A FRAMEWORK FOR DIGITAL SUPPLY – USE TABLES

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Session 2 - The Digital Economy and National Accounts
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Digital Supply – Use Tables (SUTs)

1. Background on the work
2. The need for Digital SUTs.
3. The conceptual framework
4. Practical implementation
5. Future steps for compilation of the Digital SUTs.
Background on the work
Background on the work

- Developed by the OECD Informal Advisory Group on Measuring GDP in a Digitalised Economy.
- The advisory group was created under the OECD Working Party on National Accounts (WPNA) to advance the measurement agenda in the area of digitalisation and to develop indicators that provide more insight in how digitalisation is affecting the economy.
- The work has evolved into a guidance note from the AEG digitalisation sub-group to address issues on the SNA research agenda.
- The advisory group will continue to meet in order to progress the compilation of digital SUTs.
The need for digital SUTs
“These days it seems that a growing fraction of innovation is not measured at all. In a world where houses are Airbnb hotels and private cars are Uber taxis, where a free software upgrade renews old computers, and Facebook and YouTube bring hours of daily entertainment to hundreds of millions at no price at all, many suspect GDP is becoming an ever more misleading measure.”

The Economist Apr 30th 2016
Where is the digital economy in macroeconomic statistics?

Digital transformation is largely hidden in the core economic accounts and challenges our conceptual frameworks and measurement approaches.

- **Production chains** between producer and consumer are changing, while the overall value add may remain the same, the current frameworks struggle to show the “winners” and “losers”.
- Digitalisation can remove players (direct online booking) or add additional players (intermediary platforms).
- Statistical recording of the production and use of data, including the ‘participative’ production of consumers, digitalisation blurs the boundaries between produced and non produced.
- The “free / zero cost” services provided by private companies, how and what to measure?
- Confusion over what is **Production vs. Consumer Surplus**
The framework for Digital SUTs
Framework for Digital SUTs

**Scope (Where)**
- Digital production
  - Included in conventional production statistics
- Non-monetary digital flows
  - Not included

**Nature (How)**
- Digitally ordered
- Digitally ordered + digitally delivered
- Digitally delivered

**Product (What)**
- Services
- Goods
  - Non-monetary Information and data

**Actors (Who)**
- Corporations
- Governments
- Households
- NPISHs
The framework includes the following extensions to the conventional supply-use tables:

- Additional rows, under each product, separating the different transactions types.
- Additional digital product aggregations and lower level products to assist in answering specific user questions.
- Additional product rows representing products currently outside of the core SNA.
- Additional columns to represent the new digital industries, units are aggregated based on their shared characteristics.
- Additional columns allowing for the representation of services that have been digitally delivered.
The split in transactions is a significant change to the template (Example below), *allows for all products to be considered as digital.*

Currently this kind of split would be requested only for *aggregates, digital products,* and *products that have been heavily impacted by digitalisation* (Accommodation, food service, education).
Digital SUTs have additional product aggregations and lower level products to assist in answering specific user questions.

1. ICT goods - four types of goods included in the alternative classification of ICT products, as included in the CPC 2.1

2. Digital services – all services included the alternative classification of ICT products, as included in the CPC 2.1

3. Cloud computing services “Computing services based on a set of computing resources that can be accessed in a flexible, elastic, on-demand way with low management effort”

4. Digital intermediary services “the service of providing information on and successfully matching two independent parties to a transaction via a digital platform in return for an explicit fee.”

They also include product rows to incorporate products currently outside of the core SNA production boundary.

1. Data (beyond 2008 SNA)
2. Digital services (beyond 2008 SNA), provided by enterprises
3. Digital services (beyond 2008 SNA), provided by communities
• Additional columns to represent the new digital industries.
  
  • **Digitally enabling industries**
    - Industries engaging in production that is primarily intended to fulfil or enable the function of information processing and communication by electronic means, including transmission and display. (ICT sector)
  
  • **Digital only firms providing financial and insurance services**
    - Those units providing financial services which are operating exclusively digitally, with no interaction with consumers physically. (E-banks)
  
  • **Digital intermediary platforms charging a fee (DIPs)**
    - Digital units that, in exchange for a explicit fee, facilitates interactions between two or more distinct but interdependent sets of users (whether firms or individuals) who interact through the service via the Internet. (Uber, Booking.com, AirBnB)
  
  • **Firms dependent on intermediary platforms**
    - Units for which the majority of demand for their goods and/or services comes via (an) intermediary platform(s). This could range from large international corporations (hotel chains) to small independent contractors (delivery couriers for food orders).
Industries

• **Data and advertising driven digital platforms**
  - Units operating exclusively online that predominately generate revenue via selling data or advertising space. This is likely to include social media platforms, search engines, knowledge sharing platforms as well as providers of free phone applications. (Google, Instagram, Epic Race 3D)

• **E-Tailers**
  - Includes retailers and wholesalers engaged in purchasing and reselling goods or services who receive a majority of their orders digitally.

