Measuring Digital Transformation

Submitted by: OECD

MEASURING DIGITAL TRANSFORMATION

Workshop on "The Digital Economy: Measurement, Regulation and Inclusion"

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OECD
BETTER POLICIES FOR BETTER LIVES

A wide-ranging digital transformation of economies and societies is underway

Digital and other new production technologies have become pervasive

Automation is becoming widely deployed

Artificial Intelligence emerges as a new technological paradigm

The need for comprehensive evidence across multiple policy domains…

..while facing gaps in indicator coverage, domestic coverage, timeliness, differences in methodologies…

Source: OECD (forthcoming), Going Digital: Shaping Policies, Improving Lives.

- GDP is an adequate concept to measure market production, but in light of digital transformation, concerns have arisen over a number of areas…
  - Prices and volumes
  - New forms of intermediation services
  - Free and subsidised consumer products
  - Consumers as producers
  - Certain assets not being measured
  - Cross border flows
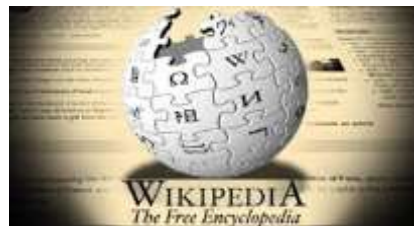
G20 Toolkit for Measuring the Digital Economy

- 2017 G20 Roadmap for Digitalisation
- 2018 Argentina Presidency and the OECD, working with 6 other International Organisations
- G20 MDE Toolkit:
  - 35 indicators covering 4 dimensions of the digital economy: a) infrastructure; b) society; c) innovation and technology adoption; d) jobs and growth
  - Identification of gaps, challenges, available methodologies
  - 15 measurement case studies from G20 members and 9 initiatives from International Organisations
- Actions for improvement and measurement agenda

Source: *G20 Toolkit for Measuring the Digital Economy* (2018)

35 indicators

Infrastructure
3.1 Investing in Broadband
3.2 The rise of Mobile Broadband
3.3 Toward higher Internet speed
3.4 Prices for connectivity
3.5 Infrastructure for the Internet of Things
3.6 Secure servers infrastructure
3.7 Household access to computers
3.8 Household access to the Internet

Innovation and technology adoption
3.16 Research in machine learning
3.17 AI-related technologies
3.18 Robotisation in manufacturing
3.19 R&D in information industries
3.20 Supporting business R&D
3.21 ICT-related innovations
3.22 ICT Use by businesses
3.23 Cloud computing services

Empowering society
3.9 Digital natives
3.10 Narrowing the digital divide
3.11 People's use of the Internet
3.12 E-consumers
3.13 Mobile Money
3.14 Citizens interacting with government
3.15 Education in the digital era

