



NEWSLETTER POLICY RESEARCH STATISTICS

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Industrial Development Report 2020

Industrializing in the digital age



RESEARCH

- Industrial Development Report 2020 Launch at the UNIDO General Conference
- Industrial Development Report 2020 Launch at the Second China International Import Expo
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- 2019 Forum on Globalization and Industrialization

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- Oman launches digital industrial survey system
- Workshop on Data and Statistics for VNRs
- UNIDO Statistics at the Philippines National Convention on Statistics



Dear Readers,

Welcome to the third issue of the PRS Newsletter in which we are focusing on the *Industrial Development Report 2020. Industrializing in the digital age (IDR 2020)*, which was launched during the recently completed UNIDO General Conference in Abu Dhabi.

The emergence and diffusion of advanced digital production technologies of the fourth industrial revolution are radically altering manufacturing production, increasingly blurring the boundaries between physical and digital production systems. Advances in robotics, artificial intelligence, additive manufacturing and data analytics generate significant opportunities to accelerate innovation and increase the value-added content of production in manufacturing industries.

This IDR 2020 contributes to the debate on the Fourth Industrial Revolution by presenting fresh analytical and empirical evidence on the future of industrialization in the context of the present technological paradigm shift.

The IDR 2020 is the result of two years of intense research efforts, and fruitful discussions and close collaboration between an in-house team. The drafting of the report greatly benefitted from a string of commissioned background papers and, in order to support the analysis of the report, carefully considered firm-level surveys were designed and implemented in three countries: Ghana, Thailand and Viet Nam. These survey results were complemented by case studies on manufacturing firms from other developing countries.

Many of the concepts introduced and elaborated in the report were presented and discussed at two workshops with international experts at UNIDO headquarters in Vienna in November 2018 and April 2019 and at internal presentations with UNIDO staff during May 2019.

If you have questions related to the IDR 2020, please contact us at IDR2020@unido.org or about anything else in the newsletter at prsnewsletter@unido.org.

Hiroshi Kuniyoshi

Deputy to the Director General and Director ad interim of the Department of Policy Research and Statistics, EPR/PRS

1 NO POVERTY



2 ZERO HUNGER



3 GOOD HEALTH AND WELL-BEING



4 QUALITY EDUCATION



5 GENDER EQUALITY



9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



6 CLEAN WATER AND SANITATION



7 AFFORDABLE AND CLEAN ENERGY



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13 CLIMATE ACTION



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16 PEACE, JUSTICE AND STRONG INSTITUTIONS



17 PARTNERSHIPS FOR THE GOALS





INDUSTRIAL ANALYTICS PLATFORM TRAINING WORKSHOP IN CAPE TOWN



PHILIPPINES NATIONAL CONVENTION ON STATISTICS



HAVE YOU READ THE IDR 2020 YET? CLICK [HERE](#) TO DOWNLOAD THE FULL REPORT



RESEARCH IN BRIEF

RESEARCH provides solid empirical analyses on themes and global trends related to UNIDO's mandate to identify the sources and determinants of sustainable industrial development and economic growth, leading to improved industrial competitiveness in the context of the global economy.



INDUSTRIAL DEVELOPMENT REPORT 2020 LAUNCH AT THE UNIDO GENERAL CONFERENCE, 5 NOVEMBER 2019

The IDR 2020, *Industrializing in the digital age*, was launched at an event held on the sidelines of the eighteenth Session of the UNIDO General Conference in Abu Dhabi, United Arab Emirates. The launch event presented the report's main messages, which bring new insights into how advanced digital production technologies are re-shaping the process of industrial development.

Introducing the IDR, UNIDO Director General, Li Yong, said, "This report brings an original perspective to the analysis of new technologies and the fourth industrial revolution, and reaffirms the role of industrialization as a driver of development."

In his introduction, Hiroshi Kuniyoshi, UNIDO Deputy to the Director General and Director ad interim of the Department of Policy Research and Statistics, said, "It is precisely through industrialization that countries can build and strengthen the skills and capabilities needed to succeed in the new technological paradigm."

In a panel discussion, moderated by Euronews' Rebecca McLaughlin-Eastham, international experts discussed the main findings of the report and their implications for the industrialization process of developing countries.



