

**20<sup>th</sup> Meeting of the Advisory Expert Group on National Accounts,  
5, 12 and 13 July 2022, Remote Meeting**

**Agenda item: 6**

**DZ.7 Improving the visibility of Artificial Intelligence in the National Accounts**

**Outcome of Global Consultation**

**Cover Note**

The global consultation for the guidance note “Improving the visibility of Artificial Intelligence (AI) in the national accounts” has completed. Substantive replies were received from 48 respondents from 46 different economies. Around two-thirds of respondents consider improving the visibility of AI in the national accounts as being of medium or high relevance, with only a third considering the topic to be of low relevance or not relevant for their economies.

The definition of AI as “a computer program operating a system capable of recognition and reasoning consistent with human recognition and reasoning” was supported by most respondents, though some responses suggested modifying the phrase “consistent with” to “simulating” and adding references to prediction and autonomy to make the more definition more precise.

There was strong support for adding reference to intelligent systems to the definition of Intellectual Property Products (IPP), with only 4 out of 48 replies disagreeing with this proposal. One respondent suggested referencing AI systems instead of intelligent systems for clarity. There was less consensus on whether AI should be separately identified as an “of which” item, with some respondents noting practical difficulties in differentiating AI software from other software, and some requesting clarification that it would be voluntary to include this detail only if relevant by country.

Several respondents highlighted the related challenges of separating computer software and databases (as recommended in GN DZ.6 “Recording of Data in the national accounts”). Ten responses disagreed that the value of the cost of producing training datasets should be excluded from the value of own-account AI largely due to these anticipated practical difficulties. There was clear support however for excluding the value of the cost of databases providing continuous services from the value of AI and including these costs as either intermediate consumption or the purchase of Data assets.

## Questions for the AEG

1. Does the AEG support modifying the proposed definition of AI to “a computer program operating a system capable of recognition, reasoning, **prediction, and communication simulating** human recognition, reasoning, **and communication**?”
2. Does the AEG support modifying the proposed definition of IPP to “the result of research, development, investigation, or innovation leading to knowledge **or the creation of artificial intelligence systems** that the developers can market or use to their own benefit in production because use of the knowledge or system is restricted by means of legal or other protection.”?
3. Does the AEG support including AI as an “of which” classification in a new IPP class called “Computer Software and Artificial Intelligence”?
4. Does the AEG agree that the value of the cost of producing or purchasing training datasets should be excluded from the value of AI and included instead in the value of Data assets or intermediate consumption?
5. Does the AEG agree that this guidance note should serve as the AEG drafting recommendations for the CPC and ISIC Update Task Teams?

## Digitalization Task Team

Results of the global consultation on guidance note

# DZ.7 Improving the visibility of Artificial Intelligence in the national accounts

## 1. SUMMARY AND ACTIONS

Artificial Intelligence (AI) is becoming increasingly prevalent in the economy, often acting as a substitute for labour, yet the current international standards make no reference to the issue. The GN circulated for global consultation recommends expanding the concept of intellectual property products to include AI. This requires refining the definition of IPPs so that they are not just the creation and embodiment of knowledge but also systems capable of performing tasks in an autonomous manner that the developers can market and use. The GN makes a number of recommendations regarding the classification and presentation of AI which are considered in the global consultation.

Around two-thirds of respondents consider improving the visibility of Artificial Intelligence in the national accounts as being of medium or high relevance, with only a third considering the topic to be of low relevance or not relevant for their economies. The definition of AI was agreed by a majority of responses, and it was generally agreed to include AI within IPPs. There was less consensus on whether AI should be separately identified as an “of which” item, with several responses highlighting the practical difficulties of separating AI from computer software and databases.

While there was broad support for the GN recommendations, a number of responses proposed further guidance was needed, including on how to derive volume measures of AI and how to depreciate AI.

Comments that the next version of the guidance note may address include:

- The proposed definition of AI may be modified to “a computer program operating a system capable of recognition, reasoning, **prediction, and communication simulating** human recognition, reasoning, **and communication**”.
- The reference to AI in the definition of IPPs may be slightly adapted from the GN proposal as follows (suggestion from France under Q2; comment from Israel under Q3): “the result of research, development, investigation, or innovation leading to knowledge or the creation of **artificial** intelligent systems that the developers can market or use to their own benefit in production because use of the knowledge or system is restricted by means of legal or other protection”.
- Concerns about concrete possibilities to populate separate asset classes for Computer software, artificial intelligence, data and databases.
- The GN may further clarify the current recording of AI in NA between the two following approaches: (i) AI is included within Intellectual Property Products and the GN now aims at making it explicit; or (ii) AI is included elsewhere and will have to be reclassified to Intellectual Property Products.

## 2. INTRODUCTION

Over the last twenty years, there has been marked technological progress in computer hardware and software as well as the storage and use of vast amounts of data that have increased the prevalence and range of applications of artificial intelligence in the economy.

AI applications are particularly noticeable in the consumer electronics market. AI tools are also used by Internet publishers, digital content subscription services, and social media networks. AI can identify and recommend content that an individual user is most likely to be interested in. Autonomous vehicles are another important application of AI.

AI applications are used by businesses to guide decision-making in a wide array of sectors. In agriculture, AI tools absorb a wide array of data streams collected from sensors, cameras, and historical records to make recommendations on crop-planting, soil management, and pesticide use. Manufacturers use AI to improve the performance of industrial robots and to monitor and recommend improvements in production processes. Healthcare providers use AI tools to evaluate diagnostic images. In finance, AI tools are used to support lending decisions and to algorithmically generate personalized investment portfolios based on user-submitted data (i.e., robo-advisors).

The current version of the SNA does not make any reference to Artificial Intelligence. This guidance note provides recommendations that aim to increase the visibility of AI in the national accounts.

