

Just do it!?

Perspective on the Barcelona ambition of '3% GDP for R&D'.

Summary

Recently the European government leaders agreed in Barcelona that spending on research and development (R&D) should be raised so that it will approach 3% of GDP by 2010. Two-thirds of this investment is expected to come from the private sector. At the start of its term of office, the new Dutch government wishes to give its vision on what the Netherlands will do to achieve this ambition. The AWT (Advisory Council for Science and Technology Policy) wishes to contribute to the creation of this vision with this report.

Current status: R&D spending in the Netherlands

R&D spending in the Netherlands has been stable for many years, at around 2% since the 1980s. This pattern is in line with trends in the EU and OECD, although it should be noted that for many years R&D spending in the EU has been slightly below and spending in the OECD has been slightly above Dutch levels. There is a distinction between the EU and OECD on the one hand and the Netherlands on the other in respect of the proportion of R&D spending from the private and public sector. In other countries the private sector spends substantially more on R&D than the public sector. In the Netherlands levels of private and public sector investment in R&D are about equal. If the Netherlands is to achieve the Barcelona ambition, it would therefore have to change on two fronts. Not only would total R&D spending have to rise (towards 3%), but the balance between public and private sector spending would also have to shift (to a one-third/two-thirds balance).

The Barcelona ambition in perspective

Before discussing the policy which the Dutch government would have to implement to achieve the Barcelona ambition, the AWT wishes to make a number of critical observations about this ambition, in particular on four points.

- *R&D spending is a means to an end, not an end in itself*
The intention to raise R&D spending within the European Union must be considered in the light of the Lisbon objective. This objective, which states that the European Union must grow into the most competitive and dynamic knowledge-based economy in the world by 2010, should be the policy goal in the coming years. Raising R&D spending is only one of the ways of working towards the objective expressed in the Lisbon declaration. In the view of the AWT this means two things: first, the Barcelona ambition must not be set in stone: achieving the 3% norm must not become an end in itself. Government should think not only in terms of inputs, but especially in terms of outcomes. Secondly, investments in R&D should not be considered in isolation. All the instruments which can contribute to achieving the Lisbon objective must be considered as part of a coherent whole. This is particularly true for the cohesion between R&D and innovations. Investments in R&D in order to stimulate innovation will not be effective if other essential factors are not taken into account.

- *R&D spending only partially reflects innovation*

The use of R&D spending as an indicator for the innovative capacity of economies entails serious limitations. Bodies such as Statistics Netherlands and the OECD look mainly at R&D activities carried out in company laboratories. However, R&D activities are increasingly performed within other parts of companies where they are less recognisable, if at all, as R&D activities. Traditional R&D statistics do not adequately reflect these developments.

In addition, R&D statistics are mainly based on activities which take place in-company. However, in recent years, companies have been contracting out a growing share of their R&D work to third parties, such as public sector knowledge institutions and private sector R&D laboratories. It is doubtful whether the statistics acknowledge, recognise and include these contracted-out R&D activities.

Finally, it should be said that absolute R&D spending in the Netherlands has risen sharply in the past decade. However, the strong rise in Dutch GDP in the same period meant that the higher level of R&D spending was only partially expressed in the quotient of R&D spending to GDP. It would therefore be more realistic to look not only at R&D spending as a proportion of GDP, but also at the absolute investment in R&D.

- *R&D activities are performed internationally but measured nationally*

Research and development increasingly takes place in an international context. Dutch knowledge institutions operate in an international market and do not work exclusively for Dutch companies. In turn, Dutch companies are increasingly contracting out their R&D activities to other countries. The Barcelona ambition also raises the question: which part of the R&D activities can be classified as 'Dutch'? The AWT views this question as irrelevant. If the Barcelona ambition is considered from an overly national focus, it will stiffen competition between the EU countries. Yet what is wanted is a greater degree of co-operation, integration and co-ordination in research and development in the EU.

- *The Barcelona ambition is difficult to achieve for the Netherlands*

R&D spending would have to increase sharply every year until 2010 in order to achieve the Barcelona ambition, with the greatest efforts having to be made by the private sector. However, in comparison to other countries, the Netherlands does not play host to many companies which are willing and able to generate major investments in R&D. Manufacturing industry, which is traditionally associated with high levels of R&D, is underrepresented in the Netherlands. Conversely, the Netherlands has a large service sector, but this sector carries out less R&D. Accordingly, it is unlikely that the private sector in the Netherlands will start spending substantially higher amounts on R&D in the near future, let alone that those investments will prove sufficient to boost total R&D spending in the Netherlands to 3% of GDP within eight years.

The AWT believes that the above observations justify the conclusion that the stated intention to bring R&D spending to around 3% of GDP by 2010 should not be taken too literally. The government should consider the Barcelona ambition mainly as a beacon to guide its activities and to launch developments. The most important issue is to increase the capacity for innovation in the Netherlands and in the EU. Raising R&D spending can contribute to this, but is not an end in itself. The AWT therefore rejects the use of the 3% norm as a planning instrument to prescribe how R&D spending should develop year on year.

