Office for
National Statistics
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Second Statistics Conference
"Measuring The Economy in a Globalised World"

Session 1 - Challenges for macroeconomic statistics in the current scenario

Is the current macroeconomic statistics framework capturing a rapidly changing economy?

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Is the current macroeconomic statistics framework capturing a rapidly changing economy?

An overview

- Major international drivers for change

- Scene setting - The world is changing quickly?

- Challenges for economic statistics
  - Digital and role of households
  - MNE Groups supply chain management
  - Economic ownership

- Profiling
  - International and national
  - Profiling techniques
  - Better understanding of MNE Groups - their structures and flows
  - Way forward - evolving strategy, benefits and challenges
  - Key messages

- Any questions?

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Major international drivers for change

- Consistency, coherency and comparability of statistics

- Implementation of international guidance manuals, e.g. SNA etc.

- *Impact of globalisation*

- *Impact of technological change and digitalisation*

- Sustainability - human, social, nature and economic capital

- G20 - IMF Data Gaps Initiative (Phase 1 and 2)

- Development of Beyond GDP and Well-being

- Data expansion for the financial sectors - post-credit crisis

- Measurement of government deficit and debt

- Competitiveness indicators

- Others …,
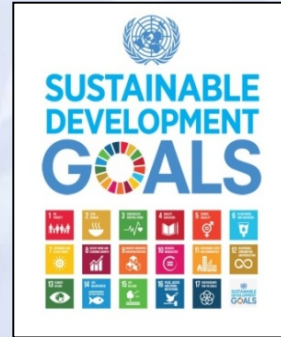
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The world is changing quickly?

World population

1990

5,263m

2000

6,070m

2010

6,909m

2020

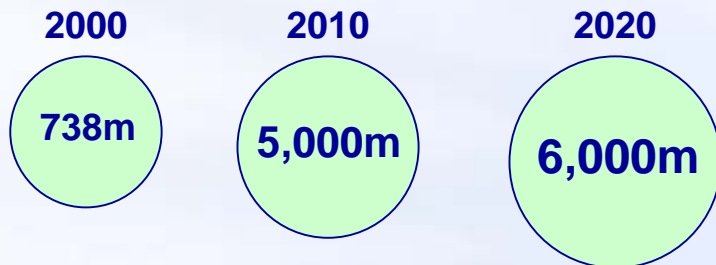7,750m
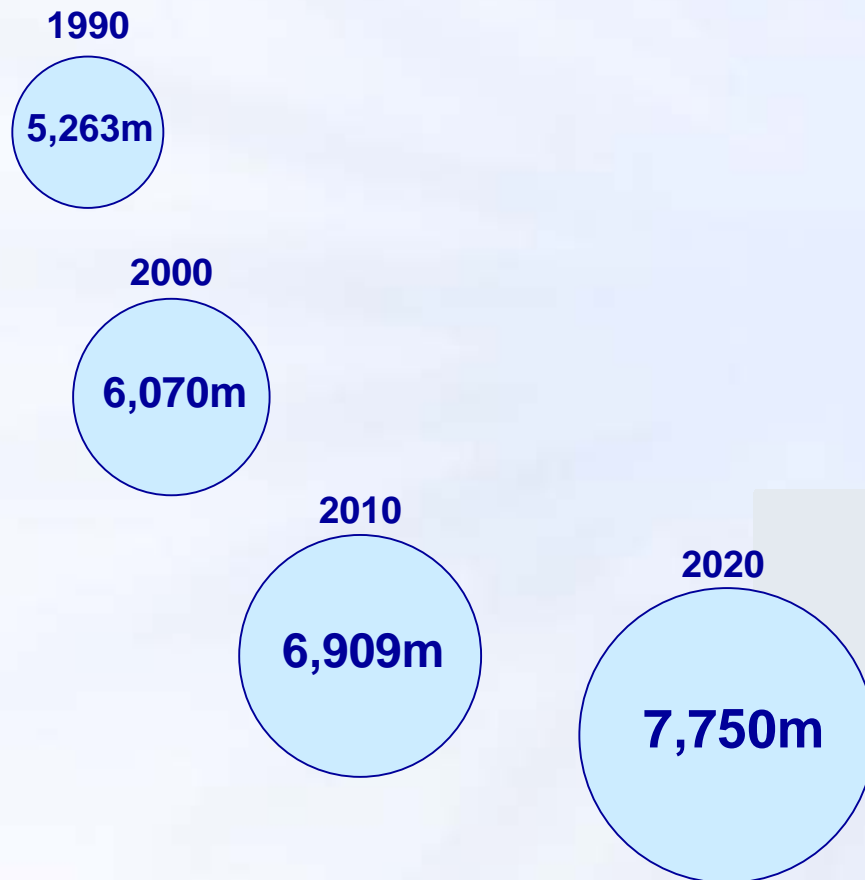
Demographic and social change

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The world is changing quickly?
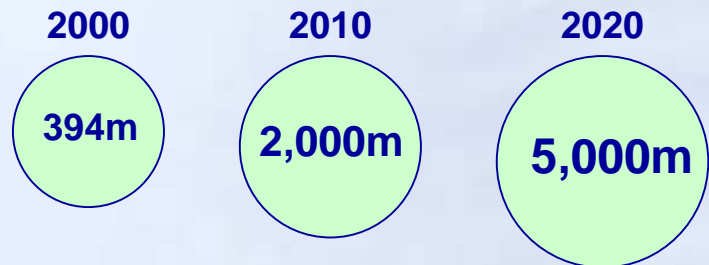
Technology

Mobile phone users

2000	2010	2020
738m	5,000m	6,000m

Internet users

2000	2010	2020
394m	2,000m	5,000m

Digital

Digital Universe

CLOUD

Development of security beyond physical protection is "key"

PRIVACY Issues?