PANELLISTS AT THE IDR 2020 LAUNCH AT THE UNIDO GENERAL CONFERENCE



“WE NEED TO IMPLEMENT A CURRICULAR REFORM IN LINE WITH OUR FOURTH INDUSTRIAL REVOLUTION GOALS”

Rafaelita Aldaba, Undersecretary for Competitiveness and Innovation, Philippine Department of Trade and Industry



“THERE IS NO ONE-SIZE-FITS-ALL SOLUTION. THE SOLUTIONS FOR LARGE COMPANIES ARE NOT APPLICABLE TO SMALL AND MEDIUM-SIZED ENTERPRISES”

Luciano Coutinho, Professor at the University of Campinas and former president of the Brazilian National Development Bank.



“THE ABILITY OF NEW TECHNOLOGIES TO LEAD TO A GREENER ECONOMY IS CLEAR”

Phyllis Wakiaha, CEO of Kenya Association of Manufacturers.

INDUSTRIAL DEVELOPMENT REPORT 2020 LAUNCH AT THE SECOND CHINA INTERNATIONAL IMPORT EXPO, 6 NOVEMBER 2019

On the sidelines of the Second China International Import Expo (CIIE) in Shanghai, UNIDO launched the IDR 2020 during a side event organized jointly with China's Ministry of Industry and Information Technology.

Introducing the report, UNIDO Managing Director Philippe Scholtès said, "Developing countries and their firms require appropriate industrial policies, digital infrastructure and skills to take full advantage of the Fourth Industrial Revolution to further increase productivity and strengthen the capacity to export."



Wang Zhijun, Vice Minister of China's Ministry of Industry and Information Technology, said, "China attaches great importance to the development of digital economy. By accelerating the digital industrialization and industrial digitalization, and promoting the deep integration of the Internet, big data, artificial intelligence and manufacturing, the digital transformation of the industrial sector has achieved positive results."

Wang continued, "The Ministry of Industry and Information Technology would like to further cooperate with UNIDO and other international organizations and also global economies to create an open, fair and inclusive digital market, promoting the prosperity and sharing the benefits of digital economy, and therefore, to build up an new ecology of global industrial cooperation and jointly contribute to realizing inclusive and sustainable development."



The full IDR 2020 can be downloaded [here](#).

IDR 2020 overviews in Arabic, Chinese, English, French, Russian and Spanish, and a case studies booklet can also be downloaded [here](#).



INDUSTRIALIZING IN THE DIGITAL AGE

The IDR 2020 looks closely at the interconnections that exist between the absorption of advanced digital production (ADP) technologies, the transformation of productive structures, and the role of industrial development in driving this process.

This is done in a sequential manner, moving from the broad picture of the global generation and diffusion of new technologies around the world to the specific absorption and exploitation of these technologies at the country and firm level and the policy responses that are being implemented to support this process.

The key messages of the four chapters of the IDR 2020 are as follows:

CHAPTER 1

ADVANCED DIGITAL PRODUCTION TECHNOLOGIES AND INDUSTRIAL DEVELOPMENT: A GLOBAL PERSPECTIVE

- Absorbing new technologies can drive inclusive and sustainable industrial development (ISID). History shows the links connecting new technologies with the introduction of new goods and processes, the expansion of industries, the creation of job and income opportunities and the promotion of environmental sustainability.
- Breakthroughs in digital production technologies are transforming manufacturing production. The convergence of automation and advanced digital technologies is expected to lead to the full development of cyber-physical systems and the rise of smart manufacturing production.
- The creation and diffusion of advanced digital production technologies remains extremely concentrated globally, though developments are beginning, if weakly, in some emerging economies. Ten countries account for 90 percent of all global patents and 70 percent of all exports directly associated with these technologies. About half the world's countries fail to take part in the creation and use of these technologies.
- ADP technologies open new opportunities for catching up, but exploiting them requires a minimum base of industrial capabilities. A clear positive relationship exists between the roles of different countries as frontrunners, followers, latecomers and laggards in creating and using these technologies and their average set of industrial capabilities.

“TEN FRONTRUNNER ECONOMIES ACCOUNT FOR 91 PERCENT OF PATENTS IN ADVANCED DIGITAL PRODUCTION TECHNOLOGY.”



“ ADP TECHNOLOGIES ARE NOT NECESSARILY DESTROYING MANUFACTURING-RELATED JOBS WORLDWIDE.

