A FRAMEWORK FOR DIGITAL SUPPLY – USE TABLES

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BETTER POLICIES FOR BETTER LIVES

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

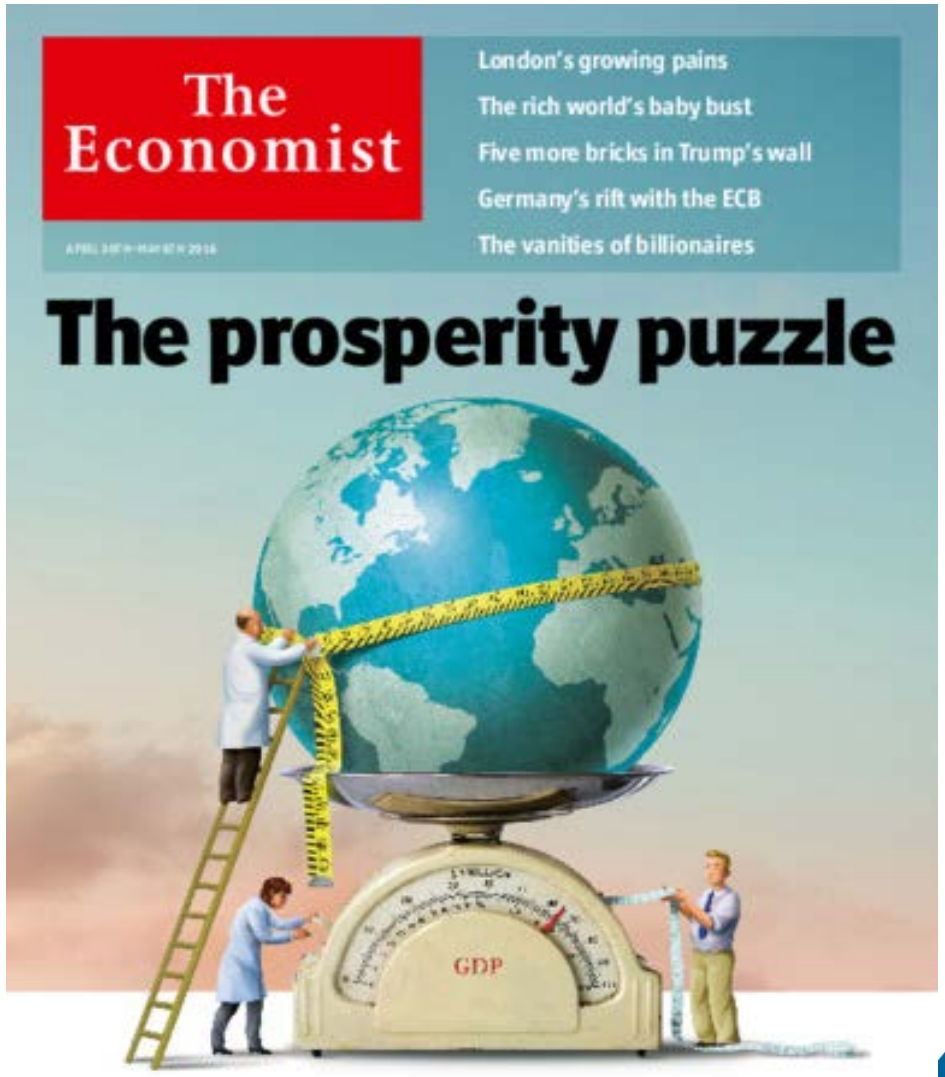
- Developed by the OECD **Informal Advisory Group** on Measuring GDP in a Digitalised Economy.
- The advisory group was created under the OECD Working Party on National Accounts (WPNA) to **advance the measurement agenda** in the area of digitalisation and to **develop indicators** that provide more 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

Is this what everyone thinks?

