Unit 6 Digital economy

Lesson 2

黄婕

2025-11-28

Midterm examination (45 min)
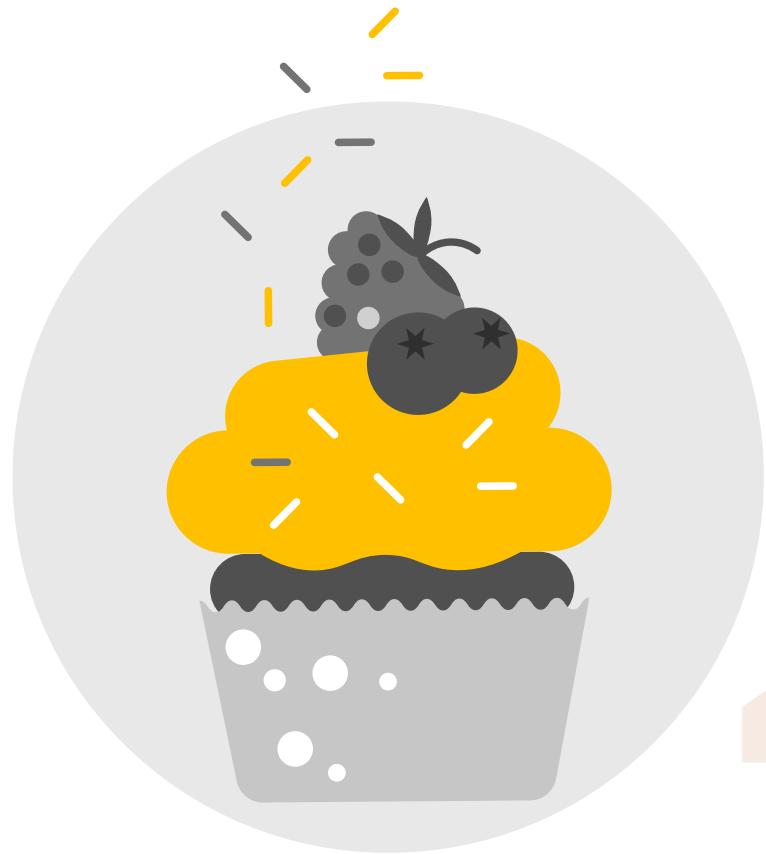
Text 2

A Fourth Industrial Revolution?

Text 2 (Para. 1)

Digital technologies are transforming how we live, work, consume, and produce goods and services. Examples include **cloud computing**, the Internet of Things, advanced **analytics** (including big data, artificial intelligence, and machine learning), biotechnology, social media, three-dimensional printing, virtual reality, broadband Internet, and wireless mobility. During the information and communications technology (ICT) revolution, firms used electronics to automate a limited number of routine steps in production. **Moving forward, firms will use digital technologies to automate many more routine steps in production.**

- **Paraphrase this sentence in your own words.**

In the future, Companies will use digital tools to do more basic work automatically.

There have been three industrial revolutions in history, and the emergence of the digital economy is considered by some to represent a fourth. **The first Industrial Revolution**, between roughly 1760 and 1850, marked a significant change from rural-agrarian to urban-mechanized systems of production. Key technological advances included steam power, railways, and the transition from wood to metal. **The second Industrial Revolution** spanned roughly the century after 1870, centering on the shift to mass production, distribution, and communication. Key innovations included electricity, the telephone, air transport, highways, radio, television, high-rise buildings, and antibiotics.

- **What were the three Industrial Revolutions in history? Describe them in your own words.**

First Industrial Revolution (1760-1850):

- Machines and steam power replaced manual farm work.

- People moved from farms to factories.

There have been three industrial revolutions in history, and the emergence of the digital economy is considered by some to represent a fourth. **The first Industrial Revolution**, between roughly 1760 and 1850, marked a significant change from rural-agrarian to urban-mechanized systems of production. Key technological advances included steam power, railways, and the transition from wood to metal. **The second Industrial Revolution** spanned roughly the century after 1870, centering on the shift to mass production, distribution, and communication. Key innovations included electricity, the telephone, air transport, highways, radio, television, high-rise buildings, and antibiotics.