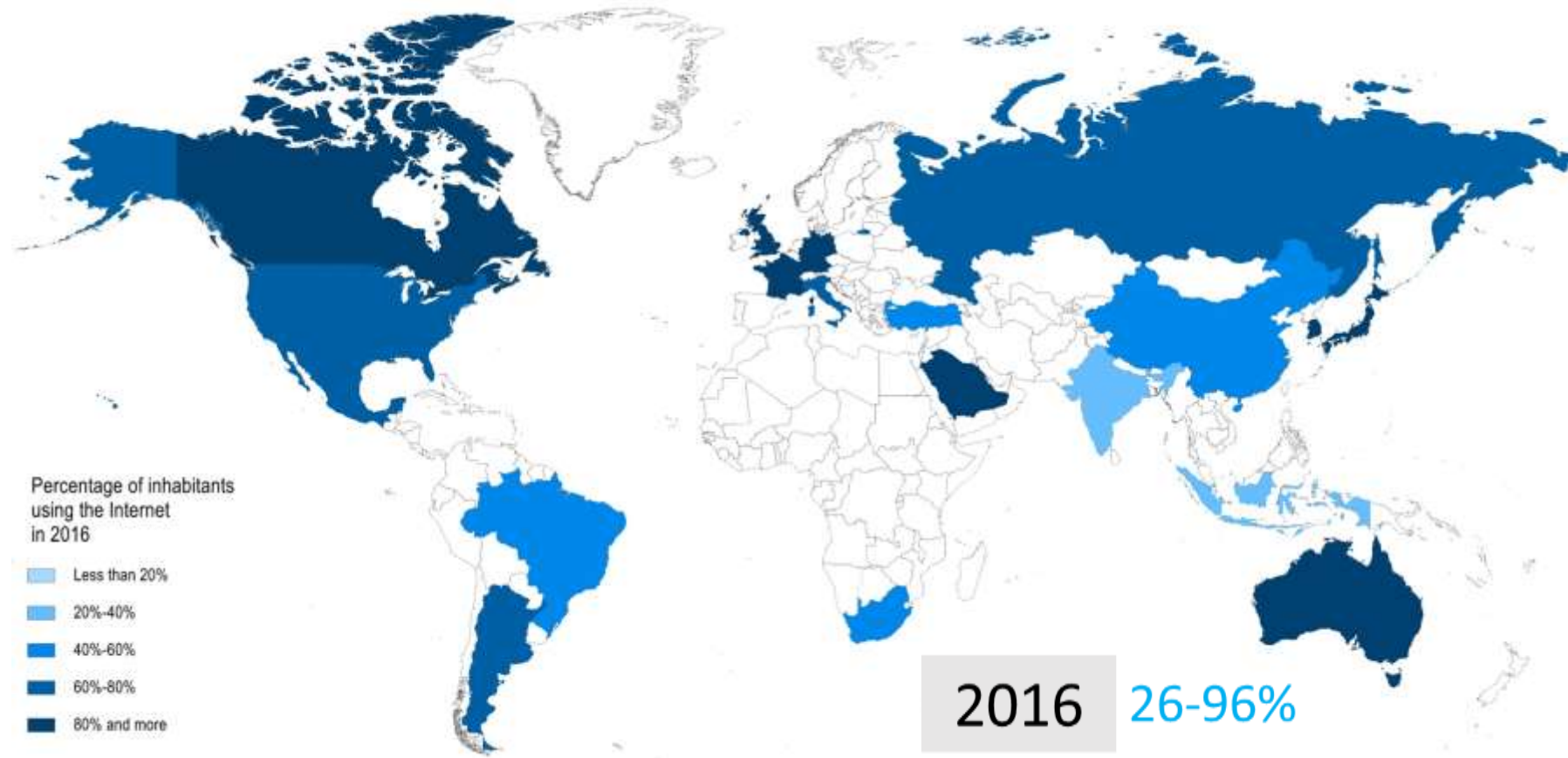## Jobs and growth
3.24 Jobs in the Information Industries
3.25 Jobs in ICT occupations
3.26 ICT workers by gender
3.27 E-Commerce
3.28 Value added in information industries
3.29 The extended ICT footprint
3.30 ICT Investment
3.31 ICT and productivity growth
3.32 ICT and Global Value Chains
3.33 Trade and ICT Jobs
3.34 ICT goods as a percentage of merchandise trade
3.35 Telecommunications, computer, and information services as a percentage of services trade

Internet penetration

Internet users as a percent of all inhabitants aged 16-74, G20 economies

Percentage of inhabitants using the Internet in 2016

- Less than 20%
- 20%-40%
- 40%-60%
- 60%-80%
- 80% and more

2016   26-96%

Source: OECD calculations based on ICT Access and Usage by Households and Individuals Database, http://oe.cd/hhind; Eurostat; ITU, World Telecommunication/ICT Indicators Database and economy sources, June 2018

