

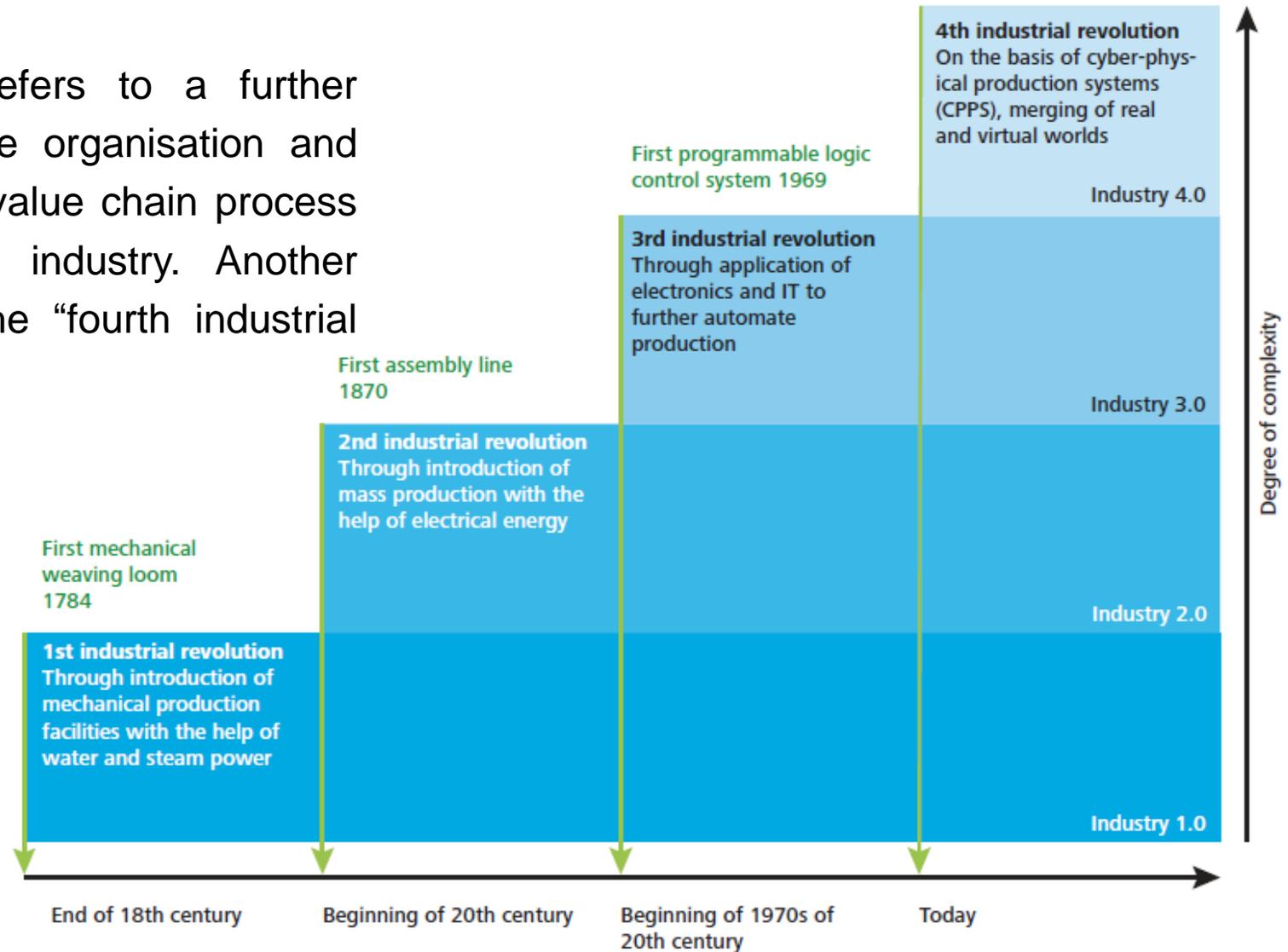
Industry 4.0.

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Industry 4.0. and the fourth industrial revolution

The term industry 4.0. refers to a further developmental stage in the organisation and management of the entire value chain process involved in manufacturing industry. Another term for this process is the “fourth industrial revolution”



What is Industry 4.0.?