Number of Internet devices

1984	<100
1992	1,000,000
2008	1,000,000,000
2014	10,000,000,000

BIG BROTHER IS WATCHING

Mixing of differences between the physical world and digital world will affect mobility and … providing challenges for economic measurement

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The world is changing quickly?

Time taken to achieve a market audience of 50m people

75 years …. Telephone

38 years …. Radio

13 years …. Television

4 years …. Internet

3 years …. iPhone

2 years …. Instagram

35 days …. Angry Birds Space

Pokemon Go
19 days

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The world is changing quickly?

Globalisation is not new but continues at an "increasing pace" … and traditional boundaries are becoming unclear
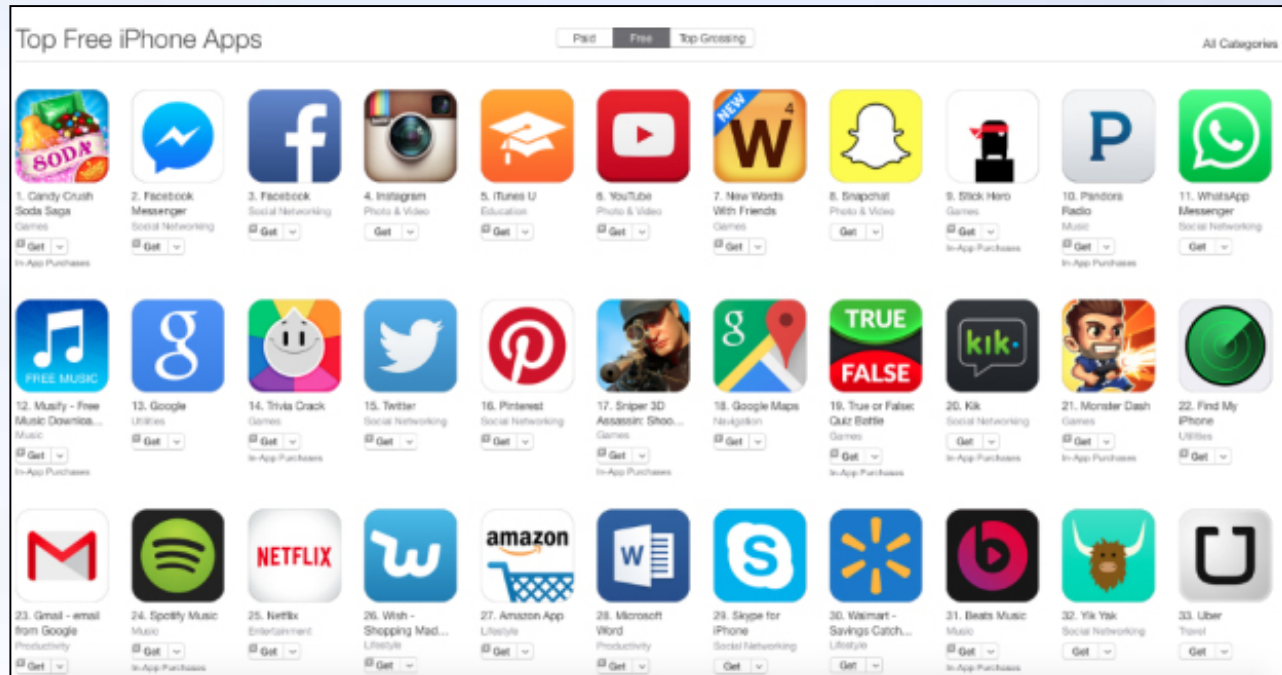

Impact of Globalisation (MNE Groups, IPPs, Digital, BEPS, etc.) poses the single largest '**measurement**' challenge to Business Statistics, National Accounts and Balance of Payments

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What are these digital platforms?

Rapidly increasing world of "free" Apps ….,

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These digital platforms are essentially an "interface"