## 3. THE GLOBAL CONSULTATION

Questions:

1. Is this topic of relevance for your country?
2. Do you agree to update the definition of Intellectual Property Products to *"the result of research, development, investigation, or innovation leading to knowledge or the creation of intelligent systems that the developers can market or use to their own benefit in production because use of the knowledge or system is restricted by means of legal or other protection"*?
3. Do you agree that the updated SNA include the following definition of AI: "AI is a computer program operating a system capable of recognition and reasoning consistent with human recognition and reasoning"?
4. Do you agree that Artificial Intelligence should be explicitly mentioned in the asset classification in a new class called *"Computer Software and Artificial Intelligence"*? This class would be derived from the current *"Computer Software and Databases"* class by separating Databases, which would be merged with Data in a separate class. In this new class, Artificial Intelligence would appear with an "of which" category.
5. Do you agree that the value of the cost of producing training datasets should be excluded from the value of own-account AI and included instead in the value of Data assets?
6. Do you agree that the value of the cost of data services required by an AI should be excluded from the value of AI and recorded as intermediate consumption?

In the ongoing review of the ISIC classification, the application of robotics and artificial intelligence is not considered as a new activity but as a new technology providing existing services/activities more efficiently and effectively. Therefore, no structural change is proposed in ISIC and the explanatory notes of the existing categories in the new ISIC will be adjusted to make reference to robotic/AI when relevant. In the context of the review of the CPC, it will be considered whether changes have to be made to the classification to reflect the explanatory notes in the new ISIC.

7. Do you agree that the updated CPC include specific classes for AI and that this guidance note serves as the SNA drafting recommendations?
8. Do you agree that the updated ISIC should include no structural change for AI or do you think that separate ISIC classes for AI should be established?
9. Would your institution be interested in participating in an experimental estimate exercise?
10. Do you have any other comments on this guidance note?

#### 4. RESULTS OF THE GLOBAL CONSULTATION

Substantive replies were received from 48 respondents from 46 different economies. Responses were received from all regions of the world (see Chart 1 in the Appendix), from both National Statistical Offices, National Central Banks and other agencies.

Verbatim responses of the 36 respondents that agreed to their publication are provided below. The tables of responses reflect the answers of all 48 respondents.

EU	10
Other Europe	6
Americas	10
Middle East and Near East	5
Asia and Pacific	11
Africa	6
<b>TOTAL</b>	<b>48</b>

##### Question 1.

Around two-thirds of respondents consider improving the visibility of Artificial Intelligence in the national accounts as being of medium or high relevance, with only a third considering the topic to be of low relevance or not relevant for their economies. There was no particular regional variation in these responses. Those identifying the topic as being of high relevance highlight AI's role in production and its role in digitalisation more generally. Some comments reflect the need to include AI in statistical classifications in order to properly measure its impact. One response considers AI as being already covered under the category software and databases, or machinery and equipment (if embedded into hardware), so consider the topic to be of low relevance as there should be limited impact on GDP or GNI.

Question 1: Is this topic of relevance for your country?

	High relevance	Medium relevance	Low relevance	Not relevant	No answer
EU	1	4	4	1	
Other Europe	1	3	2		
Americas	4	3	1	2	
Middle East and Near East	3	1	1		
Asia and Pacific	1	7	1	1	1
Africa	4	1		1	
<b>TOTAL</b>	<b>14</b>	<b>19</b>	<b>9</b>	<b>5</b>	<b>1</b>

Please elaborate.

Australia	High relevance	Increased measurement and visibility of all aspects of the digital economy including the prevalence of AI, is important to the ABS and our users.
Costa Rica	High relevance	It is a very relevant topic for the country. In recent years we have observed how different national and foreign capital companies have been developing and implementing the use of artificial intelligence within production processes.
Egypt, Arab Republic	High relevance	Because AI is so important in our today life and its applications invaded every field of life. Thus, should appear in the National Accounts in a way that reflects its important in producing, using, exporting and importing the AI and its important for the economy.
Guinea	High relevance	This is a very important subject that needs to be explored and experimented with if possible.
Israel	High relevance	Many start-ups and companies are engaged in AI.
Mexico	High relevance	Mexico recognizes the growing importance of the Information and Communications Technology (ICT) sector has had for at least a couple of decades as a driver of the digital transformation. A significant percentage of companies of all sizes and sectors have accelerated the deployment of ICT solutions to multiply their business opportunities while expanding the variety of products for consumers and the provision of new services for the optimization of resources. Measuring the ICT and AI phenomena represents a challenge for INEGI, as additional questions must be incorporated or improved into the statistical capture instruments that make it possible to

		make it visible in the national accounts, and also explore new potential sources of information.
Morocco	High relevance	There is constant evolution and application of use in a wide array of sectors.
Peru	High relevance	It is important to know the uses and destinations of AI, its influence on the automation of production and employment.
United Kingdom	High relevance	We regularly conduct analysis on the AI sector but are unable to use official statistics and national accounts due to AI not being reflected in SIC codes.
Brazil	Medium relevance	We currently do not have data to estimate the relevance, but a recent survey by an industrial business organization revealed that 17% of large companies in Brazil invest in intelligent management systems and artificial intelligence. And most respondents said that advanced technologies, including artificial intelligence, will have a high or remarkably high impact on the industry over the next decade.
Chile	Medium relevance	The production of IA in Chile is relatively not significant but is growing fast in some industries.
Finland	Medium relevance	Finland is rather developed economy regarding digitalization. Therefore, AI is likely to play a role in the Finnish economy and it is welcomed to increase the visibility of AI in the SNA.
Indonesia	Medium relevance	To increase the comparability of statistics among countries, the implementation of standard concepts and definition is essential, including in the area of AI.
Latvia	Medium relevance	Albeit we also have some enterprises working in this area world biggest producers of AI are not located in our country.
Qatar	Medium relevance	We have not received queries regarding AI from users. It is not believed to be significant in the local economy at this time.
Singapore	Medium relevance	As the use of AI computer systems/programs has become more prevalent in Singapore with businesses adopting smart technologies and digital transformation in their operations, it is important that we keep track and understand the impact of AI on key national account aggregates.

Thailand	Medium relevance	Thailand is not only a country that receives technology transfer from other countries but also a country that develops its own technology. For instance, the multinational enterprise (MNE) subsidiaries, they use technologies from their home country, at the same time, they also develop and customize some technologies for the appropriate context where they are active. Besides, some software developments data is already counted in GFCF, however, some AI data is unable to collect it as it might be impossible for the businesses to disclose their data.
United Kingdom	Medium relevance	AI is an important component for understanding trends in economic growth
Ukraine	Medium relevance	Artificial Intelligence is not widely spiced yet in Ukraine, therefore in the near future it will be difficult to find the relevant information.
Vietnam	Medium relevance	In Vietnam, AI has really been noticed in the past few years. Some businesses have quickly updated the world's AI trends and initially have specific products and applied them to their production and business processes as well as in a number of industries and fields such as information and communication, health, education, tourism, traffic, e-commerce...
Georgia	Low relevance	Artificial Intelligence is currently being developed and has a low relevance nowadays.
Germany	Low relevance	Artificial intelligence systems are already covered under the category software and databases, and machinery and equipment (if embedded into hardware), the recommendations discussed in the guidance note won't have any effects on GDP or GNI (except for the recording of training data as data assets).
Brunei Darussalam	Not relevant	Brunei Darussalam has yet to explore the importance and role of artificial intelligence within its economy.
South Sudan	Not relevant	The NBS is not yet involved on this information

## Question 2.

There was strong support for adding AI to the definition of Intellectual Property Products (IPP), with only 4 out of 48 replies disagreeing with this proposal.

*Question 2 : Do you agree to update the definition of Intellectual Property Products to "the result of research, development, investigation, or innovation leading to knowledge or the creation of intelligent systems that the developers can market or use to their own benefit in production because use of the knowledge or system is restricted by means of legal or other protection"?*

	YES	NO
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EU	9	1
Other Europe	6	
Americas	9	1
Middle East and Near East	3	2
Asia and Pacific	11	
Africa	6	
<b>TOTAL</b>	<b>44</b>	<b>4</b>

If no, please elaborate

France	<p>"If it is actually felt necessary to explicitly mention the AI in the SNA, it would be better to always use the "AI" acronym or the full expression "artificial intelligence", instead of using the adjective "intelligent" alone, which refers to a general feature, usually restricted to living beings. Artificial intelligence or – better "computational intelligence" – refers indeed to a set of technologies and systems that are able to only mimic human intelligence.</p> <p>As a whole, if a definition of the so-called IPP is still felt useful, it would be better to keep the existing wording."</p>
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### Question 3.

There was general agreement with the proposed definition of AI, although 8 replies considered the proposed definition required further refinement. Some considered the current definition as too general, offering suggested amendments for consideration by the Task Team.

*Question 3: Do you agree that the updated SNA include the following definition of AI: "AI is a computer program operating a system capable of recognition and reasoning consistent with human recognition and reasoning"?*

	YES	NO
EU	5	5
Other Europe	5	1
Americas	9	1
Middle East and Near East	4	1
Asia and Pacific	11	
Africa	6	
<b>TOTAL</b>	<b>40</b>	<b>8</b>

If no, please explain what changes are required to the proposed definition

Israel	I have answered no, to be able to write a comment: Otherwise, the answer is YES.
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	What is the difference between AI and intelligent systems (if any) included in IPP definition (Q 2A) ."
Germany	We think the proposed definition is too broad and would also include systems that are clearly not AI systems. We would therefore welcome further refinement of the definition. The shown definitions of other sources usually mention prediction and autonomy, those points could be included to narrow the definition down.
Finland	The "consistent with" could be replaced with a milder word such as "simulating" as AI is not according to our understanding fully consistent with humanlike recognition and reasoning.
Brazil	"AI is a computer program operating a system capable of simulating human recognition and reasoning that can iteratively improve itself based on the information it collects."
Lithuania	We propose to include machine learning as important aspect of AI:  AI is a computer program operating a system, using machine learning and capable of recognition and reasoning consistent with human recognition and reasoning."
France	"Consistent" is an improper adjective, "similar" would be better, or any qualifier which conveys the idea of mimicry. As a whole, the definition provided by the UNSIST in the guidance note seems more relevant. In this area, an extensive definition seems better than any attempt to provide a comprehensive definition.

#### Question 4.

While most responses supported the proposal to explicitly mention AI in the asset classification in a new class called "Computer Software and Artificial Intelligence", a significant minority (around 20%) disagreed – including 6 out of 10 responses from EU Member States. Comments from those that disagreed, revealed concern about the practicality of separately identifying AI as an "of which" item from computer software and databases.

*Question 4: Do you agree that Artificial Intelligence should be explicitly mentioned in the asset classification in a new class called "Computer Software and Artificial Intelligence"?*

*This class would be derived from the current "Computer Software and Databases" class by separating Databases, which would be merged with Data in a separate class. In this new class, Artificial Intelligence would appear with an "of which" category.*

	YES	NO
EU	4	6
Other Europe	6	
Americas	7	3

Middle East and Near East	5	
Asia and Pacific	10	1
Africa	6	
<b>TOTAL</b>	<b>38</b>	<b>10</b>

If no, please elaborate.

USA	We agree artificial intelligence should be classified with computer software as an "of which" category to the extent possible. We also agree that data can be a separate class, but we are unlikely to be able to separate software and databases in practice.
Germany	Any separation of Computer Software and Databases has to be on a voluntary basis. With currently available data sources, any separation attempt will be entirely arbitrary. The recording of data as an asset will further complicate the separation (especially considering training data sets used for AI software systems). Updated product classifications and business statistics might improve the source data for purchased assets but are unlikely to improve the available information on assets produced on own account. As the share of assets produced on own account is especially large for intangible assets, we do not agree with the separation of Software (and AI) and Databases (and Data). We agree with voluntary "of which" categories.
Cyprus	Complicated to collect such information
Romania	This task (the separation in asset classification) is difficult to fulfil because the surveys have to be completely changed and there is a high probability that respondents to record twice the value of software/ artificial intelligence due to the wrong understanding and classification of AI and thus, there will be a double counting in national accounts.
Brazil	We currently do not have data that allows identifying the production of software, AI, and databases as different kinds of assets. Therefore, it is challenging to sort which workers and companies produce software, AI, and databases, and/or how much they produce of each. This difficulty makes it impossible to measure each category in a disaggregated way.
Lithuania	We propose not to distinguish "of which" category, as in most of cases it might be hard to distinguish between AI and non-AI software
France	"Once again, even if it is felt useful to explicitly mention AI in the SNA, it is not necessary to raise it at the class level. It will be very hard to identify the systems that actually qualify as AI from those that do not, or that no longer do.  Only a description of some typical cases of AI, rather than a definition, would be more useful."

### Question 5.

The majority agreed that the value of the cost of producing training datasets should be excluded from the value of own-account AI and included instead in the value of Data assets. Some of those that disagreed proposed the costs be included in the value of own-account AI.

*Question 5: Do you agree that the value of the cost of producing training datasets should be excluded from the value of own-account AI and included instead in the value of Data assets?*

	YES	NO
EU	7	3
Other Europe	6	
Americas	8	2
Middle East and Near East	3	2
Asia and Pacific	10	1
Africa	4	2
<b>TOTAL</b>	<b>38</b>	<b>10</b>

If no, please elaborate.

Angola	Because it's important to cover all sample for providing a quality and coherent information
Morocco	I think it would be more practical to leave it to the producers to estimate the costs because in some cases the producer is obliged to buy a database that he will only use at the level of the AI application developed for own account. example: distribution chain drone requires the purchase of the space card.  for the question of double counting, the national accountants will avoid it by means of an adapted questionnaire. at the same time, these data will mainly be used to estimate the cost of the asset
Israel	Is it not like QA expenditure - is that also excluded ? Not sure how different they are.
Costa Rica	No, because it depends on whether the information available allows us to identify the value of the cost of producing training datasets.
France	see 6b
Brazil	The training dataset is an essential part of the "interpretation" and "reasoning" of Artificial Intelligence. It is difficult to distinguish the development of this database from the development of AI.
Romania	Training databases final goal is to develop the AI product. They are part of the production of AI asset and interspersed and interdependent with AI product. In many cases is difficult to clearly separate them from the final product because training databases are part of a continuous learning process for the AI.

### Question 6.

Most responses agreed that the value of the cost of data services required by an AI should be excluded from the value of AI and recorded as intermediate consumption. One response draws a parallel between AI and data with research and development and software, arguing that more guidance is required on the valuation and measurement of these potentially overlapping assets. It is noted that robotics and artificial intelligence are not considered as new activities in the updated ISIC, but as a new technology providing existing services/activities more efficiently and effectively.

*Question 6: Do you agree that the value of the cost of data services required by an AI should be excluded from the value of AI and recorded as intermediate consumption?*

	YES	NO	No answer
EU	8	2	
Other Europe	6		
Americas	9	1	
Middle East and Near East	4	1	
Asia and Pacific	11		
Africa	4	1	1
<b>TOTAL</b>	<b>42</b>	<b>5</b>	<b>1</b>

If no, please elaborate.

Angola	If we exclude it, the intermediate consumption will be underestimated
France	<p>Similar precisions are already mentioned for the assets arising from the Research activities, and for software. It would be better to have a general section dedicated to the issue, or reference may be made to a handbook. In addition, similar concerns exist in the area of tangible assets, where there is also some risks of double-counting : for instance, elevators may be fixed capital formation items when they are set up in replacement, whereas they are only a component of a new building, to be treated as intermediate consumption.</p> <p>In the ongoing review of the ISIC classification, the application of robotics and artificial intelligence is not considered as a new activity but as a new technology providing existing services/activities more efficiently and effectively. Therefore, no structural change is proposed in ISIC and the explanatory notes of the existing categories in the new ISIC will be adjusted to make reference to robotic/AI when relevant. In the context of the review of the CPC, it will be considered whether changes have to be made to the classification to reflect the explanatory notes in the new ISIC.</p>
USA	We agree the value of the cost of data services should be excluded from the value of AI, but value of data services may instead be included with purchased data assets rather than intermediate consumption.
Israel	What is the difference from data sets ?
United Kingdom	In the ongoing review of the ISIC classification, the application of robotics and artificial intelligence is not considered as a new activity but as a new technology providing existing services/activities more efficiently and effectively. Therefore, no structural change is proposed in ISIC and the

	explanatory notes of the existing categories in the new ISIC will be adjusted to make reference to robotic/AI when relevant. In the context of the review of the CPC, it will be considered whether changes have to be made to the classification to reflect the explanatory notes in the new ISIC.
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### Question 7.

Only six respondents disagreed with the proposal that the updated CPC include specific classes for AI based on the Guidance Note recommendations. Most highlighted the practical challenges of separating AI from software and databases

*Question 7: Do you agree that the updated CPC include specific classes for AI and that this guidance note serves as the SNA drafting recommendations?*

	YES	NO
EU	7	3
Other Europe	6	
Americas	8	2
Middle East and Near East	5	
Asia and Pacific	10	1
Africa	6	
<b>TOTAL</b>	<b>42</b>	<b>6</b>

If no, please elaborate.

Japan	It could be technically very difficult or even impossible) to distinguish AI component from computer software.
Brazil	Operationally, it is problematic to separate software development from artificial intelligence development.
Romania	Same reason as for 4B.

### Question 8.

Only 7 of 47 substantive replies considered that separate ISIC classes for AI be established, with the majority agreeing with the proposal to avoid changing the ISIC structure to include AI. Those that argued new AI classes be established emphasised the importance of identifying AI as a separate activity for measurement purposes.

*Question 8: Do you agree that the updated ISIC should include no structural change for AI, or do you think that separate ISIC classes for AI should be established?*

	Agree with ISIC proposal	Separate ISIC classes for AI should be established	No answer
EU	10		
Other Europe	4	2	
Americas	7	2	1
Middle East and Near East	3	2	

Asia and Pacific	10	1	
Africa	6		
<b>TOTAL</b>	<b>40</b>	<b>7</b>	<b>1</b>

Please elaborate.

PERU	It is necessary to establish new classifications of products and industries to identify AI within the set of national accounts
Mexico	With the identification of the AI industry, it would ease to identify expenses associated with the products produced and be able to structure a production account.
United Kingdom	Without separate ISIC classes for AI businesses, identification of the AI sector will remain impossible using national accounts data. There will then be no international standard for comparison of AI sectors globally, leading to a proliferation of different techniques and informal data analysis to estimate the size of this sector.  This sector is only going to grow in the future therefore this seems like a sensible starting point for inclusion.

#### Question 9.

10 replies indicated their institution would be interested in participating in an experimental estimate exercise (none from within the EU).

*Question 9: Would your institution be interested in participating in an experimental estimate exercise?*

	YES	NO	No answer
EU		10	
Other Europe	2	4	
Americas	1	8	1
Middle East and Near East	1	4	
Asia and Pacific	1	9	1
Africa	5	1	
<b>TOTAL</b>	<b>10</b>	<b>36</b>	<b>2</b>

#### Question 10.

Final comments emphasised the practical difficulties of separating AI from software and data bases, and stressed the need for further guidance, including on (i) whether AI was included in the previous SNA and if so where; (ii) how to derive volume measures of AI; (iii) how to depreciate AI.

*Question 10: Do you have any other comments on this guidance note?*

Indonesia	As well as other IT-related economic activities, AI activities can only be captured by statistics instruments with collaborative efforts among statistical institutions globally. That's because of
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	the nature of high-end IT activities, which work globally across economies.
Israel	It should be clearer in definitions of AI and intelligent systems.
Canada	It would be extremely difficult for respondents to separate what portion would be R&D and software versus what would be AI. Also, when we estimate own-account capital formation for R&D, software and eventually Data, this split would be impossible to estimate
Angola	It's important to keep in touch with several institutions in order to provide a very good and quality information for the different users
Peru	Peru is in the process of its new base year 2019 and is using ISIC rev. 4 and CPC 2.1. Regarding the guidance note, it has been important to know the conceptual framework and proposals for classifiers around AI
Georgia	Since there is no broad experience of AI in the country it will be challenging to conduct proper experimental estimates.
France	<p>The 2008 SNA has modified the general classification of fixed assets.</p> <p>The 1993 SNA provided a general distinction between tangible and intangible fixed assets. The tangible/intangible distinction makes up a usual terminology in general accounting and, as such, fits the needs of national accounting. It refers to the material / immaterial features of the two types of assets, and it may also cover the distinction between the two different ways according to which ownership rights apply to those assets.</p> <p>Instead, the SNA 2008 provides a simple list of the tangible assets, as if they had nothing in common, whereas all intangible assets are grouped under this curious denomination of "intellectual property products", which, in addition to look strange to non-native English speakers – at least "IP assets" would have been better – focus only on the characteristics of their ownership.</p> <p>In addition, the definition provided in SNA § 10.98 is not very relevant. The assets are assumed to be " the result of research, development, investigation or innovation leading to knowledge" - are "entertainment, literary and artistic originals" the result of research and development ? do they lead to knowledge ?</p> <p>- are even computer software the result of research ? do they lead to knowledge ?</p> <p>Does the term "developers" fit to all the units likely to be the users of those assets ?</p>



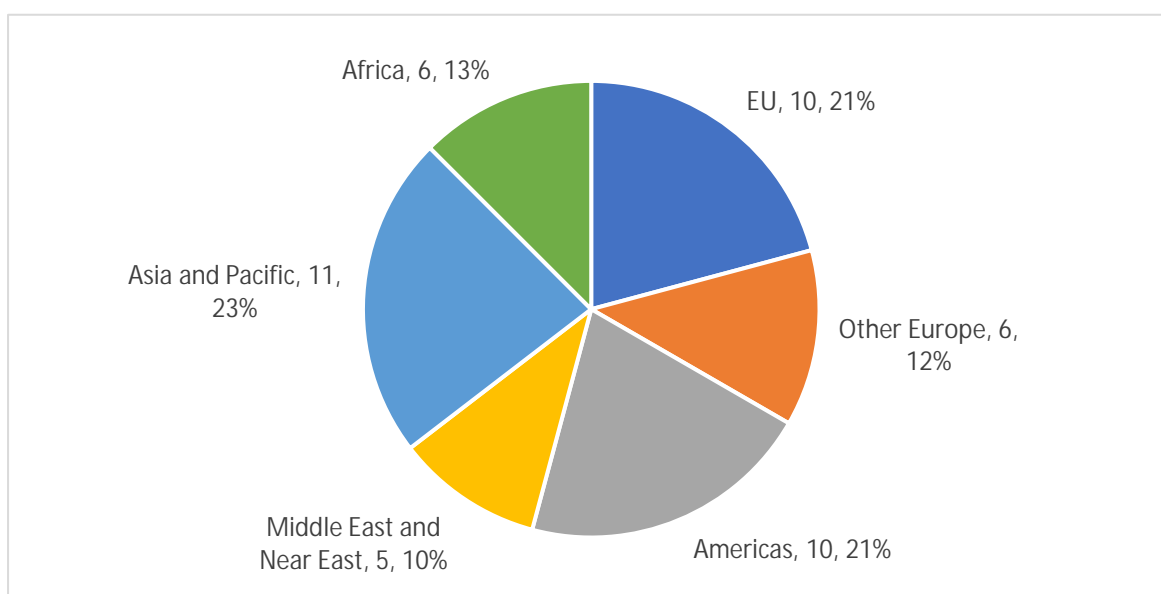
Costa Rica	The document is very well prepared and talks about a very current topic that should be incorporated into the national accounts.
South Sudan	The NBS has limited resources and technical know how
Australia	<p>We provide the following two suggestions for where more detail and explanations should be provided regarding the recording of AI:</p> <p>A) The guidance note would benefit from further clarification of the existing recording of AI, that is the addition of AI into Intellectual Property Products suggests one of two things is true – (i) AI was previously included within Intellectual Property Products and is now being made explicit; or (ii) AI was previously included elsewhere and has been reclassified to Intellectual Property Products. The note needs to state which of this is true. It also needs to provide some assurance the definition is mutually exclusive of other components (e.g., consumption). The note does not (and cannot) state that intellectual property products are now included in the production boundary as the production boundary remains unchanged.</p> <p>B) The paper needs to specify the quantity unit (2008 SNA para 15.10) for AI.</p>
Germany	We would welcome additional guidance on recommended depreciation methods. As the guidance note mentions, artificial intelligence is likely to become more productive as it continues to learn. Standard depreciation profiles do not seem appropriate in this case.
United Kingdom	The UK is happy with the seven recommendations. However, the UK note that in relation to the cost of production, using cost of production (para 15) may act as a weak proxy for the value of AI given the essential characteristics of AI is an ability to independently refine / learn and thus the relationship between the cost of production and the value of the final algorithm does not exist, by definition, in the same way as it does for other software products.

## Appendix

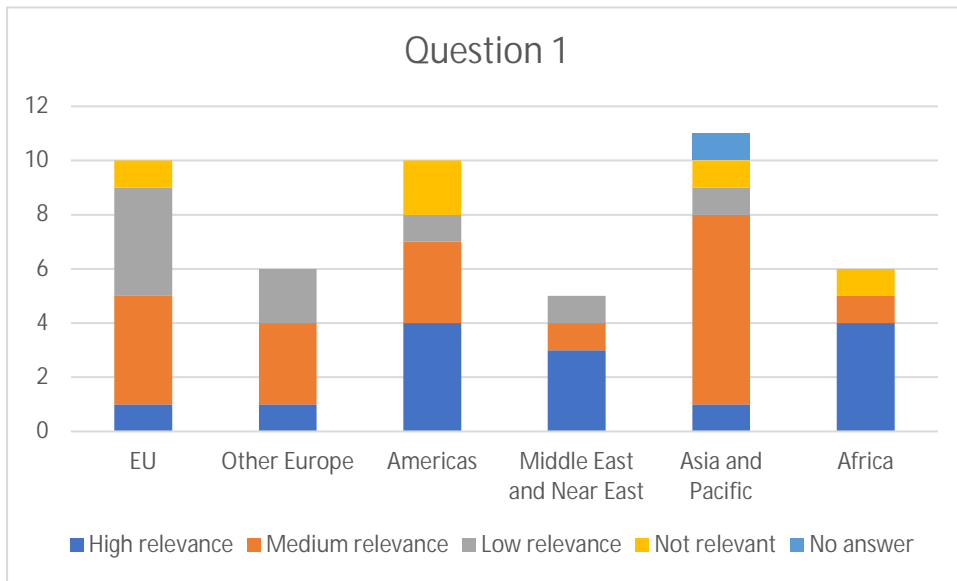
**Table 1.** Respondents by region

EU	Other Europe	Americas	Middle East and Near East	Asia and Pacific	Africa
Cyprus	Belarus	Argentina	Israel	Australia	Angola
Denmark	Georgia	Aruba	Jordan	Brunei	Djibouti
Estonia	Turkey	Brazil	Qatar (2)	China	Egypt
Finland	Ukraine	Canada	Saudi Arabia	Indonesia	Guinea
France	UK (2)	Chile		Japan	Morocco
Germany		Costa Rica		Kazakhstan	South Sudan
Latvia		Mexico		Macao SAR	
Lithuania		PERU		Singapore	
Portugal		Suriname		Thailand	
Romania		USA		Vanuatu	
				Vietnam	

