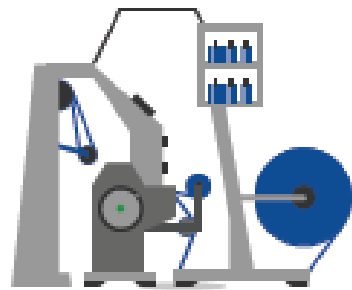


Late 18th century

Beginning of 20th century

1970s–2000s

2010 onward



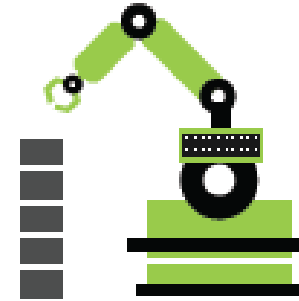
First industrial revolution: Power generation

- Introduction of the power loom in 1784
- Mechanization of production facilities with water and steam power



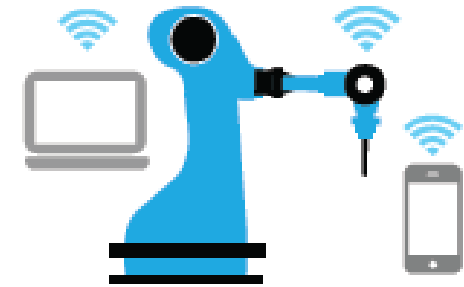
Second industrial revolution: Industrialization

- Introduction of the assembly line in slaughterhouses in 1870
- Electrification drives mass production in a variety of industries



Third industrial revolution: Electronic automation

- Development of the first programmable logic controller (PLC) in 1969
- Growing application of electronics and IT to automate production processes



Fourth industrial revolution: Smart automation

- Increasing use of cyber-physical systems (CPS)
- In January 2011, Industry 4.0 was initiated as a “Future Project” by the German federal government
- With the introduction of IPv6 in 2012, virtually unlimited addressing space becomes available
- Governments, private companies, and industry associations have been focusing on Industry 4.0 and making investments since the 2010s