



## **Loose Ends in the International Standards for National Accounts**

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Paper Prepared for the IARIW 33<sup>rd</sup> General Conference

Rotterdam, the Netherlands, August 24-30, 2014

First Poster Session

Time: Monday, August 25, Late Afternoon

Four loose ends in the International Standards for national accounts

***This paper identifies four issues with the SNA 2008. It describes each one, and suggests how they can be addressed. They are***

- A. The treatment of ancillary activities in a different region from the activity establishment that they support. The current wording can be written in a more rigorous manner.***
- B. Distinguishing between market and non-market units places too much emphasis on the “50% rule” and “economically significant prices”. More attention should be paid to the motives and behaviour of the units, and assessing their character from first principles.***
- C. The treatment of decommissioning costs of large capital assets in the SNA 2008 can be modified slightly to avoid recording assets with negative value, and the writing off of asset value in the same year as the associated capital formation.***
- D. The treatment of the recognition of R&D as the creation of an intangible asset***

**A. Ancillary activities carried out in a different region from the units they serve**

1. SNA 2008 5.39 defines ancillary activity as activity undertaken purely to provide supporting services for the principal or secondary activities with which it is associated. If all the ancillary activity is undertaken in the establishment where its output is used, the ancillary activity is regarded as an integral part of the principal or secondary activities it supports. As a result, the output of an ancillary activity is not explicitly recognised or recorded separately in the SNA. It follows that the use of this output is also not recorded.

2. This very clear description is however qualified in SNA 2008 paragraph 5.41 as follows.

*If an establishment undertaking purely ancillary activities is statistically observable, in that separate accounts for the production it undertakes is readily available, or if it is in a geographically different location from the establishments it serves, it may be desirable and useful to consider it as a separate unit and allocate it to the industrial classification corresponding to its principal activity. However, it is recommended that statisticians do not make extraordinary efforts to create separate establishments for these activities artificially in the absence of suitable basic data being available.*

3. This leaves an uncomfortable difference between the recommended treatment for national accounts (the whole economy) and regional accounts.
  - a. Following 5.39, the national accounts preference is that where ancillary activity is carried in a region different from the principal activity, no separate output of the ancillary unit should be recorded, but the inputs to the ancillary unit should be recorded as inputs to the main output.
  - b. Following 5.41, regional accounts would wish to show the ancillary activity as an output where it is significant and statistically observable, and crucially, to classify the ancillary output to its own principal activity classification.
4. The different approaches arise because of the different analyses liable to be carried out on the resulting statistics. The following example illustrates the dilemma.

5. Consider a national enterprise in the insurance industry, with a significant ancillary activity of computing services carried out in a region which is a centre for such expertise. The national picture showing the insurance industry with all the inputs necessary to the conduct of the business will have the computing services of the ancillary unit as inputs to the insurance industry. But the regional picture requires a separation of the ancillary inputs from the main activity, and the recognition of output for the ancillary activity. The regional statistician may prefer to show the local activity as computing services, and not part of the insurance industry. Showing the ancillary activity in the regional accounts classified to insurance would give a misleading picture of the nature of the activity, and would not tie in well with regional occupational analysis.
6. There are four possible solutions:
  - a. The first is to maintain the standard national accounts approach for the whole economy, keeping the ancillary activity output unrecorded, and generating a mismatch between regional output / value added, and associated regional inputs of goods and services, labour and capital.
  - b. The second is to show the ancillary activity as a secondary output classified to the principal activity. This maintains consistency between national and regional measures classified by activity, but results in an apparent mismatch of activity classification for the regional unit.
  - c. The third is to accept that regional analysis is an important aspect of national accounting, and for significant measures of activity, show the ancillary activity as a secondary output classified to the main activity of the ancillary unit. In order to maintain consistency of national and regional activity measures, this solution is applied to both national and regional accounts. This requires imputation of an output for the ancillary unit, which is wholly used by the main activity as an input.
  - d. The fourth is to accept a difference in value added measures by industrial activity between national and regional accounts. The national approach will maintain the standard treatment of ancillary activity, but regional accounts will impute an output for the ancillary activity and show a value added measure for the region allocated to the ancillary unit activity and not the principal unit activity.
7. The following example illustrates the different possibilities. Consider an insurance company in region A and a computing services ancillary unit in region B. The total company insurance output is 100, with inputs of 60 and value added of 40. Of the inputs of 60, 10 are inputs due to the ancillary activity of computing services. Of the value added of 40, 5 is wages and salaries of the ancillary unit, ignoring a margin and capital consumption for the ancillary unit to keep the figures simple. The following table shows the various measure of activity by region under the four possible approaches.