CHAPTER 2

THE EVOLVING LANDSCAPE OF INDUSTRIALIZATION UNDER ADVANCED DIGITAL PRODUCTION TECHNOLOGIES

- Technology- and digital-intensive (TDI) industries (computer and machinery industry and transport equipment industry) are adopting advanced digital production (ADP) technologies faster than other industries.
- TDI industries have grown faster after the takeoff of ADP technologies and increased their share in manufacturing value added across country income groups. Productivity made a strong contribution to the growth of these industries, and the expansion of employment meant that the growth was also inclusive.
- Economies actively engaging with ADP technologies (frontrunners and followers) have a much higher share of manufacturing value added in TDI industries relative to the rest (latecomers and laggards).
- Not only are the industrial structures (what to produce) different between frontrunners-followers and latecomers-laggards, but their production processes (how to produce) also differ. Frontrunners and followers have more inputs from knowledge-intensive business services in their manufacturing production. The greater use of these inputs—including computer and related services and research and development services—is a defining feature of the manufacturing production of economies actively engaging with ADP technologies.
- In the textile and leather industry and the food, beverages and tobacco industry, women are more likely than men to lose their jobs because of automation. The tasks that women perform are more susceptible to automation than those that men perform. Women are significantly less likely than men to choose an occupation in a science, technology, engineering or math field and are underrepresented in managerial positions, which places women at greater risk for displacement by computerization. With respect to the skills of the future in manufacturing - the skills needed to thrive in the digital era, such as analytical, non-routine and information and communication technology skills - women are significantly less prepared on average than are men.
- ADP technologies are not necessarily destroying manufacturing-related jobs worldwide; in fact, once the indirect as well as the direct effects are considered, the increase in the use of industrial robots between 2000 and 2014 generated new jobs. Technological replacement potential provides an incomplete picture of the impact of robot adoption on employment. The economy-wide impact is also influenced by the growth of the industries adopting robots, inter-sectoral complementarity, redistribution of work in a value chain, and worker reassignment within a firm.
- Industrialized countries made the main contribution to worldwide employment growth through the adoption of robots, even though a majority of the jobs created by the growth of robotics occurred in emerging market economies. Many jobs were created in non-manufacturing sectors due to the indirect positive effects of forward and backward linkages to the robotizing manufacturing industries in value chains. Computers and machinery, one of the TDI industries, has been key in the adoption of ADP technologies and to job creation through the adoption of robots.

“ THE TASKS THAT WOMEN PERFORM ARE MORE SUSCEPTIBLE TO AUTOMATION THAN THOSE THAT MEN PERFORM.

CHAPTER 3**HOW MANUFACTURING FIRMS IN DEVELOPING COUNTRIES CAN ABSORB AND EXPLOIT THE NEW TECHNOLOGIES**

- The evidence about the diffusion of digitalization and new primary data about the adoption of advanced digital production (ADP) technologies shows that the wave is still developing globally, and especially in developing countries. Whereas ADP offers opportunities for catching up, developing countries need to be aware that technology upgrading is gradual.
- Capabilities are essential for firms' adoption and best use of ADP technologies. In order to create and fully exploit the potential of capabilities, a solid industrial base is needed. Adoption of ADP technologies and industrialization policy are strongly interconnected.
- Digitalization through infrastructure, connectivity and use of email and firms using those technologies for a wide range of digital inputs and activities are essential pre-conditions of ADP technology adoption.
- ADP technologies are widening the policy space, though a wider policy space comes at cost of higher complexity: widespread technological knowledge and soft skills are crucial. Although large firms and technology- and digital-intensive industries are confirmed to be the main adopters of ADP technologies, small and medium firms and firms in other industries may also play a relevant role. Industrial policy, particularly for developing production capabilities, complements technological policy for developing new technologies

“ ADOPTION OF ADP TECHNOLOGIES AND INDUSTRIALIZATION POLICY ARE STRONGLY INTERCONNECTED.

