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Deutsches Institut für  
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Workshop

## Industry 4.0

Challenges for productivity, employment and inclusion

28-29 May 2018, Bonn

The logo for the Deutsches Institut für Entwicklungspolitik (DIE), consisting of the lowercase letters 'd.i.e' in a red, sans-serif font.

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## Workshop

### "Industry 4.0: Challenges for productivity, employment and inclusion"

German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE), Bonn

28 – 29 May 2018

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The policy research workshop will explore the economic and social implications of emerging trends in new digital production technologies, their impact on national economies and the global economic systems, and the role of industrial policy in steering the digital revolution in a socially desirable direction, i.e. preventing damaging consequences and promoting its positive impact. Innovative digital technologies are disruptive in nature and have far-reaching consequences for all three dimensions of sustainable development: They (1) affect future patterns of productivity, competitiveness and employment, (2) exert a strong influence on education and skill requirements as well as income distribution, and (3) have the potential to contribute to increased resource-efficiency and ultimately, a decoupling of resource consumption from economic growth. Moreover, from a broader perspective, digital technologies will also play a role in determining the evolving international economic division of labour, inter alia through their impact on global value chains and thus the future position of developing countries in the global economy. In this context, the workshop will also establish a link to the topical debate around 'latecomer development' and 'premature deindustrialization'. With a regional focus on countries in Latin America and the Caribbean, the potential for learning from more advanced 'early movers' will be explored as an input into the renewed debate on the role of active industrial policies for shaping the digital future.

The current discourse on this topic is rife with speculation and dystopian visions. Against this backdrop, the Workshop will seek to present a sober and balanced stocktaking of both the perils and potentials of new digital technologies. Dedicated thematic panels will bring together leading economists, industry experts and policy practitioners.

## DAY 1: Monday, 28th May 2018

### 9.00–9.30 Welcome addresses

- Technology, sustainability and transformation: What future do we want?  
*Tilman Altenburg, Co-Chair 'Transformation of Economic and Social Systems' Programme, German Development Institute (DIE)*
- Digitalization, knowledge transfer and development: the role of international cooperation  
*Christiane Bögemann-Hagedorn, German Ministry for Economic Cooperation and Development (BMZ)*
- Digital, Smart and Global: rethinking development and structural changes  
*Mario Cimoli, Deputy Executive Secretary a.i., United Nations Economic Commission for Latin America and the Caribbean (UN-ECLAC)*

### 9.30–9.45 Digitalization and economic development: Do we know the winners and losers? Presentation of workshop background study

*Wilfried Lütkenhorst, DIE*

### 9.45-10.15 Keynote: Innovation, financialization and inequality in the digital era

*William Lazonick, President and Co-founder, Academic Industry Research Network*

### 10.15-10.45 Coffee break

### 10.45-12.15 Session 1: New digital technologies: Potential for innovation

The digitalization of the economy is drastically changing the way we produce, communicate and consume. Big data, the Internet of Things and new intelligent tools will pervade all dimensions of human life from manufacturing goods to creating knowledge and information, opening new opportunities for innovation and technological diffusion. What can be realistically expected in terms of fundamental technological breakthroughs? Which key innovations does cutting-edge engineering research predict? How does industry itself assess digital technology potentials? How will these technologies change production and consumption? Which specific transformations can be expected from blockchain technologies?

- *Heiko Seif, Unity Consulting & Innovation*
- *Franz von Weizsäcker, German Society for International Cooperation (GIZ), Blockchain Lab*
- *Gerhard Volkwein, Siemens Digital Factory Division*
- *José Ramon López Portillo, Mexico*

Moderator: Mario Castillo, UN-ECLAC

**12.15-12.45 Keynote: Automation and inequality - Directions of change for the world of work in the Global South**

*Andrew Norton, Director, International Institute for Environment and Development (IIED)*

**12.45-13.45 Lunch break**

**13.45-15.15 Session 2: Impact on employment, skills and inequality**

Exactly how the digitalization of production will affect the future levels and skill requirements of employment is the central question in both the scientific and public discourse. Existing jobs will be destroyed and new jobs created. Can we predict the net effect? Available studies arrive at different magnitudes. How can the variations in predicted employment effects be explained? Which types of jobs are most seriously affected? And which skill profiles will be critical for competing in industry 4.0?

- *Ulrich Zierahn, Centre for European Economic Research (ZEW)*
- *Becky Faith, Institute for Development Studies (IDS)*
- *Michael Tiemann, German Federal Institute for Vocational Education and Training (BIBB)*
- *Jörg Mayer, United Nations Conference for Trade and Development (UNCTAD)*
- *Jürgen Weller (UN-ECLAC)*

Moderator: Wilfried Lütkenhorst, DIE

**15.15-15.45 Coffee break**

**15.45-17.15 Session 3: The future of manufacturing and global value chains: Is the trend towards reshoring fiction or reality?**

For many decades, the world economy has been characterized by manufacturing-led economic growth and the rapidly rising contribution of global value chains (GVC) in production and trade. Automation and digital innovation are dramatically changing the manufacturing world, making production more robot-intensive and “placeless”. In this context the role of GVCs is threatened by the emerging trend towards the reshoring of foreign direct investment from low-cost production in developing countries to automated production in industrialized countries. In this session we will explore the future of manufacturing-led growth and global value chains in light of the current technological transformation.