Table A.1 Output and value added in national and regional accounts, with ancillary activity

			a		b		c		d national		d regional	
			Ins	Com	Ins	Com	Ins	Com	Ins	Com	Ins	Com
<b>Region A</b>	Output		100	0	85	0	100		100	0	100	0
	Inputs	Com	0	0	0	0	15		0	0	15	0
		Other	50	0	50	0	50		50	0	50	0
	Val add		35	0	35	0	35		50	0	35	0
<b>Region B</b>	Output		0	0	15	0		15	0	0		15
	Inputs		10	0	10	0		10	10	0		10
	Val add		5	0	5	0		5	-10	0		5
<b>Nation</b>	Output		100	0	100	0	100	15	100	0	100	15
	Inputs		60	0	60	0	65	10	60	0	65	10
	Val add		40	0	40	0	35	5	40	0	35	5

8. The above table shows the SNA 2008 guidance as option c. Computing service activity is registered in region B and this feeds into the insurance activity of region A. National value added in total is unchanged at 40, but it is now split 35:5 insurance: computing services, as opposed to the “pure” national accounts treatment of showing value added of 40 only for the insurance activity.

#### Recommendation A.1

*The national accounts concept of an ancillary unit in a different location from the principal activity unit, does not allow a single simple solution when regional accounts are compiled alongside national accounts. The national accounts implementation guides should provide the criteria to be used in deciding when to recognise ancillary activity in regions as secondary activity. It is important that national and regional accounts are consistent through agreement between the appropriate statisticians. Where this is not achieved, guidance is needed on why national value added measures by activity may differ from the sum of value added by activity over regions*

9. SNA 5.41 states “If an establishment undertaking purely ancillary activities is statistically observable, in that separate accounts for the production it undertakes is readily available, or if it is in a geographically different location from the establishments it serves, it may be desirable and useful to consider it as a separate unit and allocate it to the industrial classification corresponding to its principal activity.” (Authors emphasis on “or”)

#### Recommendation A.2

The use of “or” instead of “and” in SNA 5.41 opens an unnecessarily wide door in allowing virtually any ancillary activity in a different region from the main activity to be recognised as secondary production. It would be more rigorous to use “and”.

10. There remains an issue that economies measured in this way with significant ancillary activity in regions which will be recognised as secondary output under SNA 2008, will show a different economic structure by industry compared to other economies with no such regional spread. It will appear that economies with significant regional ancillary units will have a larger “support” industry and this may lead to false economic analysis of apparent differences in structure.

#### **B. The distinction between market and non-market**

11. SNA 2008 paragraph 6.95 gives the following guidance in determining whether output should be considered market or non-market. (bolding is as in the SNA text).
12. *“A fundamental distinction is drawn in the SNA between market output and non-market output because of the way the output of each is valued. Market output is the normal situation in a market economy where producers make decisions about what to produce and how much to produce in response to expected levels of demand and expected costs of supply. The determining factor behind production decisions is that economically significant prices prevail.*

***Economically significant prices are prices that have a significant effect on the amounts that producers are willing to supply and on the amounts purchasers wish to buy. These prices normally result when***

- a. The producer has an incentive to adjust supply either with the goal of making a profit in the long run or, at a minimum, covering capital and other costs; and***
- b. Consumers have the freedom to purchase or not purchase and make the choice on the basis of the prices charged.”***

13. Paragraph 6.96 refers the reader to chapter 22 for further discussion on economically significant prices. Paragraph 22.28 states:

*“To be considered as a market producer, a unit must provide all or most of its output at prices that are economically significant.”* It then repeats the text from paragraph 6.95 on what economically significant prices are, as shown in bold font above.

