UNIVERSITY AND BIOTECHNOLOGY LINKS: A SYSTEM OF ENTREPRENEURIAL KNOWLEDGE CREATION AND TECHNOLOGY EXCHANGES (INTERACTIVE PAPER)

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University and Biotechnology Links: A System of Entrepreneurial Knowledge Creation and Technology Exchanges

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Principal Topic

Entrepreneurial biotechnology firms have long been recognized as knowledge-intensive firms that leverage their relationships with universities to develop and apply scientific knowledge. Given universities’ expertise, firms rely on them to gain access to scientific discoveries. Interestingly, existing studies have found that university-industry links such as technology transfer have a negative impact on a firm’s ability to create knowledge. So, the question arises: how does university technology transfer support firms’ ability to create knowledge?

To explore this question, we build on Theory of Knowledge Creation (TKC) by conceptualizing the university-biotechnology technology transfer process as a knowledge creation system, where each mode is an interdependent part of the same system. We put forth the notion that knowledge is created by each part as well as the interactions between parts.

Method

Survey data was collected from key-decision makers in 204 American-based biotechnology firms. Using negative binomial regression, we examined whether the three modes, licensing arrangements, sponsored contract research, and consulting agreements, independently or conjointly, transform university technology transfer from technology exchanges to systems of knowledge creation.

Results and Implications

Our results seem to suggest that certain types of university technology transfer activate the knowledge creation process while others do not. We found that licensing and consulting agreements positively influence a firm’s ability to create patents. Conceivably, the findings depict a knowledge creation system that involves intra- and inter-organizational knowledge creation processes that enhance and reinforce the positive effects of the two technology transfer modes. Conversely, the results found that sponsored contract research negatively influences a firm’s ability to create knowledge because the knowledge conversion activities occur within the confines of the university.

From a theoretical perspective, our findings suggest that a firm’s ability to develop knowledge for exploitation may result, in part, from managers’ ability to select the appropriate combination of transfer modes. From a managerial perspective, the results may help managers to understand: (1) whether and to what extent university technology transfer is able to create concretely exploitable innovations and (2) how to manage their participation in U-I transfer.

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