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SDG 9

Industry, innovation and infrastructure

Monitoring SDG-9 industry-related indicators in the Arab region





Objective

Increase data availability and reporting, improve data flows and enhance the use of **SDG 9 industry-related indicators** for policy guidance and evaluation

- Enhance understanding of SDG-related metadata
- Improve statistical capacities to invigorate production and use of comparable SDG indicators
- Strengthen inter-institutional coordination to facilitate production of SDG indicators and data flow
- Share and discuss country challenges in measuring SDG indicators



Contents

- UNIDO and the 2030 Agenda for Sustainable Development
- Description of SDG 9 industry-related indicators, including their compilation, methodological details and other metadata
- Tools for tracking progress along SDG 9 industry-related targets
- Q&A and discussion



UNIDO Statistics Division

- i. Compilation, updating and dissemination of international databases with structural and short-term industrial statistics
- ii. Methodological and analytical products based on statistical research and experience of maintaining internationally comparable industrial statistics
- iii. Contribution to the development and implementation of international statistical standards and methodology
- iv. Technical cooperation services to countries in the field of industrial statistics
- v. **SDG9 global monitoring**



UNIDO and the 2030 Agenda



Inclusive and sustainable industrial development (ISID)

- UNIDO's mission is to **promote and accelerate inclusive and sustainable industrial development** in Member States.
- "Inclusive" in this context means that industrial development must include all countries and all people, and **offer equal opportunities** and an **equitable distribution of the benefits** of industrialization to all stakeholders.
- "Sustainable" addresses the need to **decouple** the prosperity generated from industrial activities from excessive natural resource use and negative environmental impacts.

Sustainable Development Goal 9 (SDG 9)

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



9 INDUSTRIES, INNOVATION AND INFRASTRUCTURE



- Inclusive and sustainable **industrialization**, together with **innovation** and **infrastructure**, can unleash dynamic and competitive economic forces that generate employment and income
- They play a key role in introducing and promoting know-how and new technologies, accelerating international trade and enabling the efficient use of resources



INFRASTRUCTURE

9.1.1 Proportion of the rural population who live within 2 km of an all-season road

9.1.2 Passenger and freight volumes, by mode of transport

9.a.1 Total official international support (official development assistance plus other official flows) to infrastructure

INNOVATION

9.c.1 Percentage of population covered by a mobile network, by technology

9.5.1 Research and development expenditure as a percentage of GDP

9.5.2 Researchers (in full-time equivalent) per million inhabitants

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



INDUSTRY

9.2.1 Manufacturing value added as a proportion of GDP and per capita

9.2.2 Manufacturing employment as a proportion of total employment

9.3.1 Percentage share of small-scale industries in total industry value added

9.3.2 Percentage of small-scale industries with a loan or line of credit

9.4.1 CO2 emission per unit of value added

9.b.1 Percentage of medium and high-tech manufacturing value added in total value added



ISID and SDG 9 industry indicators

SDG 9 industry-related targets cover all three dimensions of sustainable development

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



Advancing economic competitiveness

- 9.2.1: Manufacturing value added as a proportion of GDP and per capita
- 9.b.1: Proportion of medium and high-tech industry value added in total value added

Creating shared prosperity

- 9.2.2: Manufacturing employment as a proportion of total employment
- 9.3.1: Proportion of small-scale industries in total industry value added
- 9.3.2: Proportion of small-scale industries with a loan or line of credit

Safeguarding the environment

- 9.4.1: CO₂ emissions per unit of value added



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UNIDO's role in SDG 9 monitoring

UNIDO is the **custodian agency** of six SDG-9 industry-related indicators

- Responsible for collection, compilation and dissemination of timely, internationally comparable SDG indicators
- Goal of strengthening statistical capacities for the production of statistics for SDG 9 and ISID
- Role in supporting member States in formulating their development plans and programmes in the context of SDG 9 and ISID
- Global, regional and national reporting



SDG reporting

National	Thematic	Regional	Global
<p>SDG national reports Voluntary National Reviews (VNRs)</p>   	<p>Thematic reports published by international agencies</p> <ul style="list-style-type: none"> • UNIDO's report on inclusive and sustainable industrial development • UN Women's report on gender indicators • ILO's report on decent work  	<p>SDG regional reports</p> <ul style="list-style-type: none"> • UNECA • UNECE • UNECLAC • UNESCAP • UNESCWA 	<p>SDG Global Report SG report SDG Progress Chart</p>  



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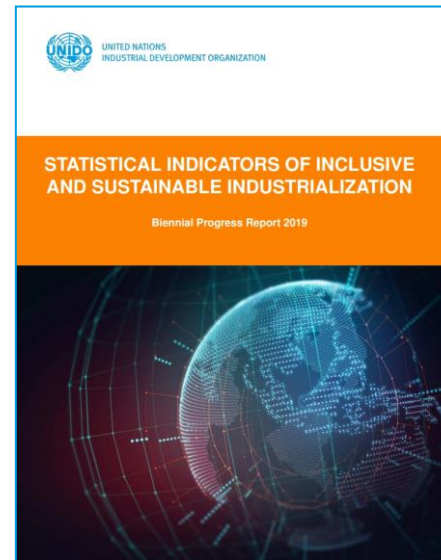
UNIDO Biennial Progress Report

