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Working Party on National Accounts

Issue paper on a proposed framework for a satellite account for measuring the digital economy

**Meeting of Advisory Group on Measuring GDP in a Digitalised Economy
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1. Background

1. The Advisory Group on Measuring GDP in a Digitalised Economy¹ was created by the Committee on Statistics and Statistical Policy (CSSP) to advance the measurement agenda related to measuring the digital economy from a macroeconomic perspective. As earlier input to the work of the Advisory Group the OECD Secretariat put forward a proposal for an overarching framework on the dimensions of the digital economy² as a way of framing the discussions and deliberations of the group around core characteristics that could be used to determine measures of digital products, industries, consumers, transactions and modes, and also enablers (infrastructure and investment).
2. But the framework was also designed to provide scope to respond to broader measurement challenges and policy needs. For example, to name but a few:
 - a. Information on the overall value of goods and services intermediated (facilitated) by the digital economy (e.g. via digital intermediary platforms)
 - b. Insights on the use of digital tools in production, such as enabling technologies (in particular investment).
 - c. The imputed value of free services, and also data.
3. In this sense the framework circulated for discussion was, from the outset, designed to provide a broadly holistic view of the digital economy, from which a satellite account could be developed – largely but not exclusively – in line with the needs of the current national accounts production boundary: a satellite account that, in the first instance, would be able to respond to two important concerns (i) the need to ‘see’ the digital economy within the core accounts (the absence of which has to some extent fuelled the mismeasurement hypothesis) and (ii) to act as a means of ensuring that important transactions, where mismeasurement may be a real issue, are properly accounted for.
4. The feedback from the AG³ suggests that the overarching framework has largely met its objective of moving the group towards a broadly common understanding of the nature of the digital economy, including policy drivers and measurement challenges. That is not to say that these challenges have been resolved but whilst there remains a need to begin the task of putting flesh on the bones of many of the dimensions (producers, products, nature, users and enablers) described in the framework (i.e. defining the dimensions), it is clear that the views are beginning to converge in a number of important areas.
5. Perhaps the most important of these areas reflects the need for a multidimensional framework that can respond to the variety of demands. For example there is a strong realisation that a narrow framework built around the principle of *digital industries* alone would ignore many important aspects of the digital economy, such as sales of goods and/or services through a (non-digital) company’s own web-site. The same holds for *digital products*. For example while digital intermediation services could comfortably be

¹ See Proposal to Create an Informal Advisory Group on Measuring GDP in a Digitalised Economy, STD/CSSP(2016)16

² See Annex 1 of conceptual framework in OECD (2017c), Summary of Responses of the Advisory Group: Survey of on Digital Economy Typology STD/CSSP/WPNA(2017)1

³ OECD (2017c), Summary of Responses of the Advisory Group: Survey of on Digital Economy Typology STD/CSSP/WPNA(2017)1

argued as being a digital product, a satellite account built around such a concept may run the risk that the associated value of services (or goods) being intermediated (e.g. accommodation) would not be included.