- **Rural-agrarian** /əˈgrɛrɪən/
  农村-农业型（社会），指人们住在乡下，以种地为生

- **Urban-mechanized**
  城市-机械化型（社会），指人们住在城市，用机器生产

- **Steam power** 蒸汽动力

There have been three industrial revolutions in history, and the emergence of the digital economy is considered by some to represent a fourth. **The first Industrial Revolution**, between roughly 1760 and 1850, marked a significant change from rural-agrarian to urban-mechanized systems of production. Key technological advances included steam power, railways, and the transition from wood to metal. **The second Industrial Revolution** spanned roughly the century after 1870, centering on the shift to mass production, distribution, and communication. Key innovations included electricity, the telephone, air transport, highways, radio, television, high-rise buildings, and antibiotics.

- **What were the three Industrial Revolutions in history? Describe them in your own words.**

Second (after 1870):

- Electricity and mass production.

- People could make products faster and communicate over long distances.

There have been three industrial revolutions in history, and the emergence of the digital economy is considered by some to represent a fourth. **The first Industrial Revolution**, between roughly 1760 and 1850, marked a significant change from rural-agrarian to urban-mechanized systems of production. Key technological advances included steam power, railways, and the transition from wood to metal. **The second Industrial Revolution** spanned roughly the century after 1870, centering on the shift to mass production, distribution, and communication. Key innovations included electricity, the telephone, air transport, highways, radio, television, high-rise buildings, and antibiotics.

- **Span (v.)**
  跨越，持续（一段时间）
  e.g. The meeting spanned two hours.

- **Center on**
  集中于，以…为中心

- **Antibiotics (n.)**
  抗生素

The third Industrial Revolution, the ICT revolution, began roughly in the 1960s. Significant advances in networked computing and telecommunication capabilities were accompanied by steep price declines and rapid quality improvements in ICT hardware and software. Notable innovations included advances in semiconductor manufacturing, personal computers, email, faxes, the Internet, bar-code scanning, and mobile telecommunications.

- What were the three Industrial Revolutions in history? Describe them in your own words.

Third (1960s onwards):

- Computers and the Internet.
- Information became digital and could spread instantly around the world.

The third Industrial Revolution, the ICT revolution, began roughly in the 1960s. Significant advances in **networked computing** and **telecommunication capabilities** were accompanied by **steep price declines** and rapid quality improvements in ICT hardware and software. Notable innovations included advances in **semiconductor manufacturing**, personal computers, email, faxes, the Internet, bar-code scanning, and mobile telecommunications.

- **Networked computing**
  联网计算
- **Telecommunication capabilities**
  远程通信能力
- **Steep price declines**
  - 价格急剧下降
  - Steep (adj.) 陡峭的
- **Semiconductor manufacturing**
  半导体制造

There is no consensus in literature as to whether digitalization should be seen as an evolution of the third revolution or as a distinct, fourth revolution. **Robert J. Gordon**, a professor at Northwestern University, <u>sees</u> digital technologies as evolved ICTs that are less transformative to generate large increases in productivity compared with innovations in earlier eras. **In contrast, Klaus Schwab**, Founder and Executive Chairman of the World Economic Forum, <u>**argues that**</u> a fourth Industrial Revolution is underway that will fundamentally transform economies and societies by combining the physical, digital, and biological worlds through highly interconnected production chains and semi-automated decision-making processes.

观点逻辑：
- No consensus
  没有定论
- In contrast
  表示不同观点
- A sees that…
- B argues that…

Productivity is the efficiency with which an economy transforms input into output. Investments in digital technologies contribute to higher productivity by providing workers with more tools to do their work. The production process becomes more **capital-intensive**. Falling prices for digital technologies encourage firms to modernize their equipment so they can achieve cost efficiencies and enhanced capabilities.