Statistical indicators of inclusive and sustainable industrialization

2017 Setting the SDG 9
baseline scenario



2019 Analysis of global
progress on SDG 9

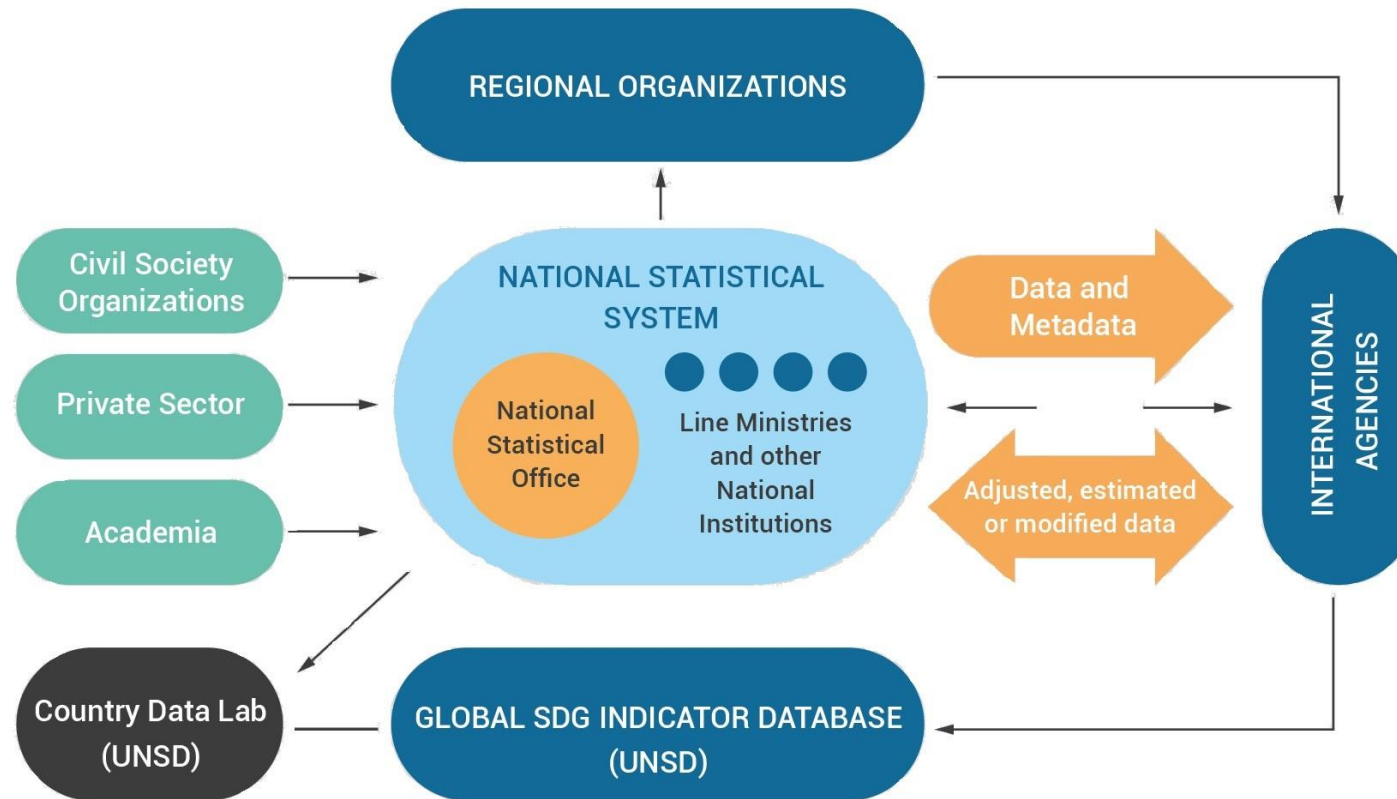


2021 Global progress
on SDG 9 in light of
COVID-19





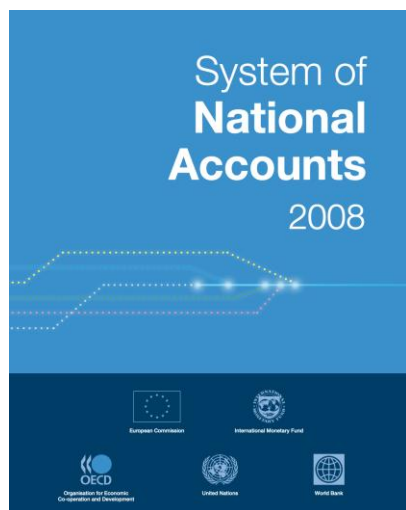
SDG reporting: data flow



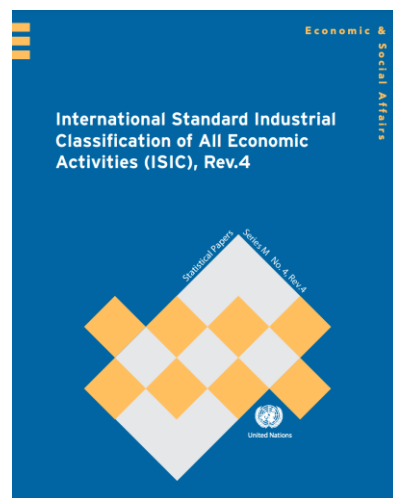


Important guidelines and classifications

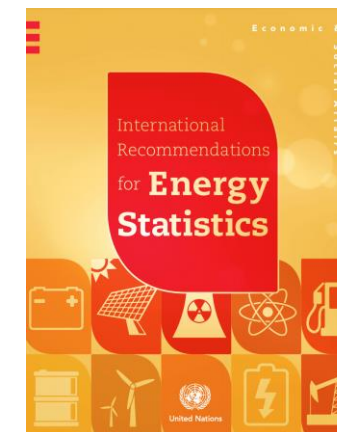
System of National Accounts (SNA) 2008



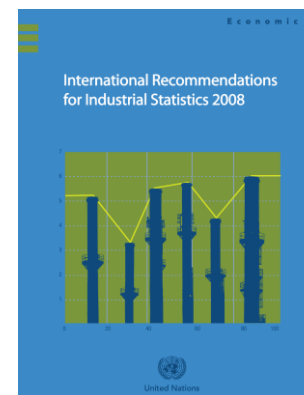
International Standard Industrial Classification of All Economic Activities (ISIC) - Revision 3 and Revision 4



