

Innovation and Competitiveness in the Wood Products Industry: Insights from a Cross-Cultural Study

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Description: An investigation of forms of innovation and competitive advantages in the US and Chilean wood products industries.

Methods: In person interviews, mail survey

Data Source: 35 US and 8 Chilean top executives (mainly CEOs and vice-presidents)

Key Findings:

1. Large US wood products companies need to build a superior environmental reputation, because they face higher public scrutiny as compared to smaller companies.
2. US wood products firms focus their efforts on technological leadership (*Process innovation*), rather than on *Business* or *Product innovation*.
3. Large US wood products companies clearly outrun smaller companies in technological leadership. On the other hand, if all types of innovation are considered at the same time, smaller companies are able to offset the difference with larger companies.
4. Chilean companies enjoy a low-cost leadership advantage, which resides not only in high natural tree growth rates, but also in low wages and overall efficiency, with very little ground transportation (favorable logistics).

Wood products companies have traditionally been production and cost-driven. Although this strategy worked in the past, the industry faced important changes during the last decade. Technological innovation, consolidation of the industry, threats from substitute products like steel and plastics, globalization, government deregulation, and shifts in channel power to big box retailers, like The Home Depot or Lowe's, are some of the main factors fostering the development of the hypercompetition environment that wood products companies face todayⁱ.

In this regard, production and cost-driven actions will likely be insufficient to maintain competitiveness. In fact, 119 sawmills or 15% of capacity was shut down or forced out of business in the US between 1996 and 2002ⁱⁱ. Subsequent upgrading of remaining sawmills offset the loss of capacity, which is one sign of the strong consolidation process that the wood products industry is undergoing.

Researchers now suggest that a market orientation, a focus on both the customer and the competition, is necessary for adequate business performance. Here we explore the competitor component of a larger study that intended to provide suggestions for improving the market orientation of wood products companies.

The data collection considered 43 in-person interviews with wood products company top executives, mainly CEOs and vice-presidents of the US (35 interviews) and Chile (8 interviews). We performed interviews in the Pacific Northwest and the South, as can be seen from maps on the following page. Regarding Chile, most companies have their headquarters in the capital, Santiago. Five of the eight Chilean interviews were conducted there.

Our main findings can be divided in the following three areas: Environmental leadership, Innovation, and Cost issues.

Environmental leadership

Interviewees from large US companies emphasized a need for superior environmental reputation, because they are facing higher public scrutiny as compared to smaller companies. The data suggest a difference, given that 56% of the large companies show a high environmental commitment, compared with 40% among medium companies, and only 22% among small firmsⁱⁱⁱ.

Innovation

Innovation can be classified into three different categories: *Process*, *Business* and *Product innovation*^{iv}. *Process innovation* (or Technological leadership) refers to all the operational improvements that lower operational costs, reduce delivery time, and/or increase flexibility. *Business innovation* refers to improvements in customer-focused activities and/or Total Quality Management (TQM). Finally, *Product innovation* refers to improvements of existing products or developing totally new products.

During our US interviews, all three innovation types were identified as potential competitive advantages^v, where *Process innovation* was the most common, and the only type in the case of companies in the dimension lumber (commodity) business. Conversely, Chilean executives did not mention *Process innovation* as a competitive advantage. Chilean companies are typically exposed to higher capital and lower labor costs

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than US firms. Therefore, the optimal sawmill design in Chile is less mechanized than the optimal sawmill design in the US, thus a lesser emphasis on *Process innovation* in Chile is logical.

We examined *Process innovation* in more detail in the US. We determined that large US wood products companies clearly outrun smaller companies in technological leadership, probably because of the abundant financial resources that large companies enjoy^{vi}. On the other hand, if all types of innovation are considered at the same time, smaller companies are able to offset the difference with larger companies^{vii}: i.e. smaller companies can excel in *Product* and *Business innovation* even with limited resources.

Cost Issues

The Chilean wood products industry enjoys a country advantage. Chile is the global low-cost leader in log and sawmilling costs for white woods, with labor, stumpage and other sawmilling costs totaling \$57.6 per m³ in the year 2000. The US South and US Pacific Northwest had costs of \$118.6/m³ and \$124.2/m³, respectively^{viii}.

The Chilean low-cost advantage does not reside only in high tree growth rates, but also in overall efficiency: Chile exhibits extremely small shipping distance from forestlands to sawmills to ports, a feature that Brazil and South Africa, other important low-cost producers, generally lack. Also important, wages in Chile are low, although they are typically higher than those of Brazil or South Africa.



Please contact the authors for additional information.

ⁱ Dibrell, C.C., & Down J.T. 2002. Rejoining the debate of deliberate versus emergent strategic planning: insights gained from the global wood products industry. Paper presented at the Western Academy of Management 2002 Annual Meeting

ⁱⁱ Spelter, H. Sawmill closures, openings, and net capacity changes in the softwood lumber sector 1996-2003. United States Department of Agriculture. Forest Service. Forest Products Laboratory, Research Paper FPL-RP- 603, 12 pages (2002)

ⁱⁱⁱ The annual sales of each company allowed us to categorize the companies in three groups: Large, medium and small. Large companies were defined as those with annual sales larger than \$700 million. There were no companies with annual sales between \$245 and \$700 million, so there was a natural division between large and medium companies. The latter were defined as those with sales between \$55 and \$245 million. Finally, small companies had sales under \$55 million.

^{iv} Boer, H., & During, W.E. Innovation, what innovation? A comparison between product, process and organizational innovation. *International Journal of Technology Management*, 22 (1/2/3): 83-107 (2001)

^v Competitive advantage or "...the basis on which customers will choose your product over the competitors'...": Winer RS. Marketing Management. Prentice Hall, Upper Saddle River, New Jersey p. 551 (1999)

^{vi} Fisher's test renders a p-value of 0.05 (one-tail) that confirms moderate evidence of a statistical difference between small and larger companies in their process innovation.

^{vii} We used a chi-squared test. The p-value of 0.68 provides no evidence regarding a difference between small and larger companies.

^{viii} Wood Markets: The monthly international solid wood report, 6 (11): February 2002, R.E Taylor & Associates Ltd, published by International Wood Markets Research Inc, Vancouver, British Columbia, Canada