



Workshop: The Fourth Industrial Revolution and the Philippines

25-26 November 2019 | Sedat Residences Hotel, Manila

This two-day workshop intends to update Philippine policymakers as well as key stakeholders on current trends and policies related to the challenges and opportunities posed by the Fourth Industrial Revolution (4IR). It is organized by the United Nations Industrial Development Organization (UNIDO) in cooperation with the Department of Trade and Industry (DTI) and the Korea Institute for Industrial Economics and Trade (KIET).

The workshop

The Fourth Industrial Revolution (4IR) is expected to radically transform manufacturing as a driver of global development. Because industrialization remains a cornerstone of the long-term development aspirations of numerous developing countries, this workshop addresses the following overarching topics:

- Getting the concepts right
- Requirements for starting the digitalization of the economy
- How are different countries getting ready for Industry 4.0 and which lessons can be gleaned from existing policy efforts around 4IR?
 - ✓ A. Preparing for implementation/adoption of 4IR
 - ✓ B. Preparing for the impact of other countries' (both developed and developing) implementation/adoption of 4IR
- Which institutional setups, what sort of infrastructure and which reforms in educational systems, among others, are required to increase the readiness of the Philippine manufacturing sector towards 4IR?
- Systemic requirements for preparation of 4IR
- What can/should be done in the short-term vs long-term?

The programme seeks to discuss these issues through a number of sessions covering:

- An overview of concepts, trends and policy solutions globally;
- Indicative case studies, including the private sector perspective; and
- Facilitated group exercises.

It will stretch over two days where the first day will focus on awareness raising and case studies. The second day will feature working group sessions.



Objective

The workshop aims to update policymakers about the latest trends in 4IR and how different countries respond to them. Emphasis is placed on gaining a common understanding of the core concepts related to 4IR. In a second step, working groups will try to apply lessons learned to the situation in the Philippines and elaborate initial policy recommendations.

Learning outcomes

Participants will learn about the following topics:

- General concepts and technologies related to 4IR
- Different national strategies for 4IR
- Analytical frameworks for 4IR policy comparison
- Conditions and requirements for adoption of 4IR technologies
- Value chains and 4IR
- 4IR and innovation policies

Target audience

The workshop will be open to up to 30 mid-level policymakers from the Department of Trade and Industry (DTI) and other relevant Departments and government instrumentalities, academics and business association representatives engaged in the Philippines' industrial policy formulation/implementation.

During the last session, participants shall present their findings to high-level policymakers.

Lecture contents

Day 1

Digitalization and 4IR – Concepts, technologies and policies

Sanghoon KIM, KIET

Although it has already been several years since the phenomenon of the 4th Industrial revolution (4IR or Industry 4.0 (i4.0)) caught the attention of both developing and developed countries, there are still substantial confusions related to some core concepts. This session, therefore, focuses on not only providing proper definitions and background information on 4IR but also tries to elucidate some mistakes and misunderstandings that are common but not trivial. Various topics and examples will also be provided not only for better understanding of 4IR but also for expanding the scope towards a basic introduction of general industry policy implementation frameworks for the future.



The Philippines' Inclusive Innovation Industrial Strategy (i3S): Insights and perspectives

DTI

Digitalization, 4IR and manufacturing innovation in South Korea

Sanghoon KIM

In this session, an overview of 4IR strategies and policies in South Korea will be given. In connection with the previous session, some 4IR policy issues not only for developed but also for developing countries will be described briefly. In addition, general policy directions and responses for 4IR in relation to Science, Technology and Innovation will be illustrated and compared to other countries. Some typical examples for 4IR governance frameworks and manufacturing innovation promotion measures in the context of 4IR will also be introduced. The presentation will also try to outline brief policy implications on the industry level in the context of various perspectives including 4IR.

Thailand 4.0

Pichet Durongkaveroj

From a practical point of view, digitization is cross cutting apart from its own breakthrough. In driving 4IR engine which is complex and integrative in nature, digital technology plays a key role in fundamentally transform the legacy system into automation, bio-based, and the uses of new materials and new platforms and systems. Hence, in driving 4IR, it is compulsory by policy design that digital technology must be planted and embedded as infrastructure, as legal enabled, and as public and private coherent integration. Thailand has a few examples to share from national experiences over the past half a decade.

