

# C I N T R A F O R

## Working Paper 101

### Exploratory Assessment of e-Commerce Impacts on Processing Performance and Technology Changes in the Forest Products Industry

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#### Executive Summary

Despite strong demand, the forest products sector has not generated even average financial returns on its invested capital. A PricewaterhouseCoopers survey found that while global forest products industry sales increased 11.8 percent in 2003-2004 to \$340 billion, return on capital employed (ROCE) showed only modest growth. ROCE for the global industry averaged 5.5 percent in 2004, up slightly over 4.2 percent in 2003, but still far from the 10-12 percent industry target. New, efficient production facilities are emerging in the Southern hemisphere and higher-cost producers will be challenged to stay competitive.

Financial analysts have suggested that one of the reasons for the sector's poor performance is that, in general, firms are not responsive to customer demands, they have a poor understanding of inventories and internal business information, and they are inefficient.

Lean manufacturing methods have been used to remedy efficiency and productivity issues. During the past decade, information systems and e-commerce have been considered a component of lean manufacturing, capable of expediting sales processes, tracking orders, assisting with after-sales service, and inventory procurement and control. Given the history of lagging financial performance associated with the forest products industry, this research seeks, through a series of interviews with wood products manufacturers in the millwork, cabinet, and structural wood products segments, to determine to what degree e-commerce and information technologies positively or negatively impact production efficiency and profitability. The researchers recognize that assembling standardized performance data from companies producing different types of products is by itself a difficult task, therefore, this investigation is exploratory.

Clearly, the opportunity to improve productivity in the forest products industry exists, but are e-commerce and information technologies the solution? To answer this question, forest products companies need to better understand if e-commerce technologies and information technologies can improve production and sales productivity and profitability. Understanding how other forest products firms have used e-commerce to improve productivity may be all that it takes to promote change.

Millwork, precut home truss manufacturers, and large and small lumber mills were selected and interviewed to obtain an understanding of changes in the technologies used and their impacts. Findings revealed that while firms are adopting e-commerce technologies to improve production processes and inventory management, they place much less importance on the use of company managed websites for marketing and sales. While all firms interviewed use email and the Internet for communication and searching and/or purchasing non-wood goods such as e-technology equipment, few firms said they use websites for advertising, selling products, or to provide Internet-based customer order tracking functions. Companies who sold products on their own or third party websites found the medium relatively ineffective. The primary reason given is that their customers prefer to place orders directly with sales staff to ensure that they understand the products and that the order is placed correctly. This is especially true for small customers who are not reliant on e-commerce – a common profile in the forest products industry. With few exceptions, large home center retailers are the primary users of the technology for marketing activity.

Most manufacturers in the sample said that they are reluctant to purchase or sell products via the Internet because it removes their ability to develop and maintain relationships, a factor that is essential to conducting business in the commodities market. In lumber manufacturing, while sawmills try not to produce more lumber than they can sell, sales people rely on personal relationships developed over time to move excess inventory. None of the companies interviewed expressed an interest in purchasing raw materials over web-based exchanges, even though it is manufacturers' highest cost purchase.

While the use of Internet based technologies does not appear to be very prevalent, preliminary findings indicate that companies, regardless of size, are adopting information technologies (IT) to improve processing productivity and internal information management, resulting in substantial productivity gains -- in most cases over 50 percent within a few years of introduction. Advances in computer-aided technology have come almost as a requirement for improved sawing technology and processing equipment. Bar codes are used almost universally.

Ultimately, firms have upgraded their IT systems to maintain or improve competitiveness in light of increasing competition from lower cost producers, declining availability of high quality raw materials, and a greater proportion of smaller orders coming from a greater number of customers. For more complex secondary manufacturers, the opportunity to provide a greater number of product designs using computer controlled production and assembly is replacing higher cost customization while satisfying a broader set of consumer requirements.

While companies in the sample collect information about their performance, they are rarely equivalent metrics, making a statistical analysis of cause and effect difficult. However, in all cases in this study performance improvements were credited to new applications of internal information technologies rather than Internet processes.

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