



9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



EDAI
EDUCATION AI



Build resilient infrastructure, foster innovation

AI for Industry, Innovation and Infrastructure

SDG 9 is experiencing uneven progress, with only 2 out of 8 targets currently on track (9.5 Research and development and 9.6 Access to ICT & Internet).

The UN reports that since 2022, the manufacturing sector has faced stagnation, attributed to geopolitical instability, inflation, logistical challenges, rising energy costs, and a broader global economic slowdown. Globally, the share of employment in manufacturing has declined, despite some progress in reducing CO2 intensity in manufacturing, which still falls short of the 2030 target values.

Similar to SDG 8, the interplay between SDG 9 and AI is expected to yield indirect positive impacts for numerous other SDGs. AI-driven solutions will contribute to potential SDG impact through technological advancements, which is a key focus area of SDG 9. This synergy is well-documented, with numerous UN use cases identified: 14 use cases out of 40 in AI for Good: Innovate for Impact, and approximately 140 use cases out of 408 in the UN Activities on AI.

Various specific AI use cases can indeed link AI to SDG 9. Firstly, AI can enhance research efficiency, as evidenced by research study, which indicated 8% of its recent articles mention AI, with around half of 1,600 surveyed scientists considering AI a crucial research tool. AI's ability to process large volumes of data supports improved data-driven insights creation and enables innovators to focus on higher-value tasks while automating tedious ones.

Secondly, AI can provide access to previously unusable data or information, such as processing social media text, satellite images, or videos promptly, which was previously time-consuming. Furthermore, AI can significantly contribute to industrialization and manufacturing capacity by optimizing manufacturing processes, product design, and enhancing risk control efficiency.

Given the crucial role of AI in supporting the implementation of the SDGs, it is vital to ensure that these use cases are prioritized. This is especially critical in the context of funding, as current research funds for AI applications often prioritize commercial interests, potentially leading to a risk of neglecting SDG-related development. Consequently, AI use cases with positive environmental and social impacts may be overlooked in favor of economically lucrative ones.

Key Considerations for Stakeholders

- **Financial incentives:** To support the development of SDG-related use cases, research funding should also be allocated to socially or environmentally beneficial use cases.
- **Impact assessment:** Aligning AI use case development and incentives with OECD AI principles to maximize sustainable value creation. The objective is to prioritize governmental tools for AI use cases related to the SDGs.

Impact

According to a study on the impact of AI on SDG 9, AI could act as an (positive) enabler for 100% of the targets and act as an inhibitor (negative) for 50% of the targets.

Use case 1

Using new AI technologies to further develop the AI technical ecosystem and help it be more efficient and more suitable for generating innovation.



Use case 2

Implementing standardization of technology and processes to support AI growth, innovation, and collaboration.



Use case 3

Connecting AI start-ups to the SDGs gaps to drive new AI-driven use cases aligned with the SDGs.



SDG 9: Industry, innovation and infrastructure

Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation



FACTS AND FIGURES

- The share of manufacturing employment in total employment continued to decline worldwide, falling from 14.3% in 2015 to **13.6% in 2021**.
- Despite the slowdown, the global manufacturing value added (MVA) per capita increased from \$1,646 (constant 2015 prices) in 2015 to **\$1,879 in 2022**. Europe and Northern America reached an **all-time high of \$5,093 in 2022**, while the MVA per capita in LDCs reached **\$159**.
- The manufacturing share in LDCs rose from 12.1% in 2015 to **14.0% in 2022**, but rapid progress is needed in **African LDCs** to meet the goal of doubling the share by 2030.
- Global manufacturing employment rebounded to pre-pandemic levels in 2021, but its share in total employment dropped from 14.3% in 2015 to **13.6% in 2021**.
- Global expenditure on research and development (R&D) as a proportion of GDP increased from 1.69% in 2015 to **1.93% in 2020**. The number of researchers per million inhabitants has increased worldwide from 1,022 in 2010 and 1,160 in 2015 to **1,342 in 2020**.
- Global carbon dioxide (CO₂) emissions from energy combustion and industrial processes grew by **0.9%** to a new all-time high of **36.8 billion metric tons**, well below global GDP growth of 3.2%, reverting to a decade-long trend of decoupling emissions and economic growth.
- In 2022, **medium-high and high-technology industries thrived**, driven by automotive sector recovery and robust production in computer, electronics, optical products, and electrical equipment sectors. In 2020, the share of medium-high and high-technology production within total manufacturing remained low in **sub-Saharan Africa and LDCs, at 21.7% and 10.6%**, respectively, compared with **47.7% in Europe and Northern America and 47.1% in Eastern Asia**.

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WHERE WE STAND

- The manufacturing industry's recovery from COVID-19 remains **incomplete and uneven**. Global manufacturing growth slowed down to **3.3% in 2022**, from 7.4% in 2021.
- However, **medium-high- and high-technology industries** demonstrated robust growth rates, highlighting the importance of **inclusive innovation and technology** driving the achievements of the SDGs.
- As of 2022, **95% of the world's population** was within reach of a mobile broadband network, but some areas remain underserved.

Global Youth AI Advisory Body



Delhi School of Artificial Intelligence

