

## **METHODOLOGICAL CHALLENGES OF SNA 2008 AND ESA 2010**

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In 2009, the United Nations Statistical Commission endorsed a revised set of international standards for the compilation of national accounts: the System of National Accounts (SNA) 2008. This was followed by a revision of the European equivalent, the European System of Accounts (ESA) 2010. Although more detailed and more precise in its definitions of transactions and positions, the latter standards are fully compatible with the 2008 SNA. Countries are now starting to implement the new standards. The paper will discuss the main conceptual changes of the standards, relating to, for example, the recording and measurement of R&D, military weapon systems, pension entitlements, and holding companies, head offices and Special Purpose entities (SPEs). In addition, some measurement issues will be addressed, related to, for example, the calculation of Financial Intermediation Services indirectly Measured (FISIM), the challenges for the compilation of national accounts posed by globalising economies, and the measurement of non-financial assets.

Keywords: National accounts, R&D, globalisation, non-financial assets

## 1. Introduction<sup>1</sup>

1. In 2009, the United Nations Statistical Commission endorsed a revised set of international standards for the compilation of national accounts: the 2008 System of National Accounts (SNA), replacing the 1993 SNA. This was followed by a revision of the European equivalent of the SNA, the European System of Accounts (ESA) 2010. Although more detailed and more precise in its definitions of transactions and positions, the latter standards are (almost) fully compatible with the 2008 SNA<sup>2</sup>.

2. Countries are now starting to implement the new standards. The actual implementation will vary depending on country circumstances. Currently only a few countries (Australia, Canada and the United States) already publish full datasets based on the SNA 2008. Others plan to do this at various stages, including towards the end of 2013 (Israel and Mexico). According to European legislation, EU countries will publish data on the new basis by autumn 2014. Turkey has indicated that it will publish in 2015.

3. In section 2 of this paper, the main conceptual changes of the standards are discussed. These changes mainly relate to the recording and measurement of R&D, military weapon systems, pension entitlements, and head offices, holding companies and Special Purpose entities (SPEs). This is followed by section 3, in which some other measurement issues are addressed, related to, for example, the calculation of Financial Intermediation Services Indirectly Measured (FISIM). Also the challenges for the compilation of national accounts posed by globalising economies are shortly addressed. The section concludes with some remarks on the continuing efforts to improve the measurement of wealth, especially related to estimating the value of non-financial assets. Finally, section 4 contains some concluding remarks.

## 2. Conceptual changes introduced by SNA 2008

4. The 2008 SNA introduced several conceptual changes to the previous standards, the 1993 SNA. The most important ones, having an impact on headline indicators such as GDP, concern the “capitalisation” of expenditures on R&D and military weapons systems. Other major conceptual changes relate to the recording of pensions and head offices, holding companies and Special Purpose Entities (SPEs). Also the treatment of merchanting and goods for processing, now consistently being based on the change in (economic) ownership of the relevant goods (and services), may have a substantial impact on the national accounts data. A complete overview of all conceptual changes can be found in Annex 3 of the 2008 SNA. This section mainly deals with R&D, military weapons systems, pensions and the classification of head offices, holding companies and SPEs. Merchanting and goods for processing are shortly covered in the following section, while discussing issues related to globalisation.

### *Enlarging the capital base: Research and Development (R&D) and military weapons systems*

5. As stated in para. A3.46 of the SNA 2008: “The output of research and development should be capitalized as “intellectual property products” except in cases where it is clear that the activity does not entail any economic benefit to its producer (and hence owner) in which case it is treated as intermediate consumption. With the inclusion of research and development in the asset boundary, the 1993 SNA asset category of patented entities as a form of non-produced assets disappears and is replaced by research and development under fixed assets”. As a consequence of this change, GDP will increase. Preliminary

<sup>1</sup> This report heavily draws upon papers prepared by the OECD and reports prepared in the context of various (combined) Task Forces of the ECB, Eurostat, the OECD and the UNECE. References have not been included, to avoid an overburdening of this document with adequate references and foot-notes.

<sup>2</sup> The goal has always been to have fully compatible standards. However, on some minor issues, for example the recording of the use of central bank output, differences may exist.

estimates for OECD countries show that this increase will range from 0.5% to 3.5% of GDP, with an average of around 1.7% of GDP.

