

MANAGEMENT

## EBUSINESS EXCHANGE BETWEEN HOMECENTER BUYERS AND WOOD PRODUCTS SUPPLIERS

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### ABSTRACT

eBusiness is the application of Internet-based technologies for conducting business. It includes eCommerce (i.e., the actual transaction activities) as well as other business-oriented applications such as logistics, order entry, information sharing, and transmission of information between exchange partners. This study examined eBusiness exchanges between homecenter retailers and wood products suppliers in the United States from the homecenter perspective. In 1999, 78 percent of respondents had a website, compared to around 34 percent of forest products manufacturers in the United States in the same year. Seventy-one percent of respondents said that they planned to develop or improve their website over the following 12 months. Respondents used an array of business applications facilitated by the Internet. Although regular mail and fax were the most common methods of transmitting business documents for respondents, e-mail, electronic data interchange (EDI), and websites were becoming more prevalent. This is an indication that the homecenter industry was poised to adopt eBusiness strategies and capabilities.

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The Internet offers a revolutionary tool for business development and management. Companies are currently crafting Internet business development and marketing strategies. Through the Internet, many barriers to new markets, resources, and competitive positioning can be reduced or eliminated. The Internet levels the playing field as it allows small/large and rural/urban companies alike to participate (7).

eBusiness is the application of Internet-based technologies for conducting business. It includes eCommerce (i.e., the actual transaction activities) as well as other business-oriented applications such as logistics, order entry, information sharing and transmission of information between exchange partners (7). Electronic business is forcing more com-

panies to scrutinize their supply and distribution channels, looking for new ways to deliver products faster and more efficiently. The trend is generating a flurry of activity in the market for supply-chain management applications, which are used to coordinate the flow of material between businesses and their suppliers and distributors.

A study by Deloitte Consulting revealed that business-to-business pur-

chasing (eProcurement) is delivering real and dramatic returns on investment (ROI). In fact, the ROI reported by more than 200 survey respondents averaged 300 percent over the first 2 to 3 years, based on an average implementation cost of \$2 million to \$4 million and annual procurement savings of nearly 9 percent over the first 2 years (1).

This is an area ripe for widespread automation. Companies that transition away from manual methods of procurement will start to see some gains in efficiencies and cost savings, according to a report from The Hackett Group, a division of AnswerThink Consulting Group (5). Of the companies that are using eProcurement solutions extensively, the vast majority (85%) is highly satisfied with the resulting benefits. And, in contrast with companies' experiences with other technology investments, the returns from eProcurement are meeting expectations.

This study reported herein examined the homecenter industry perspective regarding Internet-based technologies to conduct business with solid wood products suppliers. Internet-based technologies were studied in the context of

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Forest Prod. J. 52(1):38-43.

implementation strategies across a number of wood products (lumber, plywood, particleboard, etc.).

### AN OVERVIEW OF THE HOMECENTER INDUSTRY AND EBUSINESS

Each year National Home Center News publishes an overview of the homecenter industry. According to the 2000 edition, total industry sales were \$200.7 billion in 1999, an increase of 10.9 percent from 1998 (2). Home Centers/lumberyards accounted for 64 percent of the industry (\$128 billion). The top 500 companies accounted for \$109 billion in sales in 1999 represented by the following company types: warehouses: 54 percent; pro dealers: 25 percent; homecenters with lumberyards: 7 percent.

The importance of wood products, particularly lumber and plywood, to industry sales is highlighted in **Figure 1**. This category contributes the highest percentage to industry sales. In addition, the percentage of home improvement retailers in the top 500 that stocks wood products is high (**Fig. 2**). Nearly 80 percent of the top 500 stocked lumber, plywood/panels, and doors/windows in 1999.

The homecenter industry is dominated by two players: Home Depot and Lowe's (**Fig. 3**). These two companies account for 49 percent of top 500 sales. The market leverage for Home Depot in particular is staggering. It is often considered a coup to develop an account with Home Depot although the service and program requirements can be daunting.

Overall, 13 percent of the top 500 companies sold some type of product over the Internet in 1999. As is often the case, this could be simply using e-mail or a website to facilitate communication between the merchant and customers. Because this is a sell situation, the transaction is between the merchant and consumers/builders/contractors. Fifty-six percent of the top 500 companies had a website in 1999. For the same year, only 34 percent of U.S. solid wood products manufacturers had a website (8).

Until recently, the forest products industry has taken a wait-and-see position with regard to eBusiness adoption. In addition, despite a steady drumbeat of public announcements from high-profile partners gathering millions of investor dollars, eCommerce providers to all

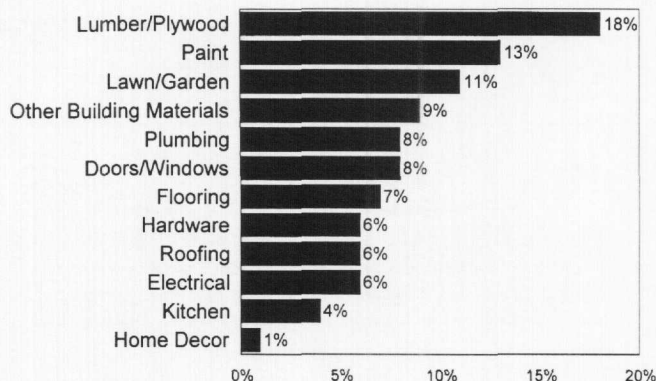


Figure 1. — Percent of 1999 sales by the top 500 homecenters, by category (2).

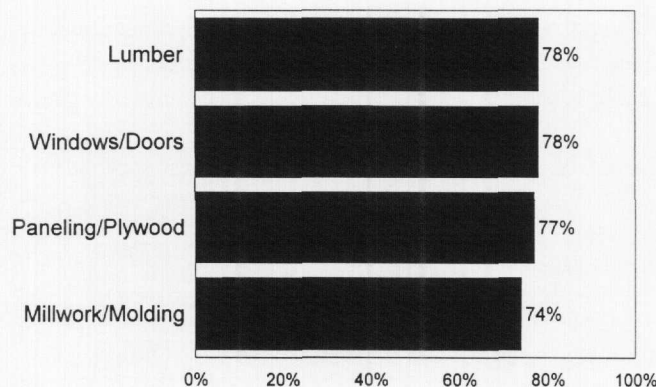


Figure 2. — Percent of the top 500 homecenters that stocked wood products in 1999, by category (2).

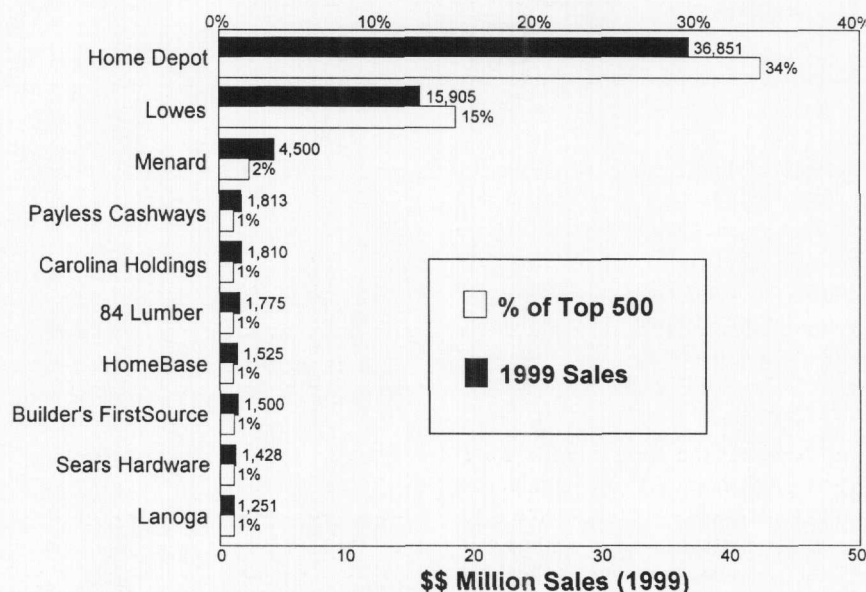


Figure 3. — Top 10 homecenters: gross sales and percent of top 500 homecenter sales in 1999 (2).