“The Fourth Industrial Revolution represents a fundamental change in the way we live, work and interact. It is a new chapter in human development, fostered by extraordinary technological advances comparable to those of the first, second and third industrial revolutions.” (1)

“...McKinsey defines Industry 4.0 as the digitization of the manufacturing sector, with sensors integrated in every component of manufacturing products and equipment, ubiquitous cyber-physical systems, and analysis of all relevant data...” (2)

“Industry 4.0 is the fourth industrial revolution. It is driven by technological advancements to create a digital manufacturing company that is not only interconnected, but communicates, analyzes and uses information to drive more intelligent actions back to the physical world..” (3)

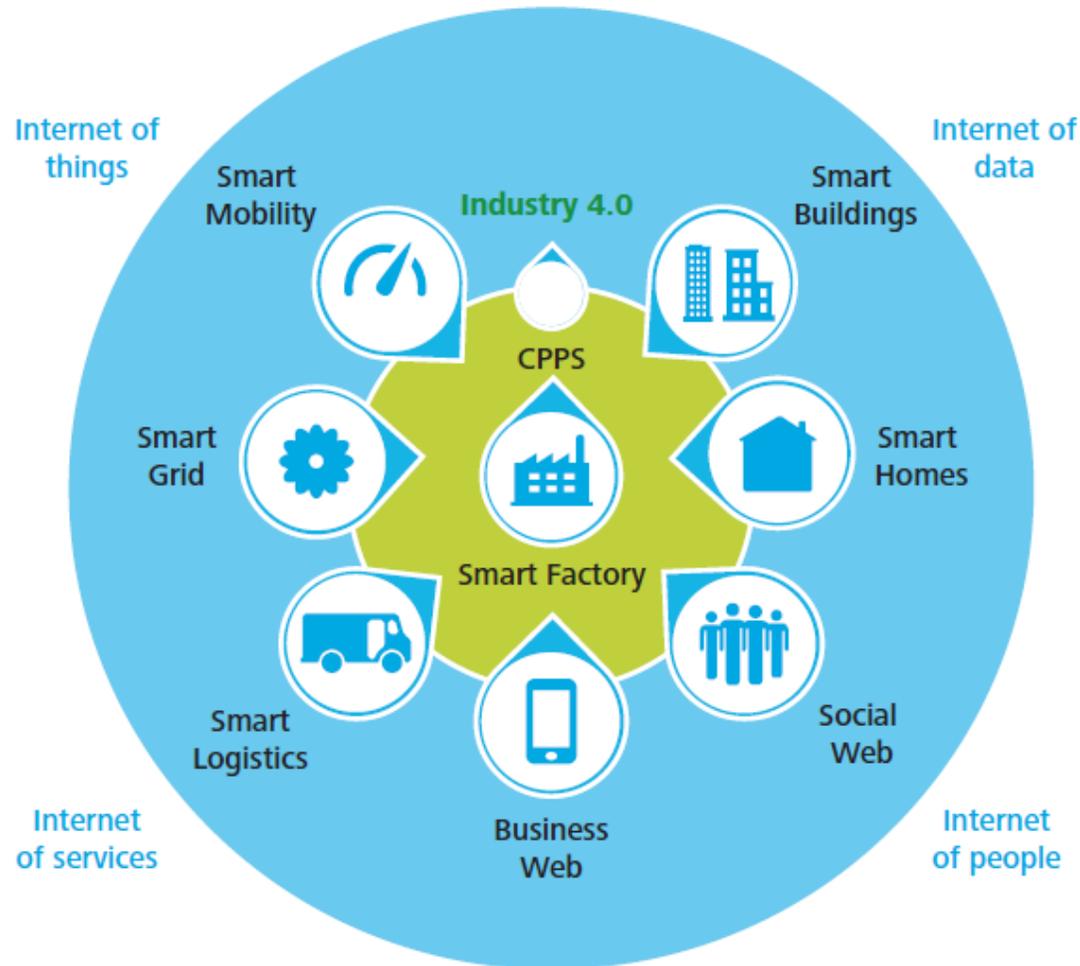
(1) <https://www.weforum.org/focus/fourth-industrial-revolution>

(2) Industry 4.0 How to navigate digitization of the manufacturing sector. McKinsey & Company. 2015

(3) https://www2.deloitte.com/il/en/pages/consumer-industrial-products/topics/industry_4.html