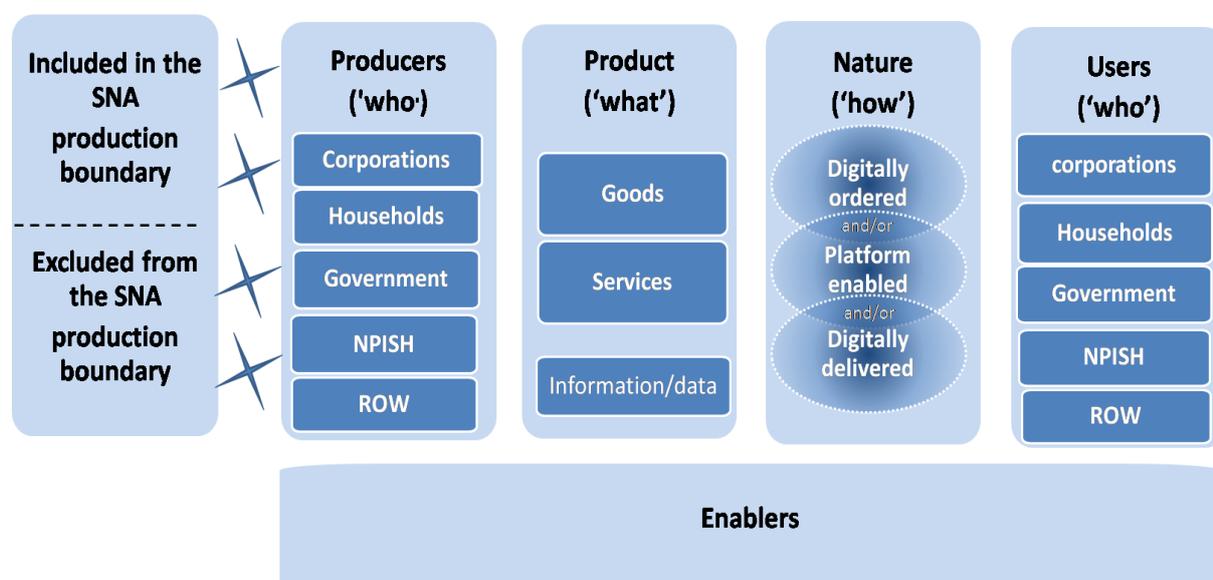
6. That is not to say that definitions are not needed in these areas, they clearly are, even if they are only subsequently defined by convention, but the scope of the satellite account cannot gravitate around definitions of digital producers or products alone as a governing principle, as is often the case in many satellite accounting systems. As noted, a focus on digital industries may necessarily exclude many industries or be so broad as to be meaningless (as many industries are producers and users of ostensibly digital products, however they may be defined). And a focus on digital products – where there is a broad consensus that these should reflect products that are digitised, i.e. represented and transmissible electronically by 0's and 1's - could quite easily result in many important transactions, facilitated by digitisation, being out of scope; for example direct e-commerce transactions of non-digital products between producers and consumers.
7. However, another important area where there has been convergence and, indeed one that has the potential to provide the basis of a central unifying theme within a satellite account, (and that is broad enough to reflect the multidimensional policy needs), concerns the *nature of transactions*, where there is an emerging consensus that for a *visible economic transaction* to be in scope of the digital economy, it needs to reflect at least one of the following: be *digitally ordered*, *digitally delivered* or *platform enabled*.
8. Further work will need to be undertaken to address the issues raised above. But there is at present sufficient convergence on the broader concepts to begin the elaboration of a satellite accounting framework, that can in turn facilitate on-going discussions on the categorisation of products, industries and indeed related, and policy relevant concepts, such as digital assets and digital enabling infrastructure.
9. This issues paper makes a first proposal for such a satellite account – one that remains broad enough to respond to the wide variety of policy questions (and not just pertaining to whether transactions are recorded in the accounts or not). Importantly (and without prejudicing final outcomes on how these should eventually be defined), the satellite account introduces concepts such as digital goods and digital services. Although the distinction between goods and services is becoming increasingly blurred - indeed for national accounting purposes one does not necessarily need to make this distinction, however, it remains of relevance for trade policy (e.g., GATT vs GATS). The satellite account also identifies a range of enabling assets, providing scope to consider the development of definitions for digital assets.
10. It is important to note, in advance, to avoid pre-empting conclusions of the AG or to narrow the debate, that little attempt has been made at this preliminary stage to limit the ambition of the proposal (although expansions should be considered in due course, for example to develop gross and net capital stock estimates of digital assets – which may require additional deliberations relating to service lives and depreciation rates) – and price and volume considerations. In this sense it takes a deliberately expansive of view production and consumption and is fundamentally driven by conceptual considerations and policy needs and not (yet) practicality nor feasibility.
11. It is already clear that for many of the proposed items, current statistical information systems in most countries are not (at least yet) able to identify the transactions (for example those concerning the origin of the service provider). As with any statistical accounting framework, deliberations will be needed within the AG to consider the feasibility of the proposal in practice; in addition to its conceptual merit.
12. In its deliberations therefore, the AG is asked to differentiate between feasibility today and feasibility in the future. Many of the transactions for example are not currently 'collectable' in current statistical information systems as they have not been afforded high priority, and so the question becomes should their prioritisation change? And moreover, can the development of a satellite account motivate and accelerate subsequent data collection? The AG is asked to consider these questions and more generally comment on this proposal, whilst also beginning to think about the process and prioritisation of expanding the framework in the price and volume domain (and also broader aspects of capital - e.g. depreciation, capitals stock, service lives and capital services estimates – where specific practical guidance may need to be developed).

