

The Digital Economy: definitions and core statistics

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Overview

- Defining the Digital Economy
- Measuring digital products
- Measuring digital production
- Concluding remarks

What is “the digital economy”?

1. Hard to define

- Multi-faceted
- Cuts across sectors and industries
- Affects production and consumption: what, how, and by whom
- Both tangible and abstract

2. Hard to agree on

- Different perspectives, linked to different analytical and policy questions

One starting point: a definition of “economy”

[Adapted slightly] from Merriam-webster dictionary

“the process or system by which

goods and **services** are **produced**, **sold** and **bought**

in a country [and internationally]”

Products

Production

Transactions

How “digital” must each of these be to count as part of “the digital economy”?

Drawing definitive boundaries is challenging → tiered definition of the digital economy

- This example from *UNCTAD Manual for the Production of Statistics on the Digital Economy*, adapted from OECD report for the G20 (2020)
- Emphasises the nature of:
 - **Products** (ICT goods and services, digital content, digitally delivered services)
 - **Production** (extent of reliance on “digital inputs”)
 - **Transactions** (digitally ordered/ digitally delivered)

Production

Figure 3 A proposed definition of the digital economy



Transactions

What would you include in "the digital economy"?

Products

Products purely digital in form?

- Streaming services
- CAD designs
- Software (ICT product)

ICT-enabled services

Physical – when delivered digitally?

- (e-)books
- Training (e-learning)
- Banking services (online banking)

Enabling (ICT) services?

ICT services

- Data processing, hosting
- Repair of ICT equipment

Enabling (ICT) goods?

- Computers, smartphones?
- Servers, Network switches?

ICT goods

Components?

- Processors, storage, sensors?
- Glass?

Connected versions of products?

- "Smart" TV/light bulb/fridge?
- Airbus A350?

Data?

Production

Producers of ICT products?

- Cloud services providers
- Software makers

ICT sector

Producers of products "digital in form"?

- Cloud services providers
- Designs for 3d printing?

Producers *reliant* on digital technology?

- Online platforms

Producers whose production is *significantly* altered or enhanced by using digital technology?

ICT usage in business

- Parcel carriers
- Car makers
- Airlines
- Taxis

Producers that make *any* use of digital technology?

- Hairdresser uses WeChat to schedule customer appointments

Transactions

Transactions where the payment takes place "digitally"?

E-commerce

Transactions where the payment takes place "digitally"?

- Paying in a physical store by card, QR code, etc.

Transactions where digital technology plays any role?

- Car dealer advertises vehicle online but sale is in-person and paid by cash

We don't have to agree precise boundaries to measure important aspects!

The UNCTAD manual

1. Core indicators on the digital economy

- Products

- ICT goods trade
- ICT services trade
- ICT-enabled (digitally delivered) services trade

- Production

- ICT sector (employment and value added)
- ICT usage in business

- Transactions

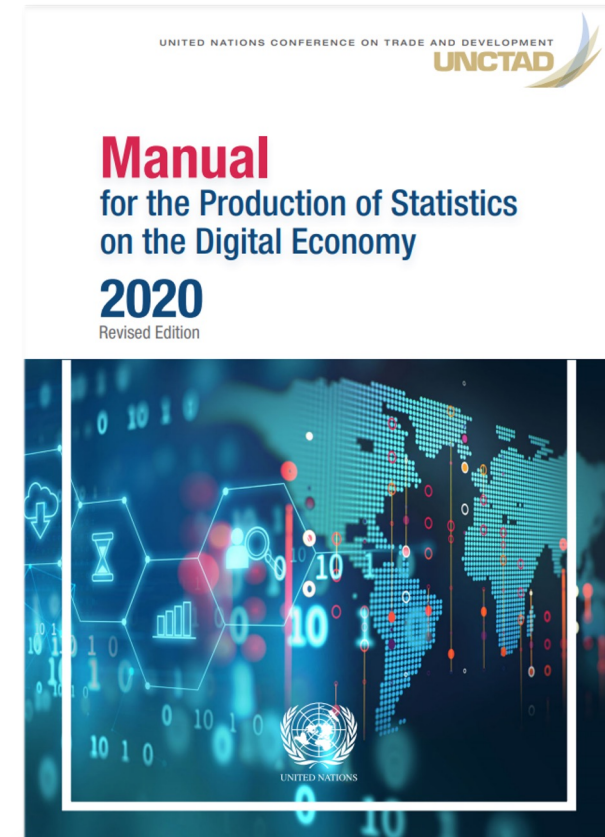
- E-commerce

2. Guidance on how to compile them

- data sources and methods
- survey design
- model questionnaire questions
- recommended breakdown

3. Guidance on presentation and dissemination

Core indicators developed through the [Partnership on Measuring ICT for Development](#) and [endorsed by countries through the UN Statistical Commission](#).



