

Chapter 7

Recommendations and Future Research Areas

Introduction

This study identified opportunities, barriers, and communication differences that exist in the transfer of portable timber bridge technology to the US logging industry. However, the technology transfer process is not as simple as transferring technology directly from developers to end-users. It involves information transfer among different groups with differing viewpoints and agendas. Many individuals or groups (transfer intermediaries) play vital roles in this process in order to smooth or speed up the transfer efforts. Yet, technology transfer processes and efforts are far more complex than we recognize. This research found that it is necessary to overcome communication difficulties between groups for real success to occur in the transferring of portable timber bridge technology or other forest-related technologies to the industry.

This study provides an opportunity to make many recommendations in identifying the preferred methods to transfer technologies to the industry and areas of future research necessary to address this growing and important issue. There is no question that initial cost, lack of product information, and ineffective promotional efforts are the major barrier for the low utilization rate of engineered portable timber bridges in logging operations. Communication differences and problems associated with transfer participants especially at the intermediary level, add more complexity to the transfer process. Only by having a thorough understanding of the market, customer needs, and communication differences between transfer participants can new products be successfully introduced. The following recommendations utilize research findings and marketing concepts to provide manufacturers and promoters of portable timber bridge technology to increase the adoption of portable timber bridge technology.

Recommended Strategies

Marketing has assumed an increasingly important role in the forest industry. Hisrich (1990) stated that “*Marketing is the process by which decisions are made in a totally interrelated changing environment on all the activities that facilitate exchange in order that the targeted group of customers are satisfied and the defined objectives accomplished*”. Marketing research can provide specific information not only about markets and customers, but also information about products, prices, channels, and promotions for any organization to facilitate the exchange process to satisfy customers. This research provides information for the portable timber bridge industry and its promoters. Additionally, the following strategies are suggested for successfully transferring this important technology to end-users.

- (1) This research indicates that users (loggers) of portable timber bridges have different preferred sources for receiving new technology information by geographic region. Promoters of portable timber bridges should develop a niche strategy in each geographic region to meet the needs of the users in that area.
- (2) This study indicates that most communication differences within the information flow diagram occurred at transfer intermediary level. In order to utilize intermediaries to transfer portable timber bridge technology, promoters of portable timber bridge technology should focus on intermediaries’ special preferences and design different promotion packages for discrete transfer channels to assist them in overcoming communication differences.
- (3) This study has identified that for companies producing new technology, industry foresters and trade associations could be the best channels to transfer portable timber bridge technology. Promoters of portable timber bridges need to develop strategic alliances (relationships) or partnerships with these intermediaries.
- (4) Light-weight and low-cost bridges appear to be the most needed areas of research for improving the utilization of portable timber bridges.

- (5) Promoters of portable timber bridges need to utilize a variety of promotional practices, which include: a) recruit seed loggers (early adopters, opinion leaders), utilize word-of-mouth communication methods to spread the benefits of utilizing portable timber bridges, b) field demonstrations to increase the awareness level of portable timber bridges, and c) create Internet access and videos to link the promoter directly to end-users.

Study Limitations and Future Research Areas

As with most research, not every aspect of the subject can be investigated. Most respondents (loggers) were from Mid-Atlantic and Mid-West regions of the US. This study concentrated on discrete demographic areas and did not take into consideration the majority of the Western and Southwestern states of the US. Results indicate that loggers in the Eastern US have become aware of the benefits of utilizing portable timber bridges. Information or perceptions of portable timber bridges in the Western and Southwestern US would add to the understanding for utilization of portable timber bridges.

This research revealed that a large potential market for portable timber bridges appears to exist in the US. However, this research did not consider the impact of other types of portable bridges, which have been constructed with alternative materials (e.g., steel or aluminum). It will be necessary to contrast the performance of portable bridges constructed with other materials. Although this study indicated that timber may be the best material in the design and selection of a portable bridge, engineering and marketing considerations must be take into account other materials when comparing the performance of all portable bridge materials.

This study concentrated on portable timber bridges utilized in logging operations. However, other areas that need attention include recreational and disaster

areas, which may have greater opportunities to extend the usage of portable timber bridges, are areas needed for further investigation.

This study focused on marketing portable timber bridges to loggers and forest products firms. However, nonindustrial private forest (NIPF) landowners should have a major impact on the decision to utilizing portable timber bridges in their land. This study did not analyze how NIPF landowners get information about utilization of portable timber bridge technology and how their opinions will influence the adoption of portable timber bridge technology.

One recommended strategy for increasing the utilization of portable timber bridges is recruitment of seed loggers (e.g., early adopters or opinion leaders) by utilizing word-of-mouth communication methods to spread the word about the benefits of utilizing portable timber bridges. However, this research did not analyze communication behavior or adoption decision of portable timber bridge technology early adopters. What are the reasons that motivate them to make the decision to adopt the technology, characteristics of the early adopters (opinion leaders), and what are the differences between early and late adopters, are areas for further investigation.

Literature Cited

Hisrich, R.D. 1990. Marketing Barron's Business Library. Barron's Inc. Hauppauge, NY.