6. The information base for estimating investment expenditures on R&D generally can be considered rather satisfactory, because of substantial experience in collecting the relevant data according to the Frascati Manual. A large majority of countries have not needed to use any new surveys, although a few countries have captured the new requirements by revising existing surveys. The main data sources used are specific research and development surveys: e.g. GERD (gross domestic expenditure by government), BERD (gross domestic expenditure by business), and specific surveys for private non-profit bodies. Eurostat has developed a template for transforming data according to the Frascati Manual to data needed for the compilation of national accounts according to the 2008 SNA. Doing so, nearly all countries take account, or use approaches to minimise, any double counting, especially with respect to expenditures in developing software.

7. Developing an internationally comparable methodology for measuring capital stock and depreciation for R&D is slightly more problematic. All countries will, or plan to, use the Perpetual Inventory Method (PIM) to calculate capital stock and depreciation. Furthermore, the majority of countries will use a geometric depreciation function. Mortality functions used include: delayed linear, log normal, Weibull and a double declining rate. However, service lives clearly differ across countries; see Annex 1 for a summary. These can differ based on the type and industry of R&D. For example, 13 years (basic research), 11 years (applied research), 9 years (experimental development), and for specific industries: 7 years (computer programming), 9 years (electronics), and estimates of 15, 20 and 60 years (chemical and pharmaceutical products). Also data on patent values and amortization were used. Where service life information was not available, assumptions were based on other countries, or the recommendation by the recent Eurostat Task Force on R&D which notes that "... where such information is not available, a single average service life of 10 years should be retained". Some countries are still continuing research to derive estimates for service lives.

8. Another issue relates to the measurement of volume and price split. As there hardly is any adequate information on market prices of R&D-expenditures, a substantial part of which is produced on own account, most countries rely on some kind of input method to measure volume and price changes.

9. A final point regarding the measurement of R&D, and Intellectual Property Products (IPPs) more generally, relates to the actual use and the economic ownership of these assets, especially within multinational enterprises. Whereas the production of the relevant assets can be adequately allocated to national economies, the allocation of the actual use in production of goods and services may pose significant problems. Because of the intangible nature of IPPs, the diffusion of the entangled knowledge is rather easy. Quite often, however, one will not observe monetary transactions related to this diffusion of knowledge. As a consequence, it will be an implicit part of distributed income and/or reinvested earnings on foreign direct investment.

10. While the 1993 SNA treated durable goods purchased by defence as intermediate consumption, unless they are actually used in much the same way as in any other type of production. As a consequence, military weapons systems were treated as intermediate consumption, and not as fixed capital formation. The 2008 SNA, para. A3.55 states the following: "The military weapons systems comprising vehicles and other equipment such as warships, submarines, military aircraft, tanks, missile carriers and launchers, etc. are used continuously in the production of defence services, even if their peacetime use is simply to provide deterrence. The 2008 SNA, therefore, recommends that military weapons systems should be classified as fixed assets and that the classification of military weapons systems as fixed assets should be based on the same criteria as for other fixed assets; that is, produced assets that are themselves used repeatedly, or continuously, in processes of production for more than one year".

11. The difficulties and impact of capitalising military weapons systems will obviously depend on the size of the individual countries military. Approximately half of the countries responding to an OECD

survey indicated that they would have no difficulties, whereas the other half indicated that it would be difficult to estimate. Furthermore, while some countries were unsure of the magnitude of the impact, the majority of countries indicated that the impact would be relatively small with an average impact estimate of 0.5%. More generally, it seems quite obvious that measurement issues, including the volume/price split, are less serious in the case of military weapons systems than in the case of R&D. An issue may be the sometimes confidential nature of the relevant expenditures.

### ***Accounting for pensions***

12. In relation to the treatment of pension schemes, the 2008 SNA introduces two major changes. First of all, employment-related pension entitlements, that are expected or likely to be enforceable, are to be recognized as liabilities towards households, irrespectively of whether the necessary assets exist in segregated schemes or not (SNA 2008, para A3.127). However, the 2008 SNA allows for some flexibility in the case of pensions provided by government via social security. The latter flexibility may seriously hamper international comparability, reason why an additional table has been introduced which provides a full overview of all pension schemes whether or not they are recognized in the core system of national accounts (see SNA 2008, table 17.10).