翻译：

生产力是指经济体将投入转化为产出的效率。
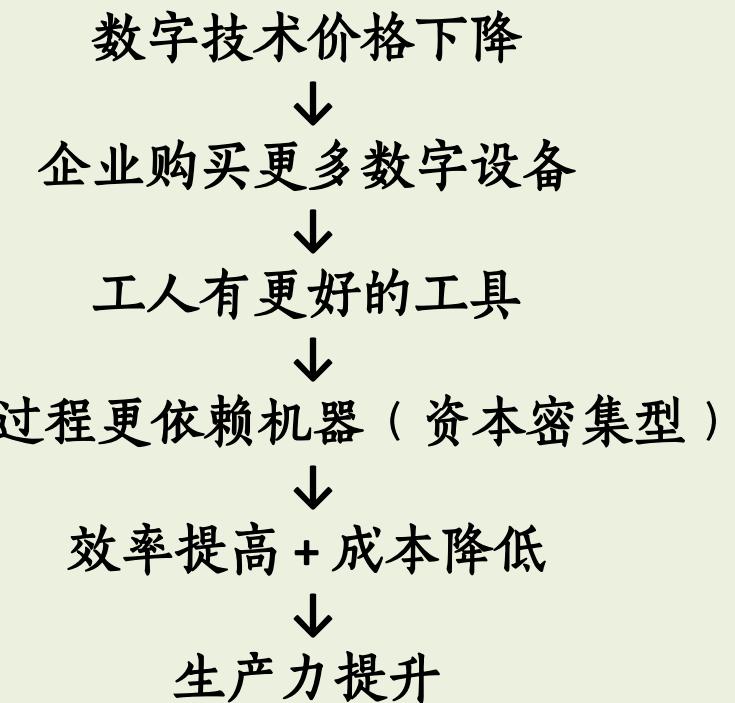
数字技术价格下降
↓
企业购买更多数字设备
↓
工人有更好的工具
↓
生产过程更依赖机器（资本密集型）
↓
效率提高+成本降低
↓
生产力提升

Capital-intensive 资本密集型

Labor-intensive 劳动密集型

X-intensive?

类型	主要依赖	成本重点	典型行业
Labor-intensive	👷 人工	工资	服装、餐饮
Capital-intensive	🏭 设备	机器、厂房	汽车、钢铁
Technology-intensive	💡 技术	研发	芯片、航天
Knowledge-intensive	🧠 专业知识	人才培养	咨询、法律
Energy-intensive	⚡ 能源	电力、燃料	炼铝、水泥

Digitalization could have **wide-ranging effects** across the economy. Across industries, digital technologies have the potential to **drive efficiencies**, provide opportunities for firms to increase earnings and market share, and **facilitate ongoing innovation**. More and more business tasks that are currently done by humans will be **executed** electronically…

翻译：

在各行业中，数字技术有望<u>提高效率</u>，可使企业增加收入和扩大市场份额，并<u>持续推动创新</u>。

- **Wide-ranging effects**
  广泛的影响 ≈ extensive, broad, far-reaching
- **Drive (v.)** 驱动、推动**efficiencies**
  ≈ push forward, propel, promote
- **Execute (v.)** 执行、完成
  CEO = Chief Executive Officer

Text (Para. 5)

…Many of these processes will occur in digital form "'speaking to' other processes in the digital economy, in a constant conversation among multiple <mark>servers</mark> and multiple semi-intelligent <mark>nodes</mark> that are **updating** things, **querying** things, **checking off** things, **readjusting** things, and eventually **connecting** back with processes and humans in the **physical economy**," said Chris D'Souza and David Williams.

- What does **physical economy** mean in the text?

The physical economy refers to the real-world, <u>tangible economy involving actual people, physical goods</u>, and traditional business processes, as opposed to the digital/virtual economy.

物理经济/<u>实体经济</u>指的是现实世界中<u>涉及实际人员、有形商品</u>和传统业务流程的经济活动，与数字经济/虚拟经济相对。

How to understand the "conversation" in digital economy?