2. Recap: The conceptual framework

13. The earlier consultation of the AG⁴ considered the broad framework of actors, products and transactions that were in scope and of relevance for the measurement of the digital economy. One important outcome of that earlier discussion –and to better highlight the fact that not all transactions within the framework were currently within the production boundary - is the introduction of a new column– the first column in figure 1– that differentiates between those transactions within and outside the SNA production boundary – which was only implicit in the original proposal (Figure 1). Note, as before, that each of the dimensions can be further disaggregated (or dissected in different ways) to shed more light on the issues that one wants to study.
14. To recap, the second column in figure 1 identifies producers. These could be broken down in a number (and combination of) ways, including by institutional sector (which is shown below to highlight the importance of the rest of the world - ROW - sector, and the high policy relevance of cross-border digital trade transactions) but it also embodies breakdowns by categories of industries such as *digital and non-digital* and/or *producers of digital products* (however digital products are eventually defined).
15. The third column, ‘product’, introduces information, or data, as a separate product to consider in addition to goods and services. This reflects the fact that many transactions in data do not result in monetary transactions per se. Note that if there is an explicit monetary transaction - i.e. purchases/sales of data - then this should, in theory, be picked up within services, including knowledge based assets that are also classified as services, such as databases where the full value of the underlying ‘knowledge’ embodied in data may also be captured within ‘goodwill’, so, as currently classified, the item information/data refers primarily to exchanges of data/information where there is no monetary exchange. However the AG is asked to consider whether it would be useful to also separately identify ‘data and information’ exchange where there is a monetary transaction.
16. The fourth column (nature of the transaction), determines which modes of delivery were used, and to a large extent, as described above, are a key defining feature of the framework, as, at least in theory, all other dimensions cover the entire scope of actors and products within the national accounts.
17. To complete the picture, the fifth column categorises users that can be broken down by institutional sector (again including the ROW), industries, and also consumers of final demand (notably households).
18. The “enablers” of digitalisation can be understood as an important pillar of the digital economy, namely the investment and infrastructure channels that help drive digital transformation.

⁴ The earlier framework, including the motivation behind the design, is described in Annex 1 of OECD (2017c), Summary of Responses of the Advisory Group: Survey of on Digital Economy Typology STD/CSSP/WPNA(2017)1 and in OECD (2017b), Measuring Digital Trade: Towards a Conceptual Framework, STD/CSSP/WPTGS(2017)3. For expedience the arguments presented in the paper are not repeated here.

Figure 1. Dimensions of the digital economy



2.1. Operationalising the framework for measuring digital economy

19. As described above, the primary purpose of the overarching framework is to provide a structure from which a satellite account can begin to be developed. Annex 1 presents a first proposal of such a satellite account, following in many respects the structure of a supply and use framework. As described above, in large part, the proposed satellite account uses the nature of the transaction as the organising principle but it is important to note that this does not necessarily dictate nor pre-empt what should be considered digital goods and services or digital industries. The account in this respect is an attempt to advance the design of a satellite account and, in particular, its key characteristics, whilst also retaining the importance of (and motivating deliberations on) definitions on these characteristics, notably concerning, digital industries, digital enablers, digital goods, digital services and platforms. In this respect later sections of this issues paper begin to consider the parameters around which such definitions could emerge.

3. Nature of transactions

20. As noted, the governing principle of the account gravitates around the nature of transactions, so in this sense the core part of the satellite account – the de facto ‘use’ table - only captures transactions that are either ‘digitally delivered’, digitally ordered, or platform enabled (see first table of annex 1); i.e. those transactions that are of interest and in scope for the digital economy. Note too, that the satellite account also includes a separate section for ‘enablers’ (e.g. investment); which, although related and enable the various transactions are not in and of themselves dependent on them. Indeed, the enablers, for example computers, may not necessarily be used for explicit digital economy transactions (whether delivered, ordered or platform enabled).
21. Building on the overarching framework the nature of transactions is further broken down within the satellite account, into the type of product transacted, i.e. goods and services, with a further breakdown on whether the specific goods and services are digital or non-digital (and indeed whether the services are delivered for free, for example non-monetary transactions in data – referred to as ‘product f’, which covers the information/data item described in the overarching framework). As such the ‘use’ part of the satellite account provides a means to determine key policy relevant statistics, such as:
- total purchases of digital goods – and by type of demand (intermediate/final demand);
 - total purchases of digital services - and by type of demand (intermediate/final demand); and
 - total value of e-commerce⁵ purchases (digitally ordered goods and services), and because the satellite account asks for both purchasers and basic price valuations, the total value of the associated ‘distribution’ or ‘intermediation’ margin generated by digital intermediary platforms.
 - Imputed value of free digital services, by households and industries.
22. The satellite account also differentiates platforms on the basis of whether they are resident or non-resident (see rows 4-5, 12-17, 21-26, 32-45) , and also breaks down all transactions on the basis of whether the underlying goods or services were produced domestically or abroad (i.e., from domestic supply or imported supply). These breakdowns will be able to provide information on cross-border e-commerce trade and domestic e-commerce trade facilitated by non-resident platforms: both important for policy making.
23. For services facilitated by platforms, additional items (intermediation fees) are also included to capture the specific payment mechanisms currently in place for many common platforms (such as Uber and Airbnb), where both the provider and consumer of the service that is being intermediated both pay for the actual intermediation service. Currently, the satellite accounts makes no such distinction for platform enabled goods transactions, partly on the grounds that these are not thought to be significant (for now) **but the AG is asked to consider whether the principal should be extended to goods too.** Note that in cases where producers pay platforms fees for advertising their products, these should be recorded as payments for digitally provided advertising services, provided by digital platforms.

