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PRS NEWSLETTER

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Dear Readers,

it has been nearly a year since the WHO declared COVID-19 a pandemic. At the time, we could not fathom that one year on, more than 2 million lives would be lost, economies around the globe would be facing recession and that life as we once knew it would be changed forever. The approval of COVID-19 vaccines by the end of 2020 was indeed a historic achievement, and the vaccine rollout has given us renewed hope that we will be able to return to a new “normal” by the end of 2021. The projected timeline for mass immunizations in low-income countries, however, is projected to go well beyond 2024. In other words, the challenges developing countries face are even more severe today than they were just one year ago.

What the pandemic has clearly demonstrated is that science, technology and innovation (STI) will be decisive to emerge from this crisis and to build back better. We must therefore now urgently focus on how to facilitate STI efforts in the viral era based on countries’ available capabilities and resources. The pandemic has accelerated the adoption of Fourth Industrial Revolution (4IR) technologies, which have become an integral part of how we now work and live, and will profoundly shape the post-COVID-19 world.

The significance of 4IR technologies is highlighted in this first issue of the 2021 PRS E-newsletter. The 4IR contributions include i) a Working Paper, which establishes a firm-level technological capability framework as an initial basis for examining the micro-level capabilities required by firms to launch, endorse and realize the 4IR; ii) two IAP articles that discuss different aspects of the 4IR, namely the role advanced digital production (ADP) technologies play in opening up opportunities for increased productivity, sustainability and social inclusion, and the effects of 4IR on backshoring and global supply chains, and iii) a Working Paper on the relationship between gender (in)equality and industrialization, which, among others, identifies emerging trends related to the 4IR and premature industrialization and their possible impact on gender equality in developing countries.

Finally, I would like to take this opportunity to invite you to follow [the Industrial Analytics Platform \(IAP\)](#) on [LinkedIn](#) to keep up to date with the latest developments and knowledge on industrial development, including the 4IR. I hope you enjoy reading this newsletter.

Hiroshi Kuniyoshi

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

Our newsletter mailings are a convenient way to stay connected and keep readers up to date on PRS's latest news.

We welcome any feedback, comments and suggestions for further improvements at prsnewsletter@unido.org.

PUBLICATIONS

UNIDO ISID Working Paper Series

Gender and industrialization: Developments and trends in the context of developing countries

By Alina Sorgner

This study provides a comprehensive literature review on the relationship between gender and industrialization in the context of developing countries. One of the most striking results is that gender roles tend to persist over time, even when societies transition to more advanced stages of development. Policymakers can glean two important lessons from this finding. First, the determinants of gender equality are at least partly defined at the narrow level of regions rather than at the broad country level. Existing initiatives to promote gender equality often disregard regional variations in the determinants of gender equality. Initiatives to promote gender equality should therefore draw on a location-based approach. The glocalization of efforts to promote gender equality seems promising: while gender equality is a global objective, it can best be achieved by considering local factors that might impact it. Second, given the strong persistence of regional gender-specific roles over time, policymakers need to make a long-term commitment to fight gender inequality. It is unlikely that short-term measures, particularly if they do not account for local conditions, will be successful in promoting gender equality.

Towards a firm-level technological capability framework to endorse and realize the Fourth Industrial Revolution in developing countries

By Jahan Ara Peerally, Fernando Santiago, et al.

One essential precondition for developing countries to engage in the Fourth Industrial Revolution (4IR) is to accelerate the creation and accumulation of firm-level technological capabilities necessary for digital transformation. Building on a systematic review of 4IR

literature, 4IR firm-level technological capabilities are defined in a first step. Secondly, based on an analysis of secondary data collected from the literature review, an updated framework of firm-level technological capabilities is presented, which accounts for the 4IR's advanced digitalization requirements. The framework consists of a refined set of human and organizational activities, skills, experiences, knowledge and resources required by firms to adopt increasingly complex 4IR technologies and processes along their digital transformation journey. These are classified in the framework within four levels of increasingly complex technological capabilities and across six clusters of technological and organizational functions. The framework represents an initial basis for examining the micro-level capabilities required by firms to launch, endorse and realize the 4IR.

IAP Articles

What is the Fourth Industrial Revolution?

