

Lost in Translation: University Technology Transfer Failures

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Since Vannevar Bush's famous post-1945 blueprint for a national science policy, the U.S. has relied on an innovation strategy that includes universities as publicly supported engines of discovery which will drive downstream innovation by the private sector. This linear model of innovation, grounded in theories of market failure at early stages of the invention process and a clear distinction between basic and applied research, has been reflected in federal funding strategies and hardwired into the law with the passage of the Bayh-Dole Act in 1980. The Act and the professional norms that developed around it promote a "patent early and license" model for university discoveries, with patents as the primary vehicle for attracting the private sector to takeover downstream development activities.

The incompleteness of this vision of basic science and its relationship to innovation, and the limitations of the existing policy framework that it supports, have become increasingly evident. Proposals for legal reform have generally taken either a centralized approach, looking for mandated protection of the public domain and the norms of open science through change in the law, or a decentralized approach, focusing on enhancing the ability of private actors to access and develop university discoveries. I argue that these approaches neglect the unique role of universities as sites for determining the economic organization of innovation in light of both public and private objectives. I suggest that many of the challenges of improving public utilization of early stage discoveries can be addressed through changes in university governance.

The problems which plague technology transfer arise from the combination of uncertainty, asymmetric information, opportunism and problems of appropriability. These are precisely the conditions under which institutions and their governance can significantly impact performance. I apply insights from the theory of the firm to explore the role of the current legal framework in constraining the boundaries between university, firm and market in conducting development activities once an initial university-generated discovery has been made. This analysis suggests proposals for legal reform to support more effective forms of governance in systems of university technology transfer, such as internalization of downstream development activities for platform technologies and funding for organizational as well as technological change. It also provides support for current experiments with vertical integration, such as early stage drug development initiatives and the emergence of proof of concept centers, and explains why adopting streamlined, standardized contracting practices may sometimes increase rather than decrease transaction costs.