⁵ OECD, Guide to Measuring the Information Society, 2011. The OECD started to develop definitions and statistical guidelines for measuring ecommerce transactions in 1998. Those guidelines, as well as the OECD definition of the ICT sector and Content and Media sector, and model surveys of ICT use and ecommerce for the business and household sectors, are periodically reviewed and revised to reflect policy needs in this area.

24. In addition, recognising that many ‘transactions’ that are central to the digital economy are not pure conventional transactions, i.e. are not-monetised or are free, the account includes additional rows for these ‘transactions’ (ROWS 46-49); albeit with full recognition that guidance will need to be developed to estimate and indeed identify the underlying value of these ‘free’ and ‘non-monetised’ transactions.

Question 1. Does the AG feel that the breakdown of ‘products’ based on the ‘nature’ of how they are transacted, including distinctions of transactions facilitated by resident and non-resident digital intermediary platforms, purchasers prices/basic prices, and whether the underlying products were imported or domestically produced, is a useful and, perhaps more importantly, feasible approach? Which items would be the most challenging to currently compile and what approaches lend themselves to measuring them?

4. Digital and non-digital products

25. As shown in the use table of the satellite account, a key question relates to what exactly constitutes digital goods and services. Rows 1-17 break goods into non-digital goods and digital goods. Rows 18-49 break services into paid services (both non-digital and digital services) and digital services received for free. The distinction between digital and non-digital products is a non-trivial task, and the AG will be required to give further reflection to this issue, in particular concerning their key determining characteristics.

4.1. Digital Goods

26. As a starting point, the account assumes that the distinction of goods as opposed to services follows that already in use in the SNA. For the goods category, the scope for what is to be considered as a digital good could be narrow or broad. In its most narrow sense one could take the view that there are de facto no digital goods (with the exception perhaps of some intellectual property products embedded in hard media and also, possibly, 3-D printing transactions), if the underlying definition required their electronic transmission in digitised form (i.e. as a series of zeros and ones). And even for 3-D printing it is not yet clear that such transactions would necessarily be classified as goods per se. Certainly the transaction relating to the purchase of the 3-D printing blueprint could ostensibly be classified as ‘digital’ and, purchased separately, this should reflect a service payment but if the payment is made for a bundled activity, with the significant part of the value reflecting the value of the blueprint, it would be potentially distortionary to exclude the transaction from the category of ‘digital products’ on the grounds that the bundle reflected a payment for a good (in much the same way that it would be odd if payments for software were excluded if they were provided on a disc). Nevertheless, whatever the final recommendation, there is strong interest in understanding the scale of 3-D printing transactions (and value of goods produced); which is why the satellite account includes an entry here with an explicit reference to 3-D printing.
27. However, as noted, the notion of ‘no digital goods’ would also mean that goods such as software and other IPP originals embodied in solid media are also out of scope, putting the definition at odds with distinctions of goods and services used in the SNA, trade negotiations and also within trade statistics (e.g. in EBOPS 2010) and perhaps creating an unhelpful delineation (and comparability challenges) between the same underlying software, for example, transmitted on solid media and software transmitted electronically. That is not to say of course that there is no interest in separating the two flows, as there clearly is, but it is merely to say that a narrow definition that rules out the concept of ‘digital goods’ may not be optimal.
28. In its most broad sense, there is a school of thought that ICT goods – where definitions already exist⁶ – could also be brought into scope for digital goods. The satellite account does not of course explicitly preclude this, but implicit in the underlying framework (Figure 1) is that ICT products are more ‘enablers’ rather than ‘digital’ per se. The satellite account accommodates this perspective via the inclusion of specific additional rows relating to investment in ICT products (see Investment matrices table, rows 50-63 – which also include some expenditures by households on durables (e.g., motor vehicles) – note that this perspective does of course exclude any ICT intermediate products from the satellite accounting framework, which raises the question of whether intermediate transactions on ICT goods should be

⁶ The Central Product Classification, version 2.1 identifies ICT products based on the principle that these products “must primarily be intended to fulfil or enable the function of information processing and communication by electronic means, including transmission and display.”

included as another category within the satellite account – although these are of course included in conventional SUTs.

Question 2a: Does the AG feel that 3-D printing transactions should be separately identifiable within the satellite account?