International Recommendations for Energy Statistics (IRES)



International Recommendations for Industrial Statistics (IRIS) 2008



2006 IPCC Guidelines for National Greenhouse Gas Inventories



Monitoring SDG Target 9.4

SDG Target 9.4: By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities

- **Custodian agencies: IEA, UNIDO**
- **Indicators assigned to Target 9.4 for global SDG reporting**
 - 9.4.1 Carbon dioxide emissions from fuel combustion (millions of tonnes)
 - 9.4.1 Carbon dioxide emissions per unit of GDP (kilogrammes of CO₂ per 2017 PPP United States dollars)
 - 9.4.1 Carbon dioxide emissions per unit of manufacturing value added (kilogrammes of CO₂ per constant 2015 United States dollars)





9.4.1 CO₂ emissions per unit of value added

- **Data sources:** CO₂ emissions are estimated based on energy balances, value added from national accounts
- **What does the indicator measure?**
Environment sustainability and energy efficiency
- **CO₂ emissions related indicators**
 - Total CO₂ emissions from fuel combustion
 - CO₂ emissions from manufacturing industries
- **CO₂ intensity**
 - **Total intensity:** CO₂ emissions per unit of GDP (kilogrammes of CO₂ per 2017 PPP USD)
 - **Sectoral intensity:** CO₂ emissions from manufacturing industries per unit of MVA (kilogrammes of CO₂ per constant 2015 USD)



CO₂ emissions from fuel combustion

CO₂ emissions from fuel combustion are estimated by type of fuel (for a given source category)

$$Emissions_{fuel} = FuelCombusted_{fuel} \times EmissionFactor_{fuel, tech}$$

- where $Emissions_{fuel}$ are CO₂ emissions by type of fuel (for a given source category), $FuelCombusted_{fuel}$ is the quantity of fuel combusted, and $EmissionFactor_{fuel, tech}$ is the CO₂ emission factor by type of fuel and combustion technology used.
- Data on the production and consumption of fuels and energy products are part of national energy statistics, normally in the form of **national energy balances**.



CO₂ emissions from manufacturing industries

ISIC Revision 4

- Iron and steel industry [ISIC Group 241 and Class 2431];
- Chemical and petrochemical industry [ISIC Divisions 20 and 21];
- Non-ferrous metals basic industries [ISIC Group 242 and Class 2432];
- Non-metallic minerals such as glass, ceramic, cement, etc. [ISIC Division 23];
- Transport equipment [ISIC Divisions 29 and 30];
- Machinery comprises fabricated metal products, machinery and equipment other than transport equipment [ISIC Divisions 25 to 28];
- Food and tobacco [ISIC Divisions 10 to 12];
- Paper, pulp and printing [ISIC Divisions 17 and 18];
- Wood and wood products (other than pulp and paper) [ISIC Division 16];
- Textile and leather [ISIC Divisions 13 to 15];
- Non-specified (any manufacturing industry not included above) [ISIC Divisions 22, 31 and 32].



Understanding the flows of energy

Supply

Transformation

Final consumption

2017	Indicators	Balances	Coal and Peat	Crude oil	Oil products	Natural gas	Nuclear	Hydro	Geothermal, solar, etc.	Biofuels and waste	Electricity	Heat	Total
	Production	33658	173317	0	132349	24390	32309	901	12106	0	0	0	409029
	Imports	5954	34510	12790	25960	0	0	0	759	1287	0	0	81260
	Exports	-20076	-118761	-19053	-76831	0	0	0	-570	-4430	0	0	-239722
	International marine bunkers ^{2a}	0	0	-524	0	0	0	0	0	0	0	0	-524
	International aviation bunkers ^{2a}	0	0	-1214	0	0	0	0	0	0	0	0	-1214
	Stock changes	66	1064	-206	2002	0	0	0	0	0	0	0	3016
	TPEC	19603	90130	-9207	93669	24390	32309	901	12295	-3144	0	0	261945
	Transfers												
	Statistical differences												
	Electricity plants												
	CHP plants												
	Heat plants												
	Gas works												
	Oil refineries	0	-01737	05481	-840	0	0	0	0	0	0	0	2976
	Coal transformation	-1182	0	0	0	0	0	0	0	0	0	0	-1182
	Liquefaction plants	0	802	0	-1940	0	0	0	0	0	0	0	-1138
	Other transformation	0	0	0	0	0	0	0	0	0	0	0	0
	Energy industry own use	-4	0	-7955	-13985	0	0	0	-1	-4019	0	0	-20955
	Losses	0	0	0	0	0	0	0	0	-2984	0	0	-2984
	Total final consumption	3117	0	90009	55912	0	0	0	9766	44625	546	0	203975
	Industry												
	Transport												
	Other												
	Residential												
	Commercial and public services	0	0	3006	10823	0	0	0	10	12623	0	0	20484
	Agriculture / forestry	0	0	3280	724	0	0	0	0	812	0	0	4816
	Fishing	0	0	0	0	0	0	0	0	0	0	0	0
	Non-specified	0	0	0	0	0	0	0	0	0	0	0	0
	Non-energy use	634	0	20603	3392	0	0	0	0	0	0	0	24629
	-of which petrochemical feedstocks	0	0	12022	3392	0	0	0	0	0	0	0	15415