World's largest taxi firm owns no cars ➡ **UBER**

World's most popular media company creates no content ➡ **facebook.**

World's most valuable retailer carries no stock ➡ **Alibaba.com®** Global trade starts here.™
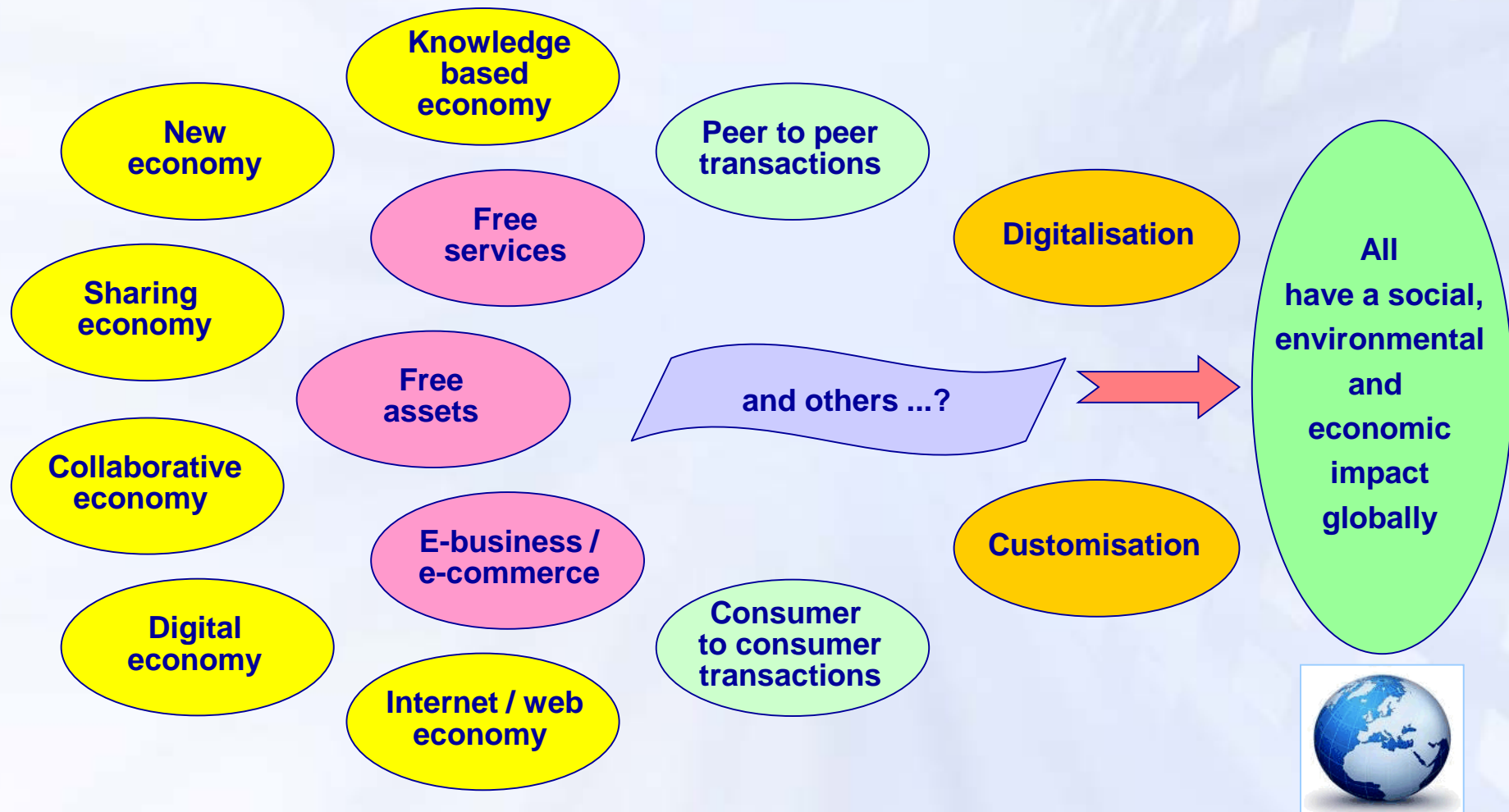
World's largest accommodation provider owns no property ➡ **airbnb**

These companies have small costs but charge consumers - lucrative in terms of profit. (act as intermediaries providing a margin / fee type service - concept already exists)

Is this phenomena affecting GDP and productivity? (yes, assuming it is captured)

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Need for internationally agreed terminology, definitions and improved understanding of specific issues

- New economy
- Knowledge based economy
- Peer to peer transactions
- Digitalisation
- All have a social, environmental and economic impact globally
- Free services
- Sharing economy
- Free assets
- and others ...?
- Collaborative economy
- E-business / e-commerce
- Customisation
- Digital economy
- Consumer to consumer transactions
- Internet / web economy

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Example of different use of terminology

Digitalisation versus digitisation

- Digitalisation includes Digitisation

- Digitisation
    - The process of changing from an analog form to a digital form.

- Digitalisation
    - The use of digital technologies to change a business model, i.e. the process of moving to a digital business improves automation, productivity and profitability.

> **You "digitise" a book but you "digitalise" a factory process.**

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Role of households is changing (not new)

- HHs production
  - Some activities recorded in GDP (imputed rental, self-build dwellings, etc.).
  - Some activities not recorded in GDP (meals, child care, gardening, etc.).
  - Production v leisure/pleasure (grandparents looking after children, preparing meals, etc.).

- Impact of production of free products / subsidised products / free assets?
  - Internet, Wikipedia, advertising, downloading free apps/services, travel web-sites, streaming.
  - Consumers / businesses benefit from "no" economic transaction. (lower costs)

- HHs acting as unincorporated enterprises "and" consumers.
  - Switching of assets from HHFCe to GFCF, e.g. motor vehicles. (zero impact on GDP)

- Should there be final consumption for corporations? (impute flows to HHs?)

- Pricing
  - Consumer's marginal utility, e.g. time spent link to opportunity cost of time spent.
  - Impact on consumer surplus?

Producers and / or Consumers?

Households as producers blurring the production boundary
Developing / utilising new channels for market sales / income

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Digital economy issues

KEEP CALM DIGITALISATION DOESN'T HARM?

