

An Anglo-German Foundation Report

Why Invest in Biotechnology, and How? Britain and Germany Compared

Rebecca Harding

Executive Summary

Using a comparison of policy development in Germany and the UK since 1992, this report attempts to answer the question why governments across the world commit so many resources to biotechnology. As Germany and the UK have the most highly developed biotechnology structures in Europe, as well as distinctive policy structures, they are interesting case studies in their own right. The mechanisms by which policy has been developed in the two countries are evaluated in the light of an overview of the national and regional systems of innovation literature. It is argued that biotechnology represents a unique case because it is intrinsically regional and 'clustered' in nature and hence represents an attractive vehicle for coordinating a number of areas of government industrial policy.

An Anglo-German comparison provides insights into the development of biotechnology policy. First, both countries have favourable knowledge and skills regimes alongside a strong science base. Second, both have large domestic pharmaceutical companies. Finally, the public is seen as having a generally positive attitude towards biopharmaceutical research although in both cases it is more sceptical about agricultural biotechnology. However, the policy structures to support biotechnology in the two countries are quite different. As a relative latecomer Germany has been highly instrumental in market creation strategies at a regional level while the UK has relied much more heavily on a market facilitation approach.

This paper considers policy structures in the two countries in terms of basic expenditure on research and development and examines policies to stimulate private sector involvement, commercialisation and clustering. It constructs a map of policies in the two countries and highlights the strong regional dimension to policy in both countries. It pulls together the literature search and the overview of policy to highlight the key 'critical success framework' in each country.

Using a critical success framework to examine documentary and attitudinal evidence in the two countries, the report examines this evidence in terms of clustering effects at a regional level (large companies, business angel activity, specialised consultancies and

venture capital firms) and goes on to examine attitudes towards university–industry links and academic venturing in the area of biotechnology. Both countries demonstrate clearly clustered activities and evidence that clusters are developing outside of established centres. The instrumental market creation approach followed by the German government has been highly successful in creating new technology-based biotechnology firms but in the light of the collapse of the venture capital market has recently been criticised for creating unsustainable businesses. The process of market facilitation is much slower in the UK and the number of start-up businesses is smaller.

It is argued that the networked and clustered structure of German biotechnology has provided both a stimulus to rapid catch-up and a strong research base on which to build the sector in the future. Irrespective of subsequent vagaries in risk capital markets, UK policymakers have some examples of public–private sector partnership in the funding and organisation of science and its commercial application from which lessons could be learned. In particular, the role of the regions is key as, of course, is substantial and sustained investment in the research itself.

The report concludes by attempting to answer the question ‘why bother with biotechnology?’ It argues that biotechnology is a central part of any government’s science strategy. European policymakers do need to ensure that we do not fall behind the US, either in research or in commercialisation, for the simple reason that a national monopoly in one particular aspect of scientific endeavour would distort future competitiveness as and when commercial biotechnology products become part of everyday life in the way that computers have. Further, the Anglo-German comparison provides evidence that a strong biotechnology policy creates jobs and that this leads to a strong sense of regional renewal around science-based industry. However, the critical stage in a biotechnology company’s development is the transition from a research and prototype base largely supported by the public sector to actual commercialisation and sustainable growth. The issue of how to manage this process effectively – both at the level of the individual firm and at the level of policy – is not clearly understood and there is scope for more research in this area.

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Notes to the editor:

Anglo-German Foundation: For thirty years the Foundation has contributed to policy-making in Britain and Germany by funding bilateral research and discussion of economic and social issues which challenge both countries, and by making the results of this work available to decision-makers, practitioners and their advisers.

Review and reference copies of the report are available from the Anglo-German Foundation. You may also download the report free of charge from the Foundation's website at www.agf.org.uk; hardcopies (ISBN 1-900834-40-5) can be ordered from bookshops or from the Foundation's distributor, YPS, tel: +44 (0)1904 431 213, fax: +44 (0)1904 430 868, price: £15.00

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