• **Other producers only operating digitally**
  - All units operating exclusively digitally that have not been placed in one of the previous industries. It likely includes businesses that produce their own services for sale, but operate exclusively digitally. (Online gaming, Netflix, etc.)

• Units would be reclassified from existing ISIC industry classifications based on these shared characteristics.
Digitally delivered

- Defined as “Transactions that are delivered remotely in an electronic format, using computer networks” (Handbook on Digital Trade).

- The inclusion of the columns ensures aggregates can be identified that align with the digital SUTs and digital trade framework.

- Represented in the digital SUTs as additional columns showing additional breakdowns for:
  - total output,
  - total consumption,
  - total exports,
  - total imports.

What was the average amount spent on digital products?

Canadians spent an average of $412 on digital products.
It provides a suite of indicators on digital activity:
- Total E-commerce in the economy.
- Total expenditure on ICT goods and digital services by conventional industry.
- Total imports and exports of Digital services.
- It does not provide one number as a countries’ “digital economy” estimate.

It provides a location for products outside of the production boundary to be included (i.e. data).
- Currently it does not include a proposed methodology as discussion are still ongoing.

It does not quantify the contribution of digitalisation to the output of a specific industry
- E.g. it is unable to explicitly measure digitalisations’ impact on the production of orange juice.
The digital SUTs align with the digital trade framework.
Digital trade is defined as all trade that is: “digitally ordered and/or digitally delivered.”
– The handbook provides both a conceptual framework to define digital trade, as well as a mechanism to share existing national and international efforts on measuring digital trade in order to identify and develop best practice.
– The handbook will be a living document responding to developments in measurement methodology, similar to digital SUTs there is an accompanying template used to capture estimates.
Practical implementation
Recently published Going Digital Toolkit outlines many examples of countries work in compiling digital related estimates that can be used to create digital SUTs.

– “Digital economy” by delineating digital products
– Leveraging off business and household surveys
– Generating specific outputs from publically available data
– Initial estimates of digital SUTs

https://goingdigital.oecd.org/
Work by Statistical offices on the digital economy

  - “Digital economy” growth at 5.2%
  - Total economy at 1.5%

- **Australia**, average annual growth 2012-13 to 2016-17.
  - “Digital Economy” growth at 7.5%
  - Total economy at 2.5%

This work aligns with the international Standard, The 2008 SNA
This work has taken the SUT tables... (Simplified below) and labelled certain products (and therefore parts of industries) in the SUT tables as digital.

<table>
<thead>
<tr>
<th>Supply Tables</th>
<th>Industries</th>
<th>TOTALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Product 2</td>
<td></td>
<td></td>
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<tr>
<td>Product 3</td>
<td></td>
<td></td>
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<tr>
<td>Product 4</td>
<td></td>
<td></td>
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<tr>
<td>Product 5</td>
<td></td>
<td></td>
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<td>Product 6</td>
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<td>Product 7</td>
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<td>Product 8</td>
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<td></td>
</tr>
<tr>
<td>Product 9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Product 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sum of totals = “Digital Economy”
Work by Statistical offices on the digital economy

This work is an excellent start and will feed into the proposed supply-use tables, however considerations on the work include:

• “Digitalisation” is **limited to only (but all of) the total product row.**
  – Goods and services delivered by platform or other products only partly affected by digitalisation are not included- as they were not included.

• The **lack of agreed definitions and terminology** impacts the ability to compare outputs internationally.
  – only high level aggregates have been produced (i.e. total digital economy, type of digital activity.)

• Compiled using the **production approach only.**
  – limited information on consumption, import/export, etc.

• They **do not refer to any of the “other” digital issues.**
  – Zero cost consumer products, the use of data in production etc.
Canada has completed a household digital survey. It covered “the use and purchase of various digital products, such as music and video streaming services, e-books, mobile apps, and online gaming subscriptions.”

Additional modeling is required, however data from this survey can be used to generate estimates of

– Consumption of digital goods & services
– Imports of digital services
– Value added of various digital producers.
Bundesbank has used **publically available and purchased data** to model estimates of consumption and imports of digital services (music, apps, gambling etc.).

The work included data taken from *AppAnnie, Statista and bitkom*.
Initial estimates of Digital SUT

- Canada released experimental estimates of digital SUTs in April 2021.