- All social, economic and environmental aspects:
  - Need to understand how these "supplying" businesses operate.
  - Affect all industries and all sectors (from GVA to productivity).
  - Services - HHFCe, imports and exports of services, etc.

- MAJOR substitution affects:
  - Booking on-line holidays versus visiting a travel agent (these are disappearing!)
  - On-line banking as opposed to visiting a bank branch (branches / staff gone!)
  - "Fully owned" property - paid rental versus imputed rental already recorded (latter decreases)
  - Is the "quality" of the "new" service(s) received comparable?
  - With greater competition - lower prices?

- Financing:
  - Via advertising (e.g. media, newspapers, Internet, etc.)
  - Via data (e.g. Big Data)

- Drivers for international institutions:
  - Micro data sharing and data exchange amongst NSOs/NCBs across countries is essential.
  - Any changes to SNA, BPM, SEEA and ESA need to be consistent and coherent.

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A few thoughts for consideration …,

- Coverage of "digital" units (yes, possible self-employed under-coverage)

- Industry and product classifications - are they adequate? (yes)
  - Need to reflect definition of functional concepts like digital economy, creative sector, etc.

- Is the "core" National Accounts framework fine? (yes)
  - Measurement of prices and volumes for "free" products and stock of free assets?
  - Greater use of hedonics to reflect "quality" change, in particular services.
  - More capitalisation of intangibles? (training, education, data, etc.)
  - Need to develop new HH "Digital" Satellite Account and related supplementary tables.

- Data measurement challenge? (yes, massive!)
  - Global activity - MNEs, IPPs, cross-border flows, asymmetries, etc. (need for data sharing)
  - Digitised assets - GFCF, capital stock and consumption of fixed capital.
  - Need to be more creative and use other data sources, e.g. credit cards, web scrapping, etc.

- Users (official economic statistics need to remain relevant?)
  - Need to substantially improve communication and understanding with users.
  - Extend the focus to variables other than GDP, e.g. RDHI, Well-being, etc.

.… provides a continually changing, challenging and fascinating future !

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MNE Groups supply chain management

Global supply chain - scope of related issues

- Arrangements within MNEs including transfer pricing
- Contract manufacturing and manufacturers
- Factoryless goods production and processors
- Foreign Direct Investment (FDI) relationships
- Good sent abroad for processing
- Intellectual property products (IPPs) and cross border use
- International labour movement and remittances
- Internet trading
- Limitations of national data collections
- Merchanting of goods and services
- Ownership of property abroad
- Quasi-transit trade
- Special purpose entities (SPEs)
- Toll processing and processors

KEEP CALM

GLOBALISATION DOESN'T HARM
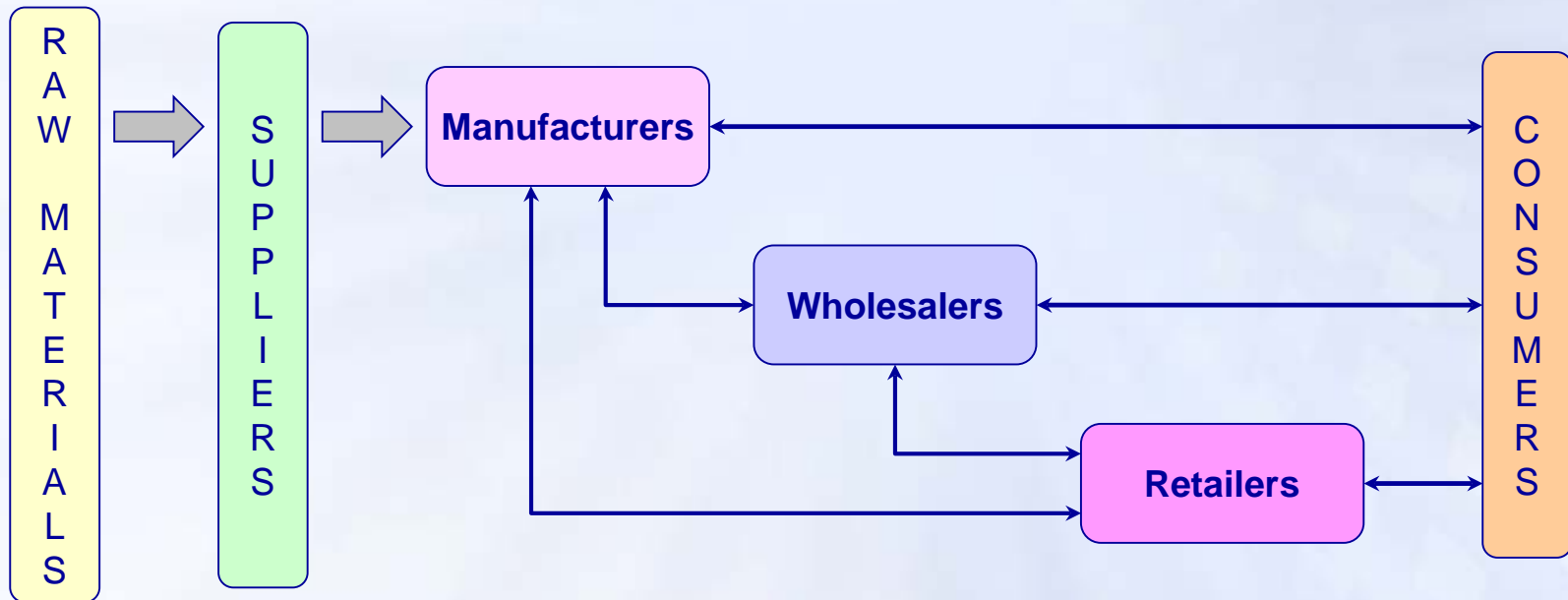
MERCHANTING TRADE

