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UNDERSTANDING TRADE IN DIGITIZED IDEAS -- WHAT ARE THE STATISTICAL CHALLENGES?

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UNDERSTANDING TRADE IN DIGITIZED IDEAS -- WHAT ARE THE STATISTICAL CHALLENGES?

Joscelyn Magdeleine and Andreas Maurer¹

Abstract

Advances in information and communications technologies (ICTs) and new business models have widened opportunities for trade in digitized ideas, shaping global value chains and production networks in cultural or creative goods and services. However, much of this trade has eluded conventional categorization and new business models. In particular multinational firms have blurred the way international transactions can be recorded and how this can be transformed into relevant statistics for policy makers, research and for businesses themselves. Recent international statistical guidelines have suggested a number of improvements to better respond to policy information needs, including in the area of trade, innovation or culture. However, a number of questions remain unanswered. The objective of the paper is therefore to trace the conceptual and empirical statistical picture and assess the quality of existing statistics and the extent to which important trade in digitized ideas is inadequately measured. It discusses conceptual issues, and constraints encountered in gaining a full picture. A number of possible data collection and compilation solutions are suggested to enable a better understanding of this trade.

Key words: Trade, International, Ideas, Culture, Statistics, Digitization

JEL: C82, F14, F23, L23, L81, L82, L86, Z1

1 INTRODUCTION AND OBJECTIVES -- WHAT IS THE QUESTION?

1.1. Trade in ideas – cultural and creative expressions, technologies, designs, brands, know-how – has grown rapidly over the past decades and at an accelerating pace in recent years. Advances in information and communications technologies (ICTs) and new business models have widened opportunities for such trade, shaping global value chains and production networks in goods and services. However, much of this trade has eluded conventional categorization and the new business models. In particular multinational firms have blurred the way international transactions can be recorded and how this can be transformed into relevant statistics for policy makers, research and for businesses themselves.

1.2. Given the possibilities offered by digitization, today culture or creativity can be traded through different means: cultural or creative products can be physical goods in themselves or can be embedded in physical goods, recorded as services, and more particularly -- especially for computer software or the audio-visual sector -- can occur as distinct intellectual property (IP) licences. The recently published Manual on Statistics of International Trade in Services (2010) as well as the new Balance of Payments Manual 6th edition (BPM6) and accompanying compilation guidance have clarified some of these issues, in particular as compared to previous editions. They in particular show how this information should be classified depending on how they are traded. The Manual on Statistics of International Trade in Services 2010 (MSITS2010) also introduces for the first time a complementary grouping on cultural transactions which aims at providing a more comprehensive picture of trade in culture. Both compilation guides for BPM6 and MSITS2010 as well as the Guide on Measuring Global Production of the Conference of European Statisticians, which deals with national accounting aspects, provide further guidance as to how compilers could approach some of the challenging issues arising from the globalisation of the economy.

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1.3. However, a number of questions remain unanswered, for example determining which countries are actually involved in such international transactions, in other words, who is trading digitized products with whom. And this directly relates to what is described above, in particular in the context of global value chains and more generally globalisation. For example (multinational) firms make choices to register originals in one country rather than another, for whatever reason that may be, and this makes it difficult to identify related international transactions and their nature (e.g., transaction of an original, is it embedded in goods, a service recorded in charges for the use of intellectual property or is it income?). These are challenges for statistical compilers. Although compilation guidelines have made some efforts in the right direction, still some clarification is needed as to provide clear instructions to compilers for producing the data needed. Also, given the interest of this matter amongst various stakeholders (trade, culture, intellectual property, development), it may also be worthwhile finding synergies for the development of more focused and relevant guidelines.

1.4. The objective of the paper is to trace the conceptual and empirical statistical picture of trade in "digitized ideas-creativity-culture", drawing on UNESCO, WIPO, WTO-UNCTAD, and other statistical work. The question of defining, classifying and measuring the economic contribution of digitized products may be answered differently by international organizations (WIPO, UNCTAD, WTO or UNESCO) depending on the policy view. For this, the paper will first present a description of what is meant by "digitized products" in context of economic statistics, and then go on looking at available data. The paper will succinctly describe some trade policy challenges that the new business models and technology revolution have introduced in relation to digitized products (trade in goods and services, e-commerce, cross-border data flows) and how this translates into statistical information needs. It will briefly assess the quality of existing statistics and the extent to which important trade in digitized ideas is inadequately measured or reported. An effort will be made to discuss the conceptual issues, and the constraints encountered in gaining a full picture of trade in digitized ideas (compilation issues). It will finally suggest a number of ways out (e.g. improve or create new surveys, finding synergies) for the collection and compilation of data, and provide recommendations for future steps and better understanding of this trade.

2 WHAT IS THE PICTURE?

2.1. This section will first address the concept of trade in ideas, in particular as defined in economic statistics. Second it will present some historical trends, based on available data. Finally it will describe some of the policy challenges which call for a better understanding of the extent of trade in digitized ideas.

2.1 The concept of trade in ideas

2.2. Trade in ideas is not a new phenomenon. It has existed for years, and relevant international statistical guidelines have strived to cover those in one way or the other. Films, music recordings, books, computer software and on-line services are bought and sold because of the information and creativity they contain, not usually because of the plastic, metal or paper used to store them. Many products that used to be traded as low-technology goods or commodities contain a higher proportion of invention and design in their value — for example, branded clothes or new varieties of plants.²

2.3. Trade in ideas can take place through different means, and in economic statistics these can generally be defined as follows:

- Intellectual property related products (IPPs), which can take the form of:
 - produced assets:
 - computer software and databases, audio-visual products (music, movies, television and radio programmes),
 - outcomes of research & development (R&D),
 - exploration rights (in general no international related transactions as the client will normally have an entity resident in same economy as owner of rights (in principle government entity) and
 - non-produced assets (use of trademark).

² https://www.wto.org/english/thewto_e/whatis_e/tif_e/agrm7_e.htm

- Exchanges of tangible products:
 - Intellectual property embedded in goods transactions, e.g. cultural or creative products (mass-produced),
 - R&D results embedded in goods (e.g. industrial processes),
 - originals/blueprints exchanged on physical media.

- Exchanges of intangible products (transactions in intangibles):
 - downloaded products which have a goods equivalent, the difference being the media through which it is delivered/transmitted to clients (i.e. electronic transmission rather than CDs, DVDs, or other physical media)
 - Licences for the use of intellectual property, generally transactions between the owner of originals and producers, distributors which replicate the original, and trademark payments (including franchising type transactions when not possible to separate IP component from other types of transactions, e.g. services).
 - Transfers of some kind of blueprints etc. to producers (most probably also in the form of a licence) or directly to households such as for 3D printing.