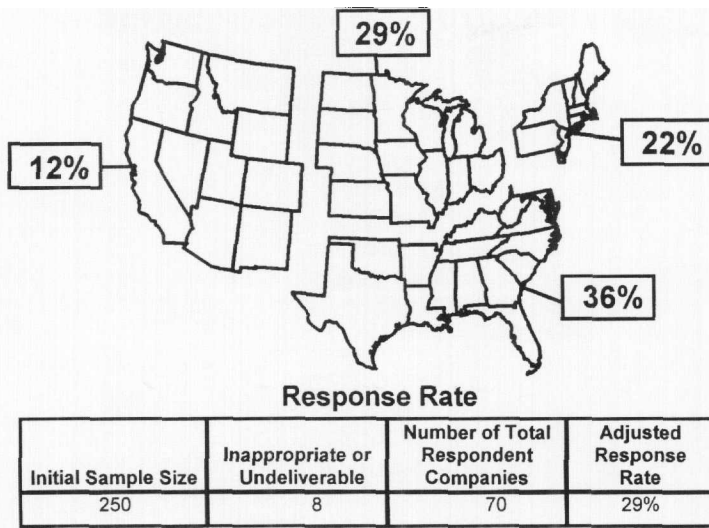


Figure 4. — Respondent location and response rate (% of respondents).

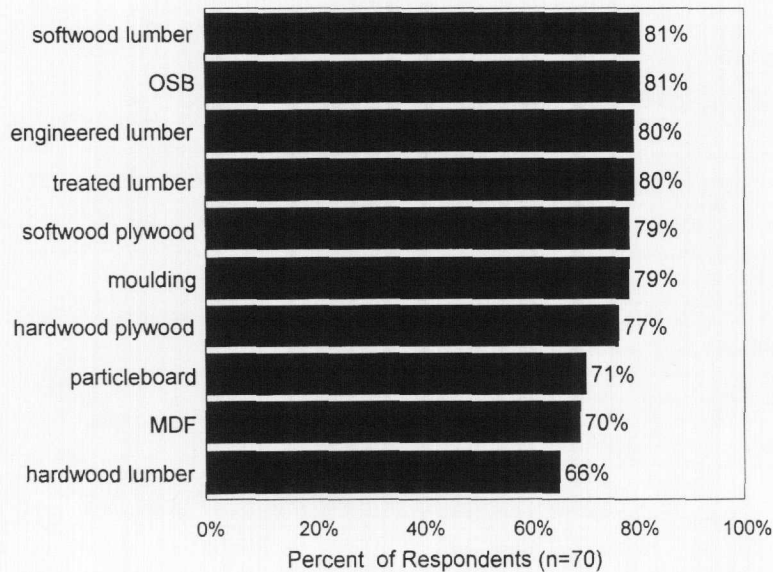


Figure 5. — Wood product purchases by respondents (multiple responses possible)  $n = 70$ .

industries are still far away from widespread rollouts and real life applications of their programs (2).

Large companies have established Internet-based initiatives in both the business-to-consumer and business-to-business marketplaces (6). Home improvement products currently account for a minuscule portion of what is purchased on-line (3).