- **Updating（更新）**：循环箭头表示数据不断更新

- **Querying（查询）**：放大镜表示搜索和询问信息

- **Checking off（核对确认）**：对勾表示验证和确认

- **Readjusting（重新调整）**：滑块/齿轮表示参数调整

How to understand the "conversation" in digital economy?
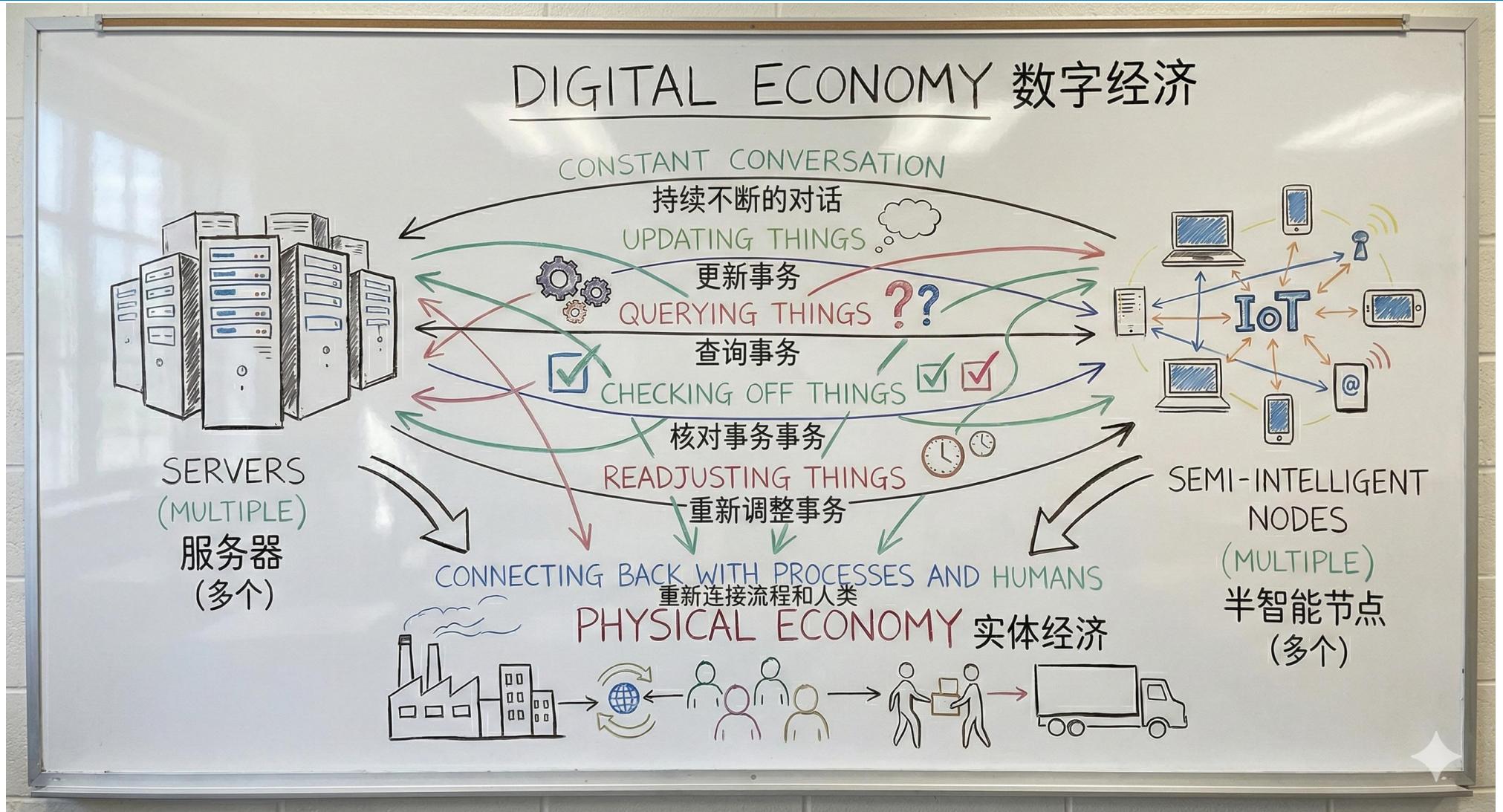
We are only beginning to understand how the digital economy will function. To successfully manage the transition to digitalization, policymakers will need to ensure that the economy is adaptable, that firms are encouraged by market forces to be agile, that economic gains are widely distributed, and that the tools and associated institutions to manage the economy are up-to-date and fit-for-purpose.

What is your imagination of digital economy?

让AI 画出来!