Rows present energy flows across the various products

Three main "blocks" of flows

Columns present the "commodity balances" for all products

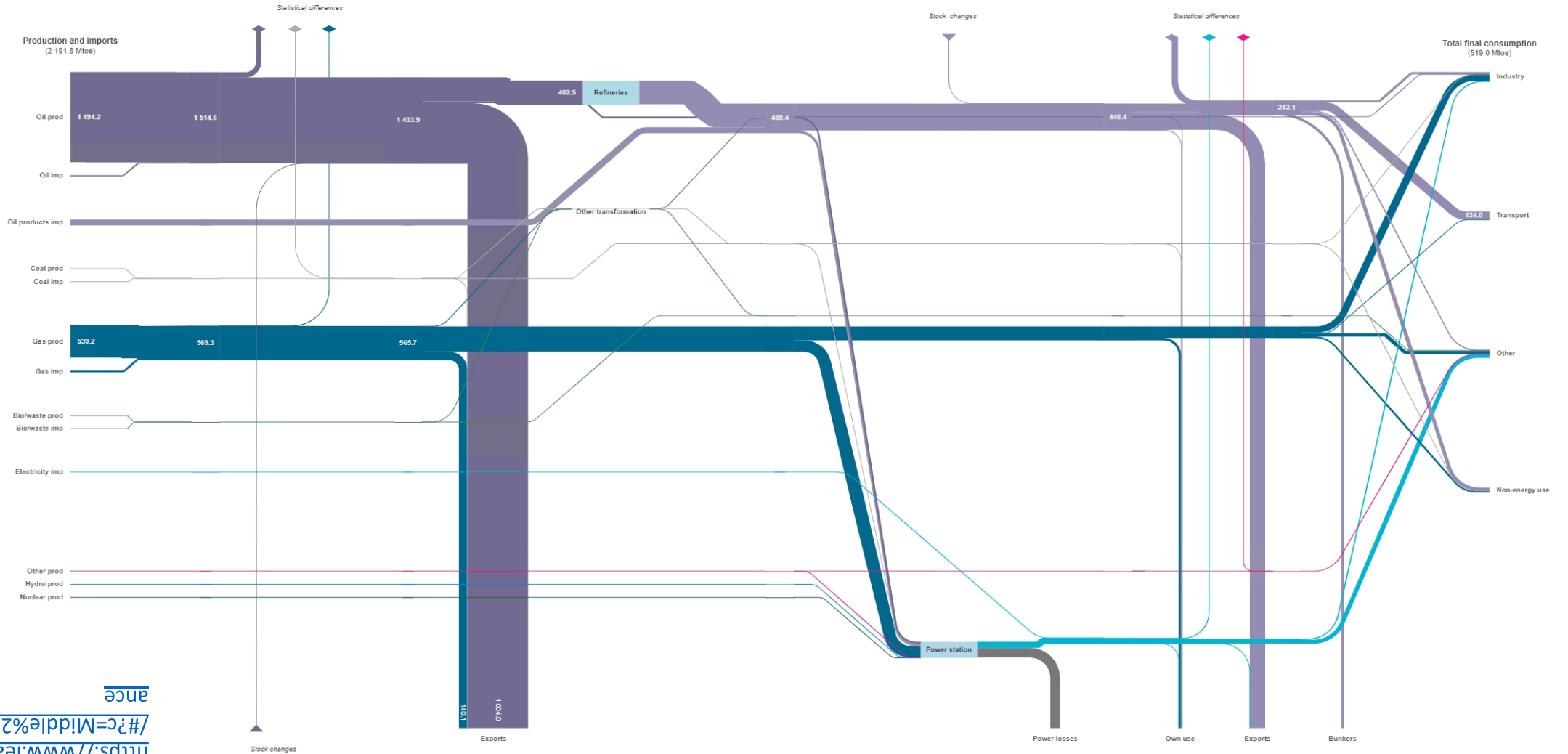
Rows present the "flows of energy" across products

Total energy can be defined



Middle East
BALANCE (2018)