Question 2b: What are the AG's views on the appropriate flows that should be recorded with respect to 3-D printing? Should the payment for the 'blueprint' be treated as a payment for a service if separately invoiced, or as a good if 'bundled'? Are there circumstances where the bundled payment should be treated as a payment for service, for example if the 'blueprint' reflects the majority of the underlying value?

Question 2c: Does the AG agree that transactions for ICT goods should not be considered as digital goods per se, but still be included as a separate category of digitally enabling goods, and should these only be recorded where they satisfy SNA investment criteria? Or also when they are part of intermediate consumption?

4.2. Digital Services

29. In earlier consultations, many of the AG responded⁷ that all products that are digitally delivered could be in scope for a 'digital products' category. However, this was not a unanimous view. Others felt that, whilst the mode of delivery may indeed be digital, this should not be the determining factor. For example, there is no current unanimity on whether the electronic delivery of reports and documents necessarily mean that the documents themselves fully satisfy conventional ideas of a digital product per se; even though the documents themselves live as a series of bits and bytes.

30. Similarly a broad definition also raises questions about whether other types of services, such as payments for insurance services should also be in scope, but here the position is to some extent clearer, as the payments under these circumstances merely reflect a contractual electronic payment, and the underlying insurance service is of course not 'digital' per se. In many respects contractual exchanges like the latter services follow the same logic as payments for services intermediated by platforms, such as accommodation and transportation services. These are not, at least for now, typically viewed as being 'digital' per se (although the intermediation services should be). Automation (such as driverless cars) may muddy the waters, but even here it seems difficult to conclude that such services would necessarily be in scope, although such developments are likely to raise challenges for price and quality measurement.

31. However, where there does appear to be broad agreement, is in respect of digital downloaded products and streaming services (e.g., e-books, software, video and music streaming services). But it is important to note that such a view does create significant grey areas. For example, if an e-book is in scope, then why not any electronic document? A broader grouping would be to consider all ICT services as being in scope, including telecommunication services, but this would also create pressure for other electronic communication forms such as multimedia (including TV transmission) within scope.

32. Of particular interest in the context of digital services is the role of digital platforms (i.e. those intermediaries who in effect match consumers with producers and have no control over production per se), where a range of accounting issues arise - for example should the output of intermediation platforms also record the intermediated services and not just the intermediation fees, in much the same way that distribution services are recorded in the accounts. In earlier deliberations the AG was split on whether the underlying gross flows should be included within a category of digital services, but there was more support that the intermediation services should be. Notwithstanding these aspects, there was universal recognition that the underlying gross flows and the intermediation fees were of high policy relevance, and so the satellite account contains a separate category of transactions facilitated by digital intermediary platforms, highlighting the gross flows and showing separately the intermediation fees (recognising that the fees may

⁷ OECD (2017c), Summary of Responses of the Advisory Group: Survey of on Digital Economy Typology STD/CSSP/WPNA(2017)1

often have two different counterparties – the service provider and the final consumer). Rows 21-26 and 32-45 of Annex 1 show the various possibilities. Note that the type of service booked via digital intermediary platforms should be further disaggregated by type of service provided, e.g., transportation services, dwelling services, financial services, business services, household services, etc.

33. One area where additional advice and clarification will be needed concerns the nature of digital platforms. There is a broad understanding that these should include platforms that match producers and consumers for which some form of payment is made to the intermediary, but it is less clear whether these should also include platforms where no explicit matching (intermediation) service is provided (such as social media platforms and search engines), and indeed where no explicit intermediation fee is paid (for example advertising funded comparison sites or search engines, as opposed to implicit fees for example in return for individual preference data). A further grey area concerns subscription services (for example Netflix or cable TV services) where the payment for the service can only tangentially be thought of as an intermediation fee (especially if the subscription fee is not tied to a specific ultimate producer – i.e. specific movie). Another grey area, which is currently the subject of a number of legal rulings in many countries relates to the function of the intermediation platform. In some countries these legal rulings have stated that the producers (service providers) should be recorded as employees, which means that the intermediary would in theory have to record its output gross of the service actually provided using service providers (e.g., taxi drivers) providing labour services, and the payment from the service providers to the platform, netting off wages and salaries. For now the accounting framework assumes that platforms facilitate exchanges between independent parties. It is important to note however that if the classification of intermediation platforms is recorded on a gross basis, then this will blur distinctions between more conventional taxi providers that provide booking services on line.