CHAPTER 4**RESPONDING TO ADVANCED DIGITAL PRODUCTION TECHNOLOGIES**

- The rise of advanced digital production (ADP) technologies is unfolding, now heavily concentrated in few countries, sectors and firms. The breadth and depth of impacts associated with them remain subject to debate. Objective and systematically collected evidence is needed to inform policy interventions around such sensitive topics as employment, skills and alternative paths to foster inclusive and sustainable industrialization.
- Strategic responses to ADP technologies are highly contextual, contingent on differences in manufacturing development across countries. They require a coordinated comprehensive government approach, but they remain largely in trial stages, with distinct degrees of articulation in long-term national development strategies. Policymakers should be wary of one-size-fits all solutions, and solid models have yet to emerge.
- Current strategic responses emphasize participatory approaches and interactions and knowledge exchanges among multiple agents to identify and solve problems. Collaboration, internationally and with the private sector, and capability building will remain at the core of industrialization.
- Policies to deal with ADP technologies should focus on enhancing framework conditions, particularly digitalization, fostering and leveraging ongoing smart-manufacturing specific pilot initiatives, and investing in skilling, reskilling and upskilling human resources. In response to the rise of smart manufacturing, the world is experimenting with new approaches to education and vocational training, creating new public research infrastructure and devising strategies to cater to different types of firms.

“ COLLABORATION, INTERNATIONALLY AND WITH THE PRIVATE SECTOR, AND CAPABILITY BUILDING WILL REMAIN AT THE CORE OF INDUSTRIALIZATION.

POLICY UPDATES

POLICY provides strategic industrial policy advice to Member States in support of accelerating their industrial development. In close collaboration with the Research team, it identifies, designs, implements and evaluates policies aimed at expanding and diversifying Member States' productive capacity.

BUILDING EVIDENCE-BASED INDUSTRIAL POLICYMAKING CAPACITIES IN CAMBODIA

On 15 July 2019, in Phnom Penh, UNIDO organized an executive briefing on industrial policymaking at the Cambodian Ministry of Industry and Handicraft, followed by a four-day training workshop on evidence-based industrial policymaking in the province of Kep.

To achieve the ambition of transforming from a labour-intensive to a skills-driven industrial sector by 2025, Cambodia needs policymakers capable of drafting effective industrial policies based on reliable data and sound evidence, using advanced analytical methodologies.

The workshop introduced participants to the basic principles of evidence-based industrial policymaking that stem from UNIDO's Competitive Industrial Performance (CIP) methodology and its Enhancing the Quality of Industrial Policy (EQUIP) toolbox for assessing, monitoring and benchmarking Cambodia's overall industrial and trade performance.

GMIS

In advance of the upcoming third Global Manufacturing and Industrialisation Summit (GMIS) to be held alongside Hannover Messe, the world's largest industrial trade fair, from 20-21 April 2020, a series of GMIS Connect roadshows are taking place in order to build momentum and provide the widest possible range of consultation with industrial development actors in a variety of national and regional contexts.

The first of these took place as a side event during the 74th session of the United Nations General Assembly in September, under the theme of "Standards for the digitalization of inclusive and sustainable value chains". The event, moderated by UNIDO's Bernardo Calzadilla-Sarmiento, attracted a high-level delegation of speakers.

On 11 October, in Guanajuato, UNIDO and GMIS Connect Mexico organized a series of thematic panels on best practices associated with strategic approaches for circular economy, innovation and quality infrastructure to access market and integrate into value chains in the context of the Fourth Industrial Revolution and taking into account the industrial context in Mexico.

Several country events are planned for the remainder of 2019 including:

- 14-15 November: GMIS Connect East Africa, East African Community Headquarters, Arusha, Tanzania.
- December: GMIS Connect SADC will address "Advancing Industrialization in Southern Africa: Think Globally, Act Locally - The Impact of Digital Industrial Transformation in Southern Africa."

INDUSTRY 4.0 IN COLOMBIA

PRS Industrial Policy Officer, Fernando Santiago represented UNIDO at the Congreso Digitech Colombia hacia la Industria 4.0. Flexible, competitiva y conectada, organized by National University of Colombia, with support of Corferias de Bogotá from 19-20 September in Bogotá. He made a presentation on development strategies and public policies for Industry 4.0, and contributed to a discussion panel on government initiatives and Industry 4.0.

UNIDO AT 7TH EUROPEAN CONFERENCE ON CORPORATE R&D AND INNOVATION, CONCORDI 2019

PRS supported the participation of UNIDO Deputy to the Director General, Hiroshi Kuniyoshi, as keynote speaker at CONCORDi 2019, 25-27 September 2019, in Seville. CONCORDi is organized by the Joint Research Centre (JRC), the European Commission's science and knowledge service which employs scientists to carry out research in order to provide independent scientific advice and support to European Union (EU) policy.