Varying degrees of impact on business registers, business surveys and statistics, NA, BoP, Supply and Use Tables, labour market, regional, **productivity** and environmental statistics

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MNE Groups supply chain management

Traditional channels to market are rapidly changing

Every step in the supply chain represented:
- purchase and sale (money flows)
- movement of goods and services
- transfer of legal title
- information flow

RAW MATERIALS → SUPPLIERS → Manufacturers ↔ CONSUMERS

Manufacturers ↔ Wholesalers ↔ CONSUMERS

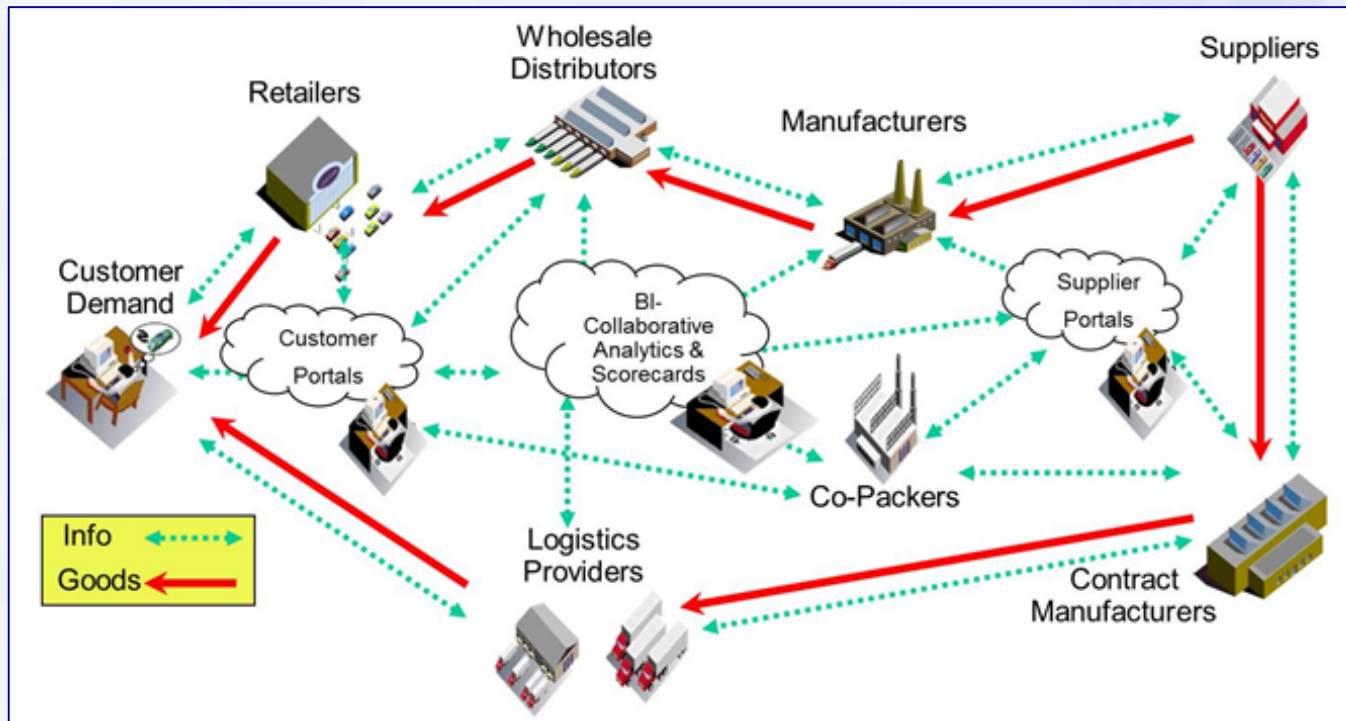Wholesalers ↔ Retailers

Retailers ↔ CONSUMERS

Modern supply chains reflecting smarter ways to choose, buy from and sell to the consumer

