Wood Science & Engineering
Oregon State University

Innovation & NPD in the North American Forest Industry

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Description: An in-depth look at current innovation and NPD practices in the North American forest products industry.

Methods: Personal Interviews, mail survey

Data Source: 315 respondents from multiple sectors of the North American forest products industry

Key Findings:

- In general, respondents did not rate themselves as highly innovative.
- For most respondents, the focus of existing innovative activity is process innovation.
- Market oriented companies are more innovative.
- More innovative companies are more financially successful.

Now, more than ever before, the U.S. forest products industry must overcome significant challenges if it wishes to remain competitive. The industry has often maintained a commodity mentality and production orientation to its operations. Research has shown that the majority of the industry actively pursues a low-cost strategy. Traditionally, efforts to lower costs have concentrated on increased fiber utilization. According to USDA statistics, the U.S. industry increased utilization by nearly 40% during the 20th century. Still, the industry struggles against foreign competition. Harvard's Michael Porter suggests that, "Competition based on operational effectiveness alone is mutually destructive, leading to wars of attrition."

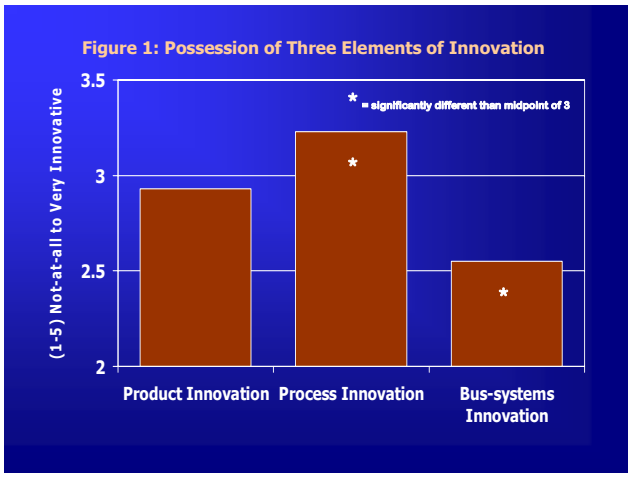
As manufacturing jobs continue to move overseas, there has been a call for the industry to change. One significant strategy for maintaining competitiveness is innovation. Innovation can take three general forms: product, process, and business systems. Product innovation includes development of truly new products as well as adaptation/improvement of existing products. The industry has long excelled at process innovation, improving throughput and increasing fiber recovery via technologies and improved techniques (e.g., quality & process control). Business systems innovations are growing in importance for the industry. E-business is an obvious example of a business systems innovation, but more traditional marketing and management techniques are equally important. For example, moving from a production orientation to a customer or marketing orientation may be critical for the future success of many members of the industry.

In order to better understand the current innovation practices and focus in the industry, a two-stage study was conducted incorporating both qualitative and quantitative techniques. Interviews were conducted with managers and/or owners of eighteen companies in Oregon and Alaska. The goal was to develop a better understanding of how company personnel view the concept of innovation. By recording and categorizing their views we were able to verify the concept that innovation can take the three general forms mentioned earlier: product, process, and business systems.

Using what was learned in the first stage, a mail questionnaire was developed to assess industry practices with respect to innovation, especially product innovation. The sample included sawmills and panel mills (both structural and non-structural) in the U.S. and Canada, moulding and millwork producers in the U.S. and as many firms as could be identified in Alaska and Oregon, regardless of industry sector.

RESULTS

As was expected, firms rated themselves most innovative with respect to process innovation (Figure 1). Still, the overall mean for process innovation was quite low (just over the midpoint). Product innovation was rated at the midpoint of the scale while business systems innovation was low, statistically lower than the midpoint.



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RESEARCH BRIEF

Table 1 provides an overview of the major drivers of innovation and the sources of innovative ideas in the responding firms. The combination of upper management and customers (of various types) appears to be the major force for innovation in the industry. One can question the importance placed on upper management since respondents in this study were just those upper managers and they potentially could have overstated their own importance in the innovation equation.

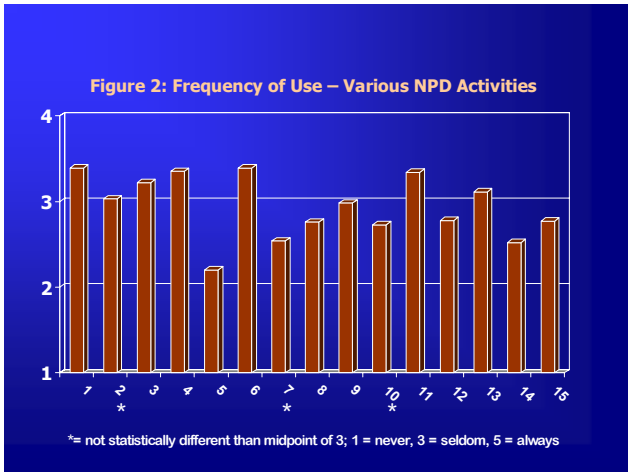
Table 1: Drivers of, and Sources for, Innovation

Drivers of Innovation
Upper Management – 18% Competitors – 16% Retailers – 16%
Sources of Innovative Ideas
Customers – 26% Upper Management – 19% Employees – 14%

A product development process can be broken down into many incremental steps. In an attempt to assess how structured the industry is with respect to product development, a scale including 15 potential product development steps was used. Respondents provided their assessment of how often they conducted each of the following steps using a scale that ranged from 'never' to 'always' with 'seldom as the midpoint.

1. **Idea generation**
2. Initial screening
3. **Preliminary market assessment**
4. **Preliminary technical assessment**
5. Detailed market research
6. **Business/financial analysis**
7. Product development
8. In-house product testing
9. Customer product tests
10. Test market/trial sell
11. **Trial production**
12. Pre-commercial business analysis
13. **Production start-up**
14. Market launch
15. Post launch evaluation

Figure 2 outlines the frequency with which these activities were undertaken by responding firms. The items that were significantly greater than the midpoint of 'seldom' are shown in bold above and are weighted toward production and financial analysis issues. Because the mean value for most items was near or below the midpoint, it suggests that the industry does not consistently practice structured new product development.



Market orientation (MO) is a company culture that consists of simultaneous focus on the customer and the competition, gathering information from both, integrating that information across the company, and acting upon that information. The elements of MO are referred to as 'customer orientation', 'competitor orientation', and 'interfunctional coordination'. MO was assessed in this study because previous research suggests firms that are more market oriented are more innovative and firms that are more innovative are more successful.

Using multiple-regression we tested whether the three components of MO were associated with innovation. A statistically significant, positive relationship exists between competitor and customer orientation and innovation. In other words, respondents reporting higher levels of competitor and customer orientation were more likely to exhibit higher levels of innovation. With respect to performance, we found a statistically significant association between process and business systems innovation and firm performance.

CONCLUSIONS

Results only show a current relationship between process and business systems innovation and performance. Still, we suggest that the industry can make significant improvements in new product development processes. Future competitiveness may be more dependent upon the ability to proactively develop new products and adopt innovative business management techniques than increasing process efficiency. This is not to say that process innovation will be unimportant, only that being a good processor will unlikely be a long-term source of competitive advantage. Instead, it will be a necessary prerequisite for competing.