The Partnership on Measuring ICT for Development is led by UNCTAD, the ITU, and UNSD, with participation from the UN regional commissions (incl. UN ECLAC) and various other international organisations and bodies. The list of Core indicators on measuring ICT for development is developed by the participating organisations with input from member countries and endorsed by countries through the UN Statistical Commission. See: <https://www.itu.int/en/ITU-D/Statistics/Pages/intcoop/partnership/default.aspx>.



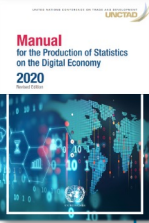
Measuring digital products

	ICT goods	ICT services	<i>Potentially</i> ICT-enabled services (aka digitally delivered/deliverable services)
Definition	<i>"ICT products must primarily be intended to fulfil or enable the function of information processing and communication by electronic means, including transmission and display."</i> (OECD, 2011)		<i>Potentially</i> ICT-enabled services are services products that can be delivered remotely over ICT networks. (UNCTAD, 2015)
Product headings	Computers and peripheral equipment	Telecommunications services	ICT services
	Communication equipment	Computer services – software	Sales and marketing services (excl. trade and leasing services)
	Consumer electronic equipment	Other computer services	Information services
	Electronic components	Licenses to reproduce and/or distribute computer software	Insurance and financial services
	Miscellaneous		Management, administration, and back office services
			Licensing services
			Engineering, related technical services, R&D
			Education and training services
Measurement: domestic	Output/value added by products (i.e. classified according to the UN Central Product Classification)		ICT-enabled ("digitally delivered"): add questions on economic surveys to delineate services delivered via ICT networks. <i>Potentially</i> ICT-enabled ("digitally deliverable"): aggregate relevant CPC classes.
Measurement: trade	Customs data - 94 Harmonized Commodity Description and Coding System (HS 2017) codes	International Trade in Services data, classified by EBOPS (Extended Balance of Payments Services classification)	ICT-enabled ("digitally delivered"): add trade survey questions to delineate services delivered via ICT networks. <i>Potentially</i> ICT-enabled ("digitally deliverable"): aggregate relevant EBOPS classes.

ICT goods trade

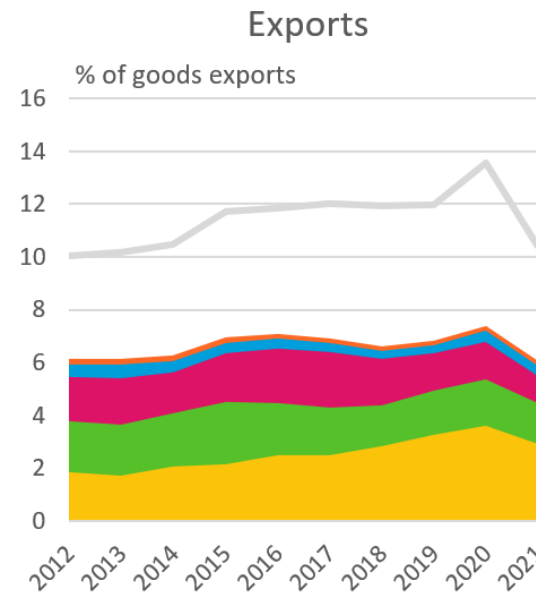
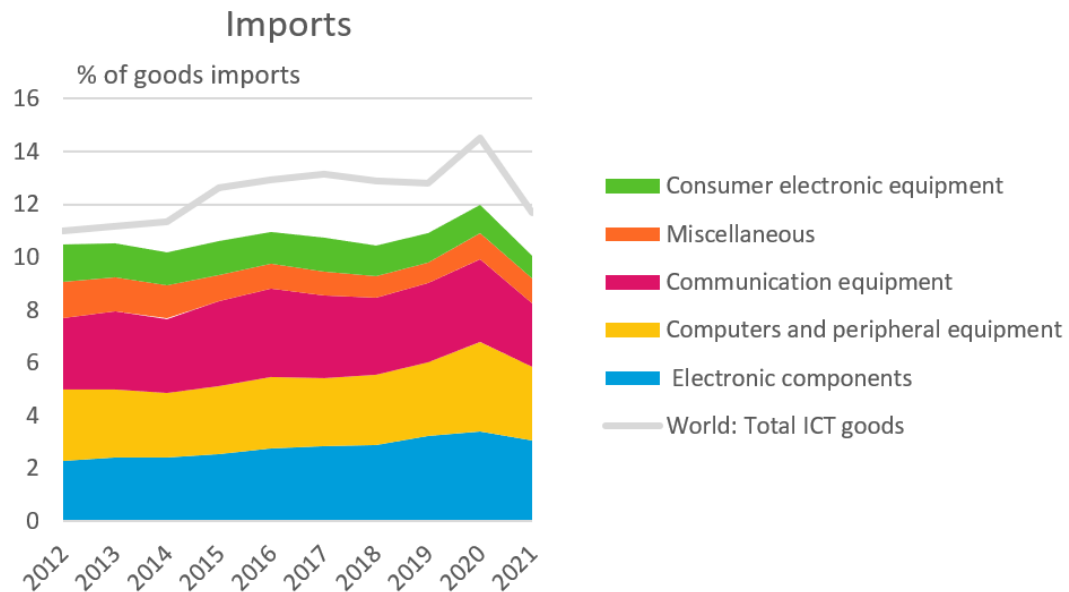
- UNCTAD + UNSD maintain a [list](#) of ICT goods based on HS for compilers to use to identify and aggregate ICT goods within merchandise trade data