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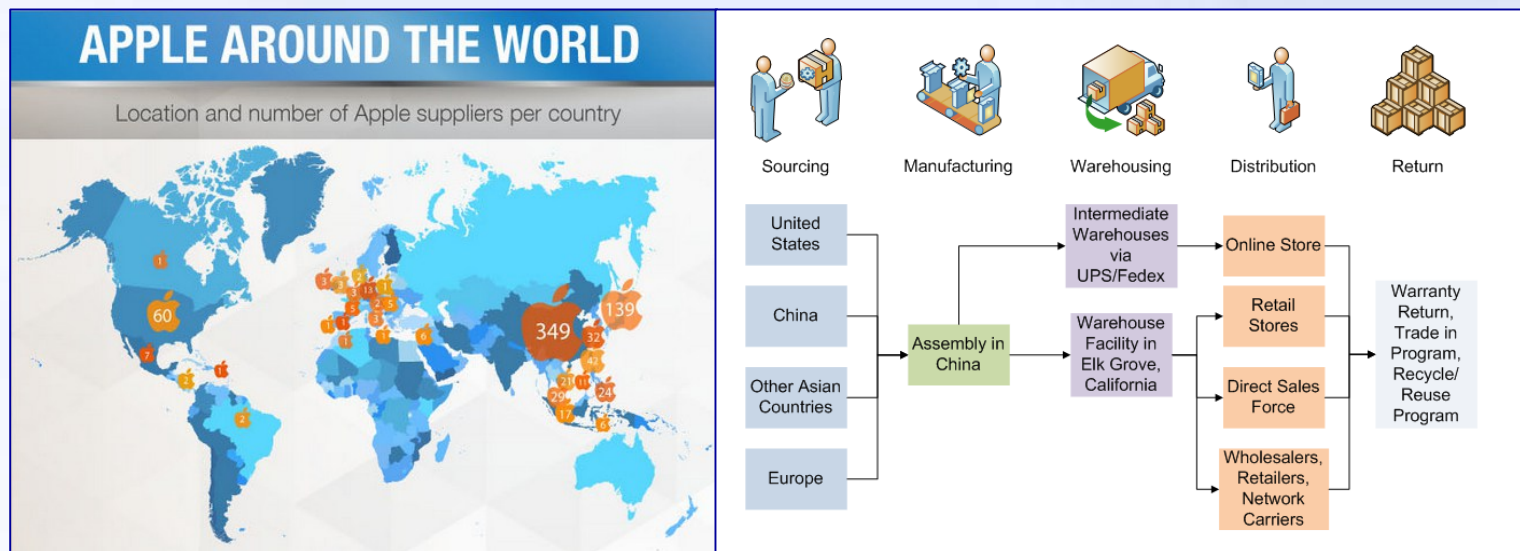## MNE Groups supply chain management

What do they look like now?

This "may" be good for business profitability, productivity and the consumer …
but not for the life of a poor statistician measuring business statistics, NA or BoP !

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MNE Groups supply chain management

Apple (iPhone from concept to consumer)

- One of the world's leading *global* supply chain management models.
- Yet, no two business supply chain models are exactly the same.
- However, for economic statistics:
  - Statistical data is being collected in "all" countries?
  - Quality of the statistical data - is it consistent and coherent?

APPLE AROUND THE WORLD
Location and number of Apple suppliers per country

If Apple brought iPhone manufacturing to the USA, it would cost them over $4.2bn **(Source: Forbes)**

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MNE Groups supply chain management

Will supply chain models continue to change? (yes)

- Business models need to improve / change to remain competitive:
  - Changes in procurement approaches along internal delivery chains.
  - New entrants, new business models and "competing" supply chains.

- Digitalisation will be an enabler for faster change and lower costs:
  - Development of digital supply chains reaching new markets and quickly.
  - Technology driven solution concepts.
  - Intelligent software systems - data analytics, automations, etc.

- Logistics industry:
  - Consumer expectations - faster, flexibly and with low delivery cost or no cost.
  - New business models with standardisation of sizes, labelling, systems, etc.

- Impact of BEPS, Trump, Brexit, etc.

- Humans will play a part … as well as Artificial Intelligence and robots?

Is the statistical environment prepared to keep up or able to keep up or become irrelevant?

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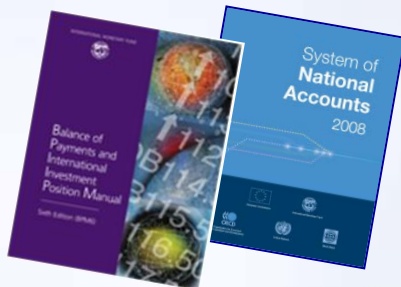
Economic ownership

Overview of basic principles (1)

- Transfer of products from one unit to another is that the economic ownership passes from one to the other.

  … who bears the risks and rewards.

- Legal owner is the unit entitled in law to the benefits of possession:
  - Legal ownership is not the same as economic ownership.
  - Legal owner is only a 'proxy' for the economic owner.

- Economic owner:

  The economic owner of entities such as goods and services, natural resources, financial assets and liabilities is the institutional unit entitled to claim the benefits associated with the use of the entity in question in the course of an economic activity by virtue of accepting the associated risks.

  (Source: 2008 SNA Paragraph 3.26)

Economic ownership

Overview of basic principles (2)

- Universal application - change in economic ownership of goods principle.

- Changed the recording of areas like:
  - Goods sent for processing.
  - Merchanting.
  - Both abroad and within the domestic economy, and then returned to the owner.
  - Principles also applied to areas like FDI.

- Shifted focus away from physical movements of goods to the impact on the economies of the owner of the products and the processor.
  - Physical presence versus statistical presence.

- Now consistent with international financial transactions.

- Three aspects of ownership for MNE Groups are distinguished:
  - Structure of subsidiaries, associates and other affiliates.
  - Output of goods and services produced.
  - Assets held within MNE Groups (e.g. IPPs)

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Economic ownership

Challenges posed for Business Statistics, NA and BoP

- Flow of money and goods and services - historically, equal and opposite.

    Now, the flow of money … leads you somewhere?

    but the production / flow of goods and services … leads you somewhere else !

