

## **Freely available R&D**

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#### **Introduction**

1. At its meeting in July 2005, the AEG made a number of recommendations concerning the recognition of R&D as a produced asset. Although the AEG expressed strong support for the capitalisation of R&D members were split on whether this should include freely available R&D. Eventually, the AEG agreed on the following:

In principle, freely available R&D should not be included as capital formation but in practice it may not be possible to exclude it. The assumption is that including freely available R&D would not lead to significant error.

2. At the joint Canberra II/NESTI meeting in Berlin in May 2006, a number of participants asked for clarification as to what this really meant. Does it mean that in practice all R&D expenditure should be recorded as GFCF? Others challenged the assertion that the amount of freely available R&D was so minor that its inclusion would not lead to significant error.
3. After some discussion it was agreed that a note should be drafted describing what “freely available” means and hence what sort of R&D should not be recorded as an asset in concept. The note would be sent to the ISWGNA for their consideration. Once this definition had been settled the joint NESTI-CII group would undertake an investigation to determine whether “freely available” R&D could be identified and if so what its magnitude was.
4. Accordingly, a draft description of what sort of R&D should be excluded from the asset boundary was prepared by Charles Aspden and submitted to members of NESTI and the Canberra II Group for their consideration. Of the six responses received, the majority expressed broad support for the proposals, but there were some suggested changes to the text. Subsequently, a revised draft was prepared and submitted to the ISWGNA.
5. The ISWGNA has now endorsed the following text, which attempts to define which freely-available R&D should be included in the asset boundary and which should be excluded. NESTI and the Canberra II Group can now proceed to the next step of examining the practicalities of implementing these concepts.

#### **Defining the scope of R&D assets**

6. In paragraph 13.12, the 1993 SNA defines an economic asset as an entity functioning as a store of value:
  - a. Over which ownership rights are enforced by institutional units, individually or collectively; and
  - b. From which economic benefits may be derived by its owner by holding it, or using it, over a period of time.

The economic benefits consist of primary incomes derived from the use of the asset and the value, including possible holding gains/losses, that could be realised by disposing of the asset or terminating it.

7. The rationale, expressed by some members of the AEG and Canberra II Group, for not regarding R&D output made freely available as an asset is that ownership rights are not enforced, which means monopoly profits are forfeited, and so the R&D output has no value to the “owner”. However, it is

possible for R&D to be made freely available on condition that the owner's rights are recognised, for example when research work is quoted by other researchers. This satisfies the first condition to be an asset. Since the second specifies benefits "may" be obtained rather than "are" or "are expected to be" obtained, it is not clear such R&D necessarily falls outside the asset boundary even though monopoly profits are forfeited, and so the R&D output has no value to the "owner".

8. A different case is where the owner still expects to get an adequate return on their investment in R&D despite making the results of the R&D freely available to others. This situation is commonly found in a non-competitive environment, particularly in the non-market sector, but it can also occur in the market sector.
9. Suppose a national statistical office, NSO A, develops some software for managing its data. Another NSO, NSO B, is impressed by the software and asks for a copy, which NSO A agrees to give free of charge. When NSO A developed the software it did so in the expectation that the benefits it would obtain were sufficient to cover its costs and there was no expectation of obtaining income by selling copies of the software. Thus, giving a copy free to NSO B in no way changes the value of its asset. The same applies to R&D undertaken by a NSO. R&D is undertaken by many NSOs to further their own interests; the knowledge gained produces benefits for them, and sharing that knowledge with other NSOs does not detract from those benefits. The same is true for many other types of R&D undertaken by non-market producers. For example, medical research undertaken by a government unit for use by associated government units in the provision of medical services.
10. Units, both market and non-market producers, may also choose to make their R&D output available to other units for the purpose of seeking their views and stimulating further R&D. As long as they enforce ownership rights and do not forfeit the expected benefits there is no reason why their R&D output should not be recognised as an asset. What matters is the effective management and control of the knowledge asset in order to ensure the expected benefits are obtained.
11. Much R&D output provides both private and social returns. The former are the returns obtained by the owner of the R&D output and the social returns are the benefits obtained by the community at large, including competing enterprises<sup>1</sup>. In the national accounts, only expenditures incurred in the acquisition of assets are recorded as capital formation. (Most R&D is undertaken on own account, which means summing the costs of undertaking the R&D.) Hence, only expenditures corresponding to private returns are recorded in the national accounts.
12. In a competitive market situation, the unintentional leakage of knowledge from the R&D originator to other units can lead to a reduction in the net worth of the originator and an increase in the net worth of the recipients. With no transaction occurring between the units, the only way to record these changes is via the other changes in volume account.
13. In practice, changes in net worth due to knowledge leakages of any kind (i.e. any transfer of knowledge for which there is no payment) are only likely to be reflected in the purchased goodwill of market producers and not at all for non-market producers.
14. Part (a) of the 1993 SNA definition of an asset (paragraph 5, above) refers to ownership rights enforced by institutional units either individually or collectively. This can be taken to mean that if an R&D output is produced by a unit that shares the benefits with other units, the R&D output is still recognised as an asset provided that in a competitive market situation ownership rights are enforced collectively by the group of units concerned. In a non-competitive, non-market situation, the critical issue is whether the intended benefits are realised by the group, not whether the ownership rights are enforced.

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<sup>1</sup> Leo Sveikauskas (*R&D and Productivity Growth: A Review Article*, Canberra II Group EDG, March 2005) gives the example of the development of statins (a class of drugs taken for the reduction of bad cholesterol) in which the pioneering enterprise failed to obtain most of the benefits of its R&D.

15. This still leaves the question as to what freely available R&D output should be excluded from the asset boundary. By a process of elimination we are left with R&D output that when made freely available leaves the owner (or members of its collective group) without any economic benefits. One example is the output of pure basic research made freely available to anyone. By definition such research does not have a particular objective, and ALL the economic benefits could accrue to other units. Another example is the development by a medical research institution, funded by government or a NPI, of anti-malarial drugs for use in developing countries free of charge.

**Summary**

16. The AEG recommendation that in concept R&D output made freely available does not qualify as an asset needs refinement. It is proposed that it be defined as R&D output that when made freely available leaves the owner (or the members of its collective group) with no economic benefits.
17. Making R&D output freely available does not exclude the original knowledge from being an asset provided the expected benefits for the economic owner (or the members of its collective group) are not diminished. What matters is the effective management and control of the knowledge asset in order to ensure the expected benefits are obtained.