"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



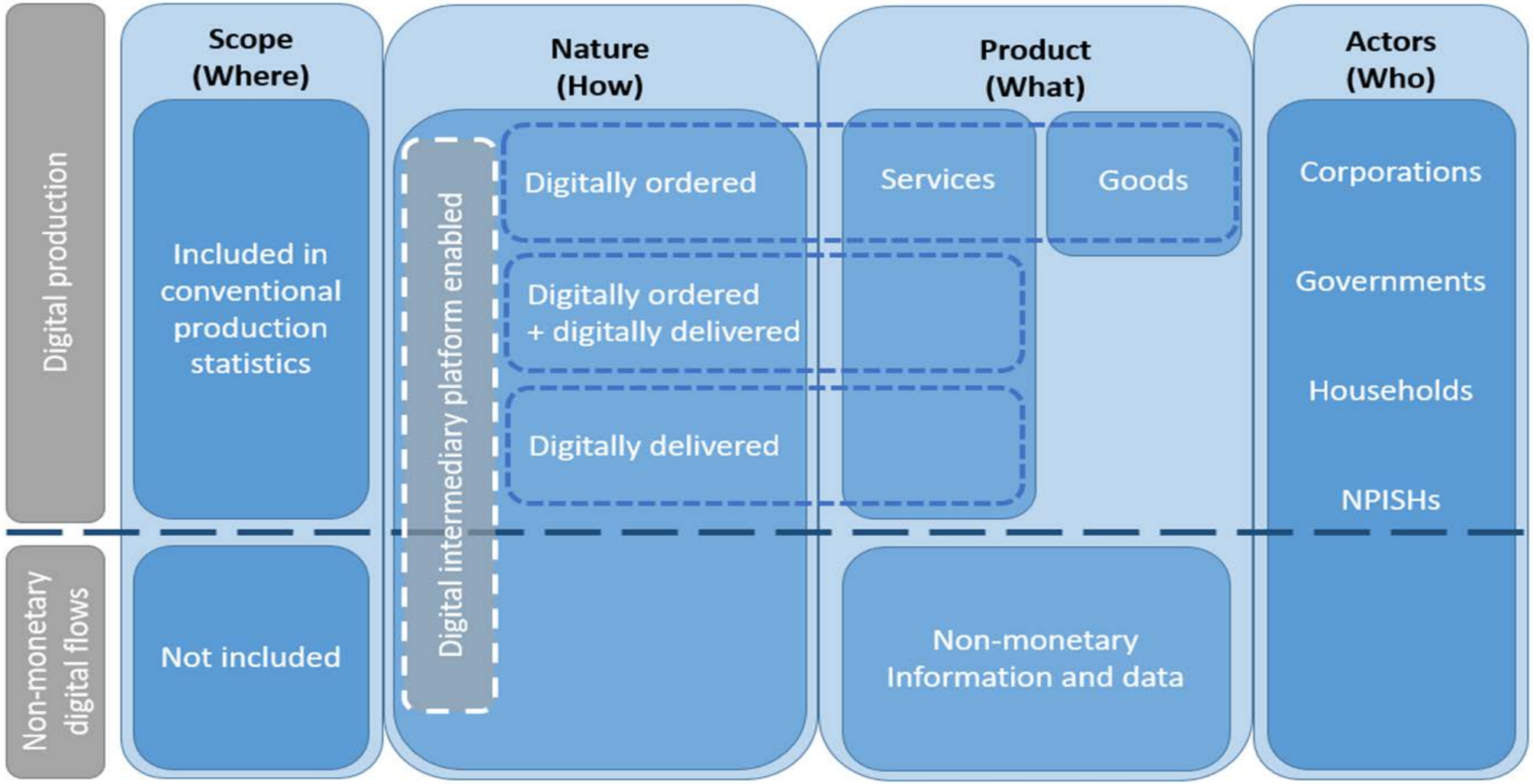
Where is the digital economy in macroeconomic statistics?

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



Digital Supply-Use tables framework

- 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**.

Transactions

- The split in transactions is a significant change to the template (Example below), **allows for all products to be considered as digital.**

Accommodation services	
a	Digitally ordered
a_i	Direct from a counterparty
a_ii	Via a resident digital intermediary platform
a_iii	Via a non-resident digital intermediary platform
b	Not Digitally ordered

- 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).

Products

- 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

Industries

- 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**.

Outputs of the Digital SUTs

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.

Digital Trade

- The **digital SUTs align with the digital trade framework.**
- Digital trade is defined as all trade that is: **"digitally ordered and/or digitally delivered."**
- Version 1 of the OECD-WTO **"Handbook on Measuring Digital Trade"** was made **available in January 2020**.
  - 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

