01 Zero & One

# Unit 4: Information Technology and Society

Programming & AI, 1st secondary (Introduction to ICT)



Engineer Rahim

## 4-1 Development of Information Technology

- **Society developed in 4 stages**
  - **Hunter-gatherer society:** from the birth of humanity, people lived by hunting
  - **Agrarian society:** from about **13,000 BCE**, a settled life by growing and harvesting food
  - **Industrialized society:** from the **mid-18th century** (after the industrial revolution), mass production with machines thanks to the **steam engine** and electricity
  - **Information society:** from the **second half of the 20th century**, automation spread thanks to **computers and the internet**.
- **Society 5.0**: A new society that integrates **virtual space (cyberspace)** with **real space (physical space)** to solve social problems and achieve **economic development** at the same time, with people at the centre.
- **New technologies attracting attention**
  - **Big Data:** huge amounts of data in many forms and types
  - **AI (Artificial Intelligence):** technology that makes computers **mimic human intellectual behaviour**
  - **Machine Learning:** the computer **learns from lots of data** and extracts rules and patterns from it.
  - **IoT (Internet of Things):** connecting home appliances and other things **to the internet** so they communicate with each other
  - **VR (Virtual Reality):** puts you inside a **completely computer-made world** that feels real (like a VR headset).
  - **AR (Augmented Reality):** adds digital information **on top of the real world** you see (like a game character appearing in the street through your phone camera).
- **Big data analysis in daily life**
  - Doctors combine patient records and test results for faster, more accurate diagnosis.
  - Monitoring traffic in real time, predicting congestion and suggesting the best route.
  - Analysing millions of social media posts to find the trends.
  - Note: interviewing a small group of people is **not** big data.
- **Problems technology brings**
  - **Technophobia:** anxiety or fear of using computers due to a lack of confidence in handling them.
  - **Techno-Addiction:** excessive dependence on computers.
  - **VDT Disorder:** shoulder stiffness and eye strain from long hours in front of a screen.

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| **Hunter-gatherer society** | From the birth of humanity, a society living by hunting and gathering |
| **Agrarian society** | From about 13,000 BCE, a settled society living by farming |
| **Industrialized society** | From the mid-18th century, mass production with machines |
| **Information society** | From the late 20th century, automation through computers and the internet |
| **Society 5.0** | A society integrating cyberspace and physical space to solve social problems |

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| **Big Data** | Huge, varied and frequently updated collections of data |
| **Machine Learning** | Computers learning rules and patterns from large amounts of data |
| **IoT (Internet of Things)** | Connecting devices to the internet so they communicate with each other |
| **VR (Virtual Reality)** | A computer-made world that feels real |
| **AR (Augmented Reality)** | Digital information added on top of the real world |
| **Technostress** | Mental and physical problems that come from using computers |
| **Digital Divide** | The gap between those who can use information technology and those who cannot |


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