- Movements of goods
    - Goods crossing the border of the resident economy:
        - All cases were included in NA and BoP.
        - Now, only those included where there is change in economic ownership.
    - Goods not crossing the border of the resident economy:
        - All cases (except merchanting) were excluded from NA and BoP.
        - Now, more are included, linked to the change in economic ownership.

- Consumption of services
    - Imports and exports of services (e.g. downloading music, gambling, etc.)

Presents HUGE challenge for structures held on business registers and data collection.
QUALITY - coherency, consistency and comparability of National and EU/Euro Area statistics.

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Profiling - international and national

What is profiling?

> "Profiling is a method of analysing the legal, operational and accounting structure of an enterprise group at national and world level, in order to establish the statistical units within that group, their links, and the most efficient structures for the collection of statistical data."
>
> *(Source: Business Registers Recommendation Manual 2010, annex 3.1, paragraph 19.9)*

International profiling

- International groups:
  - MNE Groups on Euro-Groups Register (EGR) - needs to be improved.
  - UK at the forefront of good work done in the ESSnet on International Profiling.
    - Via the international institutions develop a World-wide MNE Group Statistical Network?
  - Work done on a case by case basis - over 25+ cases completed in the UK.

National profiling

- National groups:
  - Focus on small and large complex groups - more reactive.
  - In the UK, this work is undertaken on a regular on-going basis.

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Profiling techniques

Distinction in terms of their intensities

- Manual "intensive" profiling
  - Covers the activity of sending staff to the headquarters of a large business (group) to discuss the delineation of statistical, reporting and observation units on the basis of the operating structure of the business.

- "Manual "light" (or "desk") profiling
  - No visit is carried out to the business and just public information (annual reports, business' website, etc.) plus survey information is used.

- Automated profiling
  - Procedures run by nationally defined automated rules by making use of data from national business registers and EGR on enterprise groups that operate on administrative units or legal units in order to delineate enterprise groups.

Best practice for delineating enterprises in enterprise groups for large and complex MNE Groups is of course, manual "intensive" profiling.

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Better understanding of MNE Groups - Structures and flows (1)

UK based oil company - changes over time (within three years)

- Old company structure:
    - Extracted crude oil (some of which exported) and refined within the UK.
    - Refined petroleum distributed and sold across the UK and exported.
    - GFCF on ships.

- New company structure:
    - Extracts crude oil and sends mostly outside the UK for refining.
    - Sells refined petroleum in the UK but undertakes no refining in the UK.
    - Processing fees paid to UK business (off-shoot of the old company).
        - Change in economic ownership.
    - Processing fees paid to the company's unit based in country XXX.
        - No change in economic ownership.
    - Ships are now registered in Asia.

- Significant impact on UK activity covering the oil and gas process chain:
    - Intermediate consumption, GVA and output as well as productivity.
    - GFCF, changes in inventories, imports and exports.
    - Taxes on products - VAT and excise duties.

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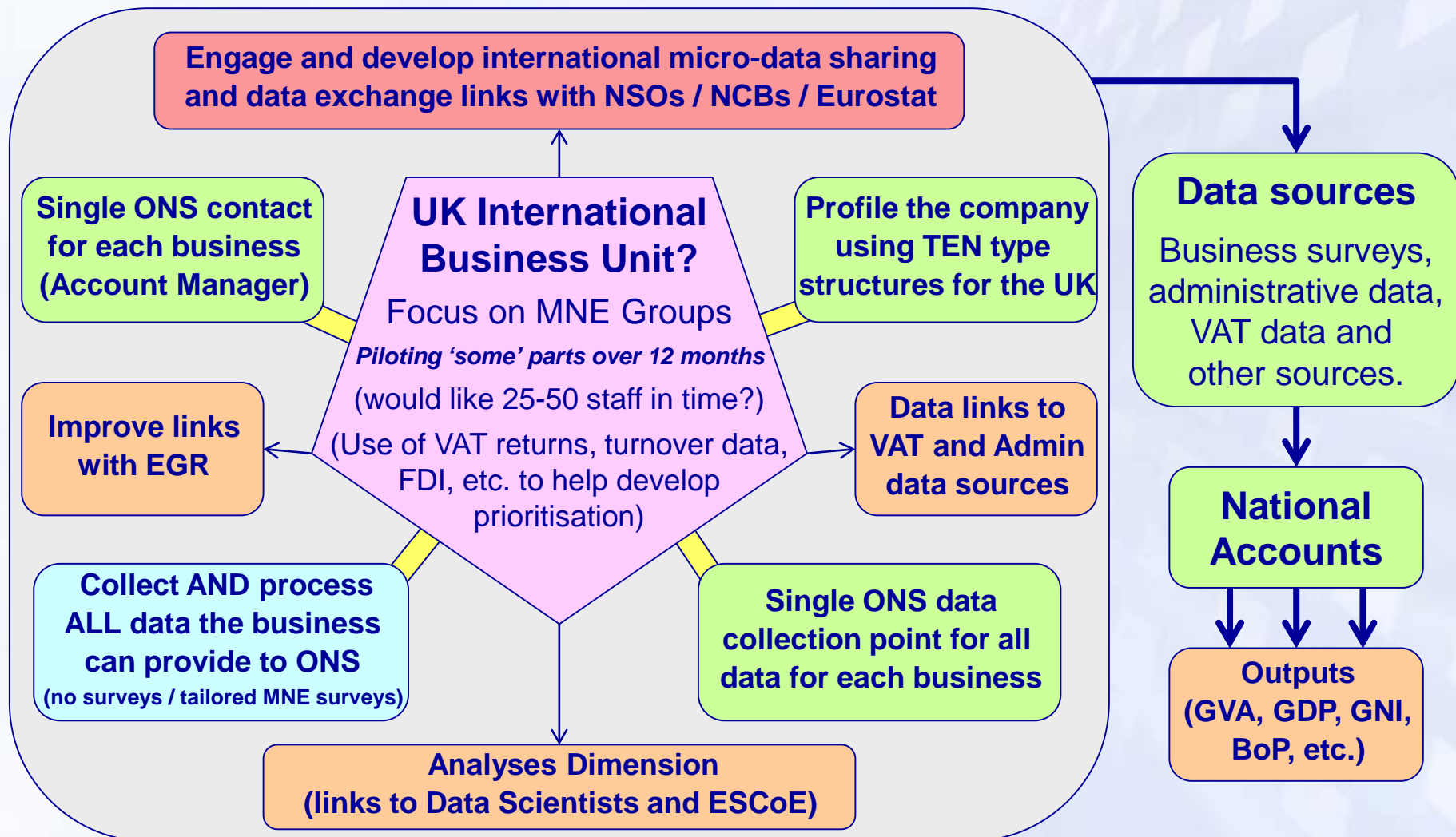## Better understanding of MNE Groups - Structures and flows (2)