Core indicators



ICT3: ICT goods imports as a percentage of total imports
 ICT 4: ICT goods exports as a percentage of total exports

ICT goods trade, by product, Latin America and the Caribbean



ICT goods imports

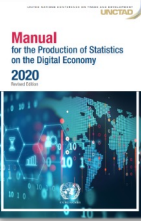
2021 or latest available year



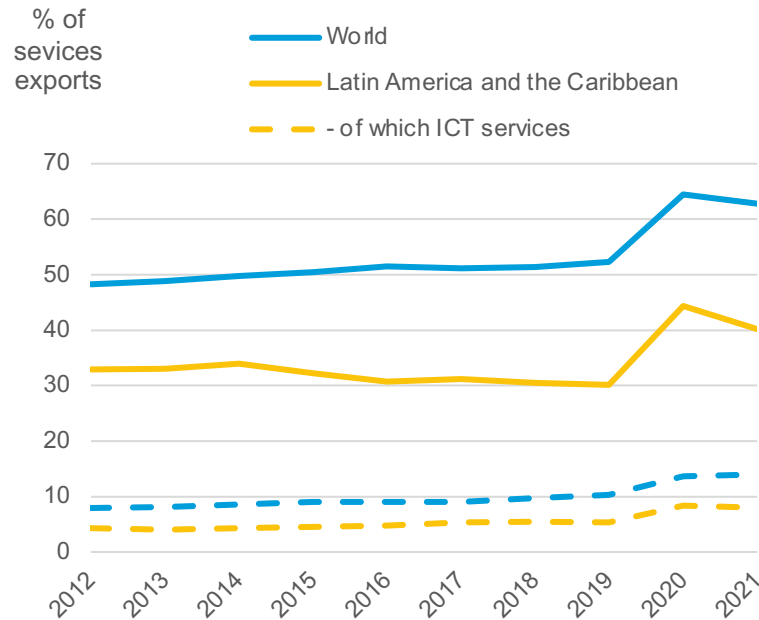
Source: UNCTAD based on UNCTAD Digital Economy and International Merchandise Trade databases, available at <https://unctadstat.unctad.org/>
 Note: current prices. Not adjusted for re-exports/re-imports due to data availability. Map shows latest available year from 2018-2021.
 The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

Trade in ICT services / digitally deliverable services

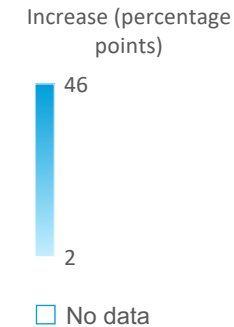
Core indicators



Digitally deliverable services exports



Increase in export share of digitally deliverable services 2019-2020



ICT5: imports of ICT services as a proportion of total imports of services

ICT6: exports of ICT services as a proportion of total exports of services

ICT7: imports of ICT-enabled [i.e. digitally delivered] services as a proportion of total imports of services