34. Although the nature of the platform and the intermediation service it provides will be largely evident from the underlying service that is being intermediated, it may be of interest to further deconstruct the platforms into their underlying business model to further support analysis. For example, it may be useful to group platforms into those that provide intermediary services and other types of platforms. For those that provide intermediary services one can further deconstruct these into traders (platforms that act like traders (i.e., on-line retailing)⁸ and other intermediary services.

35. For entities that do not provide (at least, in the main) intermediation services, but provide other types of services (including, albeit not necessarily exclusively, free services funded through advertising, e.g., Facebook, Google) or platforms that provide content on a subscription basis (e.g., Spotify, Netflix), explicit payments will be picked up in the relevant service categories provided by these firms. In the satellite account below, it is assumed that these categories of firms are not ‘digital intermediation platforms’, but are instead included within a broader category of digital platform– note that as is the case for any classification system of firms, the delineation between one category and another will necessarily rely on a convention, for example firms are classified according to their main activity – note that if other conventions were used – which is an open question - such as main revenue stream, this is likely to lead to a different classification, e.g. Google and indeed many media firms could ostensibly be recorded within the advertising sector.

36. Furthermore, note that row 49 is included in the satellite account to accommodate the recording of the implicit value of ‘free’ services provided by these non-intermediation platforms. This area will be the subject of a more expansive elaboration by the Secretariat as the development of the satellite account progresses. It may for example be useful to create two categories of ‘free’ products; those that are currently provided for free using digital means (and that are also digitised) and those provided for free using (currently) analogue means. For example, significant media services are being provided for free but the distinction between these media services and more conventional services provided by analogue channels (e.g. analogue TV) is slight, at least from the user perspective (notwithstanding higher resolutions), and it may be useful to include within ‘free’, non-digital categories to give an indication of potential scale. One

⁸ As noted in Verrinder (2016), even though wholesale/retail is not formally called an intermediary service, they are thought of as supplying services to their customers and it is treated as a margin activity in the national accounts.

distinction that is made in the proposed satellite account concerns free 'data' related services, partly reflecting their different impact (policy and analytical), partly reflecting the considerable challenges in identifying the quantity of (particularly intra-firm) transactions but also partly reflecting the challenges pertaining to valuation. Of course, especially concerning the latter, these challenges are also material for other forms of free services albeit with greater potential for resolution, as the nature of the services is generally less heterogeneous (e.g. access to a Facebook account can be viewed as being a homogeneous service, even if a theoretical price paid by users may differ, whereas it would be much harder to argue for similar homogeneity to be assumed for data transactions).

Question 3a. Does the AG agree that services that cannot be delivered digitally are not digital services, even if the intermediation services between consumers and producers are themselves digital? (Note that this has consequences for the eventual recording of the intermediation flows and for the classification of the intermediation firms within the supply and use tables and the national accounts.) (See paragraph 32)

Question 3b. Should the definition of digital services be restricted to those services that can be digitised and transmitted electronically? Does the AG agree that digital services should however exclude those digitisable services where the actual payment is not for the digitisable product per se – for example it would exclude payments for research that is documented in a digitisable form, but would include payments for e-books for example (where the payment is directly tied to the digitisable product)? Should digital enabling services, such as telecommunications services and multimedia services, also be separately recorded in the satellite account? (See paragraphs 29- 31)

Question 3c. Irrespective of the final decision on digital services, does the AG agree that a category of digital enabling services (e.g., ICT services) is needed within the satellite account to capture intermediate services and final demand payments? (See paragraph 31)

Question 3d. Does the AG agree that a distinction between digital intermediation platforms and other digital platforms is needed? Should the satellite account separately highlight the role of other digital platforms or will information on the type of product traded be sufficient? (See paragraphs 33-34)

Question 3e. Have any members of the AG begun to develop approaches to estimate the value of 'free' services. Does the AG agree that the satellite account should attempt to include and to estimate these flows?

5. Digital industries

37. Given that digitisation (the encoding of information or procedures into binary bits (i.e., 1s and 0s that can be read and manipulated by computers⁹) could arguably impact all industries in one way or another, defining digital industries is not necessarily a trivial affair. Notwithstanding the need to continue to work on this area – possibly by building on deliberations concerning what is to be included within the scope of digital products, the satellite account proposes breakdowns by important categories of industries that each have an important and separate impact on the digital economy, and thus may serve certain policy needs. The satellite account focuses on three broad types of industry classifications: (1) a household/corporations split; (2) digital enabling industries; and (3) digital platforms.

38. The first type (column A and B) breaks down the relevant activity into activity performed by unincorporated households and activity performed by corporations; allowing an analysis of goods and services provided by the household sector within the ‘sharing’ economy, but also as a means of reinforcing estimation methods and methodologies in difficult to measure areas.