This is the second consecutive time that UNIDO has been invited to contribute to this important EU event, and is part of the ongoing collaboration that PRS has established with the EU-JRC around such topics as the EU's approach to innovation and regional development under the smart specialization framework, and the UN Inter-Agency Task Team on Science, Technology and Innovation Roadmaps.

UPCOMING EVENT

19 November: 2019 Forum on Globalization and Industrialization, Vienna International Centre

The 2019 Forum on Globalization and Industrialization: "The Future of Global Value Chains: How the Fourth Industrial Revolution Is Changing Global Production Networks" is the fourth edition in a series of annual forums jointly organized by UNIDO, Kiel Centre for Globalization, and the Kiel Institute for the World Economy (IfW Kiel). It brings together policymakers, representatives from academia and the private sector to discuss the opportunities and challenges for industrialization as a result of countries' greater participation in global trade and investment flows.

PUBLICATION

Too Much Energy: The Perverse Effect of Low Fuel Prices on Firms

UNIDO's Nicola Cantore co-wrote this Policy Research Working Paper, published by the World Bank Group. The paper provides new evidence of the impact of changes in energy prices on manufacturing performance in two large developing economies, Indonesia and Mexico. It



finds that unlike increases in electricity prices, which harm plants' performance, fuel price hikes result in higher productivity and profits for manufacturing plants.

Authors: Cali, Massimiliano; Cantore, Nicola; Iacovone, Leonardo; Pereira Lopez, Mariana De La Paz; Presidente, Giorgio;

Click [here](#) to access the publication



STATISTICS AT A GLANCE

STATISTICS compiles, stores, and disseminates reliable and internationally comparable data on inclusive and sustainable industrial development. It maintains an international industrial statistics database, and contributes to the improvement of statistical standards.

UNIDO AT THE WORLD STATISTICS CONGRESS, MALAYSIA

The International Statistical Institute (ISI) World Statistics Congress (WSC) takes place once every two years in different countries and is usually organized in partnership with the host country's National Statistical Office. At the Congress, associations, committees, members and participants involved in statistics worldwide come together to participate in the many different activities.

This year's ISI WSC took place from 18-24 August at the Kuala Lumpur Convention Centre. UNIDO's Valentin Todorov presented a paper on outlier detection as part of a session organized by Prof. Peter Filzmoser from the Vienna University of Technology and chaired by Patrick J.F. Groenen from the Erasmus University of Rotterdam. The presentation of Todorov's paper, *Detection and visualization of outliers in establishment surveys*, is available [here](#).



OFFICIAL LAUNCH OF THE INDUSTRIAL ANALYTICS PLATFORM

On the sidelines of the 18th Session of its General Conference, UNIDO officially launched the Industrial Analytics Platform (IAP), an innovative tool featuring, in an accessible format, data on select indicators of industrial development and relevant research by leading experts.

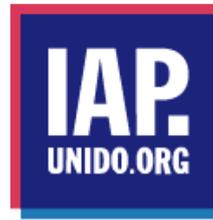
At the launch, UNIDO Deputy to the Director General, Hiroshi Kuniyoshi, said, “UNIDO sees an important role for innovative data-driven tools that can help support our mandate of fostering inclusive and sustainable industrial development.” He continued, “Harnessing the power of data can significantly increase the efficiency of planning and implementation of programmes as well as support the design of evidence-based policies.”

Following two years of development, the IAP, which is funded by the Government of the Federal Republic of Germany, was soft-launched in Thailand in July 2019, with pilot workshops organized in Cambodia, the Republic of Korea, and South Africa. UNIDO plans to roll out a number of capacity building programmes with the IAP at the core of a new delivery model.