14. Paragraphs 22.29 to 22.35 then continue to give further guidance on how to assess whether prices are economically significant. Paragraph 22.29 says (referring to the conditions set out in paragraph 2.28)

*“These conditions usually mean that prices are economically significant if sales cover the majority of the producer’s costs and consumers are free to choose whether to buy and how much to buy on the basis of the prices charged. Although there is no prescriptive numerical relationship between the value of output (excluding both taxes and subsidies on products) and the production costs, one would*

*normally expect the value of goods and services sold (the sales) to average at least half of the production costs over a sustained multiyear period.”*

15. This guidance is consistent with that set out in ESA 2010 paragraphs 20.19 to 20.28. Paragraph 20.29 states that *“the ability to undertake a market activity will be checked notably through the usual quantitative criterion (the 50% criterion), using the ratio of sales to production costs (as defined in paragraphs 20.30 and 20.31). To be a market producer, the public unit shall cover at least 50% of its costs by its sales over a sustained multiyear period.”*

16. The sales and production costs are consistent with those of SNA 2008, but with the qualification for costs set out in ESA 2010 paragraph 20.31:

*“Production costs are the sum of intermediate consumption, compensation of employees, consumption of fixed capital and other taxes on production. For the purposes of the market/non-market test, production costs are increased by the net interest charge and decreased by the value of any imputed production, notably own-account production. Subsidies on production are not deducted.”*

17. It is the contention of this paper that strict adherence to the 50% test without sufficient consideration of the more general nature of the motivation of producers in setting economically significant prices may lead to counter-intuitive classification of units as market bodies. The following example illustrates this.

A licensing authority has the following incomes and expenditures. Government policy is that the fees charged for the various services provided should approximately cover costs.

Table B.1

	Thousand Euros
Revenue	400
Intermediate consumption of materials, fuels and services	100
Capital formation	50
Capital consumption	100
Compensation of employees	300

18. Under SNA 2008, the revenue is considered to be sales of a service. SNA 2008 paragraph 7.80 says:

*“If the government uses the issue of licences to exercise some proper regulatory function, for example, checking the competence, or qualifications, of the person concerned, checking the efficient and safe functioning of the equipment in question, or carrying out some other form of control that it would otherwise not be obliged to do, the payments made should be treated as purchases of services from government, rather than payments of taxes, unless the payments are clearly out of all proportion to the costs of providing the services.”*

19. This guidance is repeated in ESA 2010 paragraph 4.23 (c)

*Other taxes on production (D.29) include the following*

*(c) taxes paid by enterprises for business and professional licences, if those licences are granted automatically on payment of the amounts due. In this case, it is likely that they are simply a means of raising revenue, even though the government may provide a certificate, or authorisation, in return. However if the government uses the issue of licences to exercise some proper regulatory function, for example, when the government carries out checks on the suitability or safety of business premises, on the reliability or safety of the equipment employed, on the professional competence of the staff employed, or on the quality or standard of the goods and services produced as a condition for granting such a licence, the payments are treated as purchases of services rendered, unless the amounts charged are out of all proportion to the costs of the checks carried out by the government.*

21. In this example, the amounts charged are wholly in line with the costs of checks etc. carried out by the government and so the payments cannot be classed as taxes, but rather as purchases of services.

22. The revenue being classed as sales, the ratio of sales to costs is  $400 / (100+100+300) = 80\%$ . As this is over 50% then under the market test, the authority is operating as a market body, its sales providing a service at economically significant prices. It is therefore classified to the non-financial corporations sector, as a public corporation.

23. However, consideration of the more general characteristics of market bodies challenges this classification. ESA 2010 paragraph 1.37 says

“An activity shall be considered as a market activity when the corresponding goods and services are traded under the following conditions:

- (1) Sellers act to maximise their profits in the long-term, and do so by selling goods and services freely on the market to whoever is prepared to pay the asking price;
- (2) Buyers act to maximise their utility given their limited resources, by buying according to which products best meet their needs at the offered price;
- (3) Effective markets exist where sellers and buyers have access to, and information on, the market. An effective market can operate even if these conditions are not met perfectly.”