What sets the Fourth Industrial Revolution (4IR) apart from previous industrial revolutions is the novel way in which hardware, software and connectivity are being reconfigured and integrated to achieve ever-more ambitious goals and to collect and analyse vast amounts of data; it is also characterized by seamless interactions between smart machines and the blurring of the physical and virtual dimensions of production. Incorporating advanced digital production (ADP) technologies into industrial production processes has given rise to the concept of 'smart factories'. The diffusion of such technologies, which is currently still limited, results in greater build-up of experience and expertise, which in turn accelerates the process of further digitalization. The ability to benefit from 4IR is contingent on the availability and affordability of ADP technologies, together with the right level and combination of skills and industrial capabilities. The opportunities for greater productivity, sustainability, social inclusion and prosperity are quite compelling, but ultimately hinge on an enabling industrial ecosystem and a supportive policy regime.

Is Industry 4.0 driving the backshoring of manufacturing activity?

Many analysts are advocating a rebuilding of regional supply chains in the wake of COVID-19. Yet backshoring decisions are made at the intersection of various factors and are driven by different factors. Reasons for backshoring, for example, may include the existence of a mismatch between the goods produced by an overseas manufacturing plant and the demand specifics of the surrounding markets it serves. On the other hand, overseas locations may lose their cost advantage due to rising labour costs or higher adoption rates of new technologies in high cost locations. Whether a high adoption rate of digital technologies actually leads to a backshoring of production activities from overseas locations depends, in part, on the efforts foreign locations invest into digitalizing their own manufacturing activities and in encouraging companies to adopt Industry 4.0 technologies. Given the broader need to facilitate digital and green transitions in all economies, such approaches to policy seem like a good investment.

[Making economies more sustainable: what role for industrial hubs?](#)

Developing countries have a unique opportunity to implement spatial policies to decrease their environmental footprint, while at the same time increasing their competitiveness and accelerating their structural transformation. Distinct advantages can be gained by incorporating green incentives and technologies in a) cities, b) industrial clusters, and c) eco-industrial parks. Developing greener cities, in particular, renders several complementary co-benefits across economic, social and ecological dimensions, and is a particularly promising approach in developing countries, where designing new sustainable cities is much easier than retrofitting already existing ones. Ambitious city re-engineering will only, however, be successful if it is based on citizen involvement and social acceptance.


Other Publications

[Futures in the time of COVID-19: Results of a strategic foresight exercise on the manufacturing sector in Egypt](#)

Within the scope of the [Programme for Country Partnership Egypt](#) (PCP Egypt), PRS substantially contributed to a [strategic foresight exercise](#) on the future of the manufacturing sector in Egypt involving the Government of Egypt, led by the Ministry of Planning and Economic Development, the UN system (UN RCO, UNIDO, ITC), and the private sector (led by the Federation of Egyptian Industries). The report presents the key findings and recommendations of this foresight exercise, which consist of four distinct scenarios of the future of manufacturing, including one scenario of an 'ideal future' and associated policy actions in four key policy domains to enable a transition to the ideal future.

[More and better investment now! How unlocking sustainable and digital investment flows can help achieve the SDGs](#)

This journal article, which PRS's Adnan Seric contributed to, presents five actionable steps that can be taken to restart investment flows following the decline of foreign direct investment (FDI) by 49 per cent in the first half of 2020 due to the COVID-19 crisis. First, an Investment Facility and Fund should be established to help create both the structure and resources needed to restart investment flows. Secondly, the Facility's work should be implemented within a Sustainable Investment Framework to facilitate collaboration between different actors. Third, specific investment policies and measures should be implemented to advance sustainable development, especially through linkages between foreign affiliates and domestic firms. Fourth, specific investment policies and measures need to be adopted to advance digital development. And finally, fifth, partnerships and industry-based coalitions should be used as a mechanism to operationalize the above.



RECENT EVENTS

[Value Chain Diagnostics for Policymaking](#)

From 25-27 January, PRS's Franz Brugger and Frank Hartwich conducted an online course on "Value Chain Diagnostics for Policymaking" targeted at decision-makers of various entities from Tanzania, mainland, and Zanzibar. The course consisted of 10 modules, inviting participants to take a "wide-angle snapshot" of the constraints and opportunities in value chain development. The training conveyed knowledge about how to make strategic decisions at programme or project level to effectively implement development support measures at different value chain points. By delivering coherent value chain diagnostics and a strategy development method in line with good international practice, participants learned, among others, about different dimensions, parameters and indicators used for integrated value chain analysis, and how to develop improved business models and interventions for the business environment as well as chain governance upgrading. The course was delivered on UNIDO's e-learning platform (learning.unido.org). It consisted of a series of self-paced online learning modules and a final test. The platform also featured further reading and other materials. Moreover, active tutoring was provided by UNIDO staff and experts in a number of online live sessions.