2.2 Historical trends and latest data

2.4. Historically, international transactions involving ideas mainly took place through trade in goods, be it cultural goods such as books, CDs, movies or crafts, as well other high-technologically intensive products. Over the years more and more products have included a higher proportion of intellectual property inputs (at least in terms of value brought to goods). However at the same time the digitization of the economy has enabled the development of products that can increasingly be traded in the absence of a physical media to deliver it to clients.

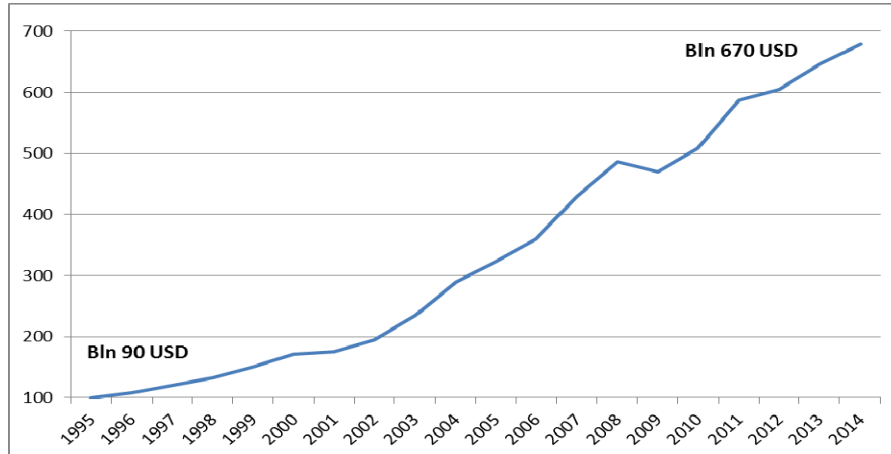
2.5. A recent UNESCO report shows that trade in cultural goods has significantly increased over recent years, reaching USD 190.5 billion in 2013 (representing US\$212.8 billion for exports and US\$168.3 billion for imports, customs-based data). "The value of world exports of cultural goods almost doubled compared to 2004, which was US\$108.4 billion. The export of cultural goods represented 1.22% of all exports of goods in 2013, which was the average for this period." However results from this report illustrate the dematerialisation of some cultural goods. Several cultural goods are now accessible electronically and are traded much less as physical commodities. Dematerialisation has had a great impact on music, and newspaper production is declining rapidly."³

2.6. No data are separately available as such on trade in digitized ideas, and at the time of writing the little which are available are not detailed enough to enable to conduct a complete and precise assessment of the importance of this trade. However, a number of indicators may prove useful to give a sense of the magnitude of the phenomenon described above. Indeed by building an aggregate based on trade in services statistics which are more closely related to trade in dematerialized products (namely computer, information services, personal, cultural and recreational and charges for the use of intellectual property, n.i.e.) one can give an indication of the rapid increase of such trade in recent years.⁴ As shown in chart 1, which is based on available information, between 1995 and 2014, the increase of world trade in digitized ideas was seven-fold, representing in 2014 13.5% of total commercial services trade (compared to 7.5 in 1995). It is estimated that world trade in digitized ideas represented 670 billion USD in 2014. This category of products has by far been more dynamic than other services over the past 20 years.

Chart 1 World trade in digitized ideas, 1995=100

³ UNESCO Institute for Statistics, 2014, The Globalisation of cultural trade: A shift in Consumption, International flows of cultural goods and services 2004-2013.

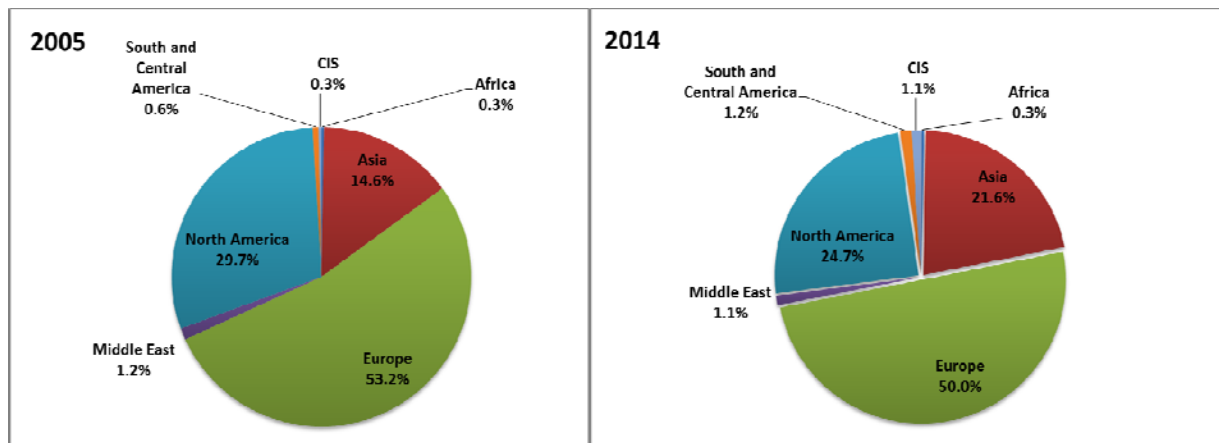
⁴ Although the bulk of the value of these items will refer to direct international sales of digitized products such as computer software, audio-visual products and licences relating to the use of ideas (e.g. licences for distribution and/or reproduction of outcomes of R&D, for audio-visual products or software), some components of these items would not necessarily be directly related to such trade (e.g. franchise payments, recreational services, computer services). In the same way some transactions which could potentially be considered as digitized ideas are not covered by the items used to build this aggregate (e.g. advertising, marketing, architectural services).



Source: authors calculations based on UNCTAD-WTO-ITC trade in services dataset

2.7. The main regions contributing to the value of this trade are Europe, largely accounted for by the European Union, and North America (composed of Canada, Mexico and United States), see chart 2.⁵ However it is interesting to note that over recent years the share of these two regions has decreased to the benefit of regions where developing countries are more prominently represented, such as in Asia or South and Central America.

Chart 2 Main regions contributing to trade in digitized ideas

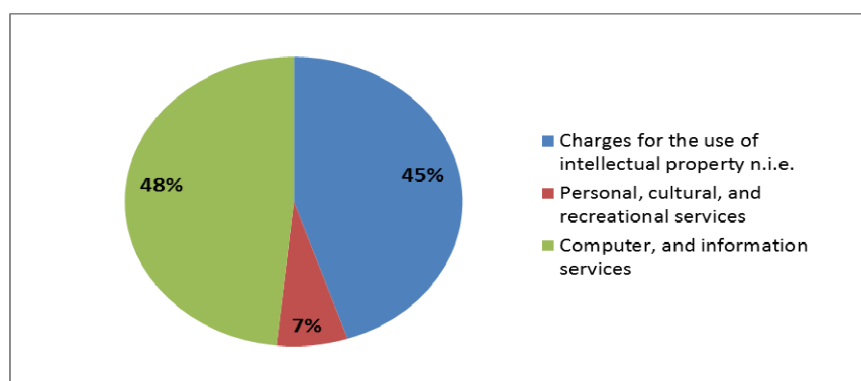


Source: authors calculations based on UNCTAD-WTO-ITC trade in services dataset

2.8. Chart 3 shows that overall the largest portion of transactions represented in this aggregate is accounted for by computer and information services representing 48% of all the trade, followed by charges for the use of intellectual property (45%) and personal, cultural and recreational services (7%).