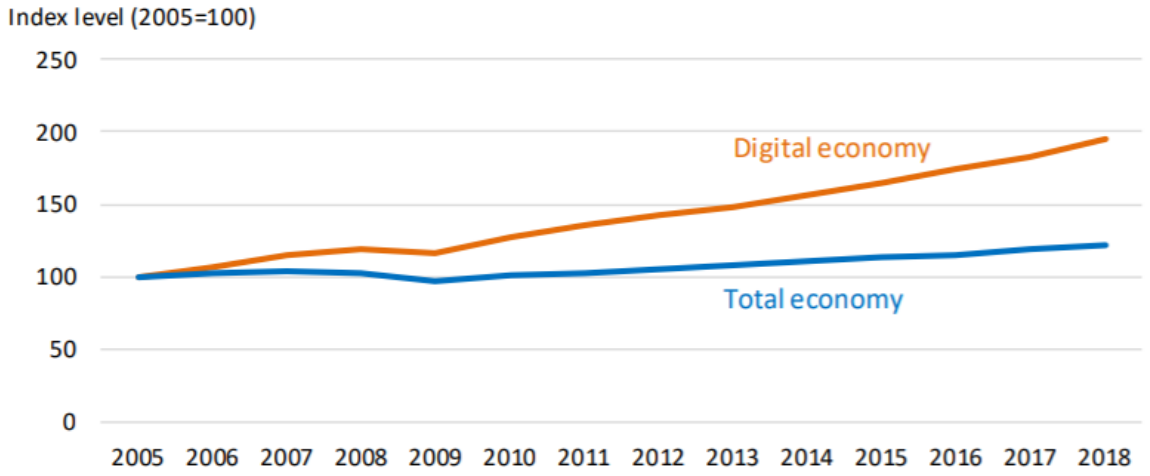
OECD Going Digital Toolkit

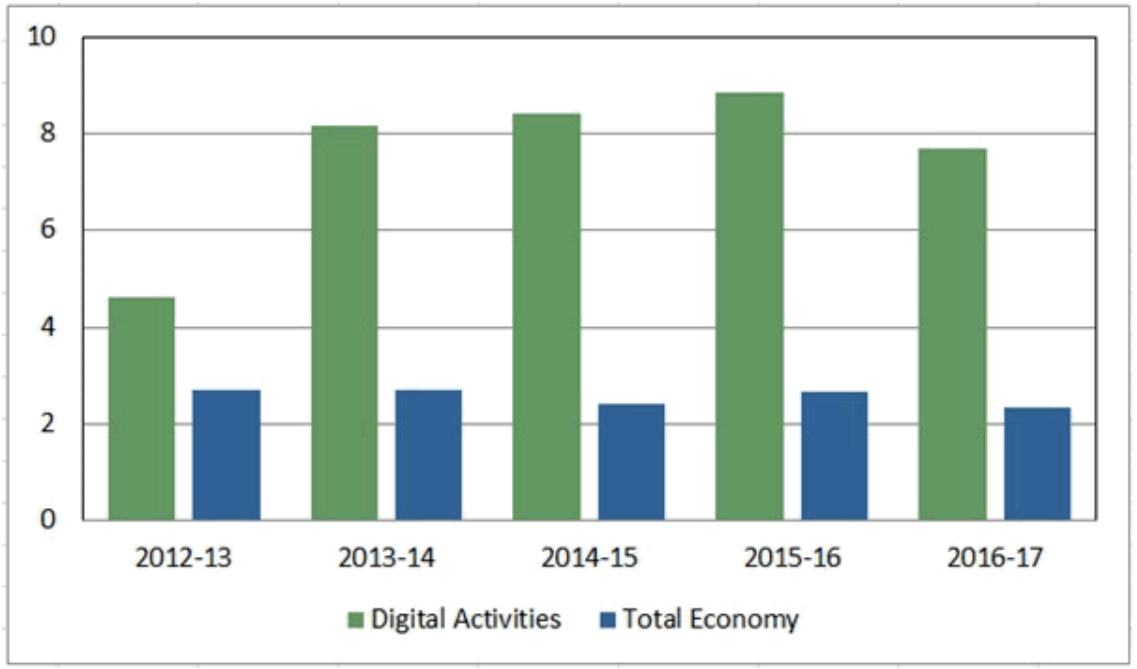
- Recently published Going Digital Toolkit outlines many examples of countries work in compiling digital related estimates that can be used to create digital SUTs.
  - "Digital economy" by delineating digital products
  - Leveraging off business and household surveys
  - Generating specific outputs from publically available data
  - Initial estimates of digital SUTs

https://goingdigital.oecd.org/

Work by Statistical offices on the digital economy

- **United States**, Average annual real growth 1998–2018.
- **“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

Work by Statistical offices on the digital economy

- This work has taken the SUT tables... (Simplified below) and labelled certain products (and therefore parts of industries) in the SUT tables as digital.

Supply Tables		Industries								TOTALS
		Industry A	Industry B	Industry C	Industry D	Industry E	Industry F	Industry G	Industry H	
Product	Product 1									
	Product 2									
	Product 3		DIGITAL							
	Product 4		DIGITAL							
	Product 5									
	Product 6									
	Product 7									
	Product 8		DIGITAL							
	Product 9									
	Product 10									
Totals										

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.

