Issue no.: 9, Research and Development.

AEG recommendations:

AEG recommendations:
(1) The 1993 SNA should be changed to recognise the outputs of R&D as assets, and the acquisition, disposal and depreciation of R&D fixed assets should be treated in the same way as other fixed assets.
(2) All R&D output should be treated as an asset, irrespective of its nature or whether it is made freely available. In the latter case, the asset should be recorded on the balance sheet of the owner of the original and be regarded as providing a free service until it becomes obsolete.
A number of AEG members expressed concern about some aspects of recommendation (2). In particular, the proposed inclusion as assets of R&D made freely available would potentially change the current SNA definition of an asset. It was agreed that theoretically these should not be treated as assets. However, because the amount of R&D made freely available is likely to be small and difficult to identify, in practice they might not be excluded.
(3) The definition of an asset should be reviewed to ensure it covers the assets of non-market producers adequately.
(4) The definition of R&D given in the Frascati Manual (FM) should be adopted in the SNA.
(5) The Frascati system provides the best means of deriving estimates of R&D statistics, principally gross fixed capital formation (GFCF). However, there are shortcomings in the Frascati data and the FM should be amended to better support the needs of the SNA. (NESTI has indicated a willingness to do this.)

(6) Most R&D output is produced over several periods and the SNA recommendations for the production of other assets should apply. Most R&D production is on own account, which implies recording it as GFCF as it occurs under the current recommendations.
(7) Detailed input price indexes, corresponding to the constituents of the estimates of R&D GFCF, should be used to derive constant price estimates of R&D output and GFCF.
(8) Patented entities should no longer be recognised as assets in the system.

View of Statistics Denmark: (A (agreement), FC (needs further consideration) NA (non-agreement))

(1) Non-agreement.
(2) Non-agreement.
(3) Agreement.
(4) Non-agreement.
(5) Non-agreement.
(6) Non-agreement.
(7) Non-agreement.
(8) Non-agreement.

Comments from Statistics Denmark:

Regarding recommendation (1):

I. In conflict with the criteria outlined by the UN Statistical Commission for changing the SNA

The idea to convert a large group of current expenditure in the accounts into capital formation is a fundamental change to the accounts and violates criteria (i.) outlined by UN Statistical Commission for changing the SNA: "*There should not be fundamental or comprehensive changes*

to the 1993 SNA that would impede the process of its implementation, which in many countries has not yet been achieved". The proposed new treatment would change major accounting figures such as nominal GDP with several percentage points. And the reclassification of R&D expenditure is not straight forward; it would require significant additional compilation and new collection of data.

Further, many countries have not implemented the current SNA93 and the methods for estimating capital stock and consumption of fixed capital are not fully developed into a sufficiently advanced level. It is our interpretation that including R&D in the asset boundary would be in conflict with criteria (vii.): "*Any recommendation for change should address the implementation aspects in countries".*

II. Theoretical and practical and practical arguments against capitalising R&D.

Furthermore Statistics Denmark believes this recommendation is wrong. The rejection of capitalising R&D is based on both methodological and practical arguments.

The supporters for capitalising research and development build their argument on the fact that having access to results based on research and development will provide benefits to the owner over a period of several years. According to some supporters R&D should be acknowledged as an economic asset, even when R&D is made freely available to the public and no economic control is exercised over its results. Further, it is argued that because research and development is a major source for growth and welfare, it must be included in the accounts to be in line with the demands of the users of the national accounts, and R&D has considerable public interest. Measurement of research and development is especially important with respect to productivity analysis.

If we accept this line of argument, it seems inconsistent to stop with R&D. Other things may qualify as well – for instance expenditure on human capital – that is not included in the plans for updating the SNA. Research and development is only a part of knowledge which might qualify as an asset, the other part is human capital. We believe it is strange to split up knowledge and then choose to capitalise only research and development. A long list of other hard-to-measure-intangibles may also qualify as an economic asset. Other examples are: the business' entertainment expenses, customer list, brand names, trademarks and/or internally generated goodwill. It can seem illogical to draw the line at research and development since some of the mentioned costs are quite considerable. Private enterprise costs in advertising are of significant size and it is not unreasonably to assume that some enterprises actually consider at least part of the advertising costs as an investment.

In practise capitalisation of R&D raises questions on how to estimate services-lives and survival-patterns. They will have to be based on assumptions of a rather heroic nature, if GFCF includes results from R&D for which the future is unpredictable. This can be acceptable in satellite accounts, but should not be allowed to affect main aggregates of the core system.

Including R&D made freely available to the public would raise the additional problem of allocating the capital stock and consumption of fixed capital to economic units in a sensible way. Any solution would here be of an arbitrary nature.

While we can agree on the need for guidelines for the measurement of R&D, this does not imply that R&D should be capitalised in the core system of SNA. Some countries produce satellite accounts for R&D, and this should satisfy the needs by the users of the national accounts and compilers of productivity analysis. The use of a satellite accounts for research and development will avoid introducing doubtfully compiled figures for research and development in the main account.

III. The Net Domestic Product becomes more important

If the size of capital formation increases in ratio to current expenditure, then the Net Domestic Product (NDP) becomes even more relevant. This would require a change of mentality by the users (and the compilers). Compilers should focus more on net-items in their presentation of national account figures and NDP should be the key indicator instead of GNP. The compilers and the users have a long tradition of emphasizing gross measures because the measurement of consumption of fixed capital (and capital stocks) is based on assumptions and computerized models instead of empirical observations. Empirical observations are generally considered most in agreement with reality and a preferred source in the national accounts. The computerized estimation of consumption of fixed capital is a problem and an argument for not increasing the boundary of what is considered capital formation. The problem with estimation of depreciation is also underlined by the fact that, in Europe, only 7 countries (and only 2 broken down by industry) of out 15 possible countries report capital stocks and consumption of fixed capital to Eurostat.

Regarding recommendation (2):
Assuming a majority accept recommendation (1) it is Statistics Denmark's view that R&D made freely available is not an asset and should in principle never be treated as an asset. Statistics Denmark believes that in practice it should be possible either to gather information on the split between freely available and not-freely available R&D or at least be able to make a reasonable estimate.

Regarding recommendation (4) - (6) and (8):
The rejection of recommendation (4)-(6) and (8) follows from the rejection of recommendation (1). They can only be accepted as guidelines for a satellite-account.

Regarinding recommendation (7):
It is Statistics Denmark's view that a recommendation on the use of price indices for R&D should be in line with the general rules on the choices between price indices: Output price indices are the preferred option and input price indices are second best solution. This rule should apply for R&D regardless of the classification of R&D output as capital or expenditure.