Industry 4.0 policies in Austria and on the European level

Josef Fröhlich

The technological description of Industry 4.0 can be summarized by a digital, intelligent, cross-linked and self-controlling industry, realized by the widespread integration of information technologies and the internet in industrial processes. Therefore, Industry 4.0 leads to new and challenging requirements for the management of firms and the qualification of employees. Consequences have to be drawn for the whole educational system; a special focus on the role of Universities is necessary. Based on some examples of policy strategies and measures in Europe and especially in Austria it can be shown that due to the complexity of Industry 4.0 new developments in the whole society are required. This opens up with a positive outlook for countries, if they deal seriously with the opportunities and threats of Industry 4.0.

4IR – A private sector's view

This panel discussion will host representatives of big multinational companies active in South-East Asia (The Philippines, Thailand, Vietnam, ...). It will ask how these companies cope with the requirements of 4IR and how they view their role in the country in an interactive discussion with an open floor.

Day 2

On the second day, participants will work in small groups discussing the implications of some of the issues raised during the first day. The work needs to be relevant for policymaking in the context of the Philippines.

Groups will analyze the issues from three distinct angles:

1. Institutional setup (inter-Ministerial, inter-agency coordination mechanisms, public – private sector coordination – systemic approach);
2. Infrastructure requirements;
3. Educational system requirements (link with universities, TVET).

Participants will work in mixed groups from different Departments in order to initiate a cross-agency strategic dialogue.

Course faculty will facilitate group discussions and act as resource persons for whatever questions might arise. Eventually, participants will present their findings to the plenary. It will be followed by a collective discussion about results.

Tentative agenda

Day 1

08:00 – 08:30	Registration
08:30 – 09:00	Opening statements <i>DTI, UNIDO</i>
09:00 – 09:30	The Philippines' Inclusive Innovation Industrial Strategy (i3S): Insights and perspectives <i>DTI</i>
09:30 – 10:30	4IR – Concepts, technologies and policies <i>Sanghoon Kim, KIET</i>
10:30 – 11:00	Coffee break
11:00 – 12:00	Digitalization, 4IR and manufacturing innovation in South Korea <i>Sanghoon Kim, KIET</i>
12:00 – 13:00	Digital Thailand in the 4IR Context <i>Pichet Durongkaverroj</i>



13:00 – 14:30	Lunch
14:30 – 15:30	Industry 4.0 policies in Austria and on the European level <i>Josef Fröhlich</i>
15:30 – 16:30	Private sector round table <i>Moderation: Franz Brugger, UNIDO</i>
16:30 – 17:00	Q&A and event closure <i>Moderation: Franz Brugger, UNIDO</i>

Day 2

08:30 – 09:00	Registration
09:00 – 10:00	Intro session
10:00 – 12:30	Group work session I
12:30 – 14:00	Lunch break
14:00 – 15:00	Group work session II
15:00 – 17:00	Presentation and discussion of results and event closure

Speakers' biographies

Pichet Durongkaveroj

Former Minister of Digital Economy and Society of Thailand



Dr. Pichet Durongkaveroj was Thailand's former Minister of Digital Economy and Society during 2016-2019 and Minister of Science and Technology during 2014-2016. He has laid foundation for the country's digital and innovation development ranging from physical and digital infrastructure, laws and regulation, industrial transformation, science and innovation parks, smart cities, up- and reskilling workforce, to cyber security. He has been a strong and active contributor in various international and regional fora including ASEAN, UNIDO, UNCTAD, UNDP, ITU, WEF, IMD as well as bilateral and multilateral cooperations. Graduated in electrical engineering from the University of New South Wales, Dr. Durongkaveroj obtained his Ph.D from the Wharton School, University of Pennsylvania.