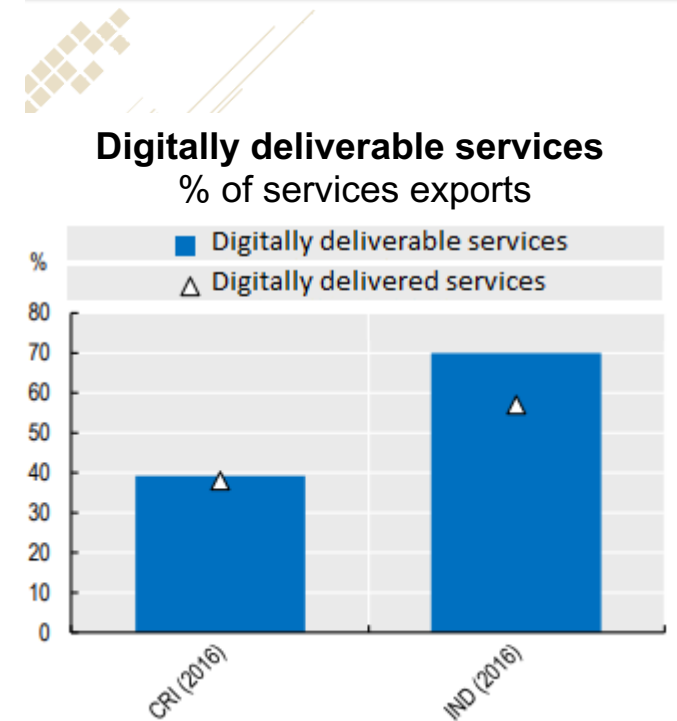
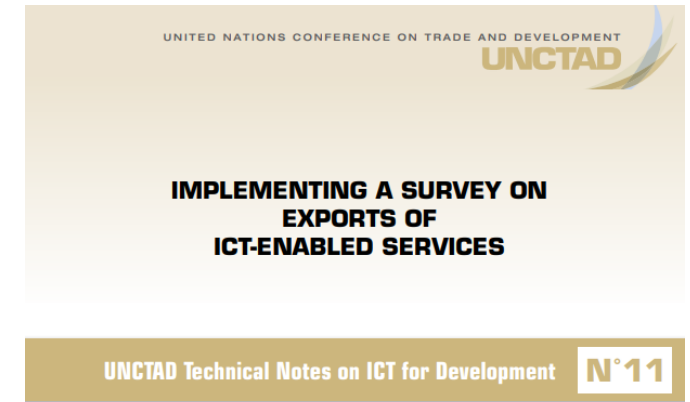
ICT8: exports of ICT-enabled [i.e. digitally delivered] services as a proportion of total exports of services

Source: UNCTAD based on UNCTAD Digital Economy database, available at <https://unctadstat.unctad.org/>

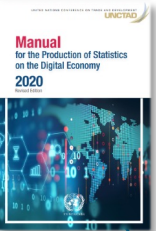
Note: current prices. Map shows latest available year from 2018-2021. The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

Digitally deliverable vs Digitally delivered services

- Measuring the share of services *actually* digitally delivered entails collecting additional information
 - UNCTAD collaborated with Costa Rica, India, and Thailand to develop a pilot survey on digitally delivered services
 - targeted at *resident service-exporting enterprises* (excl. financial and insurance)
 - Sampling frames (in order of preference):
 1. Balance of Payments register (of importing/exporting businesses), or
 2. Settlement register
 3. Business register, otherwise
 4. Lists of members of business/trade associations (with their help)
 - Recommended methods
 - Stratified sample; census of biggest units recommended
 - Questionnaire available (see report);
 - electronic version recommended
 - cognitive testing recommended before full implementation
 - Follow-up for non-response
- Suggest 80+% of digitally deliverable are actually digitally delivered
- Experience and lessons learned presented in the report.
- UNCTAD keen to support and collaborate with more countries to implement such surveys