Top robot-intensive G20 economies, manufacturing, 2005 and 2015

Industrial robot stock over manufacturing value added, millions USD, current values
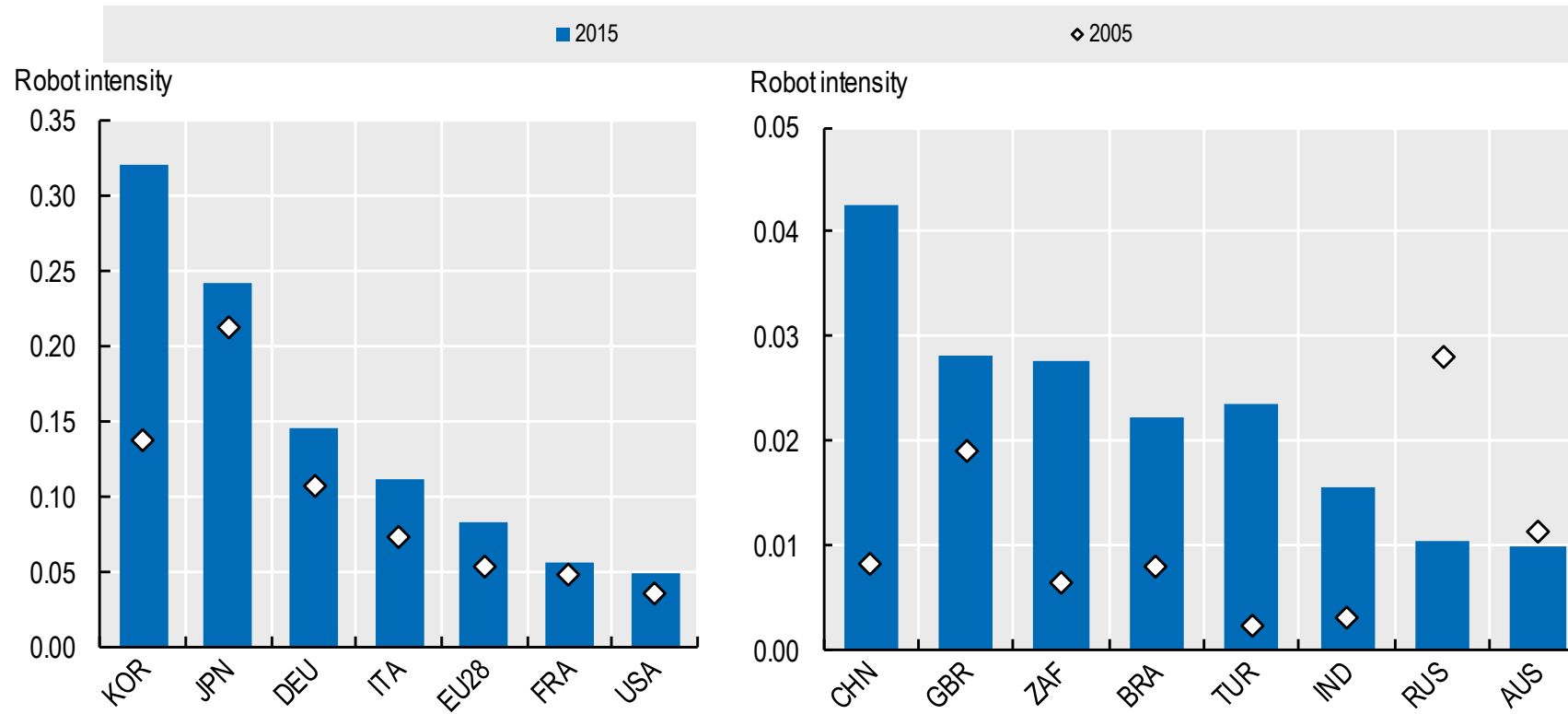
Source: OECD calculations based on International Federation of Robotics data, and World Bank, World Development Indicators Database, 2017

- Invest in comprehensive, high-quality, granular data infrastructure (e.g. on individuals and firms by their socio-economic characteristics)

- Improve measurement of the digital economy in GDP (digital satellite accounts)

- Foster cooperation and countries' adoption of international methodological standards and best practices (e.g. definitions, classifications, statistical survey tools)

- Promote partnerships with businesses and other organisations to improve collection of timely statistics (including frameworks to facilitate access to and sharing of data)

Project Aims:

- **Understand** the digital transformation and its impacts on the economy and society.

- Provide policymakers with the tools needed to develop a forward-looking, **whole-of-government policy response**.

- **Reduce the gap** between technology and policy development.

