



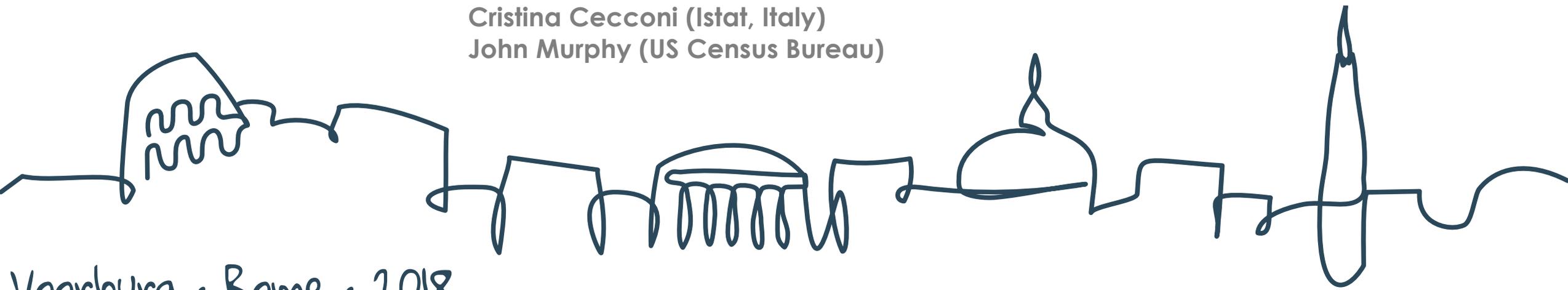
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24 | 28
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2018

Measurement challenges of the digital economy

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Overview

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- ② Concepts and definitions
- ③ Conceptual framework
- ④ Analysis
- ⑤ Measurement challenges
- ⑥ VG's work status
- ⑦ Criteria for VG's future work
- ⑧ Discussion



Motivation

- Digitalization is transforming the economic activity. It has led to the rise of new services, the change in services already existing and the growth of online transactions.
- IMF has suggested that international organizations and groups should work on updating the classification systems for digital activities and products and developing guidelines and recommendations for the measurement of digital transactions.
- IMF has also identified some specific challenges:
 - Improving the coverage of digital platforms and services linked to them in the main classifications system.
 - Regarding price index compilation:
 - quality adjustment for ICT goods and services;
 - timely inclusion of new digital product varieties and suppliers (+ weights);
 - covering adequately e-commerce in price samples (possibly online prices may have a different growth rate);
 - including the sharing economy prices in the CPI and PPI (+ weights)



Motivation

- The consistent measurement of services within a rapidly changing digital economy is an important challenge for the Voorburg Group (VG).
 - The first objective of the 2017-2021 strategic plan is that “Voorburg Group will update its best practices to account for the rapidly changing economy and its impact on our statistical measurement practices.”
- Digital transactions occur across the economy and are not unique to the services sector. Indeed there are a number of international working groups trying to define and measure many aspects of digital transformation. The work of the VG is not meant to replicate their work or to contradict their findings. Instead, the Group hopes to find **practical methods to implement the measurement of services** following the same concepts and objectives of those looking at the bigger picture of the digital economy.
- In the paper we review the definitions and conceptual framework provided by international organizations, identify the relevant cases for the analysis of the VG, recognize the challenges regarding classifications, and output and prices measurement and propose criteria for its prioritization.