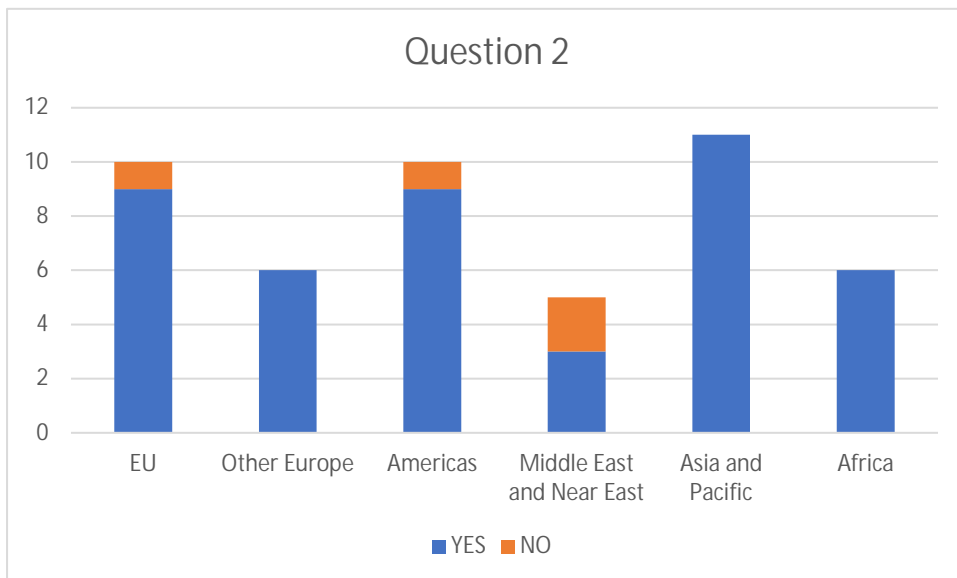
**Number of respondents by region**



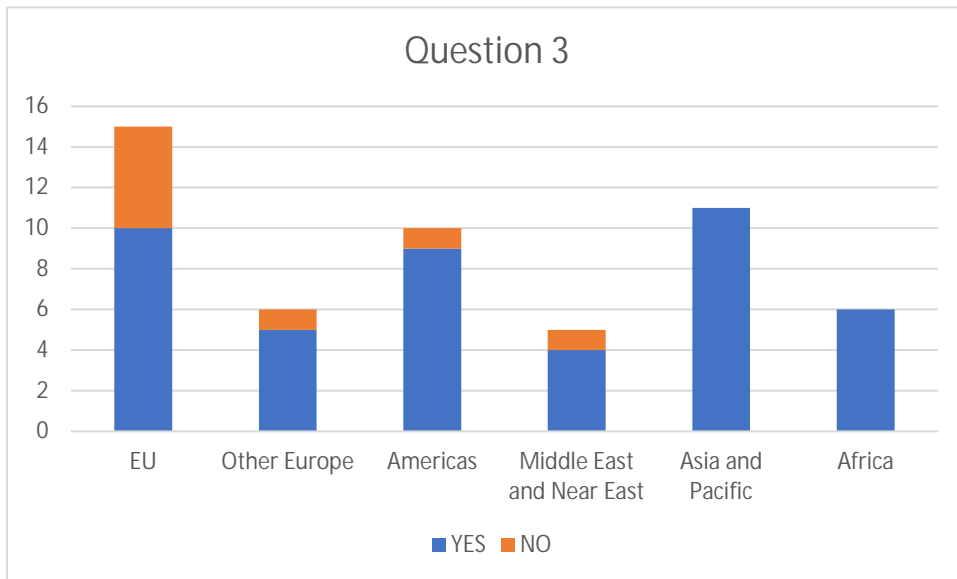
**Question 1: Is this topic of relevance for your country?**



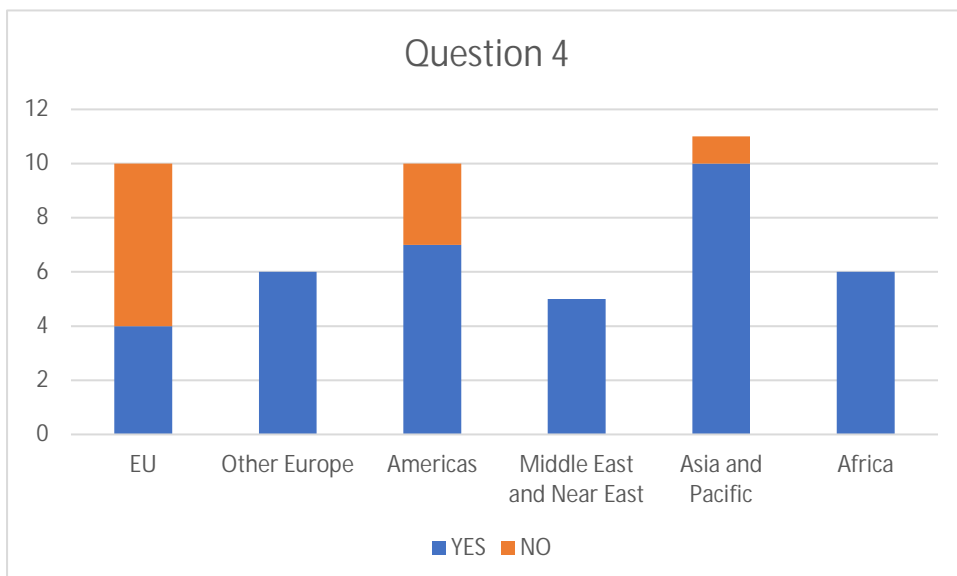
**Question 2: Do you agree to update the definition of Intellectual Property Products to "the result of research, development, investigation, or innovation leading to knowledge or the creation of intelligent systems that the developers can market or use to their own benefit in production because use of the knowledge or system is restricted by means of legal or other protection"?**



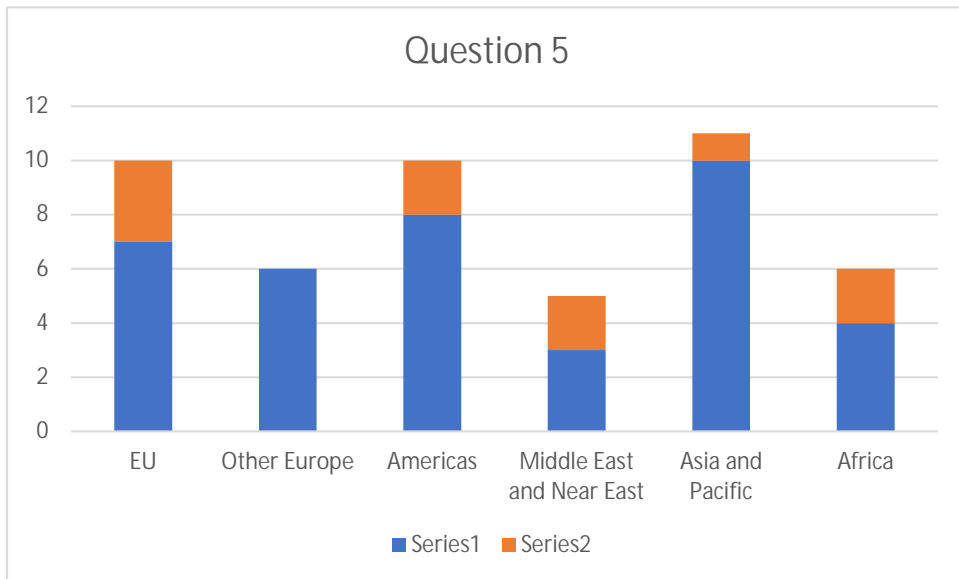
**Question 3:** Do you agree that the updated SNA include the following definition of AI: “AI is a computer program operating a system capable of recognition and reasoning consistent with human recognition and reasoning”?