[SDG4B series: Industry, Innovation and Infrastructure](#)

PRS's Petra Kynclova participated in a webinar series on [Sustainable Development Goals for Business \(SDG4B\)](#) on 27 January, organized by [DCU Business School](#) and the [Irish Institute of Digital Business](#) (IIDB). The 17-part series, which takes place once a week, aims to explore how businesses are aligning with current sustainability goals. Petra participated in the ninth series on Industry, Innovation and Infrastructure, which focused on SDG 9 (building resilient infrastructure, promoting sustainable and inclusive industrialization and fostering innovation). Petra's presentation discussed UNIDO's role in SDG monitoring and the significance of data and statistics in the SDG process. She also introduced the [IAP SDG-9 Industry Tracker](#) to the participants.

[PCP Peer Learning Session](#)

The first [Programme for Country Partnership \(PCP\) peer learning session](#) organized by the Directorate of Programme, Partnerships and Field Coordination took place on 2 February 2021, with the objective of facilitating the exchange of experiences and best practices on selected topics relevant to advancing ISID within the framework of the PCP. The event, which was attended by high-level government officials and representatives of specialized national institutes from PCP countries, focused on stakeholder coordination and resource mobilization for flagship industrial projects, as well as the establishment of industrial zones. PRS contributed to the discussion on "[Country Diagnostic to Initiate PCP Development](#)". The objectives of a country diagnostic are identifying the country's most critical bottlenecks and opportunities, and consequently determining the strategic direction it must take to achieve ISID through the PCP. A country diagnostic can successfully translate research results into concrete "starting points" with the corresponding indicators providing strategic orientation during the project design phase. Priority sectors can then be selected based on their objectively assessed potential using

technical criteria. The diagnostic study's success will ultimately be measured by the degree of collaboration with relevant stakeholders. Consensus-building is key for national ownership and for developing a shared view across stakeholders on the goals to be achieved in partnership.

PROGRAMMES AND PROJECTS

[The Way Forward Initiative on Financing for Development in the Era of COVID-19 and Beyond](#)

PRS will be the focal point for Cluster 3 on Financing and Technology of "[The Way Forward Initiative on Financing for Development in the Era of COVID-19 and Beyond](#)". The initiative's objective is to find concrete financing solutions to the COVID-19 health and development emergency by addressing questions of external finance and remittances, jobs and inclusive growth, recovering better for sustainability, and global liquidity and financial stability, among others. Cluster 3 will be headed by [UNCTAD](#), and aims to "support countries, the private sector and other actors in improving the alignment of finance, investment and technology to recover better from COVID-19 and accelerate implementation of the SDGs". The kick-off meeting took place on 11 February.

[Partnership Building Exercise with STEPI](#)

The partnership building exercise with the [Science & Technology Policy Institute](#) (STEPI), a think tank in the Republic of Korea specialized in policy-oriented research on science, technology and innovation (STI) and industrial development, has been successfully completed. STEPI will carry out research, combining theoretical and empirical perspectives, to document how a select group of Asian countries has mobilized and is leveraging on STI as part of their national strategies underpinning successful industrial developmental outcomes. STEPI will also assist in identifying and mobilizing experts from the region, who can contribute to UNIDO's convened global forum activities, or support UNIDO's participation in such activities.

[Digital Economy Task Force \(DETF\)](#)

Italy has held the Presidency of the [G20](#) since 1 December 2020. The first Digital Economy Task Force (DETF) took place digitally from 8 - 9 February 2021 to discuss the priorities of the Italian Presidency's DETF issue note, which include, among others, the digital transformation in production for sustainable growth; measurement, practice and impact of the digital economy; connectivity and social inclusion; free flow of data with trust and cross-border data flows; leveraging trustworthy artificial intelligence for mSMEs' inclusiveness, consumer protection and digital government. Fernando Santiago prepared talking points and will be PRS's focal point under the overall guidance from SPQ, while Fernando Cantu contributed to the first meeting of the expert group on measuring the digital economy.