Concepts and definitions

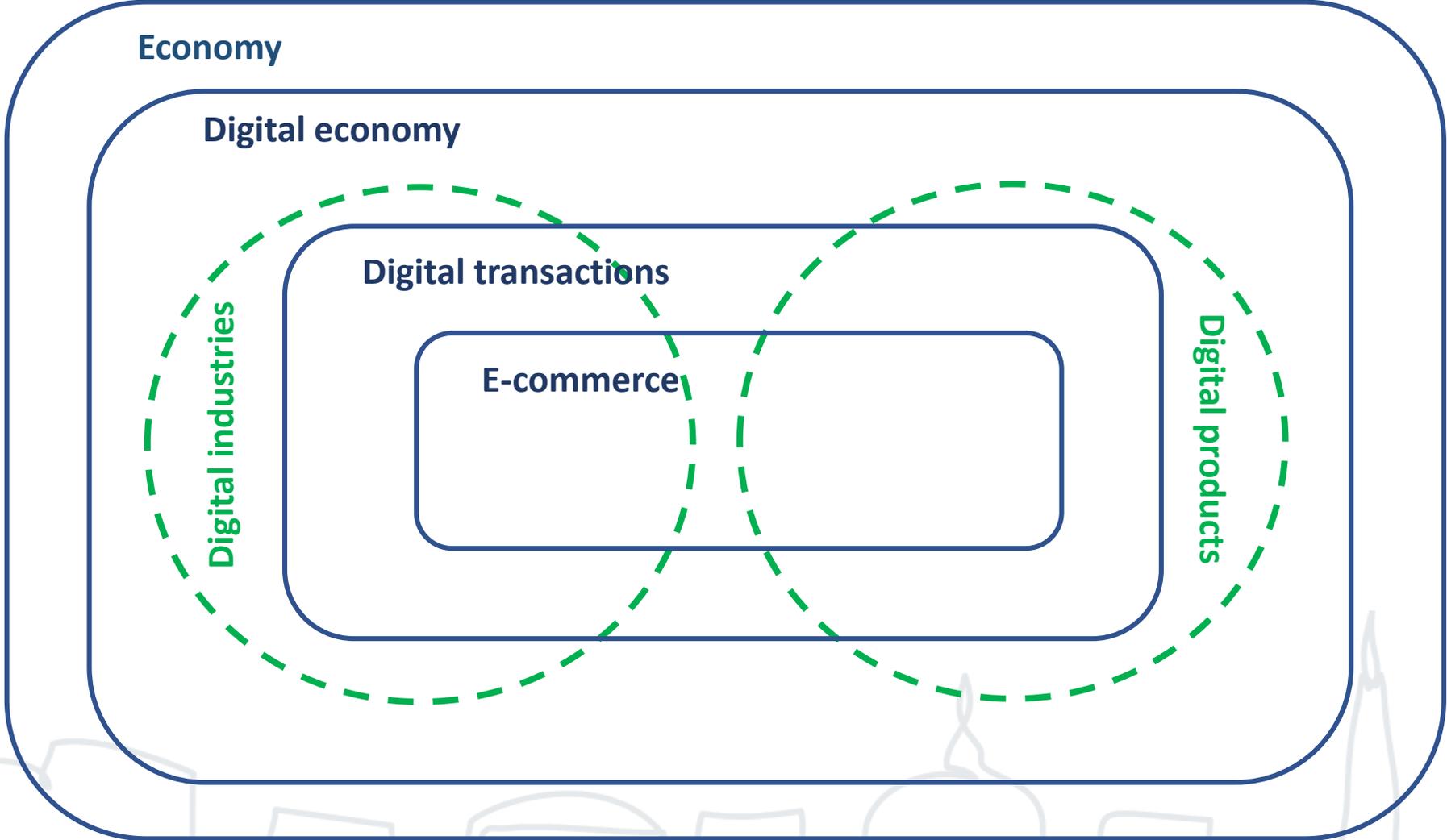
- **Digital economy.** If defined by the use of digitalized data, it would include a huge part of most economies... Too broad a concept!
- **Digital sector.** Producers at the core of digitalization: online platforms, platform-enabled services, and suppliers of ICT goods and services (IMF)
- **Digital transactions.** Transactions that are digitally-ordered, digitally-delivered, or platform-enabled (OECD's advisory group on measuring GDP in a digitalized economy)
- **E-commerce.** Sale or purchase of goods or services, conducted over computer networks by methods specifically designed for the purpose of receiving or placing of orders. The goods or services are ordered by those methods, but the payment and the ultimate delivery of the goods or services do not have to be conducted online (OECD)