⁵ Definition of regional groupings follow those used in WTO's International Trade Statistics report. For more information see https://www.wto.org/english/res_e/statis_e/statis_e.htm.

Chart 3 Breakdown of trade in digitized ideas, 2014



Source: authors calculations based on UNCTAD-WTO-ITC trade in services dataset

2.9. Looking further into the details one can note the importance of digitization of trade in ideas, such as, for example, in the case of products more closely related to cultural industries, that is audio-visual services. According to available statistics (Table 1), in 2013, those receiving most receipts from audio-visual and related services were the European Union countries taken as a whole. They were followed, albeit far behind, by Canada, India, Korea and Argentina. Though the comparability of such data is limited as it is not always clear what such a category covers. Given the selection of countries covered in this ranking, one could question if data shown for individual economies in fact have a comparable coverage. For instance, while some will cover receipts for the provision of audio-visual services, others will cover also those resulting from sales of digitized products, and yet others distribution/reproduction rights. In fact we can note that at least one important audiovisual producer is missing in table 1, the United States. Indeed no data for the category audiovisual and related services are available in international trade in services databases. However large amounts of licensing receipts for audiovisual products are registered by the United States (Mln 18410 USD in 2013).⁶ This illustrates the difficulty to conduct a relevant analysis for a specific sector relevant in the context of trade in digitized cultural products (in this example audiovisual transactions) depending on the different levels of detail compiled by reporting countries, disseminated (nationally or in international databases) as well as the different types of categorization when it occurs.

2.3 Trade policy challenges

2.10. What are the trade rules governing the transactions relating to digitized products? If goods are traded across the border, they are given a Harmonized System code and general customs duties or other forms of taxes are paid on them. GATT rules would apply (for Information Technology products the rules may differ somewhat). Often, the customs duties are levied on the value of the physical carrier media (e.g. CD-Rom) not necessarily of its content. However if the products do not physically cross the border (i.e. not on physical media), then how would we classify those? If considered to be services, GATS rules would apply. No single sector can be specifically identified as associated to trade in ideas in GATS commitments or negotiations. The same stands true for "creative" or "cultural" services. For example, an architectural drawing/plan or a fashion design may well be supplied on line by the creator. However, the Services Sectoral Classification List (MTN.GNS/W/120) -- referred to as W/120 -- encompasses the following sectors within which many such products are often considered to fall:

- Audiovisual services (Motion pictures, Radio and television services, Sound recording);
- Recreational, cultural and sporting services (entertainment services, news agency services, libraries, archives, museums and other cultural services);
- Research and development services; and
- Computer and related services.

⁶ Similar data are reported only for Canada (Mln 530 USD in 2013), Korea (525.5) and Australia (0).

Table 1 Major exporters and importers of audio-visual and related services, 2013, 2014

(Million dollars and percentage)

	Value		Share in 10 economies	Annual percentage change			
	2013	2014		2013	2010-13	2012	2013
Exporters							
European Union (28)	19009	...	80.8	10	-4	27	...
Extra-EU (28) exports	8040	...	34.2	13	3	41	...
Canada	2428	...	10.3	7	15	0	...
India	505	406	2.1	30	117	66	-20
Korea, Republic of	441	536	1.9	25	43	13	22
Argentina	336	306	1.4	4	-12	9	-9
Russian Federation	289	216	1.2	-7	1	-8	-25
China	147	175	0.6	6	2	17	19
Australia	142	214	0.6	3	-5	-25	51
South Africa	127	129	0.5	6	3	2	1
Ecuador	110	99	0.5	18	22	10	-9
Above 10	23535	...	100.0	-	-	-	-
Importers							
European Union (28)	14637	...	62.3	1	-3	-2	...
Extra-EU (28) imports	6060	...	25.8	2	-2	0	...
Canada	2339	...	10.0	6	11	2	...
Australia	1325	1292	5.6	9	4	-6	-2
Brazil	1229	1274	5.2	9	-8	27	4
Japan	873	697	3.7	6	20	-9	-20
Russian Federation	865	846	3.7	1	-7	6	-2
China	783	874	3.3	28	41	39	12
Norway	514	524	2.2	6	9	-16	2
Argentina	484	463	2.1	9	7	6	-4
Korea, Republic of	445	487	1.9	15	30	32	9
Above 10	23495	...	100.0	-	-	-	-

Note: Based on information available to the Secretariat. As certain major traders in personal, cultural and recreational services do not report the item audiovisual and related services separately, they may not appear in the list. See the Metadata.

Source: WTO, International Trade Statistics 2015.

2.11. Although many transactions taking place over the Internet are considered trade in services (often associated to mode 1 cross-border supply, or in some cases considered as mode 2 consumption abroad), the nature of some downloaded products that have a goods equivalent, e.g. ebooks, differs depending on the points of view adopted. Some WTO Members argue that these are downloaded goods (i.e. GATT rules would apply), whereas others consider them to be services transactions, meaning that GATS rules would apply. Since 1998, the WTO has been discussing e-commerce, which it defines as "the production, distribution, marketing, sale or delivery of goods and services by electronic means". A provisional moratorium on customs duties has been in force since. As GATS is technology neutral in the sense that its provisions do not distinguish the technological means by which a service may be supplied, services delivered electronically fall within the scope of GATS. The vast majority of services do not pose the problem of being considered to have a goods equivalent, therefore the issue of whether they are classified in GATS or GATT does not arise.

2.12. The extent of protection and enforcement of intellectual property rights varies widely around the world; and as intellectual property became more important in trade, these differences became a source of tension in international economic relations. New internationally-agreed trade rules for intellectual property rights were seen as a way to introduce more order and predictability, and for disputes to be settled more systematically. The WTO Trade-Related aspects of Intellectual Property rights Agreement (TRIPS) is an attempt to narrow the gaps in the way these rights are protected around the world, and to bring them under common international rules.

2.13. As for the technological means of delivery, trade in digitized ideas often takes place online through e-commerce. The flow of information is an item of increasing concern to service suppliers around the world, and, in particular, in relation to flows taking place through the Internet or other types of data networks. In other words, to ensure that trade, in particular trade in services, takes place as smoothly as possible, one needs to ensure that data flow as freely as possible. These data flows may take various forms. They may reflect the actual service being provided (i.e. the music being downloaded, film being streamed, blueprint), the transfer of a copy of the original on which the recipient will be entitled to make copies for distribution or sale, or refer to the information essential to service suppliers to be able to manage customer relations and data or to enable the international payments associated with sales, etc. Though not a new phenomenon, the increasing use of the Internet, amongst other networks, has brought up questions of data flow restrictions more prominently in trade negotiations. For example, the US-Korea Free Trade Agreement (entry into force in March 2012) was the first international agreement to include text on this issue,⁷ albeit "best endeavours". Given the pressure by the industry, the more recent Trans-Pacific Partnership Agreement includes a binding discipline on data flows as well as an additional provision on data localization.⁸

2.14. All the policy challenges outlined above make it necessary to better understand the extent of trade in digitized ideas and associated flows of data. And the data needs go well beyond the trade aspects, so that it can also be useful for users dealing with the globalization of culture or innovation. Having such data would assist more informed policy-decision making, as well enable to conduct more in-depth economic research and statistical analysis.

3 CHANGES IN LATEST STATISTICAL FRAMEWORKS

3.1. Before discussing the changes in latest statistical guidelines dealing with international economic statistics, we need to contextualize these frameworks within the overarching system of economic statistics, which is the System of National Accounts (SNA). The economic activity of a country is traditionally measured through its gross domestic product, a macroeconomic aggregate. It has recently been argued that as a consequence of digitization, such a measure misses parts of the economic developments, because of new business models that have emerged, the way digitized products can be consumed (eventually "free-of-charge" for the consumer) and consequently problems that compilers may face with traditional data sources. In a recent study, it was estimated that in the United Kingdom the annual growth rate over the past decade would have been between 0.4 and 0.7 percentage points higher if benefits arising from digitised products were fully accounted for.⁹

3.2. When discussing digitized ideas we can in fact relate these to Intellectual Property Products (IPPs) as referred to in the latest 2008 version of the SNA. They can be defined as results of research and development, mineral exploration and evaluation, computer software and databases, and entertainment, literary or artistic originals. Further to these IPPs, SNA defines knowledge capturing products. "Knowledge-capturing products concern the provision, storage, communication and dissemination of information, advice and entertainment in such a way that the consuming unit can access the knowledge repeatedly. The industries that produce the products are those concerned with the provision, storage, communication and dissemination of information, advice and entertainment in the broadest sense of those terms including the production of general or specialized information, news, consultancy reports, computer programs, movies, music, etc. The outputs of these industries, over which ownership rights may be established, are often stored on physical objects (whether on paper or on electronic media) that can be traded like ordinary goods. They have many of the characteristics of goods in that ownership rights over these products can be established and they can be used repeatedly. Whether characterized as goods or services, these products possess the essential common characteristic that they can be produced by one unit and supplied to another, thus making possible division of labour and the emergence of markets."

⁷ "Recognizing the importance of the free flow of information in facilitating trade, and acknowledging the importance of protecting personal information, the Parties shall endeavour to refrain from imposing or maintaining unnecessary barriers to electronic information flows across borders."

⁸ " Each Party shall allow the cross-border transfer of information by electronic means, including personal information, when this activity is for the conduct of the business of a covered person" and " No Party shall require a covered person to use or locate computing facilities in that Party's territory as a condition for conducting business in that territory."

⁹ "UK richer and growing faster than official figures suggest", The Financial Times, 11 March 2016

3.3. After considering the production side, the question is how these (digitized) products are accounted for in statistical trade classifications?¹⁰ As illustrated above, most of trade in digitized ideas/products are captured in trade in services statistics, which are part of an economy's balance of payments statistics. The IMF's Balance of Payments Manual 6th edition (BPM6) was developed in parallel with the 2008 SNA. Concepts and definitions are therefore compatible to the maximum extent possible. Given the increasing needs for detailed information on international services transactions, in-depth concepts and definitions are provided in the Manual on Statistics of International Trade in Services 2010 (MSITS 2010), which is in-line with BPM6 and SNA2008, but digs much deeper to better respond to information needs of a wide range of users (trade negotiators, policy makers, analysts and sectoral experts). MSITS2010 recommends the use of EBOPS2010 to compile data on cross-border trade in services.¹¹

3.4. To help narrow down the list of EBOPS 2010 of interest in the context of trade in digitized ideas we can refer to various guidelines which refer to culture (UNESCO), creativity (UNCTAD) or intellectual property (WIPO).¹² The EBOPS 2010 items which are more likely to incorporate "trade in digitized ideas" aspects are therefore:

- **Telecommunications, computer and information services**
 - **Computer services**
 - Computer software¹³
 - Of which, originals
 - **Information services**¹⁴
- **Other business services**
 - **Research and development services**
 - **Professional and management consulting services**
 - Advertising, market research and public opinion polling
 - **Technical, trade-related and other business services**
 - Architectural, engineering, scientific and other technical services
 - Architectural services
 - Engineering services
- **Personal, cultural and recreational services**
 - **Audiovisual and related services**
 - Audio-visual services
 - Of which audiovisual originals
 - Artistic related services
- **Charges for the use of intellectual property, not included elsewhere (n.i.e.).**
 - Franchises and trademarks licensing fees
 - Licenses for the use of outcomes of research and development
 - Licenses to reproduce and/or distribute computer software
 - Licenses to reproduce and/or distribute audiovisual and related products
 - Licenses to reproduce and or distribute audiovisual products
 - Licenses to reproduce and/or distribute other products

Items shown in bold are recommended in both the classification of services in BPM6 and MSITS2010/EBOPS2010, whereas the detail in normal font are only suggested in MSITS2010/EBOPS2010.

¹⁰ As indicated above the W120 is a negotiating list, and was not developed to collect, classify and compile (trade in services) statistics.

¹¹ EBOPS 2010 items can be further defined by referring to the CPC Version 2 (see <http://unstats.un.org/unsd/tradeserv/tfsits/manual.htm>)

¹² See table 1 in <http://www.uis.unesco.org/culture/Documents/framework-cultural-statistics-culture-2009-en.pdf>

http://unctad.org/en/Docs/ditctab20103_en.pdf

http://www.wipo.int/edocs/pubdocs/en/copyright/893/wipo_pub_893.pdf

¹³ Includes computer games.

¹⁴ Covering News agency services, databases, and downloaded (or on-line) content that is not software or an audiovisual or related product.

3.5. Table 2 below, which reproduces a table presented in the newly released MSITS2010, gives an overview on how to classify transactions based on their intellectual property-related content and how they are exchanged.¹⁵

3.6. Transactions in originals/ownership rights (identified as Sale or purchase of intellectual property ownership rights in table 2) will be classified to the services that produce them. But the classification of transactions relating to the use of those originals (copies, reproduction or distribution rights) will depend on a number of factors. Charges for the use of intellectual property in MSITS2010 and BPM6 cover the charges for use of proprietary rights (patents, trademarks, copyrights, industrial processes and designs, franchises, etc.) whether the rights result from research and development, marketing, advertising or other creative or cultural activities (computer software, music, films, books etc.). Charges for the use of intellectual property in particular includes licensing receipts or payment for reproduction and/or distribution of computer software, audiovisual products or other products (i.e. the transactions between the owners of the original/rights and producers who either reproduce the products, or embed them in other products). However it is important to note that the item as defined in BPM6 and MSITS2010 (i.e. charges for the use of intellectual property not included elsewhere) does not cover the value of end-user licences/copies themselves.

3.7. Transactions with an end-user licence/copies which are sold on a physical media (CD, DVD) will either be classified under goods if they are mass-produced products with a licence for perpetual use (in table 2 identified as Non-customized products provided on physical media with right to perpetual use) or as services (i.e. depending on the type of product, under computer software, audiovisual services etc.) if the sale entails the subsequent payment(s) of periodic licence fees for example for updates. If they are customised products they will be classified as services. All copies delivered or distributed electronically (downloading, on-line consumption, streaming) will be classified under the relevant services. These are most probably products of great interest in the context of trade in digitized products. Corresponding international transactions, when they occur, will be reported indistinguishably in the relevant item together with the other transactions likely to fall under these services (e.g. computer services, services provided by firms/individuals for the shooting of a movie, transactions in originals etc.).

3.8. Recent decades have seen an explosion in transactions related to the categories identified above. Many of the transactions relate to the use of an underlying produced asset (typically research and development, software, databases and audio-visual originals). However these categories present significant measurement challenges. First, the distinction between the EBOPS2010 categories from a reporter's or compiler's perspective may not always be clear (for example, software versus research and development, or software versus audio-visual). Second there are new major players involved (e.g. telecommunications companies, Internet service providers) in providing digitized products, which may contribute to the blurring of fields of activities. And, third, intra-firm transactions may be affected by transfer pricing phenomena or indeed more general tax planning issues, meaning that the distinction between flows recorded as trade in services and flows recorded in the primary income account of the Balance of Payments as property income may not always be clear cut.

3.9. There are also a number of borderline issues concerning the rights acquired by transmitters such as TV companies and radio stations, when the contractual arrangements allow for multiple transmissions. Where the fees are paid on a 'pay as you go' basis, for example a royalty payment is made every time a song is played on a radio station, these should be recorded under audio-visual services while a one-off fee paid for unlimited air-time should be recorded as being equivalent to a licence to reproduce (charges for the use of intellectual property n.i.e.).

¹⁵ Table III.1 in MSITS 2010, also available as table 10.4 in BPM6.

Table 2 Treatment of intellectual property in balance of payments statistics

	<i>Use of intellectual property</i>	<i>Sale or purchase of intellectual property ownership rights^a</i>
Franchises and trademarks	<i>Charges for the use of intellectual property n.i.e.</i>	Balance-of-payments capital account
Outcomes of research and development	<i>Charges for the use of intellectual property n.i.e.</i>	Research and development services
Computer software products; audio-visual and related products	Licence to use excluding reproduction and distribution^b	Licence to reproduce and/or distribute^c
(a) Customized products of all types	Relevant service item ^d	
(b) Non-customized products, downloaded or otherwise electronically delivered	Relevant service item ^d	<i>Charges for the use of intellectual property n.i.e.</i> Relevant service item ^d
(c) Non-customized products provided on physical media with periodic licence fee	Relevant service item ^d	
(d) Non-customized products provided on physical media with right to perpetual use	Goods	

^a Covers the case where there is a change of economic ownership of the whole of the intellectual property right in question and the seller no longer has any rights or obligations associated with the intellectual property. This case also includes second or subsequent outright sales of intellectual property rights.

^b Covers the case where a specific product is supplied with the right to use the intellectual property embodied in it, but not to copy it for further distribution. The transactions should be classified under the appropriate goods and services items.

^c Covers the case where authority to reproduce and/or distribute the intellectual property is delegated by its owner.

^d The relevant item is classified under either computer services or audio-visual and related products, depending on the nature of the content provided (see also paras. 3.216-3.220). For example, the sale or purchase of a copy of a software package that is mass-produced, and is obtained by an individual to load onto a single computer is covered by a licence to use that excludes reproduction and distribution; this situation would be recorded in goods and services depending on the product (see examples (b), (c), and (d) under software in table III.1). If a manufacturer pays for the right to include the software on the computers that it produces, then the payment would be a licence to reproduce and/or distribute (charges for the use of intellectual property provided by the owner of the original).

Source: Manual on Statistics of International Trade in Services, 2010 edition.

3.10. Nevertheless BPM6 and MSITS2010 have brought a clearer conceptual separation by distinguishing end-user products from licences to reproduce and/or distribute (i) computer software, (ii) audio-visual products and (iii) other products. Regarding audiovisual and related services, it is important to note the clarifications brought by MSITS2010: performing arts and other live entertainment event presentation and promotion services (namely, live performances such as concerts and plays) are excluded from audio-visual services and are instead included in artistic related services. The transaction corresponding to the performance of resident actors,

musicians or other artists for the shooting of a movie (or other types of visual programs) or musical recording by a non-resident entity (and vice-versa) is also included under artistic services, under the condition that artists are not in an employer-employee relationship with the recording entity. However, the subsequent transactions for the result of the recording will be included in audio-visual services. Sales of ownership rights of literary or other artistic originals (excluding those covered under audio-visual), should be recorded under artistic-related services. There may be borderline issues for rights that restrict reproductions to certain markets or languages, where transactions should be recorded under EBOPS Charges for the use of intellectual property n.i.e./licences to reproduce and/or distribute other products. Mass-produced artistic related products (for example books), as well as related purchases and sales should be treated as described in table above with respect to classification to goods or services.

3.11. MSITS2010 also provides complementary groupings on computer software transactions, audio-visual transactions and on cultural transactions that may be of interest in the context of this paper. Audiovisual transactions combine audio-visual services, licences to reproduce and/or distribute audio-visual products, and audio-visual goods. This grouping is in recognition of the grey borderline between transactions in goods and services.¹⁶ Computer-software transactions follow the same logic.

3.12. Cultural transactions includes audio-visual transactions and other cultural related transactions in services and goods:

- Audio-visual transactions
- Artistic related services
- Licences to reproduce and/or distribute other products
- Heritage and preservation services (for example, involving fees collected from exchanges of artefacts between museums of different countries)
- News agency services
- Other information services, excluding database and related services
- Architectural services
- Advertising services that are included in advertising, market research, and public opinion polling services
- Cultural related goods that are not covered by the above items (the definitions of items in the list need to be consistent with the definitions of products covered in services categories).