Millions of tonnes of oil equivalent



<https://www.iaea.org/sankey/#?c=Middle%20East&s=Balance>



IEA data collection and compilation

Annual Questionnaires

OR

National publications, websites



Coal



Oil



Natural gas



Renewables



Electricity & Heat



Commodity
Statistics

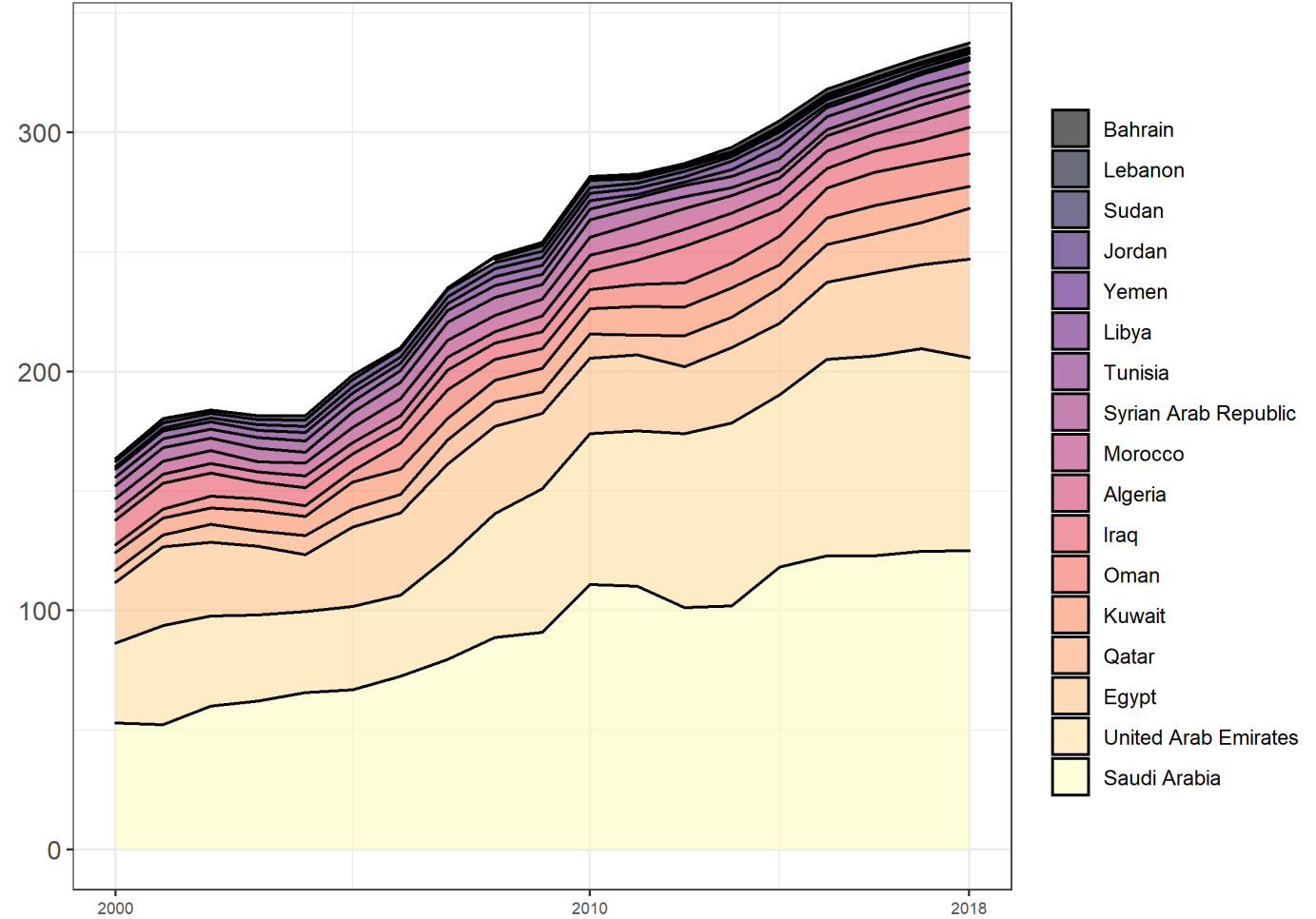


Energy
balances





CO₂ emissions from manufacturing industries (million tonnes)





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SDG 9

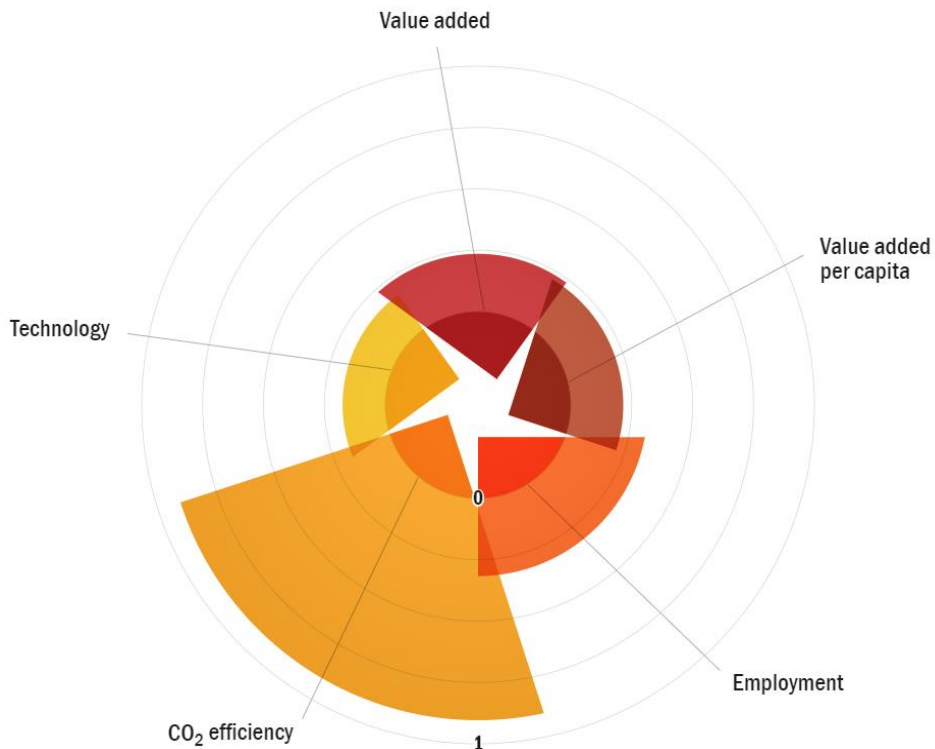
Industry, innovation and infrastructure

Tools for tracking progress along SDG 9 industry-related targets in the Arab region