The industry 4.0. environment

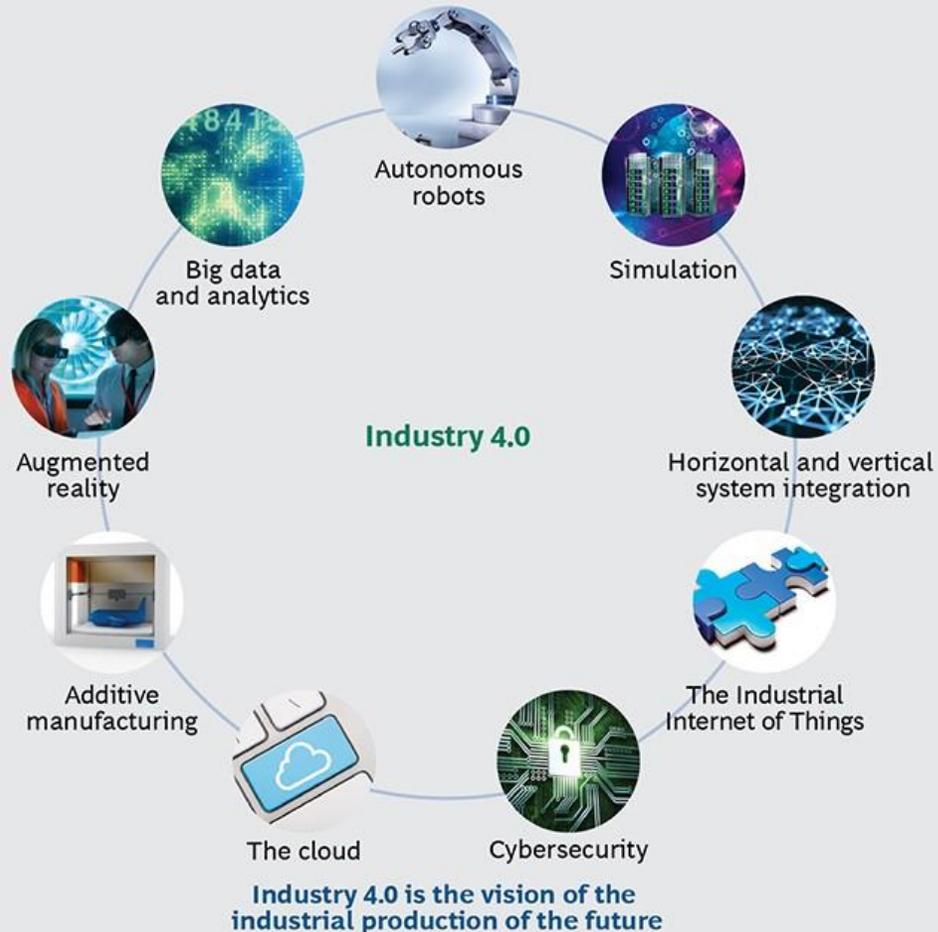


Of central importance for industry 4.0. is its interface with other Smart infrastructures, such as those for smart mobility, Smart logistics, Smart homes and so on.

Links to both business and social networks – the business web and the social web – also play an increasingly important role in the digital transformation to industry 4.0. All these new networks and interfaces offered by industry 4.0. within an “Internet of things, services, data and people” mean that manufacturing is set to undergo enormous changes in the future.