- Advance the **Measurement Agenda**

Insights into access

Average monthly mobile data usage per mobile broadband subscription, GB, 2017
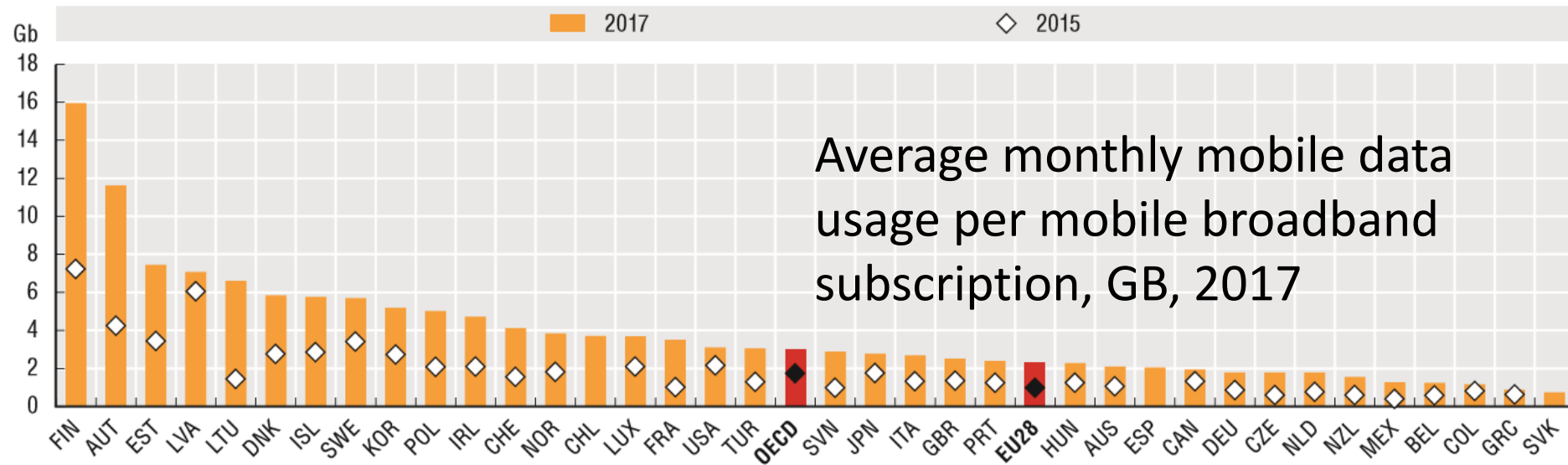
→ Network capacity will need to continue to expand in order to meet the rapidly increasing demand for data.