UNIDO's SDG-9 Industry Index



Composite measure benchmarking countries' performance towards SDG 9 industry-related targets

- Captures five industry-related indicators of SDG 9 (9.2.1-*MVAsh* and *MVApc*, 9.2.2 - *EMP*, 9.4.1-*CO2MVA*, 9.b.1-*MHTsh*)
- Single measure comprising various dimensions
- Tool for increasing awareness and gaining attention of broader audience

This composite measure is a great invitation for a closer investigation of their components



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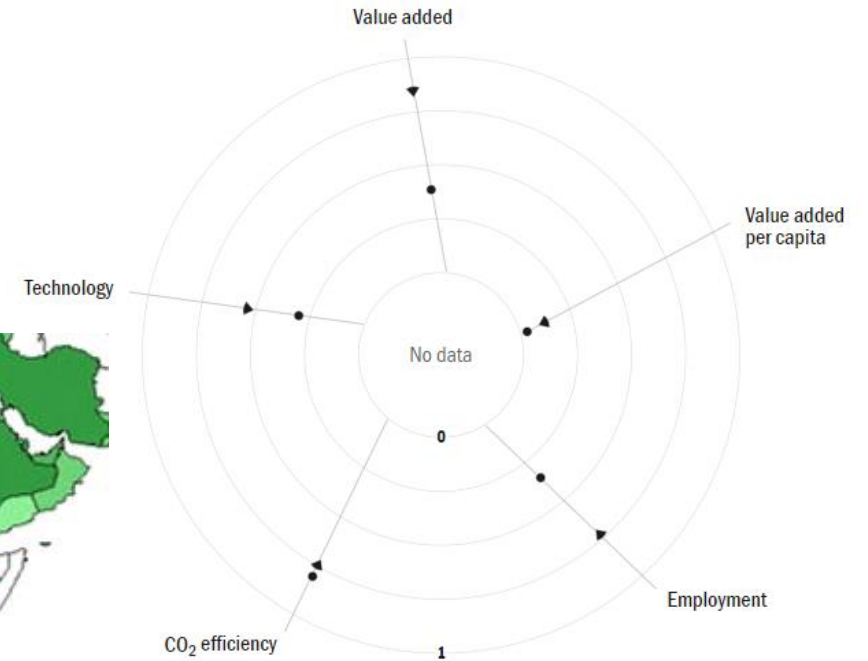


UNIDO's SDG-9 Industry Index

Data for all five indicators are needed to construct the index

Coverage

131 economies, 2000-2018

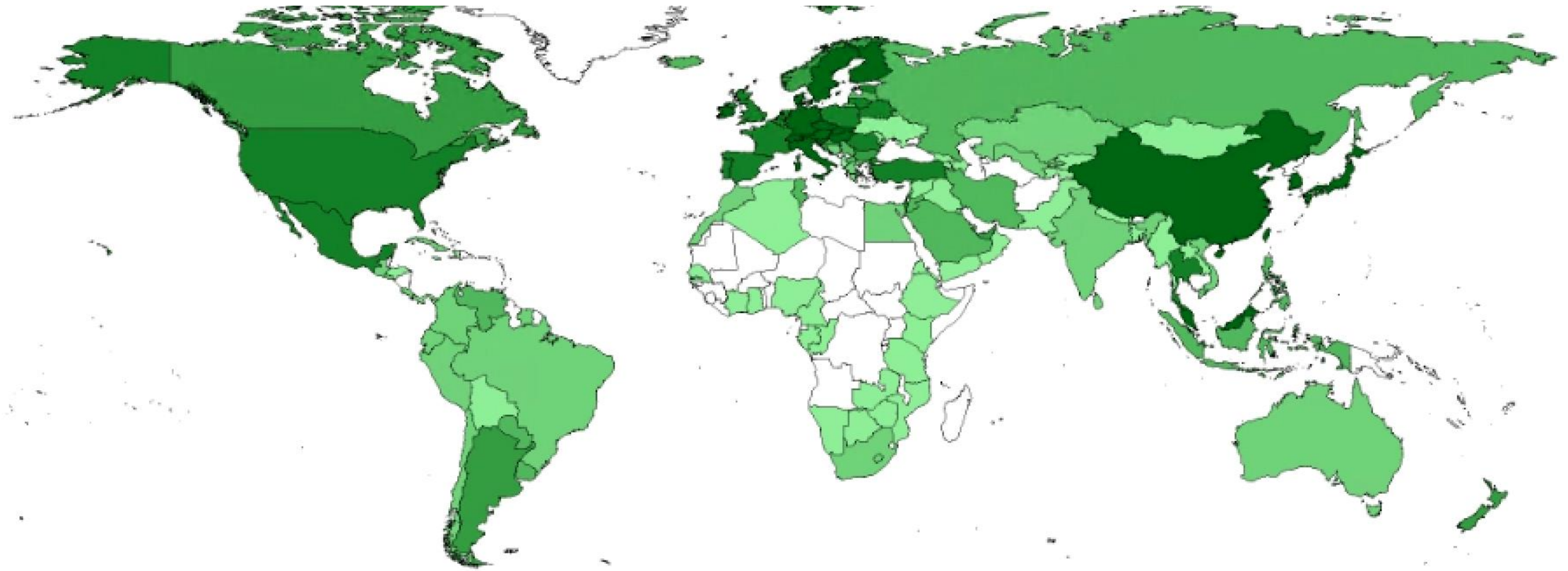




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UNIDO SDG 9 Industry Index 2018



