Introduction: Strategic Research Partnerships—Economic, Managerial and Policy Implications

JOHN HAGEDOORN, ALBERT N. LINK & NICHOLAS S. VONORTAS

The original versions of the papers for this special issue were presented at an international workshop sponsored by the US National Science Foundation on Strategic Research Partnerships convened at SRI International, Washington DC on 13 October 2000. The objectives of that workshop were to evaluate the policy needs for indicators related to the formation, activities, and economic consequences of alliances and research partnerships, to appraise the current availability and characteristics of such data and indicators, and to advise NSF on the possibility of developing research partnership indicators. The workshop papers and discussion appraised the potential use and the nature of such indicators. The approach was essentially based on three questions:

1. Are research partnerships important to the economic system? Do they deserve policy attention? Are they important from an economic or policy perspective?
2. What data initiatives are needed to understand the economic importance or policy relevance of research partnerships?
3. What can NSF do about it?

A research partnership was broadly defined as an innovation-based relationship that involves, at least partly, a significant effort in research and development. Examples can be found in equity-based joint ventures as well as in non-equity agreements such as research consortia, research corporations, cross-licensing agreements and patent swaps.

There was little doubt as to the answer to the first question. Extensive scholarship during the past couple of decades has shown that strategic research partnerships constitute an important—and probably increasing—component of the innovation system, and the papers presented and discussed at the workshop confirmed this. There is a long list of reasons why this is so. Briefly, it can be argued that research partnerships are socially useful because they expand the effective R&D resources applied to innovative investment. Concerning the second question, the background papers and the discussion during the workshop clearly indicated that existing partnership data on research partnerships suffer from various shortcomings. There is a need to develop systematic tracking of the incidence of the inputs and outputs associated with various types of research partnerships. Concerning the third question, participants argued for the potentially critical role of NSF in such a data gathering and indicator building enterprise.

The guest editors of this special issue selected a total of eight papers, in some cases combining individual papers presented at the workshop. The authors, invited to re-submit their papers for this special issue, were encouraged to rewrite their papers in the light of the discussions at the workshop.

The final papers presented in this collection share a common thread regarding data...
and indicators on research partnerships but cover a range of topics related to the
economic analysis and management of strategic research partnerships, the role of
government policies, international comparisons, and industry specific issues. The first
paper by Martin focuses on the policy implications of strategic research partnerships.
Particular attention is paid to government-private sector partnerships and the necessary
evaluation of relevant government programs. In doing so, the paper overviews the mainly
industrial organization oriented literature on R&D collaborations and R&D programs.
The paper of Combs and Link follows-up on some of the issues related to government-
private sector partnerships. Central questions in this article deal with the economic basis
for public support of strategic research partnerships in the USA. Apart from an evaluation
of the efficiency of relevant policy instruments, this contribution also offers a clear
research agenda from an economics and a management perspective. The article by
Mowery analyses a particular group of research partnerships, known as Cooperative
Research and Development Agreements (CRADAs), created as part of the US Technology
Transfer Act of 1986. This contribution also looks at the role of government-private
sector partnerships and it concludes that the information on the efficiency of programs
such as those that stimulate the formation of CRADAs is limited. This argument is taken
further by Siegel's article that emphasizes the role for statistical agencies in the data
collection effort on public-private research partnerships and the measurement of output
and performance of strategic research partnerships. Interestingly, government agencies
could form partnerships with private organizations, which have experience in compiling
data on research partnerships, to create a better understanding of the performance of
these strategic research partnerships. The paper by Sakakibara and Dodgson evaluates
the role of strategic research partnerships in Asia, more specifically Japan, South Korea
and Taiwan. Specific attention is paid to the different institutional settings that influence
the role of strategic research partnerships in these countries. Other topics that are
addresses in this paper regard the formation of strategic research partnerships, their effect
on R&D spending of participating firms, and the productivity effects of these partnerships.
Complementing some of the other papers in this special issue, Sakakibara and Dodgson
also consider some alternative forms of measurement of the effects of strategic research
partnerships and the potential of these alternatives when applied to selected Asian
countries.

The papers briefly introduced in the above pay substantial attention to the role of
government agencies and government policies regarding strategic research partnerships.
In the second set of papers, the attention is shifted somewhat towards the economic
theory of the firm and managerial perspectives regarding research partnerships. The
paper by Scott analyses strategic research partnerships from the perspective of the possible
expansion a firm's absorptive capacity and provides evidence about the source of the efficiency gains from research partnerships. In that context it also discusses the role for
public policy toward research partnerships. The paper by Hemphill and Vonortas gives
an account of various business motives to engage in research partnerships and points
out that the difference between more traditional economic perspectives and strategic
management/organizational theory perspectives may not be as large as frequently
indicated in the literature. The paper stresses that complementarity of these different
perspectives highlights the opportunity for developing a more integrated model of
understanding strategic research partnerships. The contribution by Audretsch and Feld-
man also gives an overview of the theoretical motivation and the empirical literature on
research partnerships but their focus changes to the role of small companies. This paper
concentrates on the role of small firm strategic research partnerships in biotechnology,
an industry where these alliances have proliferated. The authors begin their analysis by
examining the partnering strategy for knowledge-based small firms in general and then turn their attention to empirical analyses of the role of small firm partnerships in the biotechnology sector.

We hope that this special issue of Technology Analysis & Strategic Management will not only inform its readership but also that it will stimulate further research in a variety of topics discussed herein. In our opinion, the broad spectrum of managerial, economic and policy implications, covered in the various contributions, provides a whole range of scholarly motivations for subsequent research.

Finally, we would like to thank a number of people and institutions that have played an important role in putting together this special issue. We would like to thank Harry Rothman, Editor of the journal, for his support and patience. We are grateful to the authors of this special issue, who were willing to substantially rewrite their papers in order to fit the theme of this special issue, sometimes combining papers with those of other participants from the National Science Foundation workshop. Participants at this workshop played an important role in the first rounds of discussions on the papers that were selected for this special issue. The National Science Foundation and SRI International provided financial and logistical support for the October 2000 workshop. Last but not least, we would like to thank the anonymous referees of this special issue for their critical, yet very constructive, comments on the various papers.

Note and Reference

1. See J.E. Jankowski, A.N. Link & N.S. Vonortas (Eds), Strategic Research Partnerships (Arlington, VA, National Science Foundation, 2001). The workshop was organized by the guest editors of this special issue and was supported by a National Science Foundation grant.