The classification of the licencing authority is now considered under these conditions.

24. Condition (1) Is the authority acting to maximise its profits in the long-term, by selling services on the market to whoever is willing to pay the price?

Response: No. The authority is acting under government policy to cover its costs, and not to maximise its profits. It is not taking advantage of its monopoly position as the only issuer of certain licences under domestic legislation.

Condition (2) Are buyers buying the service according to which products best meet their needs at the offered price?

Response: No. The buyers have no choice of provider of the service of issuing licences.

Condition (3) Is there an effective market?

Response: No. There is only one provider of this service in the national economy.

25. So the authority activity is non-market, independent of the funding of the activity and independent of the relationship between costs and revenue. It should therefore be classified to the government sector, and not as a public corporation.

### **Recommendation B.1**

**General principles on the behaviour of market and non-market bodies should be taken into account as well as the “50% rule” in determining sector classifications.**

### **C. Decommissioning costs**

26. Decommissioning costs (also known as termination costs) are costs occurring at the end of an asset's life, required to decommission the asset in a manner aimed at ensuring there are no unwanted legacy costs such as environmental damage or safety concerns.

27. Such decommissioning costs are recorded as gross fixed capital formation. In theory, consumption of fixed capital is calculated, each year, allowing for such anticipated costs. In practice, it is difficult to predict these costs before-hand. So the pragmatic position adopted in SNA 2008 and reflected in ESA 2010 is that the initial capital formation consists only of the asset value and ownership transfer costs recognised at acquisition (not including the decommissioning cost). This initial capital formation is then depreciated over the economic life of the asset until the asset value is negative, equal to the decommissioning costs. At the time of decommissioning, additional capital formation is then recorded to match the value of the negative asset.

28. The recognition of a non-financial asset of negative value does not fit comfortably with the general principles of economics and national accounting. In the SNA 2008 approach, it is necessary to predict the decommissioning costs when the asset is put to use, in order to estimate the appropriate amount of capital consumption in each year of use. More simply, we have to know the final (negative) value of the asset so that the annual fall in value due to capital consumption can be measured. Given that this assumption is necessary in the current SNA 2008 approach, why not adopt the general approach for capital assets of estimating disposal and



transfer costs incurred at the end of life, at the beginning of the life of the asset. Then the value will fall to zero and the decommissioning costs will be scored as current expenses, matching the anticipated decommissioning costs included in the original capital formation recorded at the acquisition of the nuclear station.

### **Numerical example**

29. Consider the acquisition of a nuclear power station with a cost of 200, an expected life of 10 years, and a predicted decommissioning cost of 100. The example shows three different approaches.

30. The first is what may well have happened under SNA 1993, given no explicit guidance. The acquisition cost would be shown as capital formation in the first year, and capital consumption over the life of the asset shown as 20 each year until the residual value was zero. The decommissioning costs would then have been recognised as capital formation which would have been written off in the same year. The main drawback to this is that the annual capital consumption estimate would have been an under recording of the necessary value of services delivered by the nuclear station so that decommissioning costs could be met.

31. The second is the approach recommended by SNA 2008. It has the obvious and significant advantage that the capital consumption recorded each year is a good measure of the value of services that must be delivered so that decommissioning costs can be met. The extra value of output could for example be invested in a decommissioning fund and this would be used to meet the decommissioning expenses at the end of the life of the asset. The drawback is that this is not consistent with the general approach of the SNA to handling transfer costs on disposal of an asset which should be recognised (in as far as this is possible) at the time of acquisition of the asset. A further drawback is that the nuclear station is valued as negative, and the economic sense of this is difficult to accept. It is also uncomfortable that the decommissioning costs are recognised as capital formation at the end of the asset life, only to be written off in the same year. Recognition of capital formation where the asset value is written off immediately, is equivalent to current expenditure.

