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# Management of Intellectual Property Rights in European Biotechnology Firms

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## ABSTRACT

The aim of this article is to observe a “real world picture” of how European biotechnology firms manage their inventions, and in particular, how they make use of patent protection. The intention is to compare the behavior and the requirements of the biotechnology industry with the existing legal framework in Europe, to determine industrial needs, and to identify insufficiencies in the institutional settings. The analysis focuses besides the general competitive performance of Europe in comparison to the United States on the use of patents by firms in different European countries, the decision to keep inventions secret or to patent, the different procedural ways to apply for patent protection, as well as the importance of patenting related costs and strategic uses of patenting. © 2001 Elsevier Science Inc.

## Introduction

Biotechnology is, besides computer and information technology, a key technology for the economic development of the next millennium. Protection of intellectual property is at the core of the business for biotechnology firms. Nevertheless, the debate on what, how, and when biotechnological inventions can be protected by legal means is still going on.

The specific line of investigation of this article is to look at the management practices of patenting in Europe, and to retrieve from the firm perspective opinions on various topics of academic debate. The empirical results derive from a survey carried out with 103 biotechnology firms in several European countries (22 Dutch, 28 German, 20 British, 19 Spanish, 10 Italian, and 4 others). Supplementary information was acquired by telephone interviews with 22 participants from the sample. This empirical work was done to identify the most urgent issues and concerns of practitioners in the field as well as to derive empirical support for theoretical findings.

First, the overall performance and comparative world-wide position of the European biotechnology industry with respect to patenting activity is discussed. Later on, specifications regarding to means of applications are presented, along with some aspects of strategic behavior in the sector, and in particular, insufficiencies of the legal framework and the institutional settings in Europe.

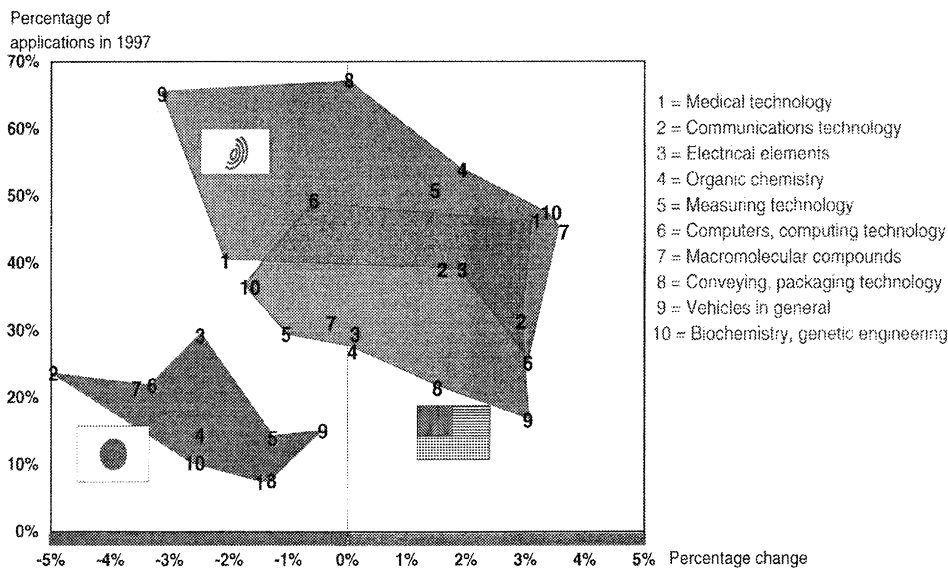
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Technological Forecasting and Social Change 67, 259–272 (2001)  
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655 Avenue of the Americas, New York, NY 10010

0040-1625/01/\$–see front matter  
PII S0040-1625(00)00099-8



**Fig. 1. Most Innovative Technical Fields as Reflected in European Patent Applications 1991–1997.**  
Source: European Patent Office.

## General Performance of European Biotechnology Industry Patenting

### THE COUNTRY PERFORMANCE

Looking at European patents for genetic engineering (number 10 in Figure 1) shows that about 45% of applications are of European origin, 35% from the United States, and about 10% from Japan. From 1991–1997, European biotechnology patenting in numbers of European patent applications increased with a 4% rate, whereas the corresponding numbers for Japanese and the U.S.-American applications of European patents decreased. Can this be a reason to believe that the European biotechnological industry is growing stronger than their competitors in Japan and the United States?

Figure 2, to the contrary, describes a different view. It shows the development of national priority applications in genetic engineering (IPC-class C12N<sup>1</sup> for Germany, Holland, Italy, and Spain). Usually, national priority files precede a European application in European countries (compare Table 1), and in most cases, a national priority file represents a file of a local (national) assignee in the country.<sup>2</sup> The figure demonstrates the dominating patenting position of the United Kingdom among the European countries, followed by Germany. Nevertheless, the United Kingdom and German numbers are only a fraction (about one-tenth!) of the priority applications in the United States and Japan. Important is the tremendous increase in the United States over the last decade, where in Europe only the United Kingdom shows a similar development. In The Nether-

<sup>1</sup> C12N: Micro-organisms or enzymes: compositions thereof; propagating, preserving, or maintaining micro-organisms; mutation or genetic engineering; culture media. This covers of course only one part of biotechnology. Other biotechnological fields would be covered by the IPC classes C07G; C12M; P; Q; R and S. However, about 90% of all patents in biotechnology are filed in class C12N.

<sup>2</sup> In special situations it is also worthwhile to apply for separate priority files, for European assignees usually in the USA. Compare to the Direct Files at the USPTO Section.

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