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CASE STUDY

The Logging Dilemma*

Yakima-Olympia Corporation, a multibillion-dollar forest products company in the US needs to decide technology for logging operations in its 450,000 acres of Virginia timberlands. Yakima-Olympia Corporation is a vertically integrated enterprise, engaged in all activities from research-intensive farms to wholesale and retail distribution of paper and solid wood products. It, however, outsources logging which is very burdensome for its employees, and is done more economically by logging subcontractors.

There are two harvesting systems for logging. The first system, currently being used by its subcontractors, includes a feller-buncher and skidder. This technology is oriented towards cutting down and moving maximum volume of trees in shortest possible time; in the process it puts great pressure on both the land as well as the workers who have to respond to the brute force of technology. A feller-buncher is a large machine that has a big cutter on the end of a mechanical arm. This cutter is called a 'head'. The head holds the tree while it cuts the tree at the stump. The head can hold several trees at once, depending upon the size of the trees. The feller-buncher places the trees in small piles, which are then pulled by a 'skidder' to the landing where the major limbs are taken out of the trees using the hand-held chain saw called a 'slasher'. The crane then loads the logs onto flatbed trucks for transport to wood yards. Here, Yakima-Olympia sorts the logs, and cut them into segments for sawmills, plywood mills, or pulp mills, depending on the quality and species of the trees.

The alternative system combines a 'processor' with a 'forwarder'. These are referred to as 'cut-to-length' systems. A processor is a large machine with a computerized system that carefully selects, grabs, fells, precisely de-limbs, and smoothly cuts trees to specified lengths, and drops the sections in piles. There are no chainsaws involved. A forwarder then used computer-programmed sequences to pick up the logs, to carry them to the roadside, and to load them onto trucks destined directly for specific processing mills. The technology is oriented towards cutting only the mature trees based on the specific needs of the processing mills; thus the land is conserved, and so is the effort of the manpower involved, who works safely and cleanly from air-conditioned machines.

The processor-forwarder technology involves a significantly larger upfront investment, a heavier reliance on high-skilled workforce, more complex maintenance issues, and more complex job task; but it avoids the need for sorting at the woodyard for Yakima-Olympia. The competitors of Yakima-Olympia Corporation do not necessarily stand to gain from the processor-forwarder technology because they use low value logs for pulp mills. Yakima-Olympia instead uses high value logs for sawmills and plywood mills, and so is more concerned with the damage to its trees, and to the stem, and the high cost of managing the badly cut limbs. Its strategy is to differentiate based on planting and growing genetically improved trees that will yield a wood mix with a superior average value at maturity. Further, if the current technology were to continue, in ten years, the company's timberland would yield only about 80% