

Outcome of the global consultation on

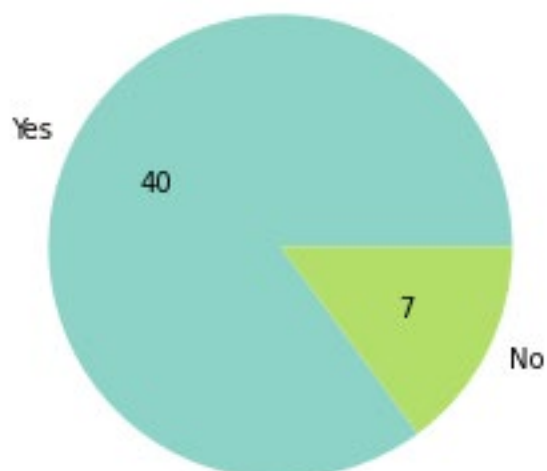
DZ8 Cloud Computing

(CONSENTERS ONLY)

A total of 47 respondents contributed to this consultation, 38 of which consented to publishing of their verbatim responses which are provided below. However, the below graphs reflect the answer of all 47 respondents.

Completely anonymous contributions are excluded.

Q1A. Do you agree that the GN addresses all the relevant conceptual and practical aspects related to cloud computing services in National Accounts and Balance of Payments statistics?



Aruba (CBS) (CBS): Yes

Australia (Australian Bureau of Statistics) (Australian Bureau of Statistics): No

Belgium (National Bank of Belgium) (National Bank of Belgium): Yes

Brasil (IBGE (NSO)) (IBGE (NSO)): Yes

Canada (Statistics Canada) (Statistics Canada): Yes

Chile (Central Bank of Chile) (Central Bank of Chile): Yes

Croatia (Croatian Bureau of Statistics) (Croatian Bureau of Statistics): Yes

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Germany (Federal Statistical Office of Germany) (Federal Statistical Office of Germany): No

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Lebanon (bdl) (bdl): Yes

Lebanon (CENTRAL BANK OF LEBANON) (CENTRAL BANK OF LEBANON): Yes

Lithuania (State Data Agency (Statistics Lithuania)) (State Data Agency (Statistics Lithuania)): Yes

Malaysia (Department of Statistics Malaysia) (Department of Statistics Malaysia): Yes

México (National Institute of Statistics and Geography (INEGI)) (National Institute of Statistics and Geography (INEGI)): Yes

Netherlands (Statistics Netherlands) (Statistics Netherlands): No

Norway (Statistics Norway, Division for National Accounts) (Statistics Norway, Division for National Accounts): Yes

Peru (INSTITUTO NACIONAL DE ESTADÍSTICAS E INFORMÁTICA) (INSTITUTO NACIONAL DE ESTADÍSTICAS E INFORMÁTICA): Yes

Poland (STATISTICS POLAND) (STATISTICS POLAND): Yes

Qatar (Planning and Statistics Authority) (Planning and Statistics Authority): Yes

Romania (National Institute of Statistics / National Bank of Romania) (National Institute of Statistics / National Bank of Romania): Yes

Samoa (Samoa Bureau of Statistics) (Samoa Bureau of Statistics): Yes

Saudi Arabia (Saudi Central Bank) (Saudi Central Bank): Yes

Singapore (Singapore Department of Statistics) (Singapore Department of Statistics):
Yes

South Africa (South African Reserve Bank) (South African Reserve Bank): Yes

South Korea (Bank of Korea) (Bank of Korea): Yes

Spain (NATIONAL STATISTICS INSTITUTE) (NATIONAL STATISTICS INSTITUTE): Yes

Sweden (Statistics Sweden, NSI) (Statistics Sweden, NSI): No

Switzerland (Swiss Federal Statistical Institute) (Swiss Federal Statistical Institute):
Yes

Thailand (Office of the national economic and social development council) (Office of the national economic and social development council): Yes

Tunisie (institut national de la statistique) (institut national de la statistique): Yes

United Kingdom (UK Statistics Authority) (UK Statistics Authority): No

United States (Bureau of Economic Analysis) (Bureau of Economic Analysis): Yes

Vietnam (General Statistic Office) (General Statistic Office): Yes

Q1B. If it does not, which additional elements should be considered?

Australia (Australian Bureau of Statistics) (Australian Bureau of Statistics): We have outlined below a number of areas that we believe need to be further clarified or aspects that have not been addressed in this guidance note.

- The guidance provided on the recording of cross-border flows remains unclear. The guidance note outlines that “the consumption of cloud computing services should be recorded in the location where the associated business/production process is located”. This line is not clear, does it imply that for example if an advertising business in country A pays for cloud computing services from a business located in country B, then this transaction is recorded as an import of services by country B and an export of services for country A? It would be helpful to provide guidance on the full suite of flows that are likely in cloud computing service arrangements.
- The guidance focuses on the treatment of business consumption and very little on the treatment of consumption of cloud computing services by households. It is acknowledged that the majority of cloud computing services are consumed by businesses, however an example of a potential area of confusion is how to record the data storage services provided to households by a business such as Google where they provide a certain number of gigabytes to users for free?
- Additionally, to the point above, guidance on how to treat the provision of free cloud computing services including how to determine a market value for these?
- More thought will need to be made as to how to price and deflate the cloud computing.

While it is appreciated that some guidance has been provided, this aspect of recording cloud computing is crucial in avoiding asymmetry in the international accounts.

- It would be useful if the guidance note could elaborate on the linkages and potential overlap between cloud computing and data, for example the use of cloud data storage and potential implications on the ownership and valuation of the data assets (or copies thereof). This applies more broadly to all guidance on digitalisation in the updated SNA, where it will be critical to ensure that the guidance for all topics is very clear due to the significant interdependencies within this area of the accounts.
- Clarification on which categories cloud computing should be recorded within, and the various flows, would be helpful. In the current version, it is not clear if the assets associated with cloud computing should be recorded under a specific cloud computing category or under existing categories (e.g. some in equipment and some in computer software?). Similarly, where the service transactions should be recorded? This has not been made clear by the guidance note.
- It would be helpful to provide some explicit detail on the industry classification of cloud computing service. For example, helping to clarify the recording of services such as Netflix and other streaming services.

Germany (Federal Statistical Office of Germany) (Federal Statistical Office of Germany): 1) One criterion of the definition of cloud computing is “pay-per-use basis”. For us it is not clear, where flat rate offers or time-limited contracts based on cloud computing should be recorded. It would be helpful, if the GN gives more clarification.

2) The treatment of long-term licenses and subscriptions as fixed asset, need further clarification as well as concrete and uniform instructions. Especially because we don't see any data sources that will enable us to distinguish between one-year licenses and long-term licenses.

3) It would be great if the refinement of classification for cloud computing services by the Central Product Classification (CPC), which has been mentioned in the guidance note as planned for the future, was already part of the note. A statement on the cloud computing classification proposed by the Eurostat Taskforce on “Price and Volume Measures for Services Activities” which was presented to AEG at the 12th meeting would also be helpful. (Background information: In June 2018 the Eurostat Taskforce „Price and Volume Measures for Services Activities“ published a “Final Report of the Task Force „Price and Volume Measures for Service Activities” . On page 30 they proposed the following classification: “The supply of SaaS should be classified with other software: CPA 58.2 (Software publishing services). PaaS is most likely CPA 62.01 (Computer programming services) while IaaS is CPA 63.11.1 (Data processing, hosting, application services and other IT infrastructure provisioning services).” Such a clear definition of cloud computing would be very helpful for implementation.)

Netherlands (Statistics Netherlands) (Statistics Netherlands): All relevant concepts and practical aspects are mentioned in the Guidance Note. However, some practical guidance is

needed on how to deal with a few aspects in particular.

There are three items that require more guidance/explanation :

1. In the definition of cloud services, what exactly is meant by the criterion 'pay-per-use basis'? A party could have a contract to use 100GB of storage capacity in the cloud for a set price. What if only 50% of this 100GB storage is used? Is it the package under contract that should be possible to count, or the actual use of data? For example: if the user of the service pays the same if he uses 50 out of the 100GB as he would if he would use 100GB out of the 100GB, do these costs still meet the criterion of pay per use and are thus counted as cloud computing services or not?
2. What exactly do (colocation) datacenters produce in 'facilitating' the 'real' cloud computing providers which sell the actual cloud services to the end users? Which CPA code should be used for this type of production, and how should the investments of these datacenters be classified (buildings and other structures, machinery and equipment)? In the guidance note contracts to access these IT assets are often seen as financial leasing arrangements, but more guidance is needed here. It is unclear to us how a data center's investment in for instance server racks should be recorded.
3. Cloud computing companies often sell bundled products. For instance, they can provide both cloud software (SaaS) as well as platform services (PaaS) to parties. How can we break down costs or revenues into the different type of cloud products in practice, and is this necessary? Software (used for more than 1 year) should be recorded as fixed assets. How should the actual cloud computing behind the software (i.e, the on-demand availability of the software through the internet) be dealt with? Should this be recorded as a separate service from the software license? Or should the total price paid for the bundled product be recorded as an investment in the predominant fixed asset?

Extra information regarding question 2A: Q2A: We are interested in surveying large companies on gross flows of cross-border cloud computing services, but first want to know the terms and conditions of technical and financial support.

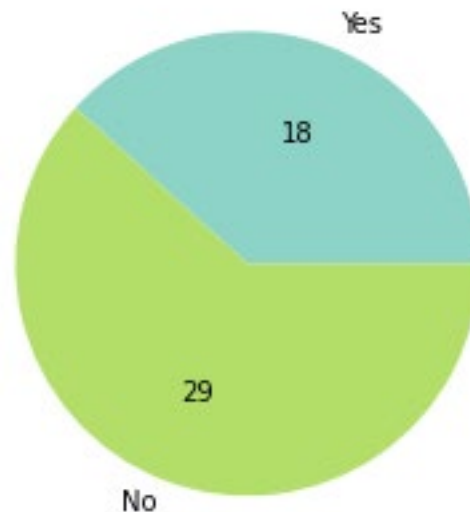
Sweden (Statistics Sweden, NSI) (Statistics Sweden, NSI): We think the issue of cloud computing services poses the same problems as faced for computer software in terms of measurement, the risk of double counting and the recording of economic ownership. Measurement issues, like intra MNE cross-border flows, are to some extent noted in the GN but not discussed at any depth and the GN does not provide any solutions. In the document there are several references to business accounting, but it should also be stated that NA in many respects diverge from business accounting. In this respect the issue of economic ownership and financial leasing is one issue where business accounting is more flexible than the NA.

United Kingdom (UK Statistics Authority) (UK Statistics Authority): The UK wishes to express that economic ownership needs clearer guidance, especially in regards to 'long-term contracts'. It would be helpful to include some timeframe if entering into a long-term contract for cloud computing. The UK identifies that this could be similar in principle to

operational leases which are excluded from the GFCF as the user of the equipment (in this case, service) is not the economic owner as they do not bear the risk. Greater clarity would be beneficial here.

In addition, given the chapter outlines includes a chapter on capital services, clarity on how and whether cloud computing services should be seen as a capital service would be beneficial. This is particularly the case if one is trying to derive productivity across time periods when businesses employ physical ICT hardware and software and move to sourcing cloud services.

Q2A. The GN will be part of the early implementation exercise that will be launched in the course of 2023. Preliminary plans envisage producing estimates of cloud computing services, taking into correct account the international transactions associated with cloud computing. For this purpose, national statistical authorities will be invited to establish contacts with major cloud computing enterprises to collect data on gross flows of cross-border cloud computing services. Will your organisation be interested in participating in the early implementation exercise of this GN?



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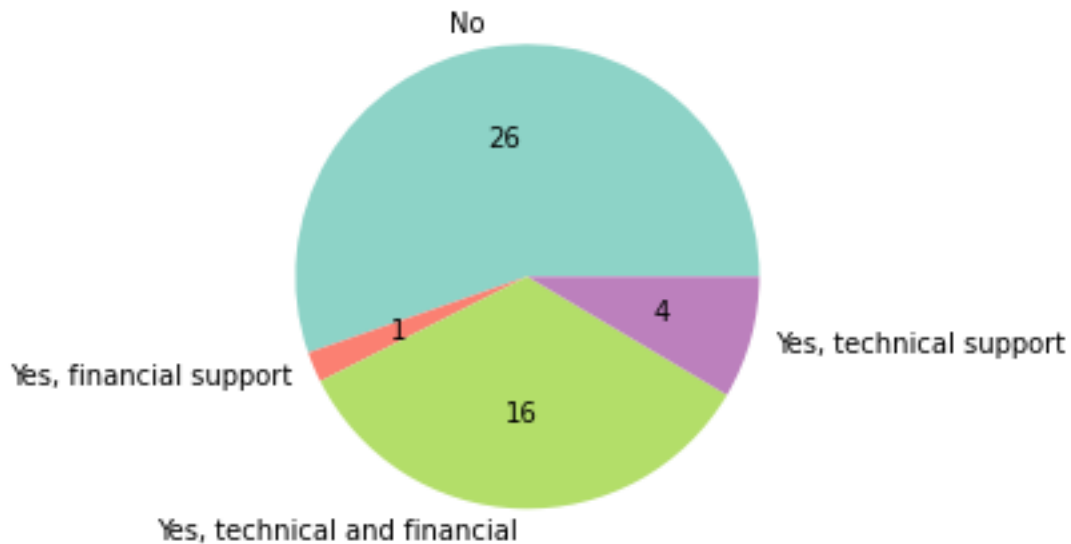
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United Kingdom (UK Statistics Authority) (UK Statistics Authority): Yes

United States (Bureau of Economic Analysis) (Bureau of Economic Analysis): Yes

Vietnam (General Statistic Office) (General Statistic Office): Yes

Q2B. Would you need any support from international organizations?



Aruba (CBS) (CBS): No

Australia (Australian Bureau of Statistics) (Australian Bureau of Statistics): No

Belgium (National Bank of Belgium) (National Bank of Belgium): No

Brasil (IBGE (NSO)) (IBGE (NSO)): Yes, technical and financial

Canada (Statistics Canada) (Statistics Canada): No

Chile (Central Bank of Chile) (Central Bank of Chile): No

Croatia (Croatian Bureau of Statistics) (Croatian Bureau of Statistics): Yes, technical support

France (NSI) (NSI): No

Germany (Federal Statistical Office of Germany) (Federal Statistical Office of Germany): No

Guinée (Institut National de la Statistique) (Institut National de la Statistique): Yes, financial support

Indonesia (Statistics Indonesia) (Statistics Indonesia): Yes, technical and financial

Indonesia (Badan Pusat Statistik) (Badan Pusat Statistik): Yes, technical and financial

Israel (Israel's Central Bureau of Statistics) (Israel's Central Bureau of Statistics): No

Latvia (Central Statistical Bureau of Latvia) (Central Statistical Bureau of Latvia): No

Lebanon (bdl) (bdl): Yes, technical and financial

Lebanon (CENTRAL BANK OF LEBANON) (CENTRAL BANK OF LEBANON): No

Lithuania (State Data Agency (Statistics Lithuania)) (State Data Agency (Statistics Lithuania)): Yes, technical and financial

Malaysia (Department of Statistics Malaysia) (Department of Statistics Malaysia): Yes, technical support

México (National Institute of Statistics and Geography (INEGI)) (National Institute of Statistics and Geography (INEGI)): No

Netherlands (Statistics Netherlands) (Statistics Netherlands): Yes, technical and financial

Norway (Statistics Norway, Division for National Accounts) (Statistics Norway, Division for National Accounts): Yes, technical support

Peru (INSTITUTO NACIONAL DE ESTADÍSTICAS E INFORMÁTICA) (INSTITUTO NACIONAL DE ESTADÍSTICAS E INFORMÁTICA): Yes, technical and financial

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Saudi Arabia (Saudi Central Bank) (Saudi Central Bank): Yes, technical support

Singapore (Singapore Department of Statistics) (Singapore Department of Statistics): No

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South Korea (Bank of Korea) (Bank of Korea): No

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United Kingdom (UK Statistics Authority) (UK Statistics Authority): No

United States (Bureau of Economic Analysis) (Bureau of Economic Analysis): No

Vietnam (General Statistic Office) (General Statistic Office): Yes, technical and financial