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Concepts and definitions



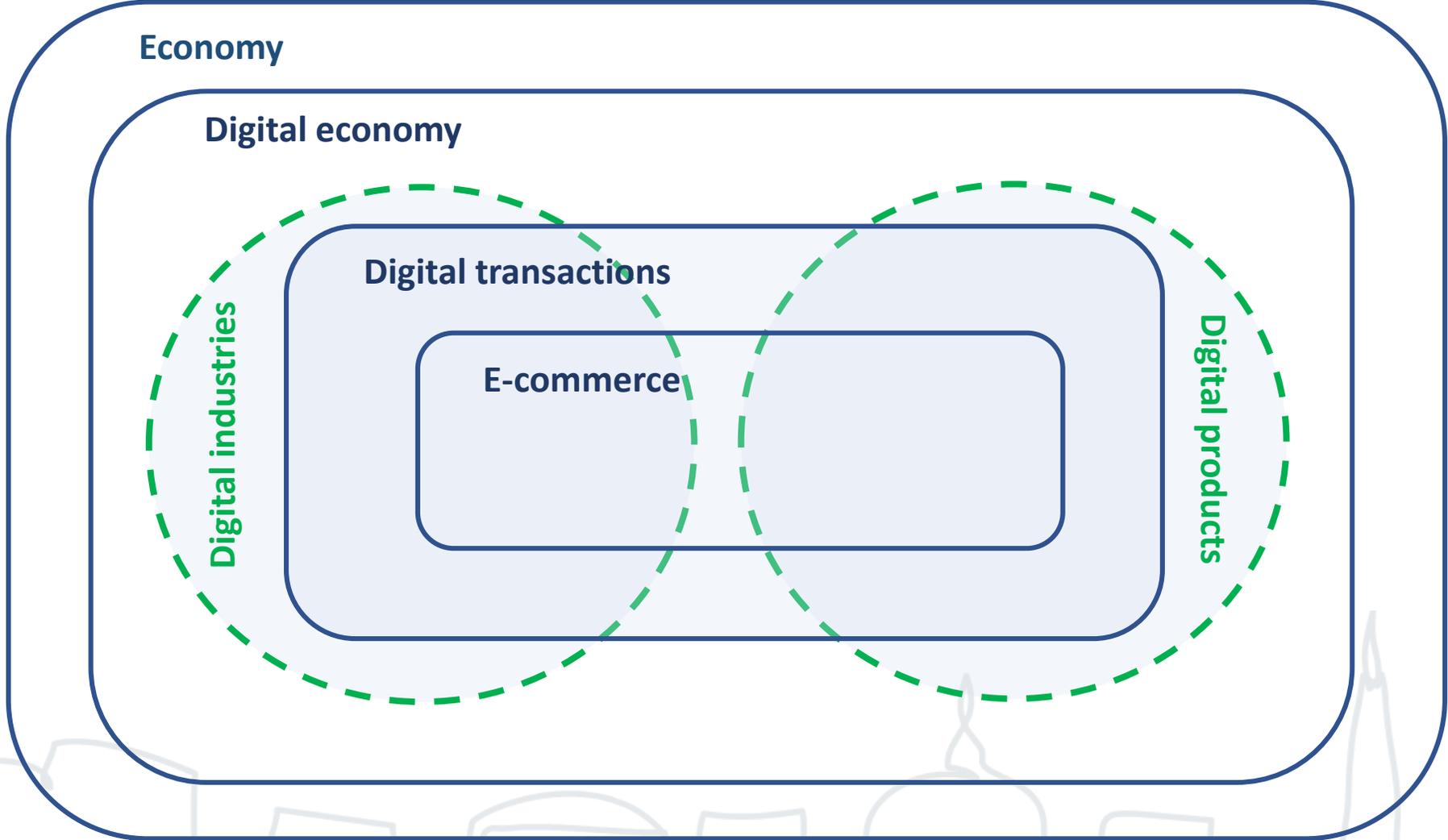


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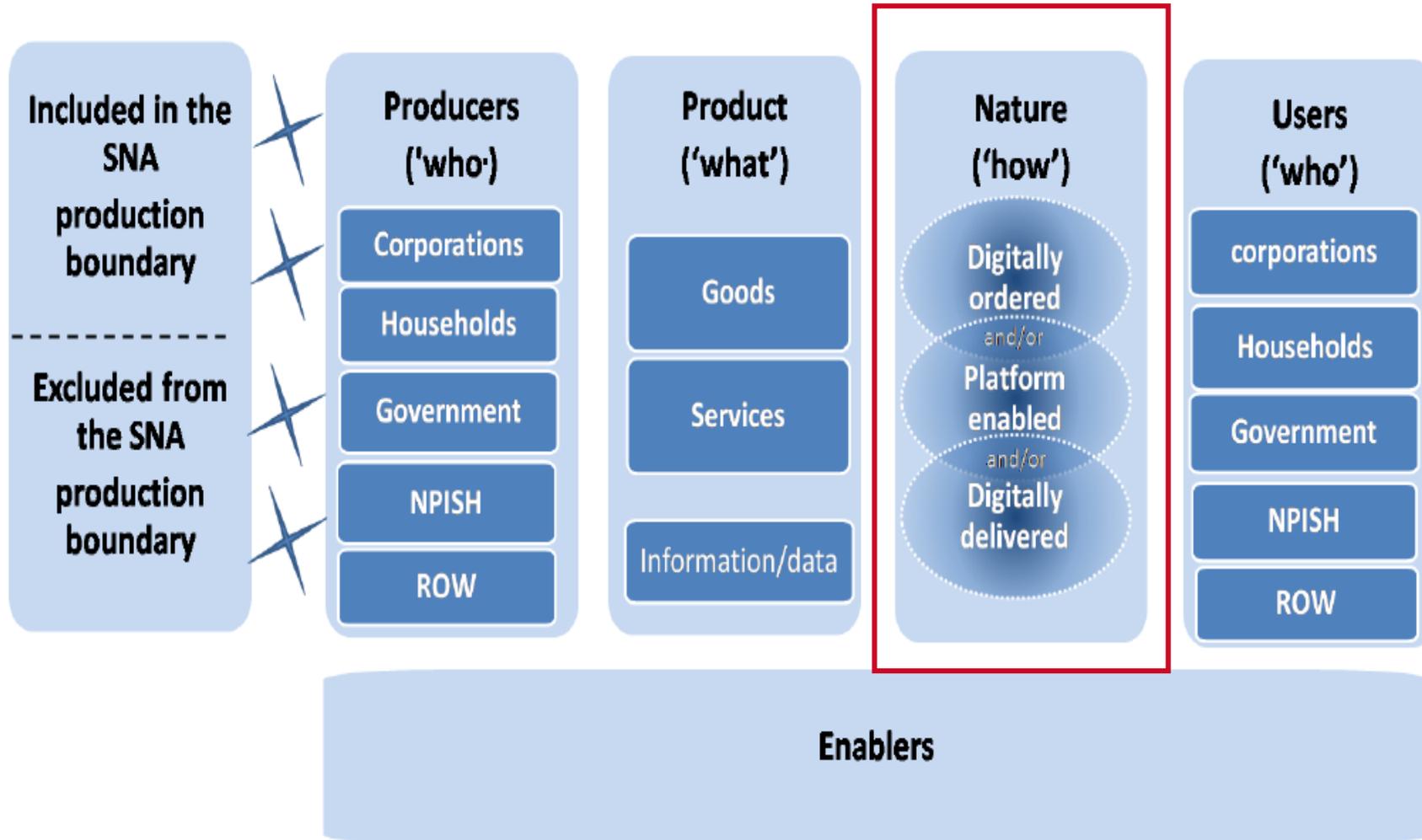
Concepts and definitions

... Need to address highlighted area?



Conceptual framework: Dimensions of the digital economy

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Source: Ahmad, N. and J. Ribarsky (2017), "Issue paper on a proposed framework for a satellite account for measuring the digital economy"



Relevant cases for analysis

1. Non-digital services intermediated by digital platforms (peer-to-peer)
 - a. Sharing economy services (peer-to-peer transactions) intermediated via digital platforms
 - b. Digital intermediation services for the sharing economy
2. Non-digital services intermediated by digital platforms (B2All)
 - a. Non-digital service ordered online (own website/intermediary platform)
 - b. Digital intermediation for corporate non-digital services
3. Online product sales
 - a. Online retailers
 - b. Online sales by storefront retailers
4. ICT Service Sector
 - a. ICT Trade
 - b. Software publishing (paid/free)
 - c. Telecommunications
 - d. Computer programming, consultancy and related activities
 - e. Data processing, hosting and related activities; web portals
 - f. Computer and communication equipment repair
5. Digitally delivered content and media (paid/free)



Cases according to SNA production boundary

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Outside the SNA
production boundary

Producers by type of industry

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Non-digital industries

Producers by institutional sector

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Households as producers
(relevant cases arised from digitalization)