This list of cultural goods and services, which is based on CPC and the Harmonized Commodity Description and Coding System (HS), is further elaborated in the 2009 UNESCO Framework for Cultural Statistics.¹⁷

4 WHAT IS THE CHALLENGE, WHAT IS INADEQUATE, WHAT COULD BE DONE?

4.1. After clarifying in the third section the available relevant concepts in international statistical guidelines, and defining which EBOPS2010 items could be considered as relevant in the context of trade in digitised ideas, we will know attempt to describe some of the challenges there are to develop useful measures to meet user needs, such as research, analysis and policy-making. First section 4 will dig further in what would need to be addressed in terms of further conceptual guidance to define what we want to measure. Second the section will describe some difficult measurement challenges that compilers may have in the context of the globalization and dematerialization of the economy. This section will explore some possible data collection and compilation options as they apply to trade in digitized ideas measurement. Finally a number of suggestions are made on possibilities offered by agency cooperation to improve the data situation (both at the national and international level).

¹⁶ Note that there is also a suggestion to have a sub-item for audiovisual transactions, namely "Licences to use audiovisual products" to account for those transactions that reflect investment expenditure in the national accounts (i.e., licences for more than one year), when undertaken by producers.

¹⁷ United Nations Educational, Scientific and Cultural Organization (UNESCO) Institute for Statistics, 2009 UNESCO Framework for Cultural Statistics (Montreal, Canada, 2009).

4.1 Conceptual excursion: defining trade in digitized ideas

4.2. It is clear that the blurring of the lines between a good and a service, magnified by the difficulties that may exist in differentiating between the two categories in practice, will complicate measurement. But are the existing trade classifications detailed enough to measure trade in digitized products adequately? As illustrated above, the answer is obviously "no". It may therefore be useful to go a step further to see how existing classifications such as EBOP2010 can be used and would need to be further developed to better respond to the information needs in the area of interest. First it would of course be necessary to adopt a common definition of digitized products we would like to cover, and this would of course need to be addressed beyond the trade aspects. The second step would then be to review how this would need eventually to be adapted to international trade in digitized ideas, both in terms of classification issues and conceptual issues.

4.1.1 Piggyback....

4.3. The main enabler for buying digitized cultural products is internet-based e-commerce. Although it has a broader coverage, it is interesting to see what was outlined in the UNCTAD technical note on "International Trade in ICT services and ICT-enabled services" (October 2015). This technical note promotes improvements in trade in services statistics to better measure ICT and ICT-enabled international transactions. Amongst other things, ICT services cover the following items related to digitized ideas: computer software (covering originals, downloads, on-line software and games) as well as related licensing services for the right to use computer software.

4.4. Further, the note suggests defining ICT-enabled services as "services products delivered remotely over ICT networks." Two points need to be considered here: first the need to define within EBOPS the list of services that potentially can be covered by this definition (would these be detailed enough to be of interest for analysis) and second, separate out the transactions where services are delivered remotely. Concerning the first point, since EBOPS2010 is identified as not being completely relevant to identify the taxonomy of interest, the note recommends creating within EBOPS a new complementary grouping for ICT-enabled services, which could be detailed as shown in table 3. With respect to the second point, it is proposed to identify separately services delivered remotely (i.e. over ICT networks), either by using the identification of modes of supply for relevant services categories as described in MSITS2010 (mode 1, cross-border supply, being the mode of interest), or add in trade in services surveys (i.e. a subset of business surveys) a specific question to address this point. The same method could be used to for measuring international trade in digitized products. In fact synergies could be found by using the approach recommended in the UNCTAD technical note by expanding the details as relevant. Relevant items of interest in particular for digitized cultural products are suggested in italics, but other items could be added depending on what is needed. Additionally, we could have an alternative complementary grouping to cover digitized products which would have some common elements with what has just been described, or could be developed as a sub-item of the suggested complementary grouping for ICT-enabled services. However in doing so it is important to bear in mind the limitations there are in extending the level of detail of breakdowns given the associated financial costs and other data collection and compilation issues (see below for a further discussion on this topic), in particular respondent burden and quality problems.

Table 3: Potentially ICT-enabled services

1.1 ICT services – Telecommunications	ICT services
1.2 ICT services – Computer software	
1.2.1 Computer software (including downloaded and on-line)	
1.2.1.1 Video games (downloaded or on-line)	Other potentially ICT-enabled services
1.3 Sales and marketing services, not incl. trade and leasing services	
1.3.1 Advertising services	
1.4 Information services	
1.4.1 Music (downloaded or on-line)	
1.4.2 Films and Video (downloaded or on-line, including pay-per-view)	
1.4.3 Books	
1.4.4 Radio and television	
1.5 Insurance and financial services	
1.6 Management, administration, and back-office services	
1.7 Licensing services	
1.8 Engineering, related technical services, research & development	
1.8.1 Architectural services	
1.9 Education and training services	

Derived from table 4 in International Trade in ICT services and ICT-enabled services (UNCTAD, 2015)

4.1.2 The question of "free" entertainment

4.5. Another important question when it comes to compilation challenges for digitized cultural products is that of "free" entertainment provided to final consumers. "Free" entertainment is not a new phenomenon as many radio and television programmes which include large cultural or creative content have been provided to households free of charge for many years. But this concept of "free" or "zero-priced" goods or services may be misleading, as all these products which are provided to households and individuals have a cost element associated to them.¹⁸ In fact this "free" entertainment is financed by the selling of advertising space or the selling of information on customers to third parties, and is included in GDP as an intermediate input to advertising, rather than final consumption by households, hence not included in final expenditure.¹⁹ However some economists argue that at least advertising supported media consumption should be included as final consumption expenditure.²⁰

4.6. This type of business model is becoming particularly relevant for international trade, given that with new communications technologies and the business models and structures developed by media companies and e-commerce platforms, digitized products which are financed through advertising or the selling of information can increasingly be provided across borders to final consumers. This can take place through streaming (e.g. music, films) or downloading (e.g. free software, video games). In this context it would be useful to measure the financing aspects, in particular when they take place cross-border, for example through the transfer of data from one economy to the other.

4.7. It could therefore be relevant to develop further research work in this field, both for national and international economic statistics, to get a better sense of the total amount of trade in digitized ideas actually taking place. And this may entail greater co-operation and data exchange between national statistical offices.

¹⁸ Sir Charles Bean, 31/3/2016, Vox, Time to rethink the way we measure economic activity, last accessed at <http://www.voxeu.org/article/rethinking-measurement-economic-activity> on 4/4/16.

¹⁹ If media is supported by government or paid for by consumers then it will be considered as final expenditure.

