THE CHANGING LANDSCAPE OF VACCINE DEVELOPMENT
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PUBLIC PRIVATE PARTNERSHIPS BETWEEN BROKERAGE AND KNOWLEDGE INTEGRATION

ABSTRACT

In recent years, the hopes rising from advances in biotechnologies and the growing toll imposed on poor countries by epidemic diseases have brought the development of safe and affordable vaccines at the heart of the debate on development. Within this debate, there has been a proliferation of proposals for reform, which have almost exclusively focused on addressing market failures in the production of vaccines for neglected diseases through more government funding, and the introduction of adequate incentive schemes to mobilise private research and to reduce the costs associated to monopoly power (e.g. prizes to innovators). While acknowledging the importance of incentives, this paper argues that policies aimed at fostering vaccine innovation should also consider the institutional and organizational difficulties entailed in enabling the development, production and delivery of vaccines for diseases affecting primarily poor countries.

The interactions between the scientific and technological knowledge required for vaccine development are complex and far from linear, as even today the mechanisms through which successful vaccines operate are not fully understood (e.g. pertussis). The non-linear relationships between science and technology in vaccine development imply that it cannot be assumed that advances in vaccines will automatically or only derive from advances in scientific understanding. Furthermore, the development of a successful vaccine, i.e. of a vaccine that prevents the disease and that is successfully delivered to those who need it, requires not only the management of the complex relationships between science and technology, but also their integration with production, ‘market creation’ and distribution activities.

Historically, large pharmaceutical companies have played a central role in integrating the various bodies of knowledge (scientific, technical, regulatory and market) needed to produce successful new vaccines. However, over the last thirty years the institutional landscape in which vaccine innovation takes place has undergone significant changes. The pharmaceutical industry has undergone major shifts in both its underlying knowledge bases and in its organization as a consequence of the emergence of biotechnologies (Henderson, Orsenigo and Pisano 1999). Universities and other public sector institutions have been under increasing pressure to demonstrate their productivity, in terms of both publications and patenting. Finally, a wide range of ‘hybrid’ organizations such the Public Private Partnerships (PPPs) have been emerging and gaining importance. These changes are widely perceived to have important, even if as yet not fully understood, consequences as they impact on the division of labour among the different actors and institutions involved in vaccine development, and the attendant knowledge flows, and on the ability of the system of delivering effective and affordable vaccines.

In particular, despite the fact that PPPs represent new institutional actors in the system, their contribution has been primarily seen as bringing ‘private sector efficiency’ and focus to a world so far dominated by cumbersome public sector institutions. Recent research, however, has shown that some of these new actors have also drastically redesigned the activities involved in vaccine development, reinterpreting traditional ‘grant making’ roles and incorporating new roles, such as advocacy and access (Chataway and Smith 2005a; Chataway and Smith 2005b). These PPPs have often presented themselves as ‘virtual companies’, heavily relying on brokering knowledge.
across partners rather than integrating it within their own organization as large pharmaceutical companies do. On the basis of the first results of a case study of the International AIDS Vaccine Initiative, the paper discusses the characteristics of brokering and knowledge integration and the role that PPPs play in bridging the organizational gaps that hamper the development of vaccines for neglected diseases.

In particular, brokering can be seen as the activity of alerting ‘distant’ actors of the existence of common interest and complementary capabilities. Brokering may entail the transfer of information across actors, but with little or no elaboration, so that knowledge and the trajectory of its evolution remain within the control of the originating actors. On the contrary, knowledge integration entails placing the contribution of others in a wide ‘interpretive’ framework, which enables the evaluation of the function and value of the contribution of each. On the basis of this wider interpretive framework, a knowledge integrator (who typically possesses a range of competencies wider than any other actor in the system) can act upon and modify the contribution of others in order to identify and manage interdependencies and critical issues (Brusoni, Prencipe and Pavitt 2001). Knowledge integrators are the holder of systemic knowledge, and usually play an important role in setting the trajectories of knowledge development of other agents in the system. The two roles present different implication for the ability of the system to sustain vaccine innovation.

REFERENCES


