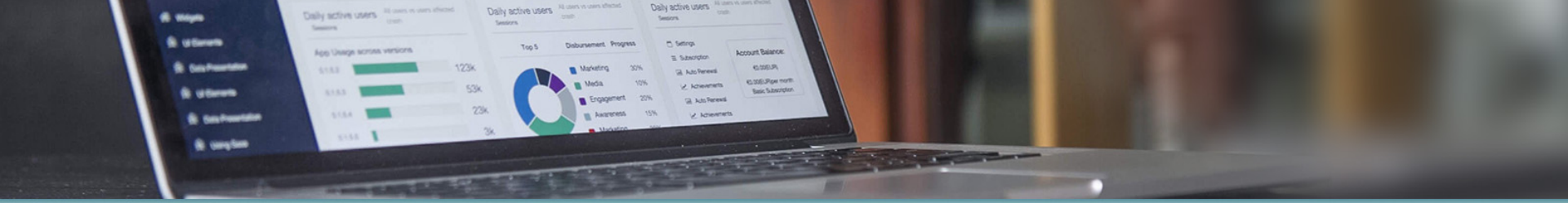
- **Data communication**

- Wire network
- Wireless network

Augmented Human

- Augmented intelligence
- Emotion AI

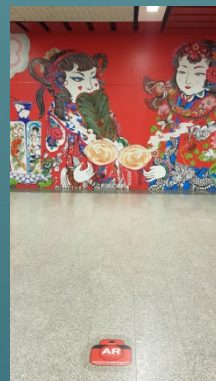




VR (Virtual Reality)

Google maps + street view

AR (Augmented reality)



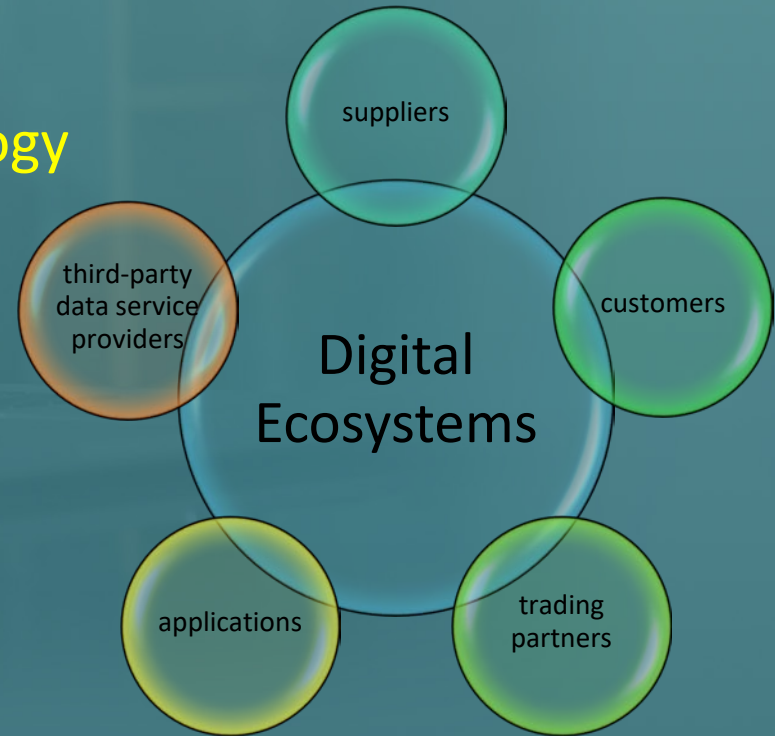
Postclassical Compute and Comms

- 5G, 6G
- next-generation computing
- 3D printing



Digital Ecosystems

a group of interconnected information technology resources that can function as a unit



Advanced AI and Analytics

- Autonomous system
- Robot
- Remote monitoring
- Natural language processing [NLP]
- Facial recognition
- Video analytics
- Machine learning (ML)
- Deep learning (DL)



Autonomous system

- UAV(Unmanned Aerial Vehicle)
- Autonomous car



What will be in the future