²⁰ See Valuing 'Free' Entertainment in GDP: An Experimental Approach: <http://www.bea.gov/about/pdf/acm/2015/november/valuing-free-entertainment-in-gdp-for-aea-paper.pdf>

4.2 Activity blurring: more players and diversification of activities

4.8. In the era of dematerialization, relevant international transactions may be more and more difficult to measure. For example in recent years it has been increasingly difficult to identify transactors (i.e. exporters and importers) involved in trade in services, in particular with the increasing number of "intermediaries" which may be involved. One reason for this stands in the way multinationals shape their network and organize production processes. Although primarily to increase overall profits, they in fact do this on the basis of various considerations: benefit from specific technical expertise, profit from relative differences in wage costs, reduce cost of inputs, increase cultural ties with clients (including the reduction of language barriers), or minimize taxation.

4.9. The recent UNECE guide on "Measuring Global Production" provides practical guidance on the treatment of global production arrangements to national accountants and balance of payments compilers. It also describes emerging data needs. The guide provides a typology of global production arrangements which are directly related to the issues described in this paper. Relevant themes cover the principles of economic residence of businesses, economic ownership inside multinationals, the necessity to carefully analyse transfer pricing to better record relevant market prices. An issue of concern when it comes to measuring trade in digital products is with which entity the intellectual property is registered, which in turn will define the parties/countries involved in the production and selling of copies (i.e. digital cultural products) to consumers.

4.10. The UNECE guide points to the difficulty to provide further detail on IPPs and their treatment in multinational enterprises which are often linked up through headquarters, subsidiaries, affiliates and branches in an international supply chain. Chapter 4 of the UNECE publication provides criteria to define economic ownership of IPPs (in line with SNA) rather than legal ownership. This will in turn define how all related transactions should be accounted for. The publication acknowledges the relevance of the more detailed classification of services provided in MSITS2010 as a good starting point to better trace intra-company transactions related to IPPs. It recommends to gather more information to define the entity (hence the country) to which the IPP belongs, through business surveys or relevant administrative sources.²¹ It also provides a decision tree to assist compilers in determining if resident entities are the economic owners of the intellectual property as well as to define how to account for related flows inside multinationals. However as indicated the recommendations may need to be reviewed as experience develops, which is why it is important that there is further coordination of data collection on multinational enterprises at the national and international levels.

4.11. The chapter 10 of the guide also further explores the concept of "merchandising of services" introduced in BPM6 and MSITS2010 which is also relevant in the context of this paper. This concept relates to the question of intermediaries in the accounting of international services transactions (i.e. covering the issue of digitized products), making a parallel with the concept of merchandising of goods which had already been outlined in international manuals in the early 1990s, and further refined in SNA2008 and BPM6. The concept can be illustrated as an entity in country A purchasing a service (or the right to use a service), from a supplier in country B. The intermediary (or arranger) in country A subsequently resells the service with no transformation to a client in a third country. This can be quite common with the development of e-commerce platforms and the digitization of IP related products. The following business model example is provided in the guide: "A head office in country A, creates a unit in country B with the main purpose of distributing copies (or licences to use) to yet another range of countries. Such a model is expected to be applied particularly inside the MNE and may be tax driven, in the sense that the distributor is expected to be located in a country (B) having a favourable tax jurisdiction." Examples of countries involved in these types of transactions relating to trade in digitized ideas include Ireland and Luxembourg.

4.12. The current recommendations of BPM6 and MSITS 2010 point to a gross recording of transactions (including for the country of the arrangers), but the guide recommends that for countries in which this "intermediary function" is important to present flows on a net basis in supplementary tables, and therefore better reflect what is actually produced by such countries where intermediaries are present. However it is also important to keep in mind that whatever presentation is chosen, not all actors in those transactions may have the necessary knowledge and information as to who is effectively trading with whom. It is therefore crucial that compilers gain

²¹ It also suggests the use of R&D surveys.

further knowledge on how trade in digitized ideas is taking place, and that further collaboration takes place between countries (in particular to avoid asymmetries in the recording of transactions) as well as at the international level to develop more guidance as to how to deal with this type of trade.

4.3 Compiling data: some ways forward

4.13. After establishing the conceptual questions surrounding trade in digitized ideas and the practical applicability of statistical concepts to the "new" or evolving business models, we will now explore how data could eventually be collected and compiled. Although we are focusing on international transactions in this paper, some of the suggested solutions are common with those used to capture broader information relating to digitized products. To complement the compilation guide for BPM6, the UN Task Force on Statistics of International Trade issued a compiler's guide to deal with the more detailed and specific recommendations included in MSIST2010.²² It is intended for use by statisticians of national statistical offices, central banks and ministries of trade and investment, or other agencies engaged in the compilation of trade in services statistics.

4.14. As the MSITS2010, the compilers guide encourages interagency cooperation, in particular to identify data needs and priorities for trade in services data collection and compilation. It does so by analysing the main possible sources for the collection of trade in services data, namely, enterprise and establishment surveys, surveys of persons and household, international transaction reporting system, administrative records and other data sources (credit card records, other Big Data etc.).

4.15. Trade in services statistics, in particular in a balance of payments context, have traditionally been compiled on the basis of data drawn from an international transactions reporting system (ITRS). Historically this started with settlement reports by resident banks in most countries, but with the increase of the use by transactors of non-resident banks for international settlements, direct reporting from these transactors was necessary. It is considered to be a reliable and comprehensive source, and is still used by many (developing) economies. But, although it may have many benefits, it also has some drawbacks which may be particularly problematic to compile data on trade in digitized ideas. Examples include the following: the ITRS may be useful to collect data for major groups of products of the BPM6/EBOPS2010 classification, but as we have seen previously trade in digitized products represent relatively small proportions of larger EBOPS main items which may be difficult to ask for in forms; partner countries may not be correctly identified, in particular when countries of settlement differ from the country of transaction; from the perspective of countries importing most of the transactions of interest may represent small amounts which will fall below reporting thresholds.

4.16. This is why it may be more appropriate to turn to other data sources to collect the data of interest in this paper. Some of these other sources may be more appropriate depending on what we want to capture:

- For licensing fees payments or receipt or for the provision of digitized products electronically (i.e. exports), relevant questions could be added to enterprise or establishment surveys. These could be general trade in services surveys, or as stated in the compilers guide, it is a good practice to consider the need for, and use of, focused surveys for specific service categories. This could be particularly relevant to collect data from the main producers or distributors of digitized cultural products, while at the same time would not impose burden on respondents not concerned by this type of trade. Alternatively questions on international transactions could be included in existing sector specific enterprise surveys aiming at capturing the whole universe of activities (production, employment, investment) in the creative economy such as research and development, cultural or software industries. Such a solution would necessitate cooperation with other stakeholders (ministry of culture, or innovation, economy etc.). Since the main actors in such trade are often multinational enterprises and that many of the licensing fees will in fact correspond to intra-firm transactions, it may also be useful to consider synergies with compilers of foreign affiliates

²² A first draft of the MSITS2010 compilers guide was submitted to the UNSC in March 2014, and the final unedited white cover version was finalized in December 2014. For more information see <http://unstats.un.org/unsd/tradeserv/msits/CGmsits2010.htm>.

statistics (often within the national statistical office). Such specific surveys could also help in better untangling the relationships and relevant transactions that are illustrated in section 4.2. The MSITS2010 compilers guide provides a number of ideas that could be converted or adapted to the needs of measuring trade in digitized ideas.

