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# Framework for the Assessment of National Systems of Innovation in Biotechnology

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**Abstract :** This paper studies patterns of innovation within national constitutional context. Its objective is to examine national systems of innovation in biotechnology in six leading innovative countries: the US, Japan, Germany, the UK, France and Canada. The framework proposed for this purpose consists of specific factors considered critical for the development of national systems of innovation, which are industry size, innovative activities, area of specialization, industry structure, national policy, the level of government intervention, the stock of knowledge in universities and industries, knowledge transfer from universities to industry and country-specific conditions for start-ups. The paper then uses the framework to provide detailed cross-country comparisons while highlighting particular features of national institutional context which affect the creation and diffusion of scientific knowledge within the system. The study is primarily based on the extensive survey of literature and it is complemented by the quantitative analysis of the patent data extracted from the United States Patent and Trademark Office (USPTO). The empirical analysis provides numerous insights and greatly complements the data gained from the literature and other sources. The final cross-country comparative analysis identifies three patterns followed by the national innovation systems in the six countries. The proposed cross-country relative positioning analysis may help in drawing policy implications and strategies leading to the enhancement of national competitive advantage and innovation capabilities of nations.

**Keywords :** comparative analysis, framework, national systems of innovation, patent analysis, United States Patent and Trademark Office (USPTO)
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