32. The proposal of this paper is that, given that the current SNA 2008 requires a prediction of the decommissioning costs at the time of acquisition to enable the annual depreciation costs to be estimated, why not follow the general SNA approach of including disposal costs in the value of acquisition. We then have the same estimate for annual capital consumption as the SNA 2008, the same necessary prediction of the decommissioning costs, but with no asset value shown as negative, and no capital formation with asset value written off in the same year.

33. Of course both SNA 2008 and this new proposal have the same issues with revised predictions of decommissioning costs, and how this can be handled in the accounts. But these difficult issues do not favour either the SNA 2008 or the proposal of this paper more than the other.

### **Recommendation C.1**

**Recognise decommissioning costs in the acquisition value of large capital assets, and depreciate the value to zero over the life of the asset.**

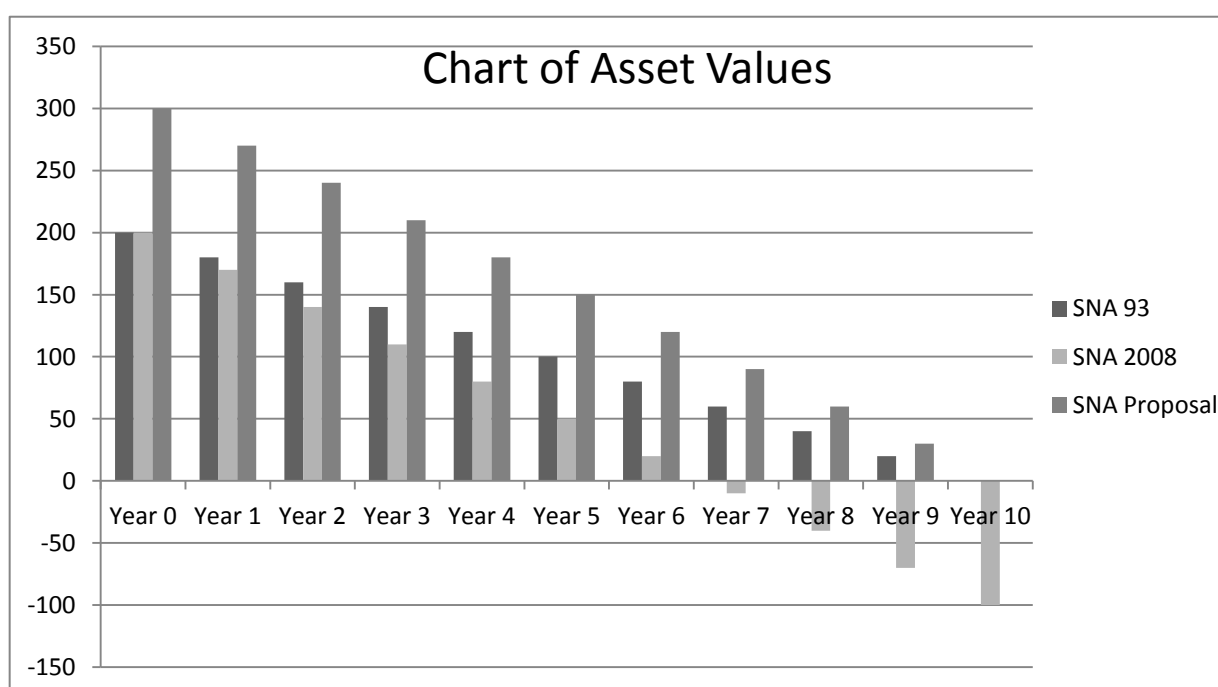
Table C.1 Decommissioning costs for large capital assets

<b>SNA 93 (de facto)</b>	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total
Purchase cost	200											
Decommission costs											100	
Value of asset	200	180	160	140	120	100	80	60	40	20	0	
Capital consumption		20	20	20	20	20	20	20	20	20	120	300

<b>SNA 2008</b>	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total
Purchase cost	200											
Decommission cost											100	
Value of asset	200	170	140	110	80	50	20	-10	-40	-70	-100	
Capital consumption		30	30	30	30	30	30	30	30	30	30	300