SDG-9 Industry score 2018

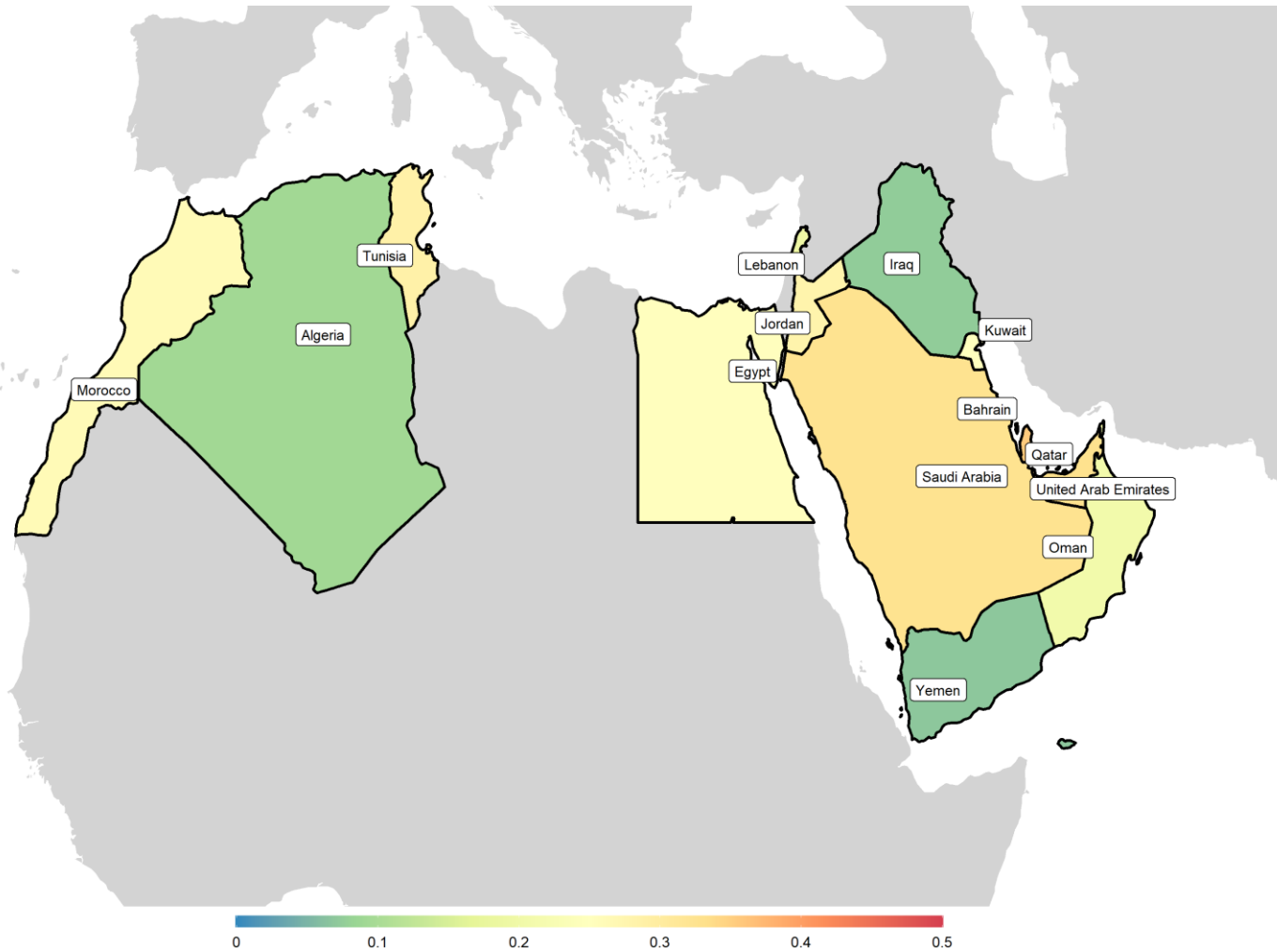




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UNIDO SDG 9 Industry Index 2018 in the Arab region





UNIDO SDG 9 Industry Progress and Outlook

SDG Targets	Indicators
<p>9.2 Promote inclusive and sustainable industrialization and, by 2030, significantly raise industry’s share of employment and gross domestic product, in line with national circumstances, and double its share in least developed countries</p>	<p>9.2.1 Manufacturing value added (share in GDP, per capita)</p>
	<p>9.2.2 Manufacturing employment, in percent to total employment</p>

Progress and Outlook

Tracking country progress towards achieving SDG 9 targets by 2030

Progress: How much progress has been made since 2000?

- Based on existing data from 2000 until now
 - Evaluate country progress with respect to the SDG region
 - LDCs: double their share as indicated in 9.2 target



Outlook: How likely will the targets be achieved by 2030?

