

GOVERNMENT LABORATORY TECHNOLOGY TRANSFER:
PROCESS AND IMPACT ASSESSMENT

by

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(ABSTRACT)

This study involved a qualitative comparative analysis of government laboratory technology transfer, examining both the process and impact of successful cases before and after passage of technology transfer legislation. The legislation, passed in the mid- and late-1980s, was intended to encourage cooperative research for commercialization purposes.

The study examined a variety of factors related to government laboratory technology transfer, including the researchers' roles, mechanisms used, partners, and economic impact.

Certain aspects of the researchers' roles became more positive toward technology transfer. They contributed to technology marketing by producing more laboratory prototypes and samples in the post-legislation period. On the other hand, they retreated from broad-based technology marketing in the sense that their roles as technology champions became centered around their relationships with their CRADA partners. There was an undercurrent of caution by the laboratory researchers towards technology transfer in both the pre-legislation and post-legislation periods, and neither time period contained many examples of market analysis or technology evaluation work by the laboratories. Also, there was tension between the research role and technology transfer role, possibly indicating a lack of trust in that relationship.

The laboratories primarily used CRADAs and licenses to transfer technologies, and used other mechanisms to a lesser degree. There was even less variety in mechanisms in the post-legislation period. The researchers' comments about license royalty-sharing became stronger in the post-legislation period, indicating that incentive is working. Yet, the data suggested new administrative needs such as for royalty tracking statements and dispute mechanisms.

The post-legislation period involved more small-firm partners and more user-initiated contacts, indicating more market pull. The post-legislation period also exhibited more "institutionalized" university relationships. State and local governments were not prominent among the users in either time period.

The technology transfer legislation had positive effects in terms of economic impact and outcomes. The following indicators increased in the post-legislation period: new products (generated as a result of technology transfer), sales revenues, new companies, new jobs, and

technology transfer contributions to dual use. Technology transfer and commercialization failures decreased and the time to market decreased.

The assessment revealed additional findings related to increased international activity, private sector problems, and other factors contributing to technology transfer.

An extensive literature review provided background for the issues and problems in evaluating technology transfer. This review included an inventory of technology transfer measurement activities to-date, including models from non-government technology transfer communities. The study experience, itself, further uncovered some insights to technology transfer metrics at a time when the experience base in this area is still premature.

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This dissertation is dedicated to
my family,
whom I love very much

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