<b>Proposal</b>	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total
Purchase cost	200											
Decommission cost	100											
Value of asset	300	270	240	210	180	150	120	90	60	30	0	
Capital consumption		30	30	30	30	30	30	30	30	30	30	300

<b>Asset Values</b>	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
SNA 93	200	180	160	140	120	100	80	60	40	20	0
SNA 2008	200	170	140	110	80	50	20	-10	-40	-70	-100
SNA Proposal	300	270	240	210	180	150	120	90	60	30	0



#### **D. The recognition of R&D as the creation of an intangible asset**

34. This loose end is the content of SNA 2008 paragraphs 6.208 to 6.212. The aim of this note is to identify inconsistencies in the model used and suggest another model which is based on a paper (Lynch, 2006) submitted to the AEG during development of the SNA 2008.
35. The model used in SNA 2008 Chapter 6 Section 10 “The production of originals and copies” is that Research and Development (R&D) results in an original, and this is followed by a second stage - the production of copies of the original. The sale of copies generates revenue. It is worth repeating here the whole of paragraph 6.208.

*The production of books, recordings, films, software, tapes, disks etc. is a two stage process of which the first stage is the production of the original and the second stage the production and use of copies of the original. The output of the first stage is the original itself over which legal or de facto ownership can be established by copyright, patent or secrecy. The value of the original depends on the actual or expected receipts from the sale or use of copies at the second stage, which have to cover the costs of the original as well as costs incurred at the second stage.*

36. Paragraph 6.208 sets out a theoretical foundation for the handling of R&D in the national accounts which generates inconsistencies. There are two main difficulties, as follows:
- a. It is not clear if the “original” refers to the original concept or the first tangible record of the concept through which the idea can be shared. An example would be for a play – the concept is the complete play as created by the author in their mind, and the first “host” (to use terminology suggested by Hill (EURONA 2014)) is the first manuscript to be written by the author – this first record can be called various names in different kinds of R&D – a blueprint, a master, etc. The distinction is critical, as the two possess different economic characteristics;
  - b. The concept is an intangible – with no material existence, and a “public good” to be accessed by a client without detriment to the benefit enjoyed by other clients accessing at the same time. It has the attributes of a capital asset in that it is identifiable and separable, lasts a long time, provides future economic benefits and ownership can be protected through legal acts, secrecy and other safeguards. The concept is not “produced” in the economic sense of the word, and as defined in SNA 2008 paragraph 6.2: “*Production is an activity, carried out under the responsibility, control and management of an institutional unit, that uses inputs of labour, capital, and goods and services to produce outputs of goods and services.*” In the case of intangibles, inputs are not purchased, nor is a production activity carried out with an output at the end. The concept is invented, discovered, or created in the mind. Interestingly, the Oxford English Dictionary gives the origin of invent as “from Latin *invent-* 'contrived, discovered'.
37. The first recording of the concept is a tangible good, which may or may not have the characteristics of a capital asset. This record is produced through a process which requires input of labour, capital and current goods and services. For a play, the author has to write or dictate his concept so that a material record is produced in the tangible form of a script. This record can then be copied and these copies distributed for sale.
38. So we can see that if by the “original” is meant the original idea, this is quite different from an “original” which is the first material record used to provide access to the idea – the “host” that Hill refers to, the “access device” to use the terminology of Lynch. Note that the concept

cannot be copied – but it can be shared through hosts. On the contrary, the master-host and subsequent hosts can be copied and thus enable the sharing of the concept.

39. Paragraph 6.208 does not distinguish between these two different uses of the term “original”. It describes the original (original-as-concept) as the output of a first stage, but then refers to the original (original-as-master-host) being used to make copies. Given they are so different in economic character; using the same term to describe the concept as well as the master-host causes difficulties in subsequent analysis.
40. Paragraph 6.209 describes the creation of the intangible as production, with an equivalent recognition of gross fixed capital formation on acquisition by a user. Under the alternative proposed model, the intangible is discovered and so is a non-produced capital asset, with similar properties to other non-produced assets such as land. It follows that payments for access to the intangible are similar in nature to rent – income transfers for permission to share in the intangible, rather than service payments to pay for use of the intangible.
41. Paragraph 6.209 then says that the value of the original may be estimated on the basis of its production costs with a mark-up. But as the original-as-concept has only one cost – the time of the inventor – this valuation is arbitrary. Paragraph 6.209 agrees that the valuation is arbitrary, stating that the mark up depends on the discounted value of future receipts, “*however uncertain*”, *that determines its* [the original-as-concept’s] *value*.
42. Paragraph 6.210 then switches from talking about the original-as-concept to the original-as-master-host. Paragraph 6.210 in full is:

*The owner of the asset may use it directly to produce copies in subsequent periods. The value of the copies made is also recorded as production separately from the production involved in making the original. Consumption of fixed capital is recorded in respect of use of the asset in the making of the copies in the same way as for any other fixed asset used in production.*

43. This paragraph is a consequence of the lack of clarity in the definition of terms. What is meant by “the asset” of the first sentence? If it is the intangible, then we are faced with the contradiction that concepts cannot be copied; only shared. If it is the original-as-master-host, then this can be copied but this is not the intangible asset itself, it is the master-host being copied to produce other hosts by means of which the concept can be shared.
44. The second sentence states that “*Consumption of fixed capital is recorded in respect of the use of the asset in making copies the same way as for any other fixed asset used in production. . .*” But the concept is not “used” to make copies – the concept is the intangible which is being shared by means of the copies – there is no real consumption of the concept in the making of a copy. There can be capital consumption of the master-host and subsequent hosts if these are classified as tangible capital assets. For example, the performance of a screen-play can be recorded on a master-copy of the film which can be used to generate further copies for sale. In this case, the master-copy satisfies the requirements to be classified as a capital asset and will suffer wear and tear and potential obsolescence “as for any other fixed asset used in production”. But the original concept does not suffer wear and tear, and the only change in value is due to a change in price (obsolescence). This change in price is not due to a decrease in value on the making of a copy of the master-host – indeed the making of a copy can increase the value of the underlying intangible as the concept becomes more popular.

45. Paragraph 6.211 says

*The owner may also licence other producers to make use of the original in production. The latter may produce and sell copies, or use copies in other ways, for example for film or music*

*performances. The copier undertakes production in making the copies. Part of the cost of making the copies is the fee paid by the licensee to the owner or licensor. This fee represents both intermediate consumption of the licensee and output of the owner that is recorded as a service sold to the licensee. The payments made for the licences may be described in various ways such as fees, commissions or royalties, but however they are described they are treated as payments for services rendered by the owner.*

46. This paragraph can be re-written, adopting the model of a discovered intangible as a non-produced asset, to be shared through access devices or hosts. Payments for use of the access devices are split between the cost of acquiring the device, and a rent for permission to access the concept:

*The owner may also licence others to produce hosts which give access to the intangible. The latter may produce or sell hosts such as material media enabling sharing of the intangible, or enable access through other means such as the performance of films and stage shows. The creation of the material hosts and the performance of stage shows are production. Payments to the owner of the intangible asset by the producers of the access devices are not payments for the provision of a service, but rather income transfers for permission to access a non-produced asset – the original concept. The payments made for the licences may be described in various ways such as fees, commissions or royalties, but however they are described, they are treated as part payments for acquisition of the host, and part income transfers for permission to access the non-produced intangible asset of the owner.*

47. SNA 2008 paragraph 6.212 states that:

*In certain circumstances, the licence to make copies may also be treated as an asset, distinct from the original. The conditions under which this applies and the consequences are discussed in greater detail in chapter 17.*

48. This paragraph is particularly difficult to reconcile with the second model. A licence is the granting of permission by the owner to another entity to enable them to benefit from an asset of the owner. An example would be the short-term operational leasing of machinery by a manufacturer from the economic owner, whose business is hiring out such machinery. So the licence is a joint agreement on the conditions of hire and the manner of payment, rather than an intangible asset owned by either party to the agreement.