Measuring digital production: ICT sector

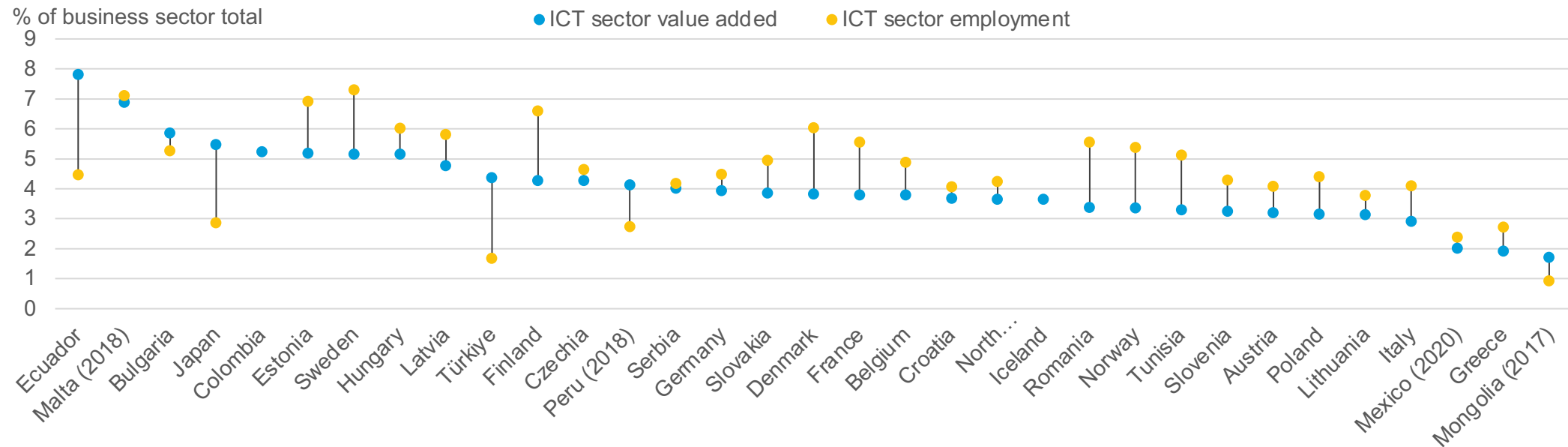


Core indicators

ICT 1: Proportion of total business sector workforce involved in the ICT sector

ICT 2: Value added in the ICT sector as a percentage of total business sector value added

ICT sector value added and employment shares, 2019



Measuring digital production: ICT use in business

- **Business ICT usage surveys** are widely used to investigate *what* digital technologies businesses are using and the *intensity* of use.
 - Important tool for understanding how businesses are adapting to the digital age and what policy support may be needed.
- UNCTAD database (unctadstat.unctad.com) collates core indicators.
 - Over 80 economies (9 of 44 economies in the UN LAC region)
 - Facilitates international comparison
 - help to inform policy priorities and opportunities to work with and learn from others.
- All countries encouraged to implement business ICT surveys including the core indicators/questions.
- **UNCTAD Manual** is a practical guide to support this and ensure international comparability
 - detailed definitions, guidance on survey design and methods, model questions, etc.
- The information from these surveys can also be coupled with other sources to derive measures of the different scopes of the digital economy (e.g., the value added generated by firms which sell via e-commerce).
- UNCTAD facilitates practice sharing and offers tailored technical assistance and capacity building to support countries in implementing or improving business ICT surveys.

Core indicators

Proportion of businesses:

B1: using computers

B3: using Internet

B5: with a web presence

B6: with an Intranet

B7: receiving orders over the Internet

B8: placing orders over the Internet

B10: with a LAN

B11: with an extranet

Proportion of businesses using the Internet:

B9: by type of access (narrowband, fixed/mobile broadband)