- *Koen de Backer, Organization for Economic Cooperation and Development (OECD)*
- *Jörg Hofstetter, International Forum on Sustainable Value Chains*
- *Jan Stentoft, University of Southern Denmark*
- *Oscar Albín, Executive President of the National Industry of Automotive Parts, Mexico*

Moderator: Annalisa Primi, OECD Development Centre

**18.30 Workshop dinner (by invitation only)**

## DAY 2: Tuesday 29 May 2018

### 9.15-9.45      **Keynote: Rethinking industrial policy in a hyper-connected world**

*Mario Cimoli (UN-ECLAC)*

### 9.45-11.10      **Session 4: Productivity and competitiveness in the digital era**

New technologies have led to widespread use of intelligent tools and mechanisms such as cloud computing, big data analytics and Internet of Things, with great impact on production and productivity. The development of digital platforms and their impact on entrepreneurial activities not only create new business models but also open new windows of opportunities for competitiveness. Gaining a place in this emerging global market will be a key asset for future productivity enhancements and sustained growth trajectories. Which are the key determinants of digital competitiveness and how can they best be strengthened?

- *Carsten Polenz, SAP*
- *Ulrich Jürgens, Berlin Social Science Center (WZB)*
- *Raúl Katz, Columbia University*
- *NN, La Asociación Interamericana de Empresas de Telecomunicaciones ASIET*

Moderator: Sebastián Rovira, UN-ECLAC

### 11.10-11.30      **Coffee break**

### 11.30-12.45      **Session 5: A vital link: Digitalization and resource-efficiency**

Digitalization on the one hand and a decarbonized, low-emission and resource-efficient growth path on the other hand are the two defining technological trajectories in the years to come. It is thus essential to explore possible synergies between them. The evidence is mixed ranging from the massive additional energy requirements of gigantic server farms to the untapped potential of fully digitized smart energy grids. Can digital technologies act as catalysts of enhanced resource-efficiency? How real is the potential of the digital revolution also being environment-friendly? Can additive manufacturing technologies contribute to enhanced energy- and resource efficiency?

- *José Luis Samaniego (UN-ECLAC)*
- *Luis Munuera, International Energy Agency (IEA)*
- *Tareq Emtairah, United Nations Industrial Development Organization (UNIDO)*
- *Jeremy Faludi, Dartmouth University*

Moderator: Anna Pegels, DIE

### 12.45-13.45      **Lunch break**

**13.45-14.15 Keynote: Innovative Business Models for 'Industrie 4.0' in the German „Mittelstand“**

*Michael Dowling, University of Regensburg*

**14.15.-15.45 Session 6: Rethinking the basis of the welfare state under the digital paradigm**

The digital revolution and the precarization of employment are opening a new debate on how our tax and income distribution can be organized in a resilient and inclusive manner. In this context, the topical and highly controversial debate around a universal basic income (UBI) has become emblematic. In this session we will try to respond to some of the following key questions: How can we reinforce the welfare state and foster an inclusive digitization? Is UBI a real and sustainable alternative? What are the risks and opportunities originating from the growing 'platform economy'? How can we tax the digital economy?

- *Daniel Buhr, University of Tübingen*
- *Thomas Fischer, German Trade Union Association (DGB)*
- *Padmashree Gehl Sampath, UNCTAD*
- *Jamie Woodcock, Oxford Internet Institute*
- *Ryan Abbott, University of Surrey (tbc)*

Moderator: *Tilman Altenburg, DIE*

**15.45-17.15 Session 7: Challenges of digital transition: Country experience from Latin America**

While digital innovations are mainly driven by high-tech countries, the implications for the global division of labour will affect all countries worldwide – yet in different ways. China is now among the big digital innovators, and strongly promoting robotics as a way of dealing with rising industrial wages. Latin America is still a standard-taker, but will have to adapt as business processes in some of its key industries are changing. What trends are observable, and what are the policy responses? How can development cooperation shape a future pattern of globalization that is inclusive and sustainable?

- *Thiago Camargo Lopes, National Secretary for Digital Policies, Ministry of Science, Technologies, Innovation and Communication (MCTIC, Brazil)*
- *Rosa María Suárez, Technical Director of the Cabinet for Coordination of Social Policy, Dominican Republic*
- *Carolina Cosse, Minister, Ministry of Industry, Energy and Mining, Uruguay (tbc)*
- *Argentinian representative (tbc)*
- *Ulrike Metzger, BMZ*

Moderator: *Mario Cimoli, UN-ECLAC*

**17.15-17.30 Wrap-up of workshop and perspectives for future exchanges with Latin America**

*Tilman Altenburg and Wilfried Lütkenhorst*

Your directions to the German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE), Tulpenfeld 6, D - 53113 Bonn

From Bonn Central Station (*Hauptbahnhof*):

Take the U-Bahn U 16/ U 63 or U 66 to "Heussallee/Museumsmeile". Take the exit Heussallee. Turn right after 50 m onto the footpath towards the office complex 'Tulpenfeld'. Follow the signs across Tulpenfeld to the building of DIE at Tulpenfeld 6.

The buses No. 610 and 611 run from the train station Bonn *Hauptbahnhof* to the bus stop "Heussallee/Museumsmeile". Turn onto the footpath towards the office complex 'Tulpenfeld'. Follow the signs across Tulpenfeld to the building of DIE at Tulpenfeld 6.

Your directions to the Deutsche Welle, Kurt-Schumacher-Str. 3, 53113 Bonn

From airport Cologne/Bonn: Bus No. 670 to Bonn Central Station (30 min.)

From Bonn Central Station (*Hauptbahnhof*): The buses No. 610 and 611 run from the train station Bonn *Hauptbahnhof* to the bus stop "Deutsche Welle" or take the U-Bahn U16 / U63 or U66 to "Heussallee/Museumsmeile". Take the exit "Heussallee", go straight ahead, and turn right at the second street into the "Kurt-Schumacher-Str."

Advice for car drivers: Please use the parking ground for visitors, vehicular access Charles-de-Gaulle-Straße.



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