49. The alternative model of how intangible assets should be recorded can be summarised as follows:

- a. Intangibles are not produced according to the definition of economic production adopted for the SNA, they are discovered;
- b. Intangibles possess all the attributes of a capital asset except material substance, and should be recognised as such in the national accounts, as non-produced assets similar to land;
- c. Their discovery is recognised through new entries in the other changes in the volume of assets account;
- d. Payments for access to the intangible assets are income transfers, analogous to payments of rent for land
- e. Access to the intangible asset is usually achieved through the production of a master - a material device which allows others to share in the concept. Copies can be produced of the master record, and the master and copies can be classified as capital assets if they have the standard characteristics of assets.

- f. The master and subsequent copies of the master can be termed “hosts” when they are material, but a more general term suggested is access devices. The performance of a play (the provision of a service) acts as the means of sharing in the original concept, and “access device” seems a more appropriate term than “host” in these cases.
- g. Payments for copies of the master or for a service providing access to the original concept will consist of two parts – a payment of rent for access to the concept, and a payment for the service provided by the host or access device used to access the concept.

#### Implications of this alternative model for the implementation of SNA

- 50. Payments for access to intangible assets are already accounted for in the national accounts drawn up according to previous standards, but not recognised. The payments for access devices used to share in the concepts are taken to be for the material asset that is the means of accessing the intangible, and the role of the intangible asset is not recognised.
- 51. SNA 2008 (and SNA 1993 for some cases) recognises the role of intangible assets, but considers them as a special case of tangible capital assets. Payments to benefit from them are treated as service payments for the use of them, rather than income transfers for permission to access them.
- 52. Recognising intangibles implies that the value of the access devices should be lowered, as should the value of the capital services taken to be supplied by the access devices.
- 53. So recognising intangibles as assets in their own right results in a drop in production and the corresponding value of capital formation, and a drop in the level of GDP
- 54. It is difficult to identify the value of the intangible asset separately from the value of the material assets used to access the concept. However, given the many examples in the computing and electronic communications world where an increasing share of the payments for the hosts is characterised as rent for sharing in the intangible, rather than payment for the cost of the access device, it is important that the payments are separated into rent payments and acquisition of capital formation payments, with the underlying asset values for the intangible asset and the hosts shown separately

#### An example

- 55. Research is undertaken in the ship building industry to invent a new design of a cargo ship hull. Development expenditure is undertaken and the idea is proven to be viable. At this stage, the research is recognised as the discovery of an intangible asset with predictable economic benefit, and new ships are produced according to the new design. These ships cost about the same as the old design ships, but command a premium due to the revolutionary new shape of the hull which allows faster travel and greater profits.
- 56. Suppose the price of a ship of the new design is 1.2 million, as opposed to the old-design ship price of 1 million. The new design is protected through patents etc. which will last for 20 years. Given the size of the current and predicted future market for cargo ships, estimates can be made for the value of the intangible (the design) as opposed to the host (the ship).
- 57. So whereas only the value of the host would be recognised as capital if intangibles are not recorded in the accounts, the recognition of the role of intangibles would result in the payment for the new design ship to be 1 million for the host and an upfront rent payment of 0.2 million for accessing the idea of the new design. Note that only the host becomes the property of the

buyer, the new design concept remains the property of the ship designer and so the payment of 0.2 million reflects the sharing of this idea (an income transfer), not the selling of the idea (a payment for acquisition of a product).

58. So the change in the accounts on recognising the intangible component of the new-design cargo ships would be as follows:
- a. The measure of production would be lowered, as the sales value would be reduced from 1.2 million down to 1 million;
  - b. There would be an increase in income transfers between the patent holder of the new design, and the customer. For a domestic transaction, these would net out over the whole economy, as does rent for land.
  - c. There would be a decrease in the value of capital assets held by the purchaser, matched by an increase in the value of intangible assets held by the patent holder.
59. The above analysis implies that the SNA recognising the research element of R&D as creating a (non-produced) intangible asset would result in a lowering of the levels of production and capital formation, with a corresponding reduction in the level of GDP. This is the opposite to the effect of the SNA 2008 on measures of the economy drawn up under previous standards.
60. It should be noted in passing that early standards did in fact treat intangibles as non-produced and payments characterised as royalties were in fact treated as income transfers.