Business-to-business eCommerce is where the majority of large dealers and suppliers have concentrated their efforts

and expenditures on the grandest scale; consortiums are being formed to develop huge eMarketplaces over which all facets of business could be transacted. The most prominent of these so far have been Global NetXchange, which includes Sears, Carrefour, Metro, and Sainsbury; Construction Supply Exchange, made up of state and regional dealer groups; and Channelinx; and ForestExpress, the exchange constructed by Georgia-Pacific, Weyerhaeuser, Mead Corporation, Willamette Industries,

Boise Cascade Corporation, and International Paper (3).

## THE STUDY

### RESEARCH CONTEXT

This study examined current and potential use of Internet-based technologies to conduct forest products procurement by home improvement/building materials retailers. Internet-based technologies were studied in the context of implementation strategies across a number of business types and industrial sectors. A sample of the top 250 companies was surveyed. The sample frame was selected from the National Home Center News Top 500 Scoreboard (2).

Respondents were asked to discuss their current or planned Internet procurement strategies and impacts that are perceived to exist with Internet-facilitated linked suppliers. Objectives were to:

1. Examine current and potential Internet-facilitated buyer/seller exchange between home improvement/building materials retailers and solid wood products suppliers;
2. Discern the general readiness of the home improvement/building materials industry to do business through Internet-based technology;
3. Identify concerns and perceived opportunities from participation in Internet-facilitated business practices.

### RESEARCH METHODOLOGY

*Data collection.* — Mail questionnaires were used because they are a cost-effective method of data collection for examining industry structures and business applications. The method affords a high degree of anonymity and is less limited by rigid time constraints that can impede the effectiveness of other survey methods.

A questionnaire was developed that tested concepts using questions developed by the authors and adapted from other sources (10,11). The survey was reviewed and revised by the researchers. An iterative process resulted in the final instrument. Survey development and implementation followed methods and procedures recommended by Dillman and described as the Total Design Method (4). Pre-addressed, postage-paid envelopes and a signed cover letter were included with the questionnaire. The cover letter also promised summary results of the study to participants who

completed and returned the questionnaire, a tactic that has been used successfully by the researcher in many previous studies. Pre-notification and reminder postcards were also sent to targeted companies. The study results are based on two mailings. All surveys were sent to either the highest-level manager available or the Forest Products Procurement Manager.

## RESULTS AND DISCUSSION

**Demographics.** — **Figure 4** shows that the respondents for this study represented all regions of the United States. The figure also shows the number of respondents initially sampled, the adjusted sample size after accounting for undeliverable surveys (due to company closures, change of address, or deceased) and adjusted response rate. All industry survey respondents were surveyed at the corporate headquarters level. Given that typical response rates for industrial studies range from 15 to 30 percent, a response rate of 29 percent in this study is considered to be good.

Non-response bias is a common concern in survey research. In mail surveys, the bias associated with non-response is generally due to two factors. First, people with an interest in the subject matter are more likely to respond than disinterested parties. The second major bias is that better-educated people usually return questionnaires faster than less-educated people. Because late responders tend to behave like non-responders, bias due to non-response can be evaluated by comparing those who responded to the initial mailing with those who responded as a result of subsequent mailings and other follow-up efforts.

By examining differences between the two mailings using two-tail t-tests, statistically significant differences (at  $\alpha = .05$ ) were found for only 3 of the 85 paired questions in the study. No differences were found for company size, geographic location, wood products purchased, reasons for eBusiness implementation, purchasing distribution channels, etc. This lack of difference between the groups reduces the concern about response bias.

The largest companies in the sample frame did not respond to the survey. As a result, respondents represented smaller companies, which are more common in this industry. Although 30 percent of the respondents had 1999 sales of \$10