<table>
<thead>
<tr>
<th></th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>millions of dollars</td>
<td>millions of dollars</td>
<td>millions of dollars</td>
</tr>
<tr>
<td><strong>Total, all industries</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total digital industries</td>
<td>1,991,534</td>
<td>2,079,869</td>
<td>2,157,352</td>
</tr>
<tr>
<td><strong>Information and communications technology</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hardware</td>
<td>103,298</td>
<td>111,384</td>
<td>117,788</td>
</tr>
<tr>
<td>Software</td>
<td>6,536</td>
<td>7,012</td>
<td>7,243</td>
</tr>
<tr>
<td>Telecommunications</td>
<td>41,891</td>
<td>45,726</td>
<td>48,013</td>
</tr>
<tr>
<td><strong>Other services</strong></td>
<td>36,166</td>
<td>37,175</td>
<td>37,460</td>
</tr>
<tr>
<td>Digital intermediary platforms</td>
<td>9,912</td>
<td>10,669</td>
<td>11,511</td>
</tr>
<tr>
<td><strong>Data- and advertising-driven digital platforms</strong></td>
<td>1,728</td>
<td>2,374</td>
<td>3,183</td>
</tr>
<tr>
<td>Online retailers and wholesalers</td>
<td>835</td>
<td>846</td>
<td>979</td>
</tr>
<tr>
<td><strong>Digital-only firms providing finance and insurance services</strong></td>
<td>3,748</td>
<td>4,248</td>
<td>5,187</td>
</tr>
<tr>
<td><strong>Other producers only operating digitally</strong></td>
<td>2,340</td>
<td>2,752</td>
<td>3,392</td>
</tr>
<tr>
<td></td>
<td>448</td>
<td>582</td>
<td>821</td>
</tr>
</tbody>
</table>
Initial estimates of Digital SUT

<table>
<thead>
<tr>
<th></th>
<th>Output, all digital industries</th>
<th>Output, all digital industries, digitally delivered</th>
<th>Total output</th>
<th>Total output, industries, digitally delivered</th>
<th>Total imports</th>
<th>Imports, digitally delivered</th>
<th>Taxes on products</th>
<th>Total supply at purchasers’ prices</th>
<th>Total supply at purchasers’ prices, digitally delivered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>204,768</td>
<td>76,461</td>
<td>4,065,386</td>
<td>96,580</td>
<td>722,624</td>
<td>13,236</td>
<td>173,179</td>
<td>4,961,189</td>
<td>115,527</td>
</tr>
<tr>
<td>Digitally ordered</td>
<td>73,953</td>
<td>50,362</td>
<td>277,933</td>
<td>65,665</td>
<td>51,723</td>
<td>9,144</td>
<td>6,696</td>
<td>336,352</td>
<td>75,019</td>
</tr>
<tr>
<td>Direct from a counterparty</td>
<td>59,612</td>
<td>49,658</td>
<td>218,757</td>
<td>64,961</td>
<td>19,588</td>
<td>8,559</td>
<td>1,072</td>
<td>239,416</td>
<td>73,659</td>
</tr>
<tr>
<td>Via a resident digital intermediary</td>
<td>1,193</td>
<td>704</td>
<td>1,193</td>
<td>704</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1,193</td>
<td>704</td>
</tr>
<tr>
<td>Via a non-resident digital intermediary</td>
<td>3,839</td>
<td>0</td>
<td>3,839</td>
<td>0</td>
<td>984</td>
<td>584</td>
<td>70</td>
<td>4,893</td>
<td>606</td>
</tr>
<tr>
<td>Via a resident retailer or wholesaler</td>
<td>9,308</td>
<td>0</td>
<td>54,144</td>
<td>0</td>
<td>31,150</td>
<td>0</td>
<td>5,555</td>
<td>90,849</td>
<td>50</td>
</tr>
<tr>
<td>Not digitally ordered</td>
<td>130,815</td>
<td>26,098</td>
<td>3,787,453</td>
<td>30,915</td>
<td>670,902</td>
<td>4,092</td>
<td>166,483</td>
<td>4,624,837</td>
<td>40,508</td>
</tr>
</tbody>
</table>

It included:
- Total digitally ordered
- Total digitally delivered
- Total via a digital platform
Future steps for compilation of the Digital SUTs
Many countries have expressed that they do not currently have the capability to produce all estimates in the table.

- The Digital SUTs are partly designed to act as road maps that help to motivate the development of new data sources.
- Many items included in the tables can be readily produced from aggregations of current statistics, and even partially completed tables will significantly help to fill the current information gaps.
- Digital SUTs will help to provide momentum for all countries in fostering the compilation of internationally comparable data on the digital economy.
- Some initial indicators will be targeted first.
The advisory group have generally agreed to target the following high priority indicators:

1. **Output, Gross Value Added** (GVA) and its components, of *digital industries*.
2. Intermediate consumption of **Digital Intermediary Services** (DIS), **Cloud Computing services** (CCS) and total ICT goods and digital services.
3. Expenditures **split by nature of the transaction**, includes estimates of digital trade.

• **Provides a wide scope for countries** to begin producing estimates despite the various levels of data sources and resources available across countries.

• Help in **co-ordinating the initial results** that can be derived from the Digital SUTs.
Questions and feedback

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