13. The other important change related to the recording of pensions concerns the determination of pension contributions in the case of defined benefit pension schemes. Whereas according to the 1993 SNA, actually paid contributions should be recorded, the 2008 SNA states that the level of the contributions "... should be determined by assessing the increase in the net present value of the (actuarially calculated, addition PvdV) pension entitlement the employee has earned in the period in question ...". (SNA 2008, para. A3.130). Any shortfall (excess) may add to (diminish) the claim of the pension fund to the employer (or other sponsors of the scheme). Because of the impact on compensation of employees, this change may actually have consequences for GDP, in the cases that it relates to employees of non-market producers for which output is estimated at the sum of costs.

14. The estimation of entitlements related to defined benefit schemes may cause some measurement issues, especially for schemes provided by government via social security, e.g. what discount rate to apply, which type of obligations (accrued benefit obligations, ABO, versus projected benefit obligations, PBO) to use, etc. Substantial work on these and related issues has been done in the European Union context; see [http://epp.eurostat.ec.europa.eu/cache/ITY\\_OFFPUB/KS-RA-11-027/EN/KS-RA-11-027-EN.PDF](http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-RA-11-027/EN/KS-RA-11-027-EN.PDF). Furthermore, the Australian Bureau for Statistics (ABS) and the OECD jointly organized a workshop (Canberra, 22-24 April 2013).

15. Regarding the estimation of pension entitlements, the latter workshop agreed that best practice was to use estimates from actuaries/supervisory authorities wherever possible, rather than statistical agencies developing their own estimates. Doing so, national accountant should disseminate the relevant metadata on national pension entitlement estimates. As in particular for government unfunded pension schemes (including social security) estimates from actuaries are often not available or suffer from inadequate assumptions, collaboration between all national institutions (e.g. social security, ministry of labour) should lead to proper modelling reflecting the fair value of pension entitlements. Where statistical agencies undertake such estimations themselves, the workshop strongly recommended periodic reviews of assumptions underlying the estimates. These reviews are necessary to keep abreast of changes in the economy. However, the assumptions (such as discount rates, wage rate movements etc.) should be based on medium to long term averages and it is not recommended that they be reviewed annually. Regarding the issue of either PBO or ABO, the workshop noted that the method used in countries for the measurement of defined benefit schemes (private or public schemes) depends on circumstances. Therefore, no specific recommendation is made, but methodological notes need to be provided to explain the choice of the method used.

16. In addition to the above, the workshop proposed to develop an additional supplementary table on household retirement resources, to enable countries to report all pension schemes including schemes which

are not part of social insurance. There was also discussion on whether or not to introduce property income imputations for under-funded and over-funded schemes, that is to record interest accruing on the loan for the unfunded part between the employer and the pension fund. Finally, it was suggested to put a high priority on the issue of recording capital gains as income which is already included on the longer term SNA research agenda. This includes the short term clarification of the exact meaning of 2008 SNA paragraph 17.18.

17. It is to be expected that, in view of ageing societies in many countries, the topic of financial sustainability of pension arrangements will become more and more prominent on the political and policy agenda. The importance of having adequate and reliable data at a macro-level (and micro-level) cannot be underestimated. Also user demands for more and better internationally comparable data will most probably increase in the near future. In this respect, the completion of the supplementary table may indeed show to be an important step forward.

### ***Head offices, holding companies and Special Purpose Entities (SPEs)***

18. The 2008 SNA also introduced a substantial change in the classification of holding companies. When recognized as separate institutional units, these companies are to be allocated to the financial corporations' sector, instead of being allocated to the sector of the predominant activities of the related parents/subsidiaries. Furthermore, the 2008 SNA explicitly recognizes and provides further guidance on the recording of Special Purpose Entities (SPEs); see para. 4.55-58).

19. The above change in the recording of holding companies may have a significant impact on debt levels of the various institutional sectors, at a time, in the aftermath of the financial crisis, that debt related indicators have become much more prominent. Clarifications are needed for the distinction between holding companies and head offices, the latter still being classified according to the predominant activities of their subsidiaries. In the 2012 meeting of the Advisory Expert Group (AEG) on National Accounts, it was already decided to apply a restricted definition of holding companies, in the sense that holding companies would be limited to those companies that didn't engage in management activities. Another issue related to when a holding company constituted a separate institutional unit or not. Finally, more guidance than provided by the 2008 SNA was sought to define and classify various types of SPEs.