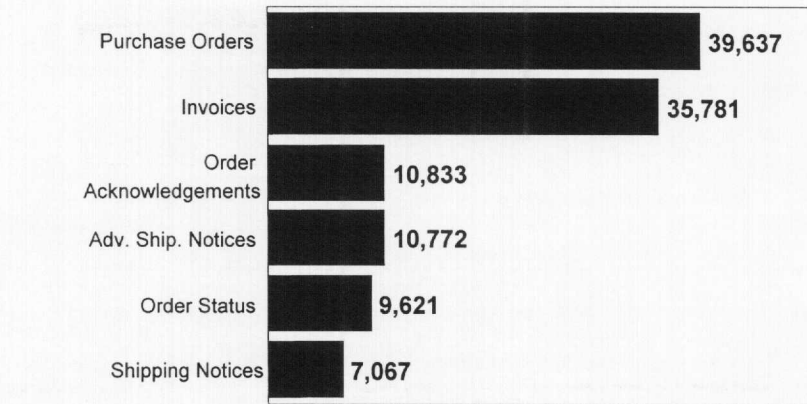


Figure 6. — Mean number of forest products supplier business documents processed annually by each respondent (total = 3.3 million documents;  $n = 70$ ).

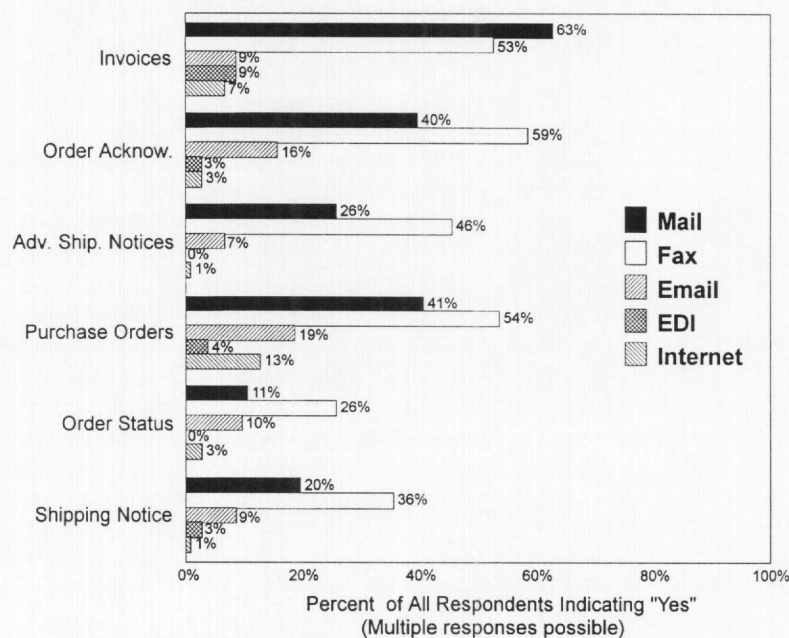


Figure 7. — Methods of sending and receiving business documents ( $n = 70$ ).

million to \$49 million, 24 percent of companies had sales greater than \$100 million.

Similar to total industry figures, a significant majority of respondents stock wood products (**Fig. 5**). All major primary solid wood products are represented in respondent sales.

Lumber and plywood account for approximately 19 percent of sales for the industry as a whole. For respondents, this figure averaged 55 percent of sales. This is likely a function of the profile of respondents being skewed to small- and mid-size companies that rely more

heavily on forest products in the sales mix.

One-third of respondents purchased forest products directly from manufacturers, while 60 percent of purchases were made through distribution intermediaries such as wholesalers (27%), brokers (18%), and stocking distributors (15%).

**Respondent use of eBusiness.** — Much of eBusiness deals with electronic transmission of business documents. Business documents most often processed by respondents with forest products suppliers are purchase orders and invoices (**Fig. 6**). Respondents annually