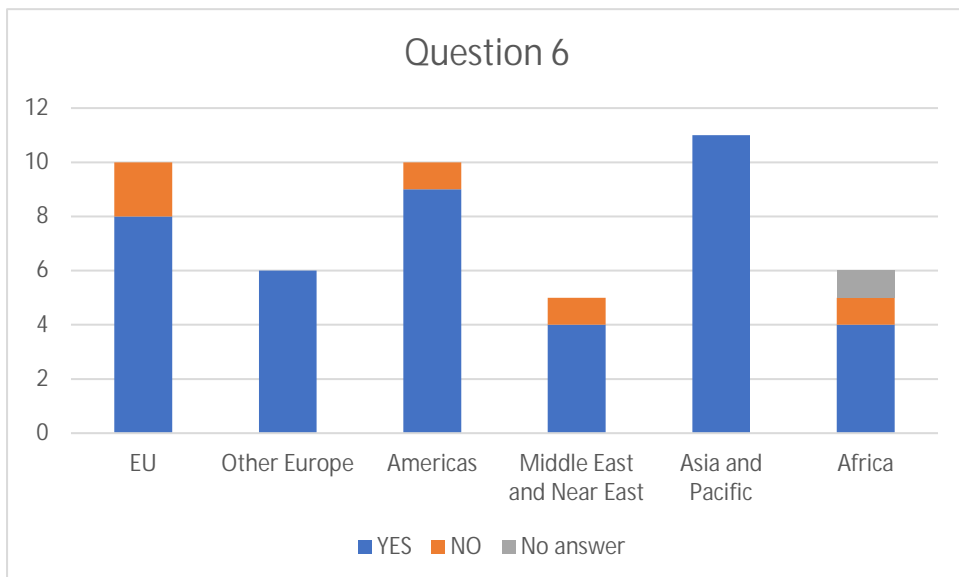
**Question 4:** Do you agree that Artificial Intelligence should be explicitly mentioned in the asset classification in a new class called “Computer Software and Artificial Intelligence”? This class would be derived from the current “Computer Software and Databases” class by separating Databases, which would be merged with Data in a separate class. In this new class, Artificial Intelligence would appear with an “of which” category.



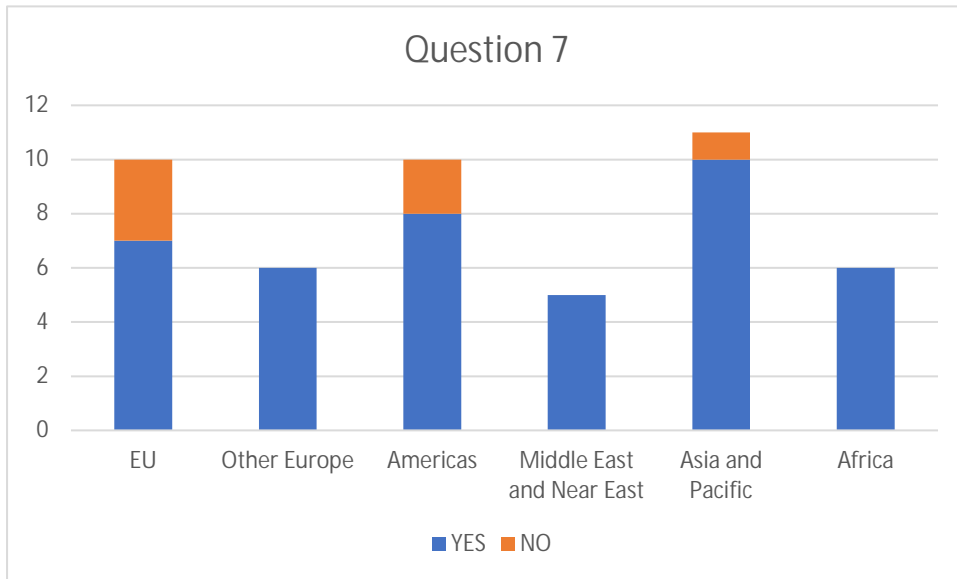
**Question 5:** Do you agree that the value of the cost of producing training datasets should be excluded from the value of own-account AI and included instead in the value of Data assets?



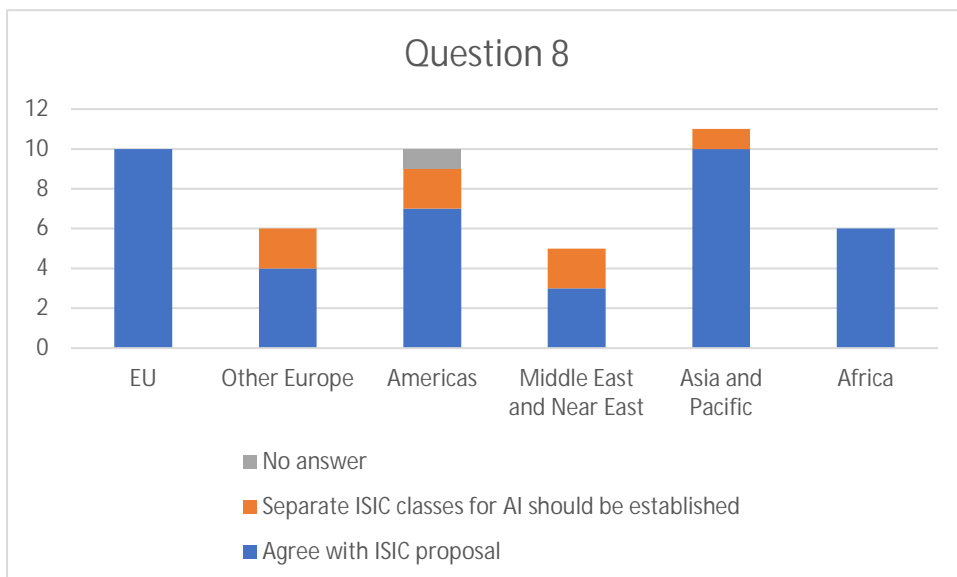
**Question 6:** Do you agree that the value of the cost of data services required by an AI should be excluded from the value of AI and recorded as intermediate consumption?



**Question 7:** Do you agree that the updated CPC include specific classes for AI and that this guidance note serves as the SNA drafting recommendations?



**Question 8:** Do you agree that the updated ISIC should include no structural change for AI, or do you think that separate ISIC classes for AI should be established?



**Question 9:** Would your institution be interested in participating in an experimental estimate exercise?