20. For the above reasons, the ECB/Eurostat/OECD Task Force on Head Offices, Holding Companies and SPEs was created. The Task Force met on 26-28 February 2013, in Frankfurt. At the time of writing this paper, a final report had been put forward to the 2013 meeting of the AEG (28-31 May 2013, Luxembourg). The report contains several practical recommendations for distinguishing between head offices and holding companies. It also provides criteria for defining an institutional unit in the case of these entities. A major dispute, however, related to the conditions under which a passive holding could be consolidated or combined with its subsidiaries. In the opinion of some participants, the distinction of separate passive holdings would seriously inflate debt figures, thus seriously hampering an economic meaningful analysis.

21. The Task Force also made several recommendation on the definition and classification of SPEs. First of all, it was proposed to restrict the term "SPEs" to those units that are ultimately controlled by a non-resident parent, directly or indirectly, that have no or few employees, and whose core business consists of group financing or holding activities, i.e. channelling of funds from non-residents to other non-residents. As in some countries balance sheets and related income flows of these units can be very substantial, it was also recommended, for analytical purposes, to present national accounts results including and excluding SPEs. In addition, recommendations were made on the typology, classification and recording of common types of SPE-type of units, such as shell companies, units for holding and managing assets of individuals and families, securitisation companies, conduits, royalty and licensing companies, captive leasing companies, factoring and invoicing companies, etc.

### 3. Other major issues related to the compilation of national accounts

22. Recently, quite some attention has been paid to two issues that raised serious measurement challenges in the compilation of national accounts, both of them raising conceptual issues as well. The first one relates to the calculation of Financial Intermediation Services Indirectly Measured (FISIM), the second to the challenges for the compilation of national accounts posed by globalising economies. Both will be shortly addressed in this section. In addition, a couple of points will be made on the measurement of non-financial assets.

#### *Financial Intermediation Services Indirectly Measured*

23. In addition to explicitly charged fees, financial intermediaries receive compensation for the provision of services by charging higher interest rates to borrowers and lower interest rates to depositors. The relevant services for loans are estimated as the difference between the borrowing rate and a certain reference rate, and those for deposits as the difference between the reference rate and the relevant deposit rates. However, in the aftermath of the financial crisis, showing quickly increasing margins on both loans and deposits, questions were posed in relation to the inclusion/exclusion of maturity risk and credit default risk. These issues have been extensively discussed in two closely related FISIM Task Forces, one at the European level and one at the worldwide level.

24. The issue of maturity risk in the end came down to whether or not to apply multiple reference rates in calculating FISIM, e.g., one for short term loans and deposits, and another one for the long term market, thereby effectively excluding that part of the interest margins that is related to liquidity transformation. Several test exercises have been performed, and the emerging consensus is that a term premium should be reflected in FISIM. This means that the SNA should continue to calculate FISIM on the basis of a single reference rate. Doing so, the basis for the single reference rate in the SNA most probably will be a weighted average of a mix of maturities. Eurostat, in their simulation exercise, to which 22 countries responded, provided results based on a unique single reference rate reflecting short-term interbank lending rates<sup>1</sup> (such as LIBOR, EURIBOR) and a single reference rate based on a weighted average of underlying short-term and longer term reference rates. As the results showed no over-riding material difference in FISIM results, FISIM volatility, or occurrences of negative FISIM, it was decided to retain the current method for defining the single reference rate based on interbank short-term lending rates.

25. The Task Forces also concluded that, whilst there may be conceptual merit in excluding credit default risk from FISIM, in practice it does not seem feasible, at least in a way that can ensure reasonable comparability across countries. Therefore, it was recommended that credit default risk should remain part of FISIM, in order to facilitate international comparability. Some countries however have demonstrated that it is feasible, in their cases, to produce meaningful results and these countries have developed plans to estimate FISIM on this basis. Given the Task Force's majority recognition that the conceptual rationale for this is sound and compelling, countries should not be discouraged from creating such estimates for national audiences. But in the interest of international comparability the recommendation is that countries should continue to produce FISIM estimates that do not exclude credit default risk from FISIM.