Leveraging off household surveys on digital use

- 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.

Modelling based on purchased and scavenged data

- 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*.

€ Mill	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Apps	11	65	171	308	392	659	929	1,048	1,067	1,139
Games	258	344	390	339	370	589	690	812	995	1,219
Video					46	57	161	207	292	412
Music	146	182	222	264	295	334	437	544	667	779
Gamb				330	1,322	1,344	1,839	2,046	2,594	2,824
Cloud	0	37	51	64	87	123	155	184	218	258
Total	415	628	834	1,305	2,512	3,106	4,211	4,841	5,833	6,632

Initial estimates of Digital SUT

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

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

Initial estimates of Digital SUT

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

It included;

- Total digitally ordered
- Total digitally delivered
- Total via a digital platform

Future steps for compilation of the Digital SUTs

Compilation of the framework

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**.

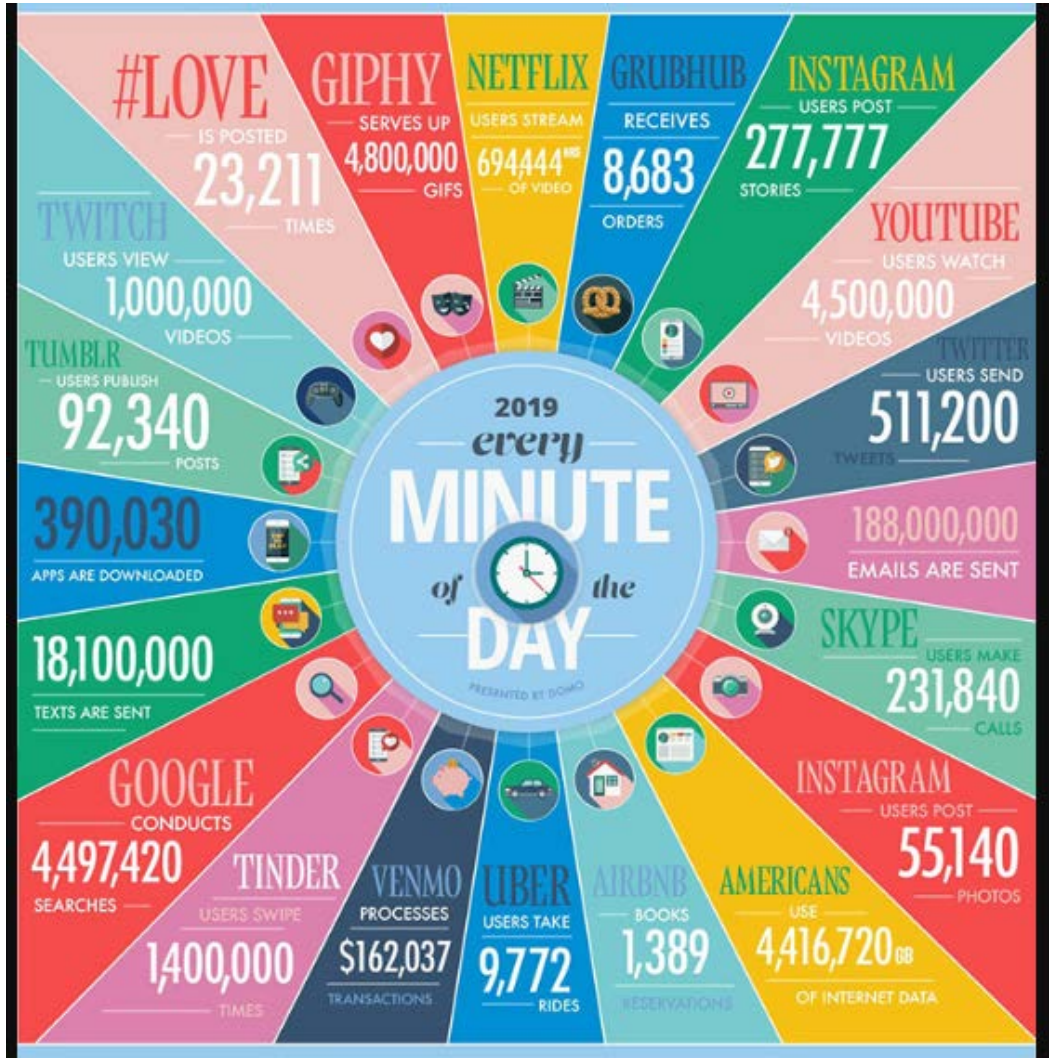
High priority indicators

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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