以 policymaker 为核心角色，画出一个手绘风格的线稿图，用来解释policymaker 和 economy, firms, economic gains, tools 之间的关系。参照的上下文是：We are only beginning to understand how the digital economy will function. To successfully manage the transition to...

How will digital economy function?
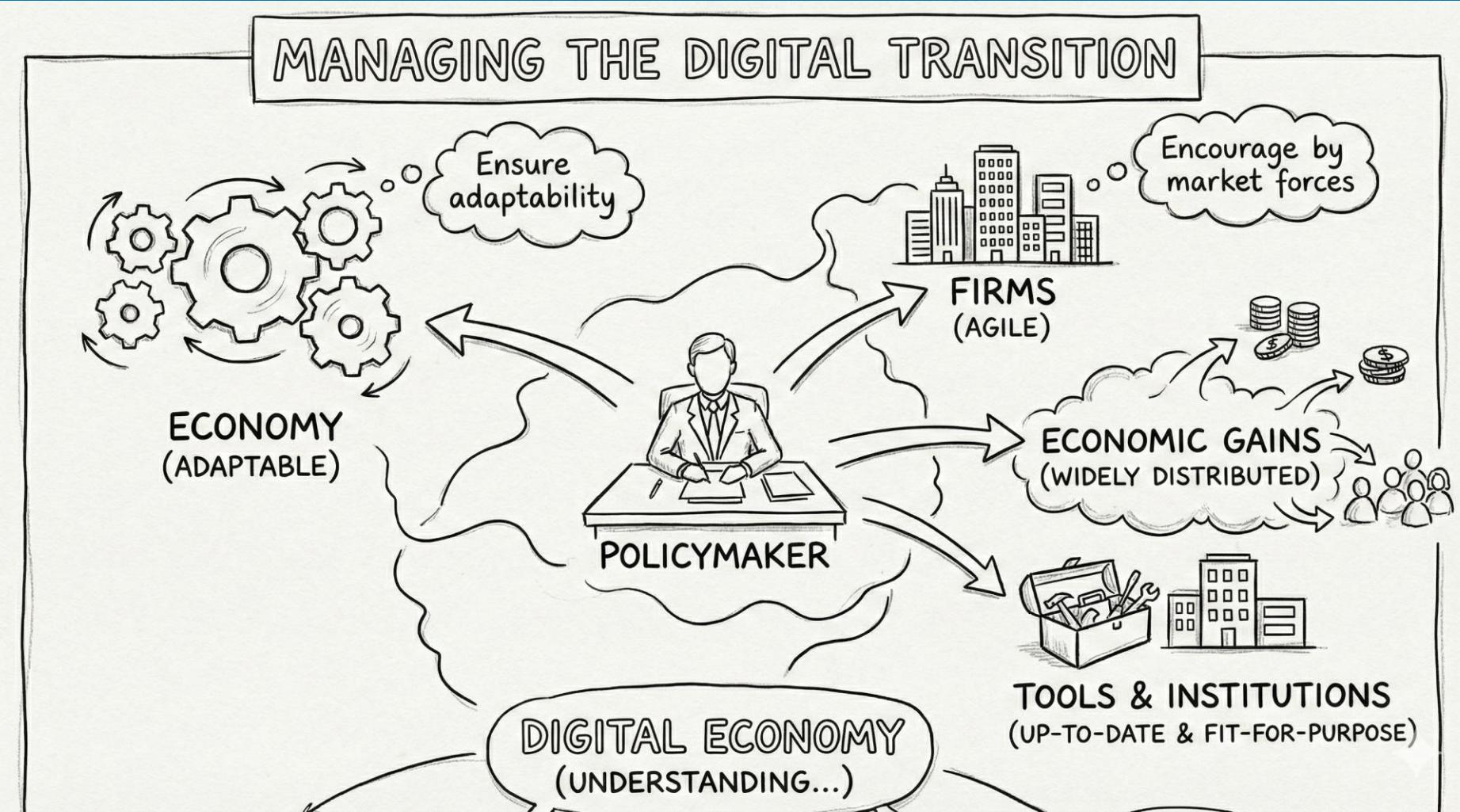
Agile 敏捷、灵活的