- Forecasting country data series until 2030





UNIDO Industrial Analytics Platform (IAP)

The Industrial Analytics Platform (IAP) provides novel insights into industrial development around the world

- **DATA EXPLORER:** An innovative way to explore industrial indicators that aggregates trade and manufacturing data under a single domain
- **ARTICLES:** Data-driven, accessible to a non-technical audiences, addressing policy issues and setting the scene for communicating on technical topics of industrialization



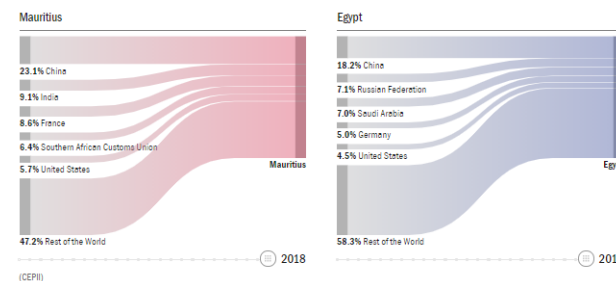
Risk, resilience and recalibration in global value chains



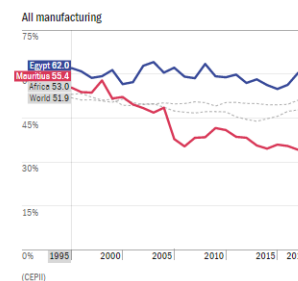
Capturing the 'digital dividend' in developing economies

How is production in Mauritius integrated into global value chains?

Sources of intermediate imports



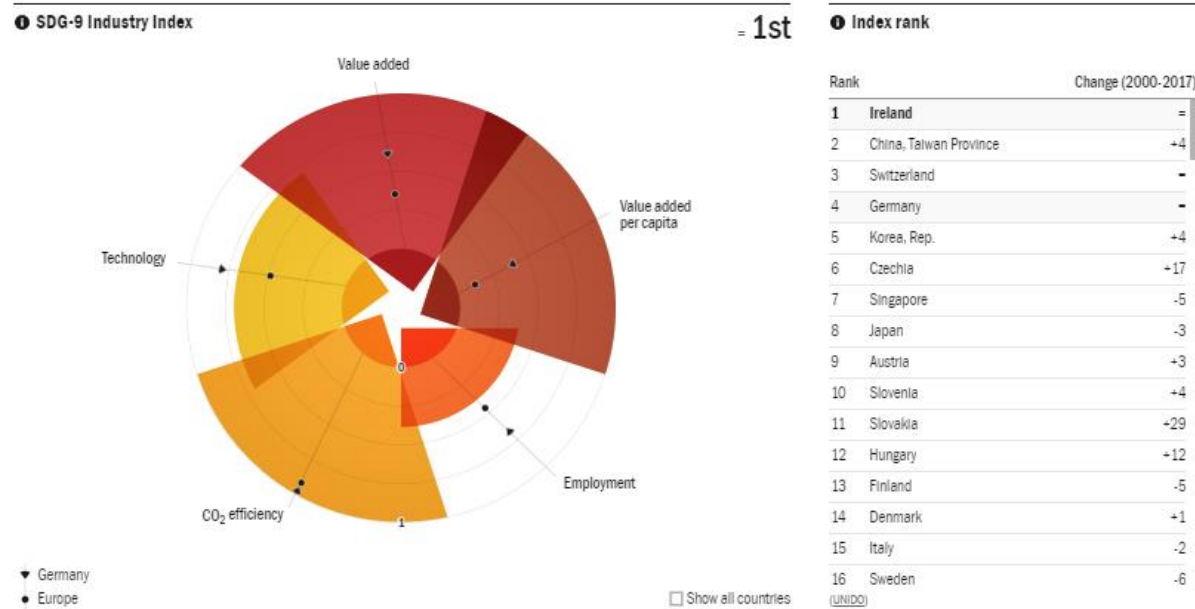
Share of intermediates in total imports (%)





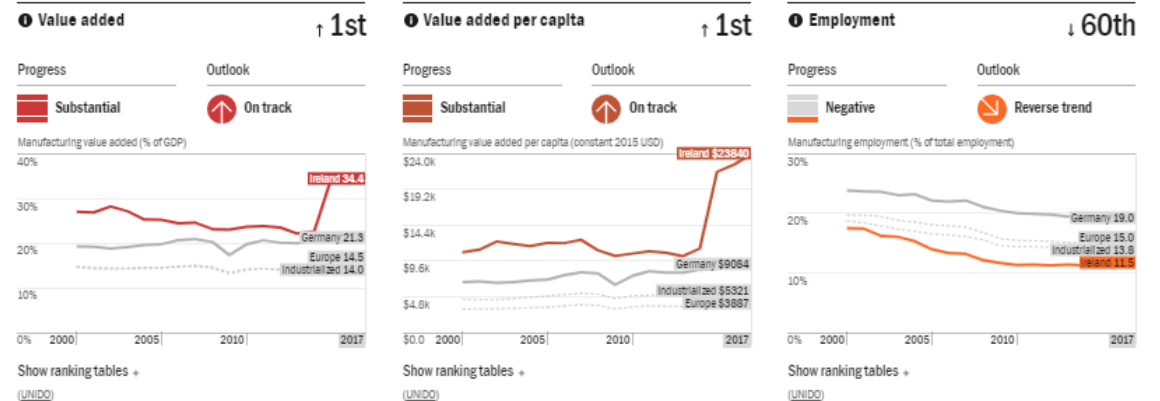
UNIDO SDG 9 Industry Tracker in the IAP

What drives SDG-9 Industry performance in Ireland?



Explore a country's progress towards achieving industrial development targets

How much progress has Ireland made towards the SDG-9 Industry targets?





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Thank you!

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UNIDO Statistics

<https://stat.unido.org/>

UNIDO Industrial Analytics Platform

<https://iap.unido.org/>