Sanghoon Kim

Research Fellow, KIET (Korea Institute for Industrial Economics & Trade)

Advisor to the Minister, MoTIE (Ministry of Trade, Industry and Energy), ROK



Dr. Sanghoon KIM is a Fellow for Research in Korea Institute for the KIET, and also an Advisor to the Minister at the MoTIE, South Korea. His research areas are mainly related to Technology/Art Management, Strategy & Policies. These include Knowledge Based Capital (such as IPs) Management, Technology-Market Forecasting/Foresight, Technology Financing/Evaluation, Cross-Industry & Cross-Nation Analysis especially for SMEs in area of Materials (Non-ferrous Metals) Engineering, Nanotechnology, and Digitalisation (4IR).

He has diverse experiences ranging from R&D to production, and from business planning to accounting and sales in both private and public sectors. He is a core inventor of “KTRSTM (Tech-based SME rating/financing)” and “TAGRTM (tech-related market prediction)” models, which are currently utilised as national standards not only by Korean government, but also by many private financial institutes. These models are also recently being adopted by many countries in EC as well as many developing countries around the world.

He holds a D.Phil. in Materials Science at the University of Oxford, Master and Bachelor degrees in Metallurgy at Yonsei University, Master degrees in Design Management at KIDP and in Technology Management at Korea University.

Josef Fröhlich

Honorary Professor, Vienna University of Economics and Business Administration



Josef Fröhlich is honorary professor at the Vienna University of Economics and Business Administration and has headed more than 30 years the department Innovation Systems at the AIT Austrian Institute of Technology Ltd.

He is a theoretical physicist by training (PhD at the University of Graz 1977) and obtained the *venia legendi* 1986. In 2007 he received the honorary professorship for spatial economics. He gives lectures at several Universities and is on the board of research and educational organizations. His present scientific experience covers topics of innovation economics, the science of complex systems and management sciences. During the last 35 years he was involved in different projects of scientific advice, dealing with the development of measures, strategies, instruments and programs for the Austrian, European and selected Asian Science-, Technology- and Innovation Politics.

Anders Isaksson

Senior Development Officer, UNIDO



Mr. Anders Isaksson, who has been working with the United Nations Industrial Development Organization (UNIDO) for more than 15 years, is Senior Industrial Development Officer in UNIDO's Research and Policy Advice Division at the Department of Policy Research and Statistics (PRS/RPA). There, he handles issues related to capacity development and the Global Manufacturing and Industrialisation Summit. Prior to joining PRS/RPA, Mr. Isaksson worked in UNIDO's Department for Trade, Investment and Innovation (TII), Technical Cooperation Division. There, his work focused on Science, Technology and Innovation. Of particular interest to him is the mapping of firms' innovation and productivity performance, as well as assessment of the efficiency of systems of innovation. He is sharing this focus with a strong interest in different modes of technology transfer and diffusion as drivers of technological change. Prior to this, Anders worked at the Research Branch. There he analyzed, at micro and macro level, issues of productivity and technological change. In particular, his work focused on how industrial development contributes to closing the gap between industrialized and developing countries. One of his main achievements while in the Research Branch was the World Productivity Database.

Mr. Isaksson brought with him to UNIDO experience from academia, public and private sector. After obtaining his doctoral degree, he spent several years on a post-doc programme. Thereafter, he started his own consultancy firm, which mainly found its clients in institutions related to the Swedish Government, including the Government itself. He has also had a stint at the Swedish International Development Agency Cooperation (Sida).

Mr. Isaksson holds a Doctorate degree in economics the University of Gothenburg, Sweden. He has published widely in professional journals and books.

Franz Brugger

Capacity Development Expert, UNIDO



Since 2012, Mr. Brugger works as a Capacity Development Expert with UNIDO. He has been designing and conducting numerous capacity development and training activities in Africa, Asia and Europe on issues ranging from evidence-based industrial policymaking, strategy design and instruments to the circular economy and sustainable energy solutions.

Previously, he worked with the United Nations Alliance of Civilizations in New York, the International Press Institute in Vienna and the European Commission. Mr. Brugger holds a Master's degree in Philosophy from Vienna University and a Master in International Relations from the University of Cambridge, UK.