UK based on-line retailer - changes over time (within six years)

- Old unit was an on-line retailer based in the UK - easy and simple.

- Unit restructured to:
  - Head office, call centre (after sales service) and warehousing activity.
  - UK head office received a fee to cover its costs from affiliate in country XX.
    - Had no control or autonomy of decision making or economic ownership of the goods.
  - Purchases made on the web-site are paid to the unit in country XX.
  - Goods delivered from UK warehouse are supplied by UK producers or imports.
  - Unit not a retailer in the UK.
    - Using Top-Down or Bottom-Up classification approaches.

- Unit is changing again:
  - Same as above *plus:*
    - Will set up a new unit in the UK to record UK sales for tax purposes.
    - Will the new unit be recorded as a retailer in the UK? (to be determined)
    - Same arrangements will be applied to Germany, Spain and Italy.

- No change to be implemented across Business Surveys, NA or BoP?
  - This would be incorrect action.

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Way forward - Evolving strategy for data management of MNEs

Engage and develop international micro-data sharing and data exchange links with NSOs / NCBs / Eurostat

Single ONS contact for each business (Account Manager)

UK International Business Unit?
Focus on MNE Groups
Piloting 'some' parts over 12 months
(would like 25-50 staff in time?)
(Use of VAT returns, turnover data, FDI, etc. to help develop prioritisation)

Profile the company using TEN type structures for the UK

Improve links with EGR

Data links to VAT and Admin data sources

Collect AND process ALL data the business can provide to ONS
(no surveys / tailored MNE surveys)

Single ONS data collection point for all data for each business

Analyses Dimension (links to Data Scientists and ESCoE)

Data sources
Business surveys, administrative data, VAT data and other sources.

National Accounts

Outputs (GVA, GDP, GNI, BoP, etc.)

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Way forward - Essential to build on the experience to date

Benefits

- Improved quality of recording MNE Group business structures.
- Reconciliation of Top-Down and Bottom-Up approaches.
- Avoid missing activity and remove any double-counting.
- Better understanding of businesses' activity and changes over time.
- Improved data from registers and business surveys feeding into NA and BoP.
- Central contact point and collect ALL the data the business can provide.
- Significant burden reduction on MNE Groups (increase burden/cost for ONS).

Challenges

- International profiling can be time consuming and resource intensive:
  - 600 cases at EU level, of which UK and Germany has a large proportion.
- Staff are needed with wide-ranging skill sets:
  - Company accounts, registers, legal units, statistical units, SNA, BPM, etc.
- Co-operation from respondents - agreement may not be achieved:
  - No legal obligation beyond national levels or the UCI is outside EU.

Micro data sharing, data exchange and data reconciliation between countries is "essential"

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Way forward - Key messages for MNE Groups

KEEPING UP TO DATE WITH THE CHANGES

Two key aims for "complex" or "MNE type" entities

- Speak to businesses and "understand" what they are doing!
  - They are continually changing / restructuring rapidly.
  - Profiling of business structures plus regular review.
  - Map out ownership, flow of monies, goods and services with the business.

- Sharing of businesses' data across countries is essential
  - Need to develop data sharing links (is key) and reconciliation processes across countries' NSOs / NCBs covering MNE Groups.
  - International profiling of MNE Groups.

Some thoughts to take away

- Investment in profiling businesses (internationally and nationally) is essential.
  - Enables correct recording of complex businesses including MNE Groups.

- Are MNE Groups a 'measurement challenge'? (yes)

- Are MNE Groups a 'conceptual challenge'? (no)

Develop a secure world-wide MNE Group network for NSOs / NCBs to reconcile data?

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Office for National Statistics

Any questions?

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