B12: by type of (online) activity

Proportion of persons employed

B2: routinely using computers

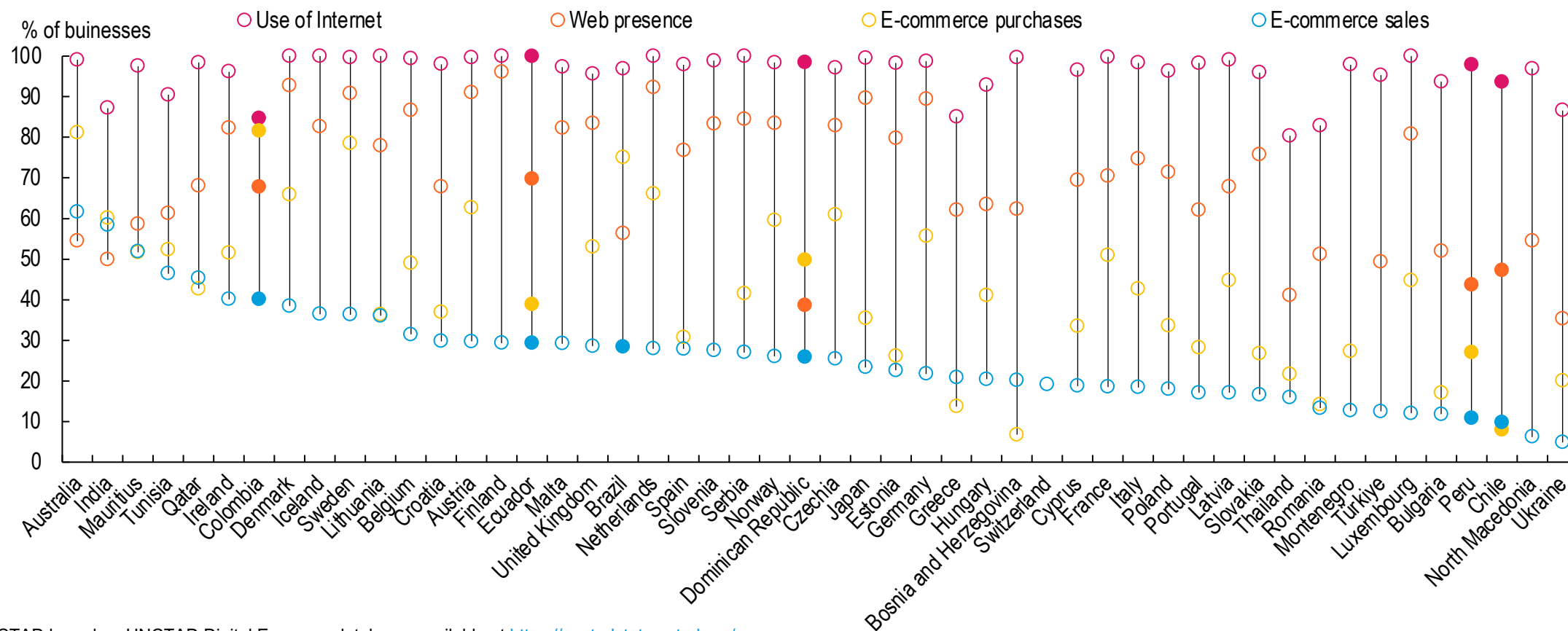
B4: routinely using the Internet

+ *proposed* indicators on mobile use



Measuring digital production: ICT use in business

Businesses Internet usage, 2021 or latest
In order of share of businesses making e-commerce sales



Source: UNCTAD based on UNCTAD Digital Economy database, available at <https://unctadstat.unctad.org/>

Note: Businesses with 10+ persons employed. For each country and variable, if 2021 data is not available the latest available observation (2018 or later) is used. For e-commerce sales and web presence, the most common reporting year is 2021. For internet use it's 2019, for e-commerce purchases it's 2018. Data for India represents manufacturing only and the year 2018.

Concluding remarks

1. The digital economy is **hard to define** – but there is **precedent and guidance for measuring key elements**
2. This presentation has focused on **businesses as key actors in the digital economy**...but there are other relevant perspectives (c.f. wider set of core indicators on measuring ICT for development)
3. It is important to ensure **international comparability** in producing core indicators on the digital economy
→ the **UNCTAD Manual** is a foundation for this this
4. Data sources need development/enhancement to move **beyond an ICT-focused perspective** on the digital economy:
 1. **Business ICT surveys provide insight into which businesses are using what technologies** in different countries. They offer indicators directly and can provide a **basis for measures of the different scopes of the digital economy**.
 2. **Digitally deliverable trade** accounts for almost two-thirds of services trade in 2021; there is a need to **further develop sources to identify how much is actually digitally delivered**

Partnership on measuring ICT for development:
core indicators and primary sources

Topic	Number of indicators	Primary source(s)
ICT infrastructure and access	10	Telecoms regulators
ICT access and use by households and individuals	19	Surveys of ICT usage in households
ICT access and use by enterprises	12	Surveys of ICT usage in business
ICT sector and trade in ICT goods and services	4	National accounts, labour statistics
ICT in education	9	Surveys of ICT in schools
ICT in government	7	Various

<https://www.itu.int/en/ITU-D/Statistics/Pages/coreindicators/default.aspx>