OMAN LAUNCHES DIGITAL INDUSTRIAL SURVEY SYSTEM

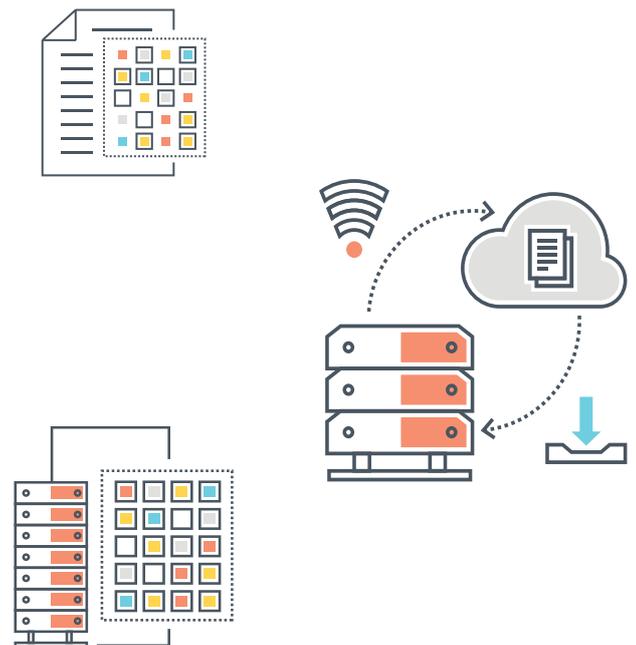
Since 2012, on the request of the government of Oman, UNIDO has been working with the Ministry of Commerce and Industry to improve the Ministry's statistical methodology to comply with the International Recommendations for Industrial Statistics 2008 (UN DESA 2008).

On 29 September 2019, an electronic system for industrial statistics to fully digitize and document all the stages of industrial surveys conducted by the Ministry was launched. The design of the digital industrial statistical survey adopts the international statistical framework set by UNIDO to ensure that the industrial statistics of the Sultanate are compatible with those of other economies.



INDUSTRIAL ANALYTICS PLATFORM

ACCESS THE PLATFORM [HERE](#)



EVENT

9-12 December: Workshop on Data and Statistics for Evidence-based Voluntary National Reviews, Vienna International Centre

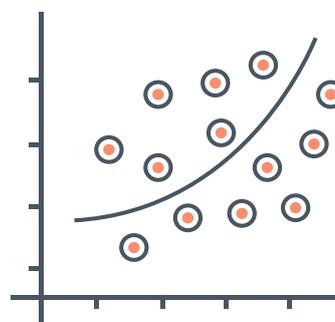
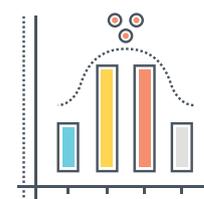
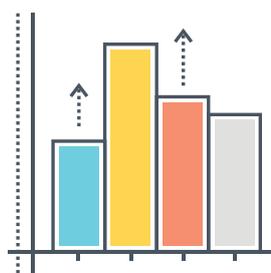
UNIDO Statistics will host the workshop organized by the UN Statistics Division. The effective follow-up and review of the progress made towards the Sustainable Development Goals (SDGs) and targets is essential for achieving the 2030 Agenda for Sustainable Development. One of the critical follow-up and review mechanisms is the Voluntary National Reviews prepared by Member States to be presented at the High-Level Political Forum (HLPF). An essential feature of the VNRs are data and statistics to gauge and measure progress and address the vast scope of the 2030 Agenda and to fulfil the ambition of leaving no one behind by the inclusion of disaggregated data. Even for countries with advanced statistical systems, the amount of data needed for the SDGs can be challenging and without timely, accurate and disaggregated data, meaningful reviews of implementation of the agenda cannot be made. It is therefore important to examine the specific role data plays in the implementation of the 2030 Agenda and the preparation of VNRs - including, for example, how data is currently used, and how data and statistical capacity could be strengthened to support evidence-based VNRs.

The objective of the workshop is to bring together representatives from national statistical offices (NSOs) engaged in work on the SDGs and the national VNR focal points engaged in policy-making to discuss and share best practices on how data and statistics can support a data-driven and evidence-based VNR process.

UNIDO STATISTICS AT THE PHILIPPINES NATIONAL CONVENTION ON STATISTICS

UNIDO's presentation on "Statistical Indicators of Inclusive and Sustainable Industrialization" was devoted to forecasting the Sustainable Development Goal target 9.2 in least developed countries up to 2030.

Results were presented for two country groups, African and Asian LDCs, revealing contradictory growth trajectories. Check out the [presentation](#) and the [full paper](#).



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Got any questions or suggestions? Let’s talk: prsnewsletter@unido.org



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