Development of An Effective Marketing Communications Network for the Successful Transfer of Technology
An Empirical Study Based on the Diffusion of Portable Timber Bridge Technology

by

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(ABSTRACT)

The ability to use scientific or engineering advances (new technologies) to meet market needs has become a primary business success factor. New technology is also a major factor influencing growth and productivity within a firm. However, the forces that lead to technological innovation are not always from inside the firm. Often a company receives technology (technology push) from outside sources. However, the transfer process is not always smooth. Public sector research represents an important source of technology. In the major Western industrialized countries, government and university research organizations account for over 40 percent of the national research and development (R&D) expenditures. However, many technology transfer efforts between public (federal government) and private sectors have been disappointing.
Like all businesses, government organizations buy, sell, provide, and deliver ideas, services, and goods. Government organizations today face limited funding and personnel, but they must grapple with growing needs for their services. Public organizations often find it necessary to seek help from other organizations and individuals to achieve their objectives. In the case of diffusion of government-sponsored innovations, it is challenging to find parties who can facilitate them, and once the parties are identified, elicit the necessary assistance from them. Numerous research efforts have been conducted on technology transfer efforts between government-sponsored innovation and private sectors. However, when researchers attempt to gain an understanding of the efforts, they primarily look for end results and tend to neglect the information flow and communication process which lead to positive results.

The Wood in Transportation Program (WIT), USDA Forest Service, has exerted considerable effort in transferring timber bridge technology to private industry. However, much of this effort has focused upon permanent bridge structures for highway or pedestrian use. Little research has been conducted on how to facilitate technology transfer via an information flow system to the target users. Another potentially large market may exist for portable timber bridges for use in forestry and logging operations.

The main goal of this study was to evaluate the information flow through the entire logging system and identify intermediaries who can help the WIT Program, USDA Forest Service facilitate technology transfer. This study utilized a unique backward trace method to gain an understanding of how innovations are diffused. The research consisted of the following steps to attain the final goal of developing strategies to successfully
diffuse portable timber bridge technology from public research sectors to private sectors. First, the research evaluated how the final users (loggers) receive information, why they prefer certain channel(s) over others, and how they make decisions to use or not use technology from developers (WIT). Second, intermediaries in the technology transfer process were identified by loggers and they were evaluated on how they receive information from technology developers; how they evaluate the information; how they currently promote and diffuse ideas or innovations. Finally, technology developers were evaluated on how they currently promote and diffuse ideas or innovations. Upon analysis of the network of information flow, a strategic marketing plan for successful transfer of portable timber bridge technology was developed.
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Many people and organizations have helped me with this project. If I’ve learned just one thing from the project, it’s that I could not have done it alone.

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Preface

This dissertation consists of seven major sections. The first section describes the problems the research addressed, defines objectives of the research, and reviews literature relevant to the topics of portable timber bridge technology, information flow, and technology transfer process. Sections 2, 3, 4, 5, and 6 are designed for different journals and subsequent publication. Section 7 is designed in order to describe strategies for transferring portable timber bridge technology to the industry and where future research may benefit the industry. Since the manuscripts are targeted towards different journals and audiences, a considerable amount of information is replicated between sections and allows the sections to stand-alone. Due to this unavoidable situation, the author apologizes for any inconvenience this causes the reader.
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