

Technology Changes Society and Careers

From Steam Power to Artificial Intelligence

เทคโนโลยีเปลี่ยนสังคมและอาชีพ



Essential Question:

How does new technology change the way people live and work?



Past



Industrial
Revolutions



Digital
Change



Career
Impact



Adaptation

How Fast Is Technology Changing?

Compare ten years then and now

1960 → 1970



Radio



Television



Landline Phone



Paper Records /
Paper Files

Imagine sleeping
for ten years.



Today → Ten years from now



Smartphone



AI Assistant



Electric Vehicle



Robot



Smart Glasses



What changes
might you notice?



What changes
might surprise you?



Quick discussion:

Why does technology
seem to change faster today?

Why Does Change Feel Faster Today?

More people can create, connect, and improve ideas

💡 Innovation = นวัตกรรม



1 More access to digital tools



2 Information travels quickly



3 People collaborate across countries



4 Computers help test ideas



5 Companies compete to improve products



6 One invention supports new inventions



Share Ideas



Connect & Collaborate



Improve & Test



Create New Tools & Solutions



Connection speeds up innovation.



What Is an Industrial Revolution?

When technology transforms society and work

💡 Industrial Revolution = การปฏิวัติอุตสาหกรรม



An **industrial revolution** is a major transformation caused by new technology.

It changes:

- | | | |
|------------------------------|-----------------------------|------------------------------|
| 1 how goods are produced
 | 2 how people travel
 | 3 how people communicate
 |
| 4 where people live
 | 5 which jobs are needed
 | 6 how economies develop
 |



From Survival to Settled Communities

The agricultural transformation

Before large-scale industry, humans developed agriculture.

New practices included:



growing
crops



raising
animals



storing
food

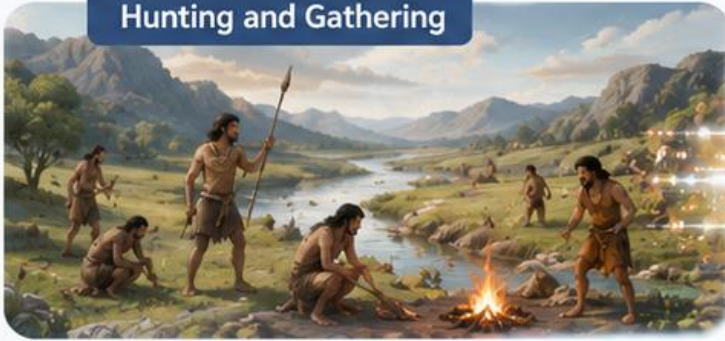


building
permanent
settlements

HUMAN TRANSFORMATION TIMELINE



Hunting and Gathering



Farming and Settled Communities



These changes supported:

1



More reliable
food

2



Population
growth

3



Towns and
cities

4



Specialized
work

5



Systems of
governance



This was not one of the four industrial revolutions, but an earlier transformation that changed human life.



First Industrial Revolution

Steam power and mechanization

MAIN TECHNOLOGIES



1. Steam engine



2. Mechanical machines



3. Railways



4. Steamships

Steam power
= พลังงานไอน้ำ



MECHANIZATION

Machines powered by steam replaced human and animal power in factories, transport, and many other tasks.

MAJOR CHANGES

1



Factories expanded

2



Production became faster

3



Goods travelled farther

4



More people moved to industrial cities

5



Manual work began changing



Steam power allowed machines to perform work that previously depended on people, animals, wind, or water.

Second Industrial Revolution

Electricity and mass production



Mass production = การผลิตจำนวนมาก

MAIN TECHNOLOGIES



1. electricity



2. electric motors



3. assembly lines



4. telephone and telegraph



MASS PRODUCTION



Electricity made factories easier to organize and operate, enabling the efficient production of goods in large quantities.

MAJOR CHANGES

1



factories operated more efficiently

2



products could be made in large numbers

3



communication became faster

4



cities gained electric lighting

5



new technical and factory jobs appeared



Electric power and new technologies transformed factories, communication, and cities—laying the foundation of the modern industrial world.

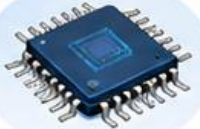
Third Industrial Revolution

Computers, electronics, and automation

MAIN TECHNOLOGIES



1 Computers



2 Electronics



3 Programmable machines



4 Early internet



5 Industrial automation

Automation = ระบบอัตโนมัติ



DIGITAL AUTOMATION

MAJOR CHANGES

1



Data could be processed quickly

2



Repetitive tasks became automated

3



Office work became digital

4



Global communication increased

5



Software and ICT careers expanded



The third industrial revolution introduced digital technology into factories, offices, schools, and communication. Computers did not only make work faster; they created completely new types of careers.

