

AWT Background Study no. 11 **The Strategic Position of Technology Research Organisations in Europe: Energy, Aerospace and Marine Technology**

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Summary of Conclusions

This study assesses the developments and changes in the markets for technological knowledge, and their impacts on the strategic position of contract research organisations with a (partial) public mission. An important element of these changes is constituted by the changing basis for legitimisation of these organisations. Drawing upon empirical results from the country surveys we identified differences across countries and across areas of technology in the strategic position of these organisations.

The differences between the various countries studied are sometimes very big. Apart from national peculiarities and differences related to the choice on which source to base the national electricity production, most of the differences are in one way or another related to the stage in which the countries find themselves in the shift towards more market-oriented R&D systems. Some countries, like the UK, Denmark and Norway have already progressed quite far in this respect. Countries like Belgium, Italy and Finland appear to be somewhere in the middle, whereas countries like Germany, Spain and - to a lesser degree - France, are only in the initial phase of this drastic transformation process.

Considerable differences are also to be observed between the three areas studied. For long time the driving force behind the development of the R&D infrastructure in the area of energy was the development of clean and cheap electricity production based on nuclear energy. Changes in this sector relate considerably to the slowly growing awareness that nuclear energy production is not only not a sound option from a commercial point of view, but it also brings along huge environmental problems which are difficult to solve. This resulted in political support for nuclear R&D fading away, plus considerably decreasing budgets. This area is now in a dual transformation process. Apart from the shift to a higher level of market orientation these R&D organisations were also faced with the challenge of looking for new missions. They often found this new mission in the area of environmental issues and support of innovation processes in SMEs.

The situation in the area of *marine* technology is much easier, at least as far as the Scandinavian countries are concerned. For years now they have had a (modestly) public-financed R&D infrastructure with strong links with industry. In the future they are likely to continue along the lines set out in the past. Their main problem is one of maintaining a balance between public and private interests, geared towards the actual societal and economic situation. The situation in the UK regarding marine-related R&D is more complicated because, historically, this area has always had more close ties with the defence sector and hardly any with private enterprise. The challenge facing these organisations is to loosen the ties with the defence sector a little (not completely) and by doing so improve the conditions for increasing the number of contracts from private players.

The situation in *aerospace* is somewhat similar to that in the marine-sector in the UK. Almost all organisations involved in R&D in this area had by tradition very close links with the defence sector. Here too have they to make a dual shift: from less public to more private funding and from defence to civil. For many organisations this is a very difficult challenge, used as they are to almost exclusive public funding and functioning in closed and protected markets.

Quite clearly, there are major trends to be observed in all countries and areas studied. All these trends bring along their own problematic issues. These trends are:

- Shift to a more market-oriented R&D, coupled to a decrease in public funding.
- More efficient and effective organisation of R&D.
- Internationalisation (and regionalisation).

The shift to more market-oriented R&D constitutes by far the most important trend that can be observed. Some of the important mechanisms and strategies in this context are:

- Radical privatisation of public R&D organisations
- Introduction of programmatic funding of R&D and strengthening the influence of users
- Market-based organisation of R&D departments
- Institutionalised cooperation between universities, applied research organisations and industry
- Creation of agencies in the public domain with partly commercial goals (UK).

Associated with this shift is an important problem that relates to *the positioning of contract research organisations between public and private*. Up to now they were often almost completely in the public domain. Because of the shift to the market these organisations now run the risk to falling in between both worlds. The question is how these organisations will be able to develop a profile which clearly shows how the public and private functions relate to one another in such a way that the various parties in the public and the private sector know what they can expect from these organisations. It is quite remarkable to see that this very fundamental discussion (which lies at the very roots of the transformation processes these R&D organisations are going through at present) is not addressed more frequently. As far as the UK is concerned this can be explained by the fact that they have just been through a substantial review process, during which issues such as privatisation and legitimisation were discussed in depth. The surveys on the other countries however give no indication of such a fundamental debate. Whether this should lead us to the conclusion that this debate will not be conducted at all, or that this issue will be put on the agenda in the nearby future, is difficult to say. It seems that the strategies being developed by contract research organisations are constrained by history, by national policies, by organisational structures and by the peculiarities of the area of technology in question. Creating the flexibility in structures and strategies to cope with these transformations is an important challenge.