Disruptive Technologies

EXHIBIT 1 | Nine Technologies Are Transforming Industrial Production



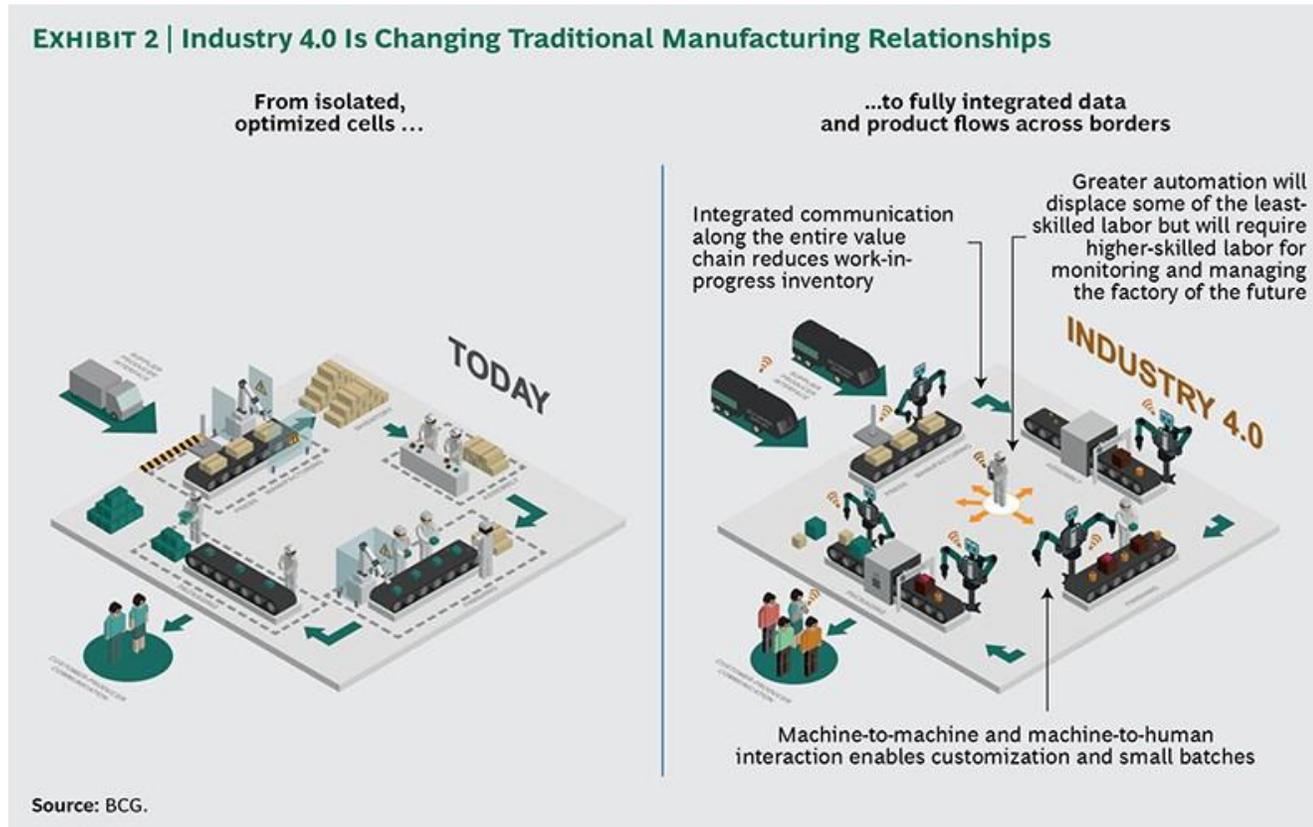
Source: BCG.

Four groups of disruptive technologies:

- Computational Power, Data and Connectivity
- Analytics and Artificial Intelligence
- Man Machine Interaction
- Digital to Physical Conversion

Changes in traditional manufacturing relationships

Many of the nine advances in technology that form the foundation for Industry 4.0 are already used in manufacturing, but with Industry 4.0, they will transform production: isolated, optimized cells will come together as a fully integrated, automated, and optimized production flow, leading to greater efficiencies and changing traditional production relationships among suppliers, producers, and customers—as well as between human and machine.



International initiatives



WEF: Global Lighthouse Network

- The global manufacturing community is lagging behind in its adoption of Fourth Industrial Revolution technologies.
- More than 70% of companies are still stuck in “pilot purgatory”, while only a select group of leading manufacturers are able to deploy advanced manufacturing at scale, generating new value and customer experiences within the factory or across value chains.
- To close this gap and accelerate a more comprehensive and inclusive adoption of advanced technologies in manufacturing, the World Economic Forum’s alongside the management consulting firm McKinsey & Co. have set up the **Global Lighthouse Network**.
- This community shows leadership in using Fourth Industrial Revolution technologies to transform factories, value chains and business models, for compelling financial and operational returns.
- To date, 69 manufacturing lighthouses have been identified from different industry sectors.
- They have embarked on a joint learning journey, partnering on collaborative projects, developing insights and incubating new potential partnerships.



Global Lighthouse Network

Some of the companies that are set up in Peru

- 1 Zymogen
Biotechnology, US
- 2 Fast Radius with UPS
Additive manufacturing, US
- 3 Johnson & Johnson Vision
Care Medical devices, US
- 4 Groupe Renault
Automotive, BR
- 5 MODEC
Oil and gas, BR
- 6 Johnson & Johnson DePuy
Synthes Medical devices, IR
- 7 GSK
Pharmaceuticals, UK
- 8 Schneider Electric
Electrical components, FR
- 9 Groupe Renault
Automotive, FR
- 10 Tata Steel
Steel products, NL
- 11 Henkel
Consumer goods, DE
- 12 Phoenix Contact
Industrial automation, DE
- 13 AGCO
Agricultural equipment, DE
- 14 Rold
Electrical components, IT
- 15 Bayer
Division pharmaceuticals, IT
- 16 BMW Group
Automotive, DE
- 17 Procter & Gamble
Consumer goods, CZ
- 18 Sandvik Coromant
Industrial tools, SE
- 19 Nokia
Electronics, FI
- 20 Arçelik A.Ş.
Home appliances, RO
- 21 Petkim
Chemicals, TR
- 22 Ford Otosan
Automotive, TR
- 23 Saudi Aramco
Gas treatment, SA
- 24 Unilever
Consumer goods, UAE
- 25 Tata Steel
Steel products, IN
- 26 Siemens Industrial
automation products, CN
- 27 Infineon
Semiconductors, SG
- 28 Schneider Electric
Electrical components, ID
- 29 Micron
Semiconductors, SG
- 30 Petrosea
Mining, ID
- 31 Foxconn Industrial
Internet Electronics, CN
- 32 FOTON Cummins
Automotive, CN
- 33 Danfoss
Industrial equipment, CN
- 34 Weichai
Industrial machinery, CN
- 35 SAIC Maxus
Automotive, CN
- 36 Haier
Home appliances, CN
- 37 Johnson & Johnson De
Synthes Medical devices, CN
- 38 Bosch
Automotive, CN
- 39 Procter & Gamble
Consumer goods, CN
- 40 Baoshan Iron & Steel
Steel products, CN
- 41 Haier
Appliances, CN
- 42 POSCO
Steel products, KOR
- 43 GE Healthcare
Healthcare, JP
- 44 Hitachi
Industrial equipment, JP