39. The second type (column C) separately identifies those industries engaged in the production of enabling tools (identified as the goods and services produced in the broad investment rows 50-55 and 58-63)). Feedback from the AG supported the view that the enabling industries (along with the enabling investment) should be separately identified. In addition, most AG members took the view that enablers were de facto akin to the ICT sector: defined in ISIC as “*The production (goods and services) of a candidate industry must primarily be intended to fulfil or enable the function of information processing and communication by electronic means, including transmission and display.*”¹⁰

40. Including the ICT sector (as defined in ISIC rev. 4) is also broadly in line with the “Core Digital (IT/ICT) Sector” proposed by Bukht and Heeks (2017). The AG however also stated that communication infrastructure could also be considered an enabler. Many AG members took the view that “data” should also be considered as an enabler. The satellite account tries to deal with this issue by including data as an asset (albeit one that is currently outside the asset boundary) in the investment matrices. While data is not an industry per se, some industries where data is fundamental would be covered under the ICT sector such as computer programming, consultancy and related activities (ISIC 62) and data processing, hosting and related activities (ISIC 631). Note too that the ICT sector may also exclude other categories that might be thought of as within the scope of ‘enabler’. For example, communications infrastructure is omitted from the above mentioned ICT sector (perhaps due to the fact that it is not separately identified in ISIC and is instead typically included within the construction of utility projects (ISIC 4220)).

41. The third type (column D) is to separately identify digital platforms, on which the AG has earlier expressed strong support. As noted above, digital platforms could be further broken down into digital intermediaries and other types of platforms, differentiating for example by the nature of service being intermediated (e.g., accommodation, transport). Further breakdowns would also be useful here, such as platforms that provide an intermediary service between a business and a customer (for a fee), platforms facilitating peer-to-peer transactions (e.g., Uber, Airbnb)^{11 12}, and platforms that are perhaps true “sharing”

⁹ OECD (2017a), Vectors of Digital Transformation, DSTI/CDEP/GD(2017)4.

¹⁰ The ICT sector includes 261, 262, 263, 264, 268, 4651, 4652, 5820, 61, 62, 631, and 951.

¹¹ The US Department of Commerce (2016) tries to focus the rather broad category of ‘sharing economy’ into a concrete and more narrowly defined range of activities to facilitate research. They focus on what they call digital

in that they help individuals provide their possessions to others free of charge, and also act as a non-profit business (e.g., Freecycle).

42. Of course a particular challenge here is that the platforms may be allocated to different industrial activities (with perhaps the exception of on-line retailers which would be included in ISIC 4791¹³). One could therefore request a breakout of platforms for each relevant industry or one could group together all platforms from different parts of ISIC and show them as one “platform” industry (broken down by activity or service being intermediated).

Question 4a. Does the AG agree with the proposed breakdown of activities: households/corporation, digital enablers, and digital platforms?

Question 4b. Does the AG agree that the ICT sector should be included as enablers?

Question 4c. Should communication infrastructure also be included as an enabler, and in turn an enabling industry? Would it be feasible to separately identify construction of communication infrastructure from other civil engineering projects?

Question 4d. Are there additional industries that should be considered enablers (e.g., manufacture of fibre optic cables 2731)?

Question 4e. Does the AG agree that a breakdown of digital platforms, as described in Figure 3, should be included within the sectoral breakdown of the satellite account?

Question 4f. Would it be feasible to separately identify digital platforms in business registers? What additional source information could be used to assist in this?

matching firms: “*Digital matching firms use information technology (IT systems), typically available via web-based platforms such as mobile “apps” on Internet-enabled devices, to facilitate peer-to-peer transactions.*”

¹² According to national accounts a person who provides a good or service to another person for a fee would then become a “business”. We are trying to make a distinction to disentangle the collaborative economy type of transactions for ‘normal’ platform type of activity.

¹³ ISIC 4791 is retail sale via mail order houses and via Internet, so it is a slightly broader classification than just online retail.

6. Conclusion

43. The satellite account illustrated in this issues paper builds upon the overarching framework. It has been designed to be as flexible as possible, so that it can accommodate the emerging views and consensus of the AG. As such it does not define the digital economy per se, but rather highlights important transactions (and indeed transactors) that are relevant both from a policy and from a measurement perspective. However, it is clear that providing the level of information prescribed in the satellite account may currently be beyond the capabilities of many national statistical information systems, requiring a more thorough investigation and reflection on feasibility (and also confidentiality).

44. Moreover despite its bold ambition and wide coverage it is by no means exhaustive. It does not for example deal with issues pertaining to the measurement of quality (and price and volume) nor does it (yet) capture all relevant transactions, for example estimates of capital stock (gross and net, and associated service lives, depreciation rates etc.) or estimates of capital services; which are all intended for discussion in later phases of the AG's work.