#### *Globalisation*

26. Production becoming more and more internationally integrated poses serious challenges to adequately account for domestic activities. One of these challenges relates to the allocation of value added and profits to national economies. In business accounting, one can clearly observe that allocation of value added is primarily governed by tax incentives, distributing profits across countries in such a way that total tax payments are minimised. This may be done by transfer pricing or by channeling profits through certain countries via the set-up of SPEs. Also intangible assets becoming more and more important makes it easier to allocate costs and profits in the most efficient way from a tax point of view. As a consequence, GDP, the ownership and use of fixed assets, and related productivity analysis become increasingly flawed at the

national level. Some have argued that GDP cannot be adequately measured anymore, and that one should perhaps move to Gross National Income (GNI) as the primary indicator for a country's performance.

27. Another issue concerns the diminishing validity of analysis based on gross trade flows between countries. Because of the growing international fragmentation of production processes, it may be better to look at the value added content of trade flows, by subtracting the import content from the exports and, by doing so, removing the double counting implicitly included in gross trade flows. As a consequence, a completely different picture may emerge from bilateral trade flows, especially when it relates to the flows between two countries.

28. When it comes to recording of trade flows, the 2008 SNA contains two important changes, which may actually have a quite significant impact on the resulting national accounts aggregates for imports and exports of goods and services. First of all, it has been decided to always record goods for processing on the basis of a change in (economic) ownership. Only in the case of a change in ownership, the exports of goods to be processed as well as the (higher valued) imports of the processed goods are recorded on a gross basis. If no change in ownership occurs, the difference of the two flows is to be recorded as imports of processing services.

29. The other change in recording relates to merchanting. The latter activity concerns wholesale trade in which a domestic trader in country A purchases goods in country B to re-sell them in country C. The 1993 SNA did not provide specific guidance for the recording of merchanting, but most probably the imports of goods into country C, e.g. at the value of 100, were recorded as imports from country B, e.g. at the value of 80, supplemented by imports of wholesale services from country A for the difference between the selling and purchasing value (20). This resulted in an asymmetric recording at the worldwide level for goods and services. According to the 2008 SNA, as in the case of goods for processing, imports and exports of goods related to merchanting have to be recorded on the basis of a change in (economic) ownership. As a consequence, the relevant goods are to be recorded as exports from country B to country A, at the value of 80, and subsequently as exports from country A to country C, at the value of 100. In addition, it has been agreed to record the imports from country B not as positive imports, but as negative exports from country A to country B.

30. The above changes to the recording of imports and exports based on change in (economic) ownership clearly is better aligned to business accounting. On the other hand, however, quite some changes need to be made to the traditional trade statistics that are usually based on flows of goods crossing the borders. Furthermore, the appropriate recording of goods for processing and related merchanting, especially in these times of growing international fragmentation of production processes, requires dedicated surveying of the relevant internationally operating enterprises. More guidance is provided in the Guide on the Impact of Globalisation on National Accounts, the results of the work of the UNECE/OECD/Eurostat Expert Group on the Impact of Globalisation on National Accounts (GGNA); see following link: [http://www.unece.org/fileadmin/DAM/stats/publications/Guide\\_on\\_Impact\\_of\\_globalization\\_on\\_national\\_accounts\\_web.pdf](http://www.unece.org/fileadmin/DAM/stats/publications/Guide_on_Impact_of_globalization_on_national_accounts_web.pdf). Additional in-depth work on the recording and measurement of global production arrangements is being pursued by the UNECE/OECD/Eurostat Task Force on Global Production. Preliminary results of this Task Force will become available in the end of 2013. The final outcome, a Guide on the recording and measurement of global production arrangements, is planned in the first half of 2014.

31. One of the results of the work of the Task Force on Global Production is a recommendation to change the recording of so-called "factoryless goods producers" (FGPs). FGPs are producers that outsource the manufacturing transformation activities but own the underlying intellectual property products (IPPs) and control the outcome of the production process. A strict interpretation of the ISIC.Rev4 guidelines on the classification into activities means that an FGP should be classified as a distributor, if the FGP does not provide (own) the material inputs subject to processing even though the FGP provides the technical specifications of the output and owns and supplies other critical inputs. The opinion of the Task Force is that ownership of material inputs should not be the sole determining factor in classifying an FGP.

An FGP that controls the outcome of the production process and provides (owns) either the IPP inputs or other inputs (goods and services) to a contract processor should be classified to manufacturing as a separate and new subset of existing classifications that highlights the factoryless characteristic of the firm.