United Nations Industrial Development Organization – UNIDO

- Industry 4.0 promotes the upgrading of industrial enterprises, accelerates the deployment of renewable energy in manufacturing, saves costs and enhances productivity, but it also brings challenges for developing countries.
- Therefore, through inclusive and sustainable industrial development, **UNIDO helps them unlock the new opportunities offered by industry 4.0 to drive positive change.**
- UNIDO prepares its Member States through a portfolio of technical cooperation projects to offset the negative effects of Industry 4.0 as well as to benefit from its advantages.
- UNIDO technical cooperation projects are designed to assist developing countries in mainstreaming their national, regional and industry innovation ecosystems to be able to leverage benefits of frontier technologies for pursuing inclusive and sustainable industrial and economic development.
- Additionally UNIDO assists countries in the development of investment priorities, technology transfer, capacity building, and partnership arrangements to foster structural changes



Project of The Federation of German Industries - BDI - with Industrial Associations of the Pacific Alliance (PA) countries

- The alliance between the BDI and the business associations in countries of the Pacific Alliance. seeks to incorporate sustainability and industry 4.0 into business ecosystems to contribute to their integration into international value chains and, therefore, to economic and social dynamization.
- One of the objectives of this project is to strengthen the capacity of associations to promote and disseminate Sustainable Industrial Policies guided by the Social Market Economy policy model.
- Given that SMEs are important actors in these countries, it has also been prioritized to work on strengthening sustainable exports of SMEs through a broader offer of counterpart services.
- Another expected outcome of the project is the creation of an international platform for sustainable industrial cooperation in order to enhance in-depth political dialogue on sustainable industrial development.



Working Group Industry 4.0. of the Business Council of the Pacific Alliance

The Business Council of the Pacific Alliance at the initiative of the Peruvian Chapter has promoted the creation of the Public - Private Working Group: Industry 4.0, that addresses the joint impulse for a greater digital transformation in the region and the implementation of Industry 4.0 in the companies of the Pacific Alliance, whose objectives are:

- Encourage regional industrial development focused on private companies, through digitization and new smart industrial trends.
- Encourage the participation of companies in sustainable international value chains through the application of technological skills and social and ecological compliance standards.
- Propose the adoption of sustainable industrial development policies that respond to the current challenges of Industry 4.0 and digitization, as well as its impact on companies, societies and politics.
- Promote the development of an Industry 4.0 Platform of the Pacific Alliance, based on existing platforms in leading countries (training, dissemination of new technologies, R & D & i)



Working Group Industry 4.0. of the Business Council of the Pacific Alliance

The Industry 4.0. Group of the Business Council of the Pacific Alliance has been discussing an agenda proposed by the Peruvian Chapter in order to work on the following initiatives within the framework of the Pacific Alliance:

- Project for Productive Chaining Project in order to implement Technologies 4.0 in the Pacific Alliance: Baseline Study and Diagnosis of the Industry in the Pacific Alliance and its potential for implementation.
- Design of an Industry 4.0 Platform in the Pacific Alliance, based on successful and existing experiences in the PA countries and outside the PA.
- Creation of a network of academic entities that accompany the development of the Working Group through training, research and developments, for each country on Industry 4.0.
- Adoption of a Public - Private Roadmap for the development of a common policy on the transformation towards Industry 4.0 in the Pacific Alliance.



A person in a blue suit is using a tablet computer in a factory setting. The background shows robotic arms and sparks from a welding process. The tablet screen displays a dashboard with various charts and graphs. A white text box is overlaid on the image, containing contact information.

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