Fourth Industrial Revolution

Connected, intelligent, and automated systems

MAIN TECHNOLOGIES



- 1 Artificial Intelligence



- 2 Internet of Things



- 3 Smart Robots



- 4 Big Data



- 5 Cloud Computing



- Advanced Materials and Biotechnology

Artificial Intelligence = ปัญญาประดิษฐ์



INTELLIGENT SYSTEMS



MAJOR CHANGES

1



Machines can make limited decisions

2



Devices communicate with one another

3



Work can be monitored in real time

4



Products and services become personalized

5



Human and machine work increasingly combine



The fourth industrial revolution connects physical machines, digital systems, and intelligent software. It affects factories, hospitals, transportation, schools, business, and daily life.

Compare the Four Revolutions

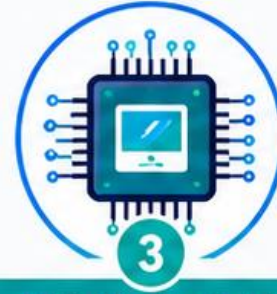
Each stage changed energy, production, and careers



1
First Industrial Revolution



2
Second Industrial Revolution



3
Third Industrial Revolution



4
Fourth Industrial Revolution

Revolution	Main Driver	Main Change	Career Effect
 First	Steam power	Mechanization	Factory and transport work
 Second	Electricity	Mass production	Technical and industrial work
 Third	Computers	Digital automation	Software and ICT careers
 Fourth	AI and connected systems	Intelligent automation	Human-machine collaboration