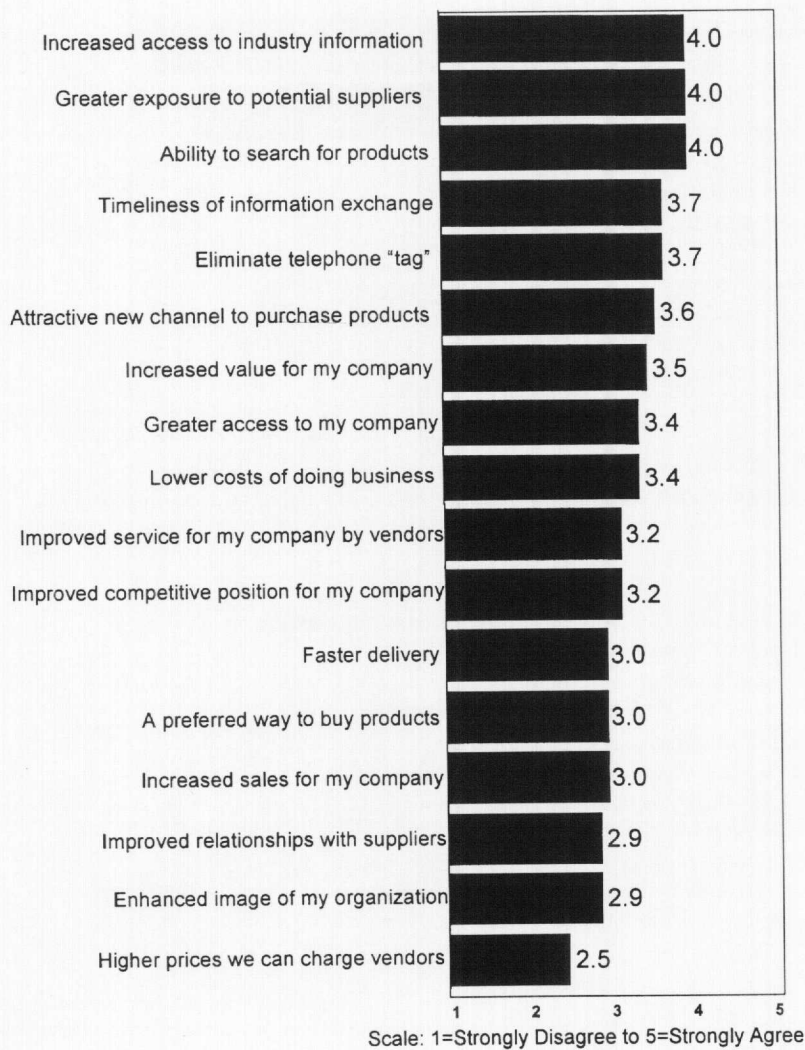


Figure 8. — Benefits that the Internet could offer ( $n = 70$ ).

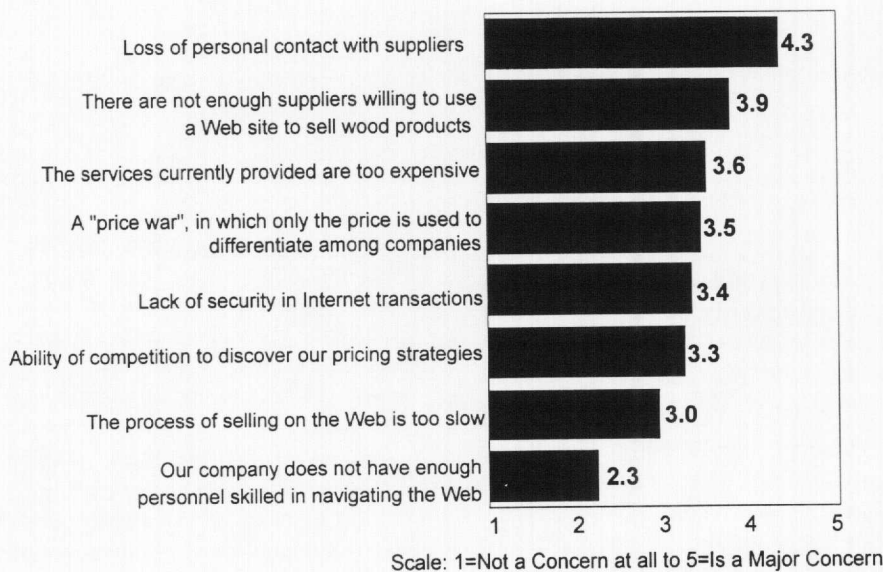


Figure 9. — Concerns about purchasing wood products on the Internet ( $n = 70$ ).