- From the perspective of consuming countries, the use of population censuses or household surveys may be useful vehicles as households are increasingly purchasing digitized cultural products through the Internet. Because such data collection tools are developed for other broad purposes (i.e. they are the responsibility of population/social statistics units), it may be difficult to ask for detailed information, in particular in population censuses. But censuses (or some specific module, e.g. on e-commerce) could be used to gather benchmark information, while some general questions on the amount of transactions for digitized products over the Internet could be included in household surveys, with a short list of products (e.g. software, movies and TV series, music, books) to choose from. Then the respondent could indicate if these products were purchased within his country or from abroad. However this may be difficult to assess by respondents as it may not always be obvious to them where they (or other household members) are buying their digitized products from, or if they do have an idea, they may not always recall this information, unless they keep track of such information. For example, in many e-commerce platforms there is an indication of where you are buying the product, at least at the time of settling the transaction, or alternately this information can often be found in the households/individuals bank or credit/debit card records. However, as stated in the MSITS2010 compilers guide, the use of household surveys should be carefully considered given their cost and the likely prevalence or sparsity of activities of households within the broader population. Increased response burden on the households/persons and the burden for the data collection as well as the reliability and relevance of data obtained should also be considered.
- Other data sources may be considered, in particular quantitative or qualitative data or databases sourced from third parties (e.g. sector ministries, research institutes on media or e-commerce, business associations such as for software or audiovisual, promotion agencies). The additional sources should be considered cautiously in the context of establishing official statistics because of questions of coverage, timeliness/frequency or statistical methodology used. Nevertheless these can be considered as a useful starting point, or could eventually be used in a data model in the compilation process. Other innovative solutions could be used such as Big Data which can enable to capture some relevant information while at the same time improve timeliness and cut costs from a data collection perspective. Commercial or transactional data (e.g. payment card transactions which are common practice in the context of e-commerce) could in particular be an interesting source of information, given that they could include information on merchant codes, products purchased, point of sale. However there are many challenges associated to the use of such sources: legal, financial, privacy, methodology and capacity to deal with such large amounts of data.

4.4 Possibilities offered by agency cooperation (national and international)

4.17. As described in section 4.3, there are ways to improve the data situation with respect to trade in digitized ideas, but an efficient way to do so would be find synergies and avoid duplication of efforts. For example, at national level, it would be useful that various data collection agencies can exchange their questionnaires and/or even better discuss beforehand when establishing these in order to collect relevant information. Alternatively these questions could be addressed by joining existing institutional arrangements (e.g. on international trade is services statistics), or envisaging one. This needs however to be accompanied by a policy push to succeed.

4.18. At the international level, such a process could be supported by improving the quality of existing data. Further investigations of trade asymmetries through reconciliation exercises might help to uncover different treatments by trading partner and reveal some systematic patterns which could be taken up by international organizations to develop further concepts. On the other hand, existing statistical classifications could be amended as suggested in 4.1. The fact that EBOPS2010 includes some suggestions in terms of details or complementary groupings relevant to culture statistics is an example of good interagency cooperation (namely UNESCO and the agencies

participating in the UN Task Force on International Trade Statistics). Equally, existing concepts and definitions could be clarified or extended through task forces such as the UN Task Force on International Trade Statistics, the UNECE/CES Task Force on Global Production Arrangements or other groups established to tackle the question of the measurement of digitized products. For example, an initiative on measuring cross-border e-commerce flows was recently initiated by UNCTAD, UPU and WTO. Another example could be to bring together all relevant information in a so-called satellite account, similar to the tourism satellite account, which could also help in further determining what information is needed and in analysing digitised products carrying "ideas".

5 CONCLUSIONS

5.1. The aim of this paper is to present the existing challenges for assessing the extent of international trade in digitized ideas. The first part presents trade in digitized ideas in the context of the existing overarching international statistical guidelines such as the SNA 2008 and BPM6. The issue mainly lies with the intangibility of the products. The paper therefore focuses on the concepts and definitions included in the MSITS2010. This manual recommends a breakdown of services transactions that could already answer some important policy questions. There are however a number of challenges that compilers face to measure trade in services, and this may even be more difficult for the compilation of EBOPS2010 items (and additional breakdowns) that could potentially be covered by the concept of trade in digitized ideas (cost, respondent burden, quality). Two additional major challenges relate to (i) the increasing dematerialization of products, in particular cultural products, which has become possible as a result of technological advances in ICT industries, and (ii) the changes in business models (or new ones) resulting from the globalisation of production. These problems cannot be solved in the context of a single statistical domain in isolation from others, given that there are many stakeholders with interest in developing better data on trade in digitized ideas. However based on the points raised in this paper we suggest a number of steps that could be explored to improve the data situation:

- As a first step to improve statistics relating to trade in digitized ideas it is strongly recommended to implement BPM6 recommendations, including for the services items of interest.
- Only then can the level of detail recommended in MSITS2010 be implemented where relevant (whether items in the main classification or complementary groupings).
- Develop further breakdowns to identify digitized products: this can only be achieved with a clear identification of the elements necessary to respond to policy questions (common elements as well as specific needs). This question goes beyond the universe of trade statistics.
- It is crucial to better understand the (emerging) business models, in order to address compilation issues (ownership of intellectual property rights, who trades with whom, intermediaries-e-commerce platforms, etc.)
- Establish relevant data collection and compilation methods based on existing compilation guidelines (BPM6 Compilation Guide, MSITS2010 Compilers Guide, UNECE Guide on Measuring Global, etc.) as well as find synergies with mechanism established for other related statistical needs (audiovisual, culture, creativity, intellectual property).
- This cannot be done efficiently without the promotion of cooperation at national level for defining priorities and needs, finding synergies for data collection and compilation (i.e. need for coherence and reducing burden) and/or data sharing.
- There should also be cooperation at the international level to ensure the comparability of the data, promote and assist in the development of relevant statistics, and also help compilers to exchange information/experiences, in particular data sharing.
- Develop Satellite Accounts, where trade in digitized ideas could be one of the components to consider.

5.2. This list is by no means intended to be exhaustive, nor suggesting that these are the only possible solutions. Rather, they are proposed to initiate some discussions on how to respond to the challenges to improve our understanding of trade in digitized ideas/products. The paper should be considered as a starting point, and it will be revised based on the further discussions and research on this topic.

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