New technology



New ways of working



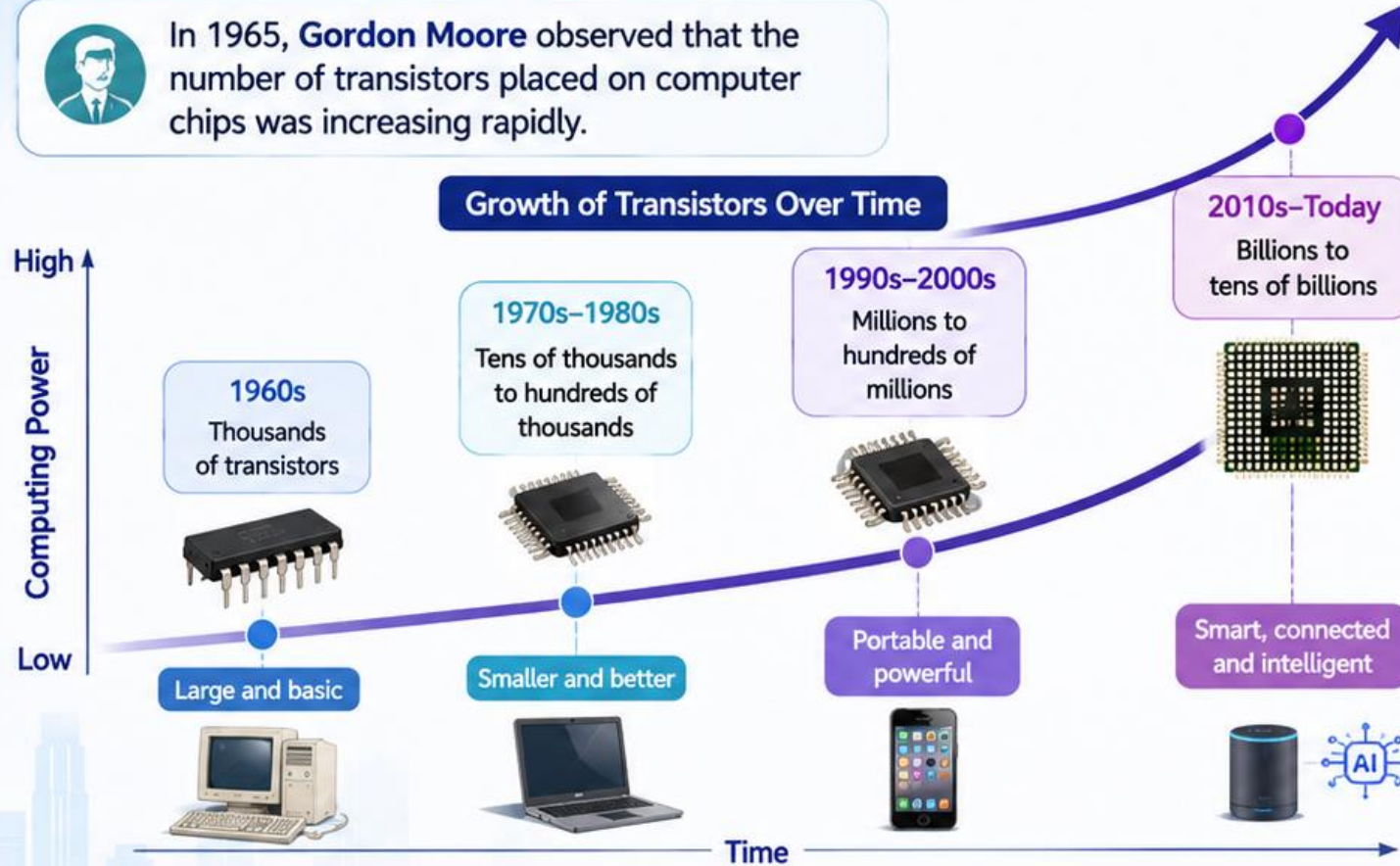
New skills and careers

Why Computing Power Grew So Quickly

Understanding Moore's observation



In 1965, **Gordon Moore** observed that the number of transistors placed on computer chips was increasing rapidly.



A Simplified Classroom Idea



More transistors



More processing power



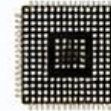
Smaller and more capable devices



Lower cost for many computing tasks

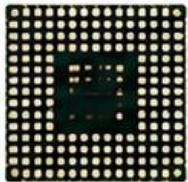
Short Term vs Long Term

Short Term (2 years)



Small improvement

Long Term (20+ years)



Enormous difference



Small improvements repeated many times create huge long-term change.

Pattern:



New technology



New ways of working



New skills and careers



Important: Moore's law is a historical observation, not a permanent rule.

Technology Changes More Than Machines

It changes daily life, services, and work



“Which change has affected your life the most?”



Case Study: Driverless Cars

One technology, many effects

POSSIBLE BENEFITS

1  Mobility for elderly or disabled people



2  Fewer accidents caused by human error



3  More efficient transportation



4  New services and businesses



5  Reduced workload for some emergency services



KEY QUESTION:
Who benefits, and who may be disadvantaged?

POSSIBLE RISKS

1  Fewer driving jobs

2  System errors or cyberattacks

3  Difficult ethical decisions

4  High cost and unequal access

5  New laws and infrastructure needed



A technology is rarely completely good or completely bad. Its effects depend on how it is designed, controlled, distributed, and used.



Technology Can Increase Inequality

Not everyone has the same access or opportunities



Digital divide = ความเหลื่อมล้ำทางดิจิทัล

The digital divide is the gap between people who have easy access to technology and skills, and those who do not.

THIS CAN AFFECT



EDUCATION

Harder to learn, research, and complete assignments



EMPLOYMENT

Fewer job opportunities and limited digital skills



INCOME

Lower earning potential and slower economic growth



PARTICIPATION IN SOCIETY

Less voice, less access to services and information



Technology should open doors, not widen gaps.
Building an inclusive digital future is everyone's responsibility.

How Can People Prepare for Change?

Adaptability is a future skill



Adaptability = ความสามารถในการปรับตัว



University



Career



Innovation



Technology
& Work

8 Lifelong Learning

7 Creativity and Judgment

6 Working with Machines

5 Data

4 Problem-Solving

3 Communication

2 Digital Literacy

1 New Tools



Learn how to learn.

Technology Impact Challenge

Analyze one new technology



Discuss:

- 1 What does it improve?
- 2 What problem could it create?
- 3 Which careers may change?
- 4 Who may benefit?
- 5 Who may be disadvantaged?
- 6 What new skill may be needed?



Artificial
Intelligence



Delivery
Robots



Online
Learning



Smart
Farming



Virtual
Reality



Renewable
Energy



Medical
Robots



Cashless
Payment



6 minutes



Exit Ticket

Before you leave



Answer in your notebook:



First
Industrial
Revolution



Second
Industrial
Revolution



Third
Industrial
Revolution



Fourth
Industrial
Revolution

1



Name one industrial revolution and its main technology.

2



Give one way technology can improve society.

3



Give one problem technology can create.

4



Complete:

To prepare for future careers, I should _____.



Submit before leaving.



The End

Technology changes. People learn and adapt.

REMEMBER:

Technology can:



Improve life



Create opportunities



Change careers



Create new problems



Increase inequality



Require new skills



Improve Life



Create Opportunities



Change Careers



Create New Problems



Increase Inequality



Require New Skills



SKILLS



TEAMWORK



AI



UNIVERSITY



CAREERS



Understand change.



Think critically.



Keep learning.