processed over 3 million documents with forest products suppliers. Regular mail and fax were the most common methods of transmitting business documents for respondents (Fig. 7). However, e-mail, EDI, and websites were becoming more prevalent, whereas they were not used to any discernible degree only 5 years ago. EDI is computer-to-computer electronic transmission of business documents between business trading partners. The documents are in structured formats that can be processed by each party's computer application software. This is an indication that this industry is poised to adopt eBusiness strategies and capabilities.

Seventy percent of invoices received and purchase orders sent by respondents were entered directly into computers, indicating a significant comfort level with using desktop PCs. To a lesser degree, order acknowledgements (27%), order status (26%), and shipping notices (24%) were received or entered directly into computers. The balance of these documents went through a two-step process of writing down the information by hand and then entering it into computers.

Twenty-four percent of respondents said that they currently used the Internet to support forest products purchases. There was no correlation between Internet purchases and company size, indicating a consistent level of usage across the industry.

All respondents were asked to rate benefits that they felt the Internet could offer to their companies (Fig. 8). The first five benefits focused on information exchange and supplier/product discovery. The next set of benefits included adding value for the company, lowering costs of doing business, and greater access to the company by customers and suppliers. Benefits ranked just below neutral (3.0 on a 5-point scale) indicated that respondents generally were indifferent in their belief that the Internet can improve relationships with suppliers (2.9), or that the Internet can enhance their company's image (2.9). The lowest-ranked benefit indicates that respondents did not believe that the Internet allows them to charge higher prices to vendors (2.5).

A set of questions focused on the respondent company's own web capabilities. Seventy-eight percent of respondents had a website. Sixteen percent of

respondents said that their website was integrated into their company business systems. Seventy-one percent of respondents said that they planned to develop or improve their website over the following 12 months.

Of those companies that had websites, 54 percent of the sites were developed in either 1999 or 2000. If 1998 is included, the figure is 78 percent of respondents. These homecenter respondents, on average, developed web capabilities later than the forest products companies surveyed in research previously conducted by the senior author (8,10).

The most used function of respondents' websites was promotion/advertising (91% of respondents). Second was customer service (31%), followed by operational functions (11%), and last, eCommerce (7%).

In the past, security was the major concern for both buyers and sellers considering participation in eBusiness (10, 11). In this survey, the number one concern was the loss of relationships with exchange partners (8,9) (**Fig. 9**). Respondents clearly rated this as their number one concern. Second ranked was the concern that the investment is not warranted because there are not enough forest products exchange partners that use the Internet to conduct

business. Third was the perceived high cost of doing business on the Web.

#### IMPLICATIONS AND LIMITATIONS

The importance of wood products to the homecenter industry cannot be understated; they contribute the highest percentage of any category to industry sales. Nearly 80 percent of the top 500 homecenters in the nation stock wood products. Results of this study suggest that there is potential for growth in the ability of homecenter retailers and their wood products suppliers to conduct eBusiness. Although the main benefits that respondents felt the Internet could offer focused on information exchange and product searches, many believed that the Internet is an attractive new channel to purchase products.

Although not used extensively by the respondents, eBusiness promises to make an impact on the purchase of wood products by the homecenter industry. As wood products sectors increase rates of eBusiness adoption, the industry as a whole will be better poised to participate in bi-lateral Internet-facilitated exchange with homecenter trading partners. A gap in technology trajectories between these two sectors is a limitation to eBusiness adoption.

One significant limitation to this study is that the top homecenter retailers in the industry did not respond. As mentioned

earlier, Home Depot and Lowe's Companies, Inc. alone account for 49 percent of top 500 homecenter sales.

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