Up-to-date 最新的

Fit-for-purpose
量身订做的
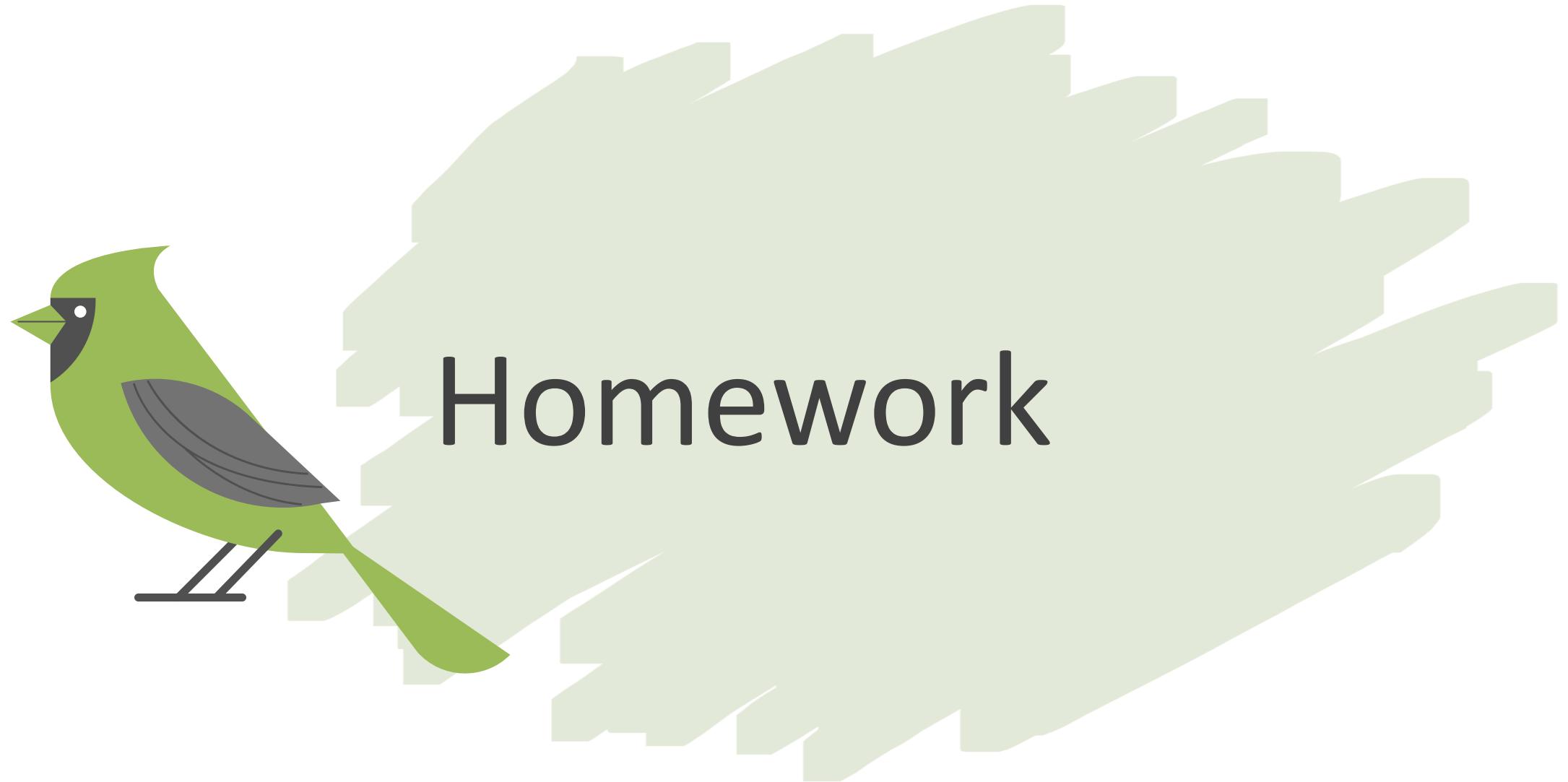
Homework

Homework

- 完成本周的数字人练习（2次，每次5分钟以上）
- 完成 Language skills: Task 1,2,3

END