#### ***Land and non-financial assets***

32. As a consequence of the financial crisis, user demands for wealth data increased considerably. First and foremost, this relates to data that appropriately capture “bubbles”, e.g. in the real estate market. But there is also a major increase in demand for data on the interconnectedness between sectors and the rest of the world, by requests for more detailed data on financial assets and liabilities by counterparty sector. Often, data on financial assets and liabilities are well developed; also substantial progress has been made in developing data on the interconnectedness, mainly in the framework of the so-called G-20 Data Gaps Initiative. See e.g. the following link: [http://www.principalglobalindicators.org/about\\_pgi.aspx](http://www.principalglobalindicators.org/about_pgi.aspx).

33. On the other hand however, data on non-financial assets are more sparsely available, especially where it concerns data on non-produced assets such as land and mineral resources. In view of this lack of information, a Eurostat/OECD Task Force on Land and non-financial assets has been established in 2012, with the main objective of improving the measurement of non-produced assets. Doing so, the Task Force will first focus on the measurement of land. According to planning, more detailed guidance in the form of a manual is to be finalised by the end of 2014.

34. In relation to the measurement of land, it can be noted that there are two basic estimation methods. One can measure land by directly valuing different types of land. Another frequently applied method for land underlying structures is to estimate stocks of land as a residual. In this case, first the total stock of land and structures is estimated via a direct approach, and subsequently an estimate of the stock of structures obtained through the so-called “perpetual inventory model” (PIM) is subtracted. The latter approach may however lead to implausible results for land. On the other hand, using a direct approach for the measurement of land and subsequently adding the PIM-estimates for structures, one may end up with inconsistencies with the directly estimated value of land and structures.

#### **4. Main conclusions**

35. This paper tried to address the main issues related to the implementation of the 2008 SNA, the recently adopted new standards for the compilation of national accounts. Some of the issues are directly related to changes made to revisions of the standards, such as the capitalization of expenditures on R&D and military weapons systems. Other issues, although discussed in the context of the 2008 SNA and also having resulted in minor or major revisions of the SNA, are more related to the actual measurement of certain phenomena, such as dealing with the complexities as a consequence of the increasing internationalization and globalization of the world economy.

36. The paper however did not address the most important issue, when it comes to the implementation of the (2008) SNA in developing countries: the exhaustiveness of the estimates. Economic activities should be included in national accounts and aggregated measures such as GDP, even if they are hidden from the tax authorities, forbidden by law (e.g. drugs and prostitution), or very informally organized; also own account production of goods, e.g. in the case of subsistence farming, needs to be accounted for. In developed countries, these activities usually are well covered. In developing countries however, where these kinds of activities have a much higher share in the economy, arriving at exhaustive estimates raises numerous measurement problems, in addition to the lack of tradition in, and the more limited availability of resources for, compiling national accounts.

### Annex 1

**Summary table on methodology for estimating capital stock and depreciation of R&D, based on country responses to an OECD survey in 2012**

Country	Method	Service life	Depreciation function	Mortality function
Austria	PIM	13 years (basic research) 11 years (applied research) 9 years (experimental development)	Geometric	Delayed linear
Belgium	PIM	10 years*	Geometric	Double-declining
Canada	PIM	6.2 years	Geometric	
Czech Republic	PIM	8 years	Linear	Log-normal
Denmark	PIM		Geometric	
Finland	PIM	Detailed information available by industry: range of 7 – 10 years.	Geometric	
Germany	PIM	Survey in progress, alternative is 10 years*	Linear	
Ireland	PIM	Work in progress		
Israel	PIM	Detailed information by industry available from a pilot study**	Linear	Truncated normal
Italy	PIM	10 years*	Geometric	Double-declining
The Netherlands	PIM	12 years (exc. Chemical and electronics) 15 years (chemical) 9 years (electronics)	Winfrey	Weibull
New Zealand	PIM			
Norway	PIM	10 years*		
Portugal	PIM	10 years*	Linear	Delayed linear
Slovak Republic	PIM	Various		
Slovenia	PIM	10 years*	Geometric	Double-declining
Sweden	PIM	10 years*, additional work in progress	Geometric	
United Kingdom	PIM	4.6 years, additional work in progress	Geometric	Weibull

\* Recommendation from a Eurostat task force: "In case, where such information is not available, a single average Service Life of 10 years should be retained"

\*\* <http://www.unece.org/fileadmin/DAM/stats/documents/ece/ces/ge.20/2008/sp.3.e.pdf>