Insights into effective use of digital tech

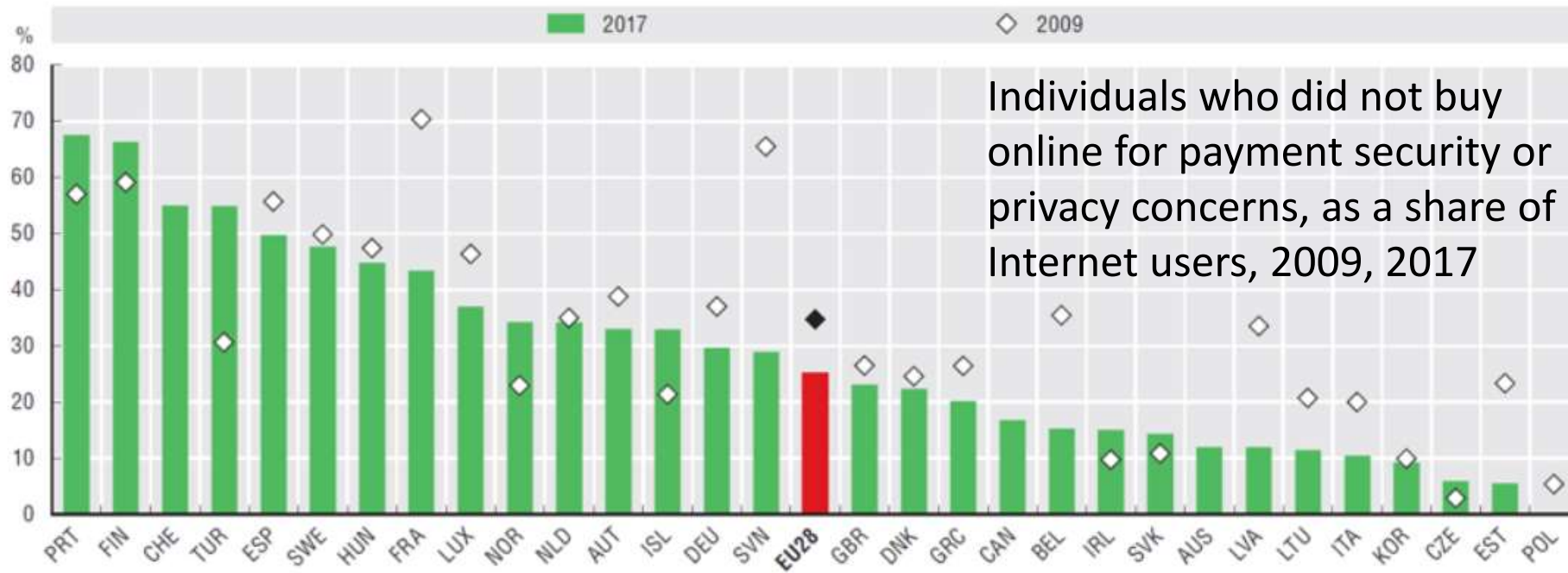**Enterprises performing big data analysis, by size, 2018**
As a percentage of enterprises in each employment size class
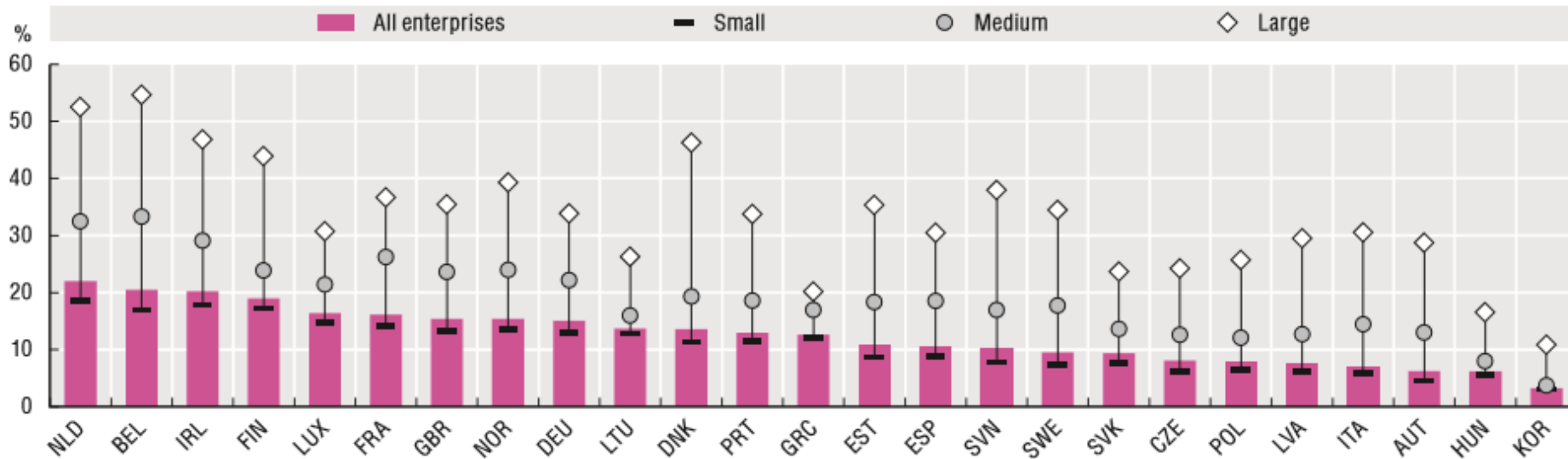
→ Most people and organisations use digital tools, but often far from their potential. It is essential to address barriers – such as skills – to stronger uptake of more sophisticated online activities and wider diffusion of digital tools.

Source: OECD (2019), *Measuring the Digital Transformation*, based on OECD, ICT Access and Usage by Businesses Database, http://oe.cd/bus, December 2018.

Individuals who did not buy online for payment security or privacy concerns, as a share of Internet users, 2009, 2017

→ People, firms and governments must trust that engaging in digital environments will bring more benefits than downsides.

Source: OECD (2019), *Going Digital: Shaping Policies, Improving Lives.*

The work also identified a measurement agenda for the future

Strengthen the evidence base now to better design policies for digital transformation in the future - **9 ACTIONS**

1. Make the digital transformation more visible in economic statistics

2. Get the narrative on impacts right

3. Measure wellbeing in the digital age

4. Design new approaches to data collection

5. Monitor transformative technologies (e.g. artificial intelligence)

6. Improve the measurement of data and data flows

7. Define and measure the skills needed in the digital era

8. Measure trust in online environments

9. Assess governments' digital strengths

Going Digital website:

www.oecd.org/going-digital

Coming soon (11 March):

OECD (2019), *Going Digital: Shaping Policies, Improving Lives*

OECD (2019), *Measuring the Digital Transformation – A Roadmap for the Future*