

The third and fourth Industrial Revolutions

During the first Industrial Revolution human and animal labour were converted into machinery while during the second, electricity, the internal combustion engine, indoor plumbing, chemical industries and technologies developed.

■ The third Industrial Revolution

The **third Industrial Revolution**, or Digital Revolution, began in the 1950s and developed in Europe, USA and Japan. It represents the move from mechanical and analogue technology to digital electronics. Nano, bio, and IT technologies, 3D printing, artificial intelligence, and robotics were the most important **drivers** of this revolution. The spread of automation and digitisation through the use of electronics and computers, the invention of the Internet, and the discovery of nuclear energy are its characteristics, together with mass transportation systems, telecommunications and networks as infrastructures. Since the introduction of these technologies, we have been able to automate an entire production process without human assistance. Also, improvements in telecommunications have made globalisation • possible. In turn, this has made it possible for companies to move their production to low-cost economies, and business models have changed all over the world.

The concept was coined in 2016 by Klaus Schwab, the founder of the World Economic Forum, in a book of the same name.

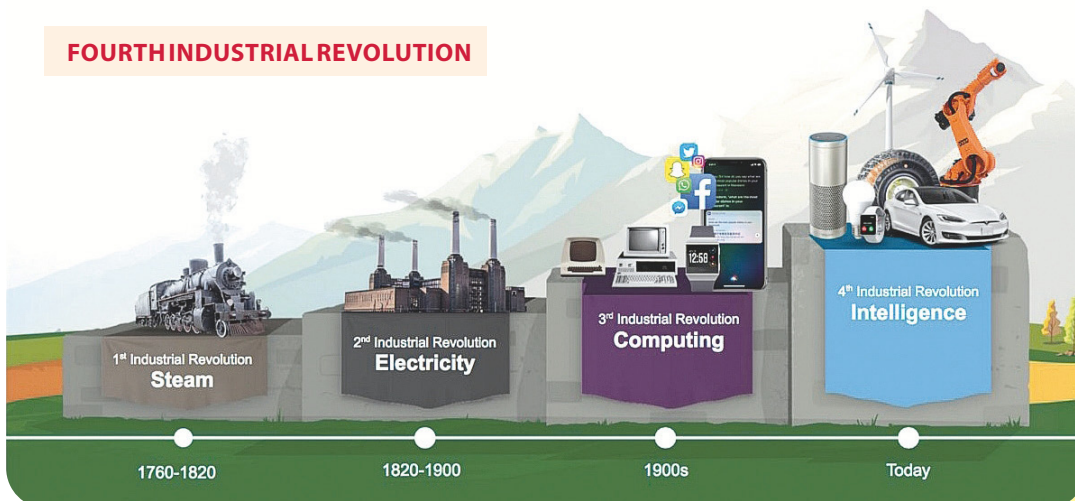
■ The fourth Industrial Revolution

We are currently implementing the **fourth Industrial Revolution** •• (also known as “Industry 4.0”), built on the developments of the third, and characterised by the application of information and communication technologies to industry. The Fourth Industrial Revolution is a way of describing the **blurring** of **boundaries** between the physical, digital, and biological worlds. Cyberphysical systems or intelligent computers are shaping the Fourth Industrial Revolution, which is a fusion of advances in artificial intelligence (AI), robotics, the Internet of Things (IoT), Web3, blockchain, 3D printing, genetic engineering, quantum computing, and other technologies. It is the collective force behind many products and services that are fast becoming indispensable to modern life.

As a result of this perfect storm of technologies, the Fourth Industrial Revolution is **paving the way** for transformative changes in the way we live, requiring a “flexible architecture” approach to infrastructure planning, and radically **disrupting** almost every business sector. It’s all happening at an unprecedented, **whirlwind pace**.

Globalisation is the word used to describe the growing interdependence of the world's economies, cultures, and populations, brought about by cross-border trade in goods and services, technology, and flows of investment, people and information.

FOURTH INDUSTRIAL REVOLUTION



to blur: *sovrapporsi*
 boundary: *confine*
 to disrupt: *disgregare*
 driver: *elemento chiave*
 to pave the way: *aprire la strada*
 plumbing: *impianto idraulico*
 whirlwind pace: *ritmo vorticoso*

1 Complete this table which compares the four Industrial Revolutions.

Industrial Revolution	Period	Leading country	Characteristic infrastructures	Characteristic technologies
First	1760 - 1870	England	Navigation and channels - steamboats	Machine tools, textile machinery and everything possible thanks to steam engines
Second	1870 - 1950	Great Britain	Train, telegraphs, telephones	Combustion engine, chemical product development and electrical machinery
Third				
Fourth				

2 Complete the sentences.

- During the 1st IR machinery replaced
- During the 2nd IR electricity, the engine, indoor plumbing, chemical industries and technologies developed.
- The 3rd IR is considered as the move from mechanical and analogue technology to
- With the introduction of new technologies, people have been able to automate an entire production process without
- The 4th IR is characterised by the application of information and communication technologies to
- During the 4th IR the boundaries between the physical,, and biological worlds are not so clear.

3 PAIR WORK

Discuss your personal considerations on the following quotation by Klaus Schwab, Founder and executive chairman of The World Economic Forum.

“The changes are so profound that, from the perspective of human history, there has never been a time of greater promise or potential peril.”