Producers by institutional sector

Rest of the world as
producer – cross border

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Measurement challenges: Classifications

- It is necessary to **agree on the concepts applied and the actual ISIC classification** of activities that have arisen but are not explicitly included within the ISIC Rev. 4 definitions.
 - The UN Expert Group on Classifications addressed intermediaries and endorsed a conceptual approach that will provide consistent classification **based on the actual activities performed**. -> *Thursday session 2018 VG meeting*
- Following the Expert Group criteria makes classifications issues simpler compared to measurement of output or prices. For example:
 - Publishing of software as an activity is classified in ISIC 5820. The classification is the same whether software is sold to a customer on media, provided by subscription access, or provided without direct cost and supported by advertising revenue or even by donations from users.
 - Intermediary services performed to bring together owners and short term renters of residential property are classified in ISIC to reservation services. The owners who actually provide accommodation services to customers are classified to short term accommodations in ISIC.



Measurement challenges: Output

- **Distinction** between services intermediated and non-intermediated by platforms; ordered and not ordered online (weights for price index).
- Identification of producer's **residency**, in order to register the service as an output only for the economy where the producer is resident.
- Output measurement should consider different **ways in which services are offered**, for example, individual services or in package (bundling) on a contract basis; rates or fees, projects, etc.
- Some web portals don't charge a direct value for the service (for example, search services), therefore they need to be measured using the **indirect value** of the service.
- Open source software and free-collaborative activities **cannot be recorded on a market price**. However, it may be necessary an output estimation.
- **Limited access to data:**
 - Depending on tax regimes, accounting data from administrative tax records are not always available for companies that operate entirely through digital platforms.
 - Lack of data sources on Consumer to Consumer services, especially if they are not taxable. Using data from intermediary platforms it is not always possible.



Measurement challenges: SPPI's

- Considerations:
 - Digitalization promotes **substitution** of goods and services, enables **self-service** to replace market services, and causes **quality change**.
 - Importance of developing proper price measurements for the transactions of the digital economy, since the **rapid appearance** of new goods and services and technological change require **timely inclusion and quality adjustment** for an adequate distinction of price and volume components, avoiding the overestimation of prices and underestimation of volume.
- Need for **specific price** measurement for **online transactions** and **intermediated services**, since price changes may differ depending on the way the service is ordered or if it is intermediated or not. (Need for weights!).
- When a service is intermediated, it exists an **intermediation service surplus** that should be identified and considered for the price measurement.
- Some **complexities** that need to be considered for recommendations:
 - Different **ways in which the services are sold** (i.e. bundling, contract, etc.)
 - Complexities of the **online price models**. Dynamic pricing.

VG's work status

2018 VG meeting
Already covered by VG
Still not covered by VG

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VG's work status

- While a number of industries identified as part of the digital economy have been reviewed in previous meetings, the focus has not necessarily been on a change from traditional transactions to digitally enabled or completed transactions.
- The Voorburg Group and the Bureau may wish to revisit industries/cross cutting issues on future agendas, as it is being done in 2018 for intermediaries and cloud computing.

Criteria for VG's future work

1. Updates of sector papers for **industries greatly affected** by digital transformation, such as significant changes in industrial organization, transformation of the service products being delivered, new pricing mechanisms or other disruptors that require a change in standard approaches.
2. It is not the VG's place to determine what and how digital transactions should be defined. However, the Group may be able to **identify problematic measurement issues**. Feedback from the Group could be used to refine or improve the definitions.
3. The Group should consider the breadth of **experience available** from the group to be able to provide meaningful guidance on the issue.
4. The Group should prioritize its work considering the issue's **relative importance** in the overall calculation or deflation of GDP in the services sector.
5. The Group should consider the **needs and priorities of international organizations** or groups that are looking towards VG for practical solutions. Digital economy is an area that both the IMF and OECD encouraged the Group to continue its work, specifically in the quality adjustment of services prices related to digitalization.



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Discussion



Questions

1. Does your office have **experience available** in the digital economy to share with the group? Has your office developed some **research** you could share?
2. Do you have **urgent problems** to solve regarding digital economy measurement? (considering the issue's relative importance in service sector in terms of GDP)



Experience available and/or urgent problems to solve?

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