Government options

If the Barcelona ambition is to be successfully realised, the Dutch government must take measures to stimulate the private sector into investing more in R&D. The options open to it are limited. Companies base their R&D spending decisions in part on what their competitors around the world are spending. This means that the level of R&D spending is largely a result of group behaviour within sectors, over which governments have little influence. Furthermore, the level of R&D spending is closely related to the market position companies wish to achieve. Does the company want to set itself up as a technology leader or a technology follower? Does it want to compete on quality or on price? Once again, governments have little influence on these decisions.

The lack of direct steering instruments has meant that, traditionally, the Dutch government has sought opportunities to influence private R&D spending indirectly, which has generated a dual set of measures: 1. Measures designed to create the conditions in which innovation thrives and investments in private sector R&D are made more attractive; 2. Measures designed to create facilities to make it more attractive for business to undertake R&D activities. The Council believes that a policy aimed at realising the Barcelona ambition will be played out within these two main policy lines. Radical changes in policy or entirely new policy lines will not be called for.

Recommendations to improve the climate for innovation

There is considerable room for improvement in the climate for innovation in the Netherlands. A stimulating climate with attractive location incentives must be created. A number of main policy lines are indicated below.

- *Stimulate entrepreneurship, including 'technostarters'*
The Education and Entrepreneurship Committee has been responsible for launching projects to stimulate entrepreneurship in education. It is highly desirable that this policy be continued and made more resilient. The Council welcomes the recent scheme to encourage the establishment of new technology companies from public sector knowledge institutions. If these prove to be a success, it is recommended that the scheme be continued and extended.
- *Regulate intellectual property relationships*
The introduction of the Community patent must be completed speedily. The Dutch government should play a major role as intermediary in this process.
- *Ensure an attractive fiscal climate*
Low corporation tax is an important factor in location decisions of knowledge-intensive companies. At the present time neighbouring countries are taking major steps to reduce corporation tax. The Council is concerned about the resulting adverse effects on the relative attractiveness of the Netherlands.
- *Increase attention to regional innovation policy*
The regions should be given more influence so that innovation policy closely matches the local colour. In addition, companies should be encouraged to co-operate more at regional level with public sector knowledge institutions. The AWT wishes to draw particular attention to the universities of professional education.

- *Evaluate legislation and regulations*
Unintentionally, legislation and regulations may put a brake on innovations. In order to avoid this, timely co-ordination within and between government departments is required.
- *Deliver tailor-made competition policy*
Companies often have to pool their R&D activities to achieve innovations. However, the EU does not allow all forms of co-operation, because of competition considerations. The Dutch government should actively pursue this matter with the EU.

Recommendations to improve the conditions in which private sector R&D is carried out

We have just indicated measures which must make the general climate for innovation in the Netherlands more attractive. Another set of measures is required to influence private sector investments in R&D. These are measures which make it attractive for businesses to carry out R&D activities in the Netherlands rather than elsewhere.

- *Ensure sufficient human capital*
There must be a structural and cohesive approach to encourage students to take technical and natural science courses. The Council also believes that science education and research must be concentrated for the purposes of a vital teaching and research infrastructure. Companies should stem the brain drain of science staff, for instance by making R&D a more attractive prospect.
Until such time as the Netherlands is able to meet the demand for well-educated staff itself, it should be possible to recruit abroad. In order to achieve a Dutch brain gain strategy, this should be made a much higher policy priority than is now the case.
- *Ensure a high calibre public sector research system and effective knowledge circulation*
Within the public sector research system efforts must be made to set up centres of excellence in order to achieve sufficient critical mass and momentum. This requires far-reaching co-operation within the system. However, the AWT observes that in the present research system the incentives are strongly focused on competition between groups.
There is room for improvement in how knowledge from the Dutch public sector research system is used by third parties. This is why co-operation and interaction between knowledge institutions and private sector parties must be stimulated. The mobility of researchers must also be encouraged, not simply between knowledge institutions themselves, but in particular between knowledge institutions and the private sector. The procedures for reviewing academic research must be structured in such a way that research groups can be held accountable for the societal and economic quality of the research.
- *Simplify technology subsidies*
The AWT supports the simplification of the type and number of technology subsidies. Any review of these regulations should examine whether the service sector can be encouraged to increase its research intensity.
- *Continue with the WBSO¹*
In view of the success and the potential rewards of the WBSO, the AWT recommends that this scheme be maintained and that certain elements be developed on further. More specifically, options must be investigated to make the WBSO even more attractive to the service sector.

¹ Research and Development Allowance. Under this scheme companies can deduct 40% of the wage costs of R&D from their wage tax.

In conclusion

The AWT wishes to emphasise that it will take a long time before policy impacts are actually felt. This is certainly the case for science and innovation policy. This is why efforts must be made to ensure that policy is resilient and consistent. The Council warns against the danger of evaluating existing policy too quickly on results.

One thing is certain: cuts in science and innovation are out of the question. The Netherlands has resolved to grow into one of the most powerful and sustainable knowledge-based economies in the world within eight years. Partly as a consequence of swingeing cuts in the past, there is already a major gap in achieving this objective. Further cuts in science and technology would effectively put it out of reach.