Question 5. Does the proposed satellite account framework identify all the relevant transactions? Is it missing anything, if so what? Does it meet, at the very least, the main policy needs?

Annex 1. Potential Satellite Account Framework

Outline of an Extended Use Table to account for the digital economy (example with 3 industries (1-3) and 5 products (a-e))
 The table is reported in both purchasers' and basic prices
 Split into domestic and imported supply

		A		B		C		D		E		F		G	
		Industry type-1		Industry type-2		Industry type-3		Intermediate use		subtotal: sum of enabler producing industries and platforms (e.g. ind		total intermediate use		Final use	
		unincorporated households	incorporated	Enabler industries	digital platforms							HHFC			
1	This column would contain a detailed breakdown of agreed products														
2	product a (non-digital good)														
3	<i>Digitally ordered</i>														
4	directly from counterparty														
5	via a resident digital intermediary platforms														
6	via a non-resident digital intermediary platforms														
7	product b (digital good)														
8	<i>Direct from counter party</i>														
9	digitally ordered, physically delivered														
10	digitally ordered and digitally delivered (e.g. 3D printing)														
11	digitally delivered not digitally ordered (3D printing-unlikely to be entry)														
12	other (non-digital)														
13	<i>Via resident digital intermediary platforms</i>														
14	digitally ordered, physically delivered														
15	digitally ordered and digitally delivered														
16	<i>Via non-resident digital intermediary platforms</i>														
17	digitally ordered, physically delivered														
18	digitally ordered and digitally delivered														
19	product d (non-digital service, paid)														
20	<i>Digitally ordered</i>														
21	directly from counterparty and other digital platforms														
22	<i>Via resident digital intermediary platforms</i>														
23	value of the service														
24	intermediation fee (both implicit and explicit)														
25	<i>Via non-resident digital intermediary platforms</i>														
26	value of the service														
27	intermediation fee (both implicit and explicit)														
28	product e (digital service, paid)														
29	<i>Direct from counter party and other digital platforms</i>														
30	digitally ordered														
31	digitally ordered and digitally delivered														
32	digitally delivered but not digitally ordered (may include transactions such as data services, Website design, software)														
33	<i>Via resident digital intermediary platforms</i>														
34	digitally ordered, physically delivered														
35	value of the service														
36	intermediation fee (both implicit and explicit)														
37	digitally ordered and digitally delivered														
38	value of the service														
39	intermediation fee (both implicit and explicit)														
40	<i>Via non-resident digital intermediary platforms</i>														
41	digitally ordered, physically delivered														
42	value of the service														
43	intermediation fee (both implicit and explicit)														
44	digitally ordered and digitally delivered														
45	value of the service														
46	intermediation fee (both implicit and explicit)														
47	product f (digital service, free) (outside the current SNA framework)														
48	Digital data services														
49	of which intra-firm provision of data/ and or use of databases														
	Other digital services (e.g., free search services, social media, etc.)														

Investment matrices

		Industry 1		Industry type-2	Industry type-3	<i>subtotal: sum of enabler producing industries and platforms (e.g. ind 2+ ind 3)</i>	Total corporations	HH
		unincorporated households	incorporated	Enabler industries	digital platforms			
50	Investment - purchases	Software						
51		Purchases of proprietary databases						
52		Artistic originals etc						
53		R&D						
54		ICT goods						
55		Other Digital enabling infrastructure						
56		<i>Vehicles (only needed for certain industry categories)</i>						
57		<i>Dwellings (only needed for certain industry categories)</i>						
58	Investment - own-account	Software and databases						
59		Artistic originals etc						
60		R&D						
61		ICT goods						
62		Other Digital enabling infrastructure						
63		Accumulation of data/bytes-- (<i>outside the SNA asset boundary</i>)						

Production & supplementary information

		Industry 1		Industry 2		<i>subtotal: sum of enabler producing industries (e.g. ind 1+ ind 2)</i>	total corporations
		unincorporated households	incorporated	Enabler industries	digital platforms		
64	Sales	Sales via own-site to residents					
65		Sales via own-site to non-residents					
66		Sales via platforms to residents					
67		Sales via platforms to non-residents					
68		Sales of licenses to use IPP (by IPP and databases)					
69	platform-specific transactions	Digital platforms charges to resident producers					
70		Digital platforms charges to non-resident producers					
71		Digital platforms receipts from resident consumers					
72		Digital platforms receipts from non-resident consumers					
73		Digital platforms advertising revenue from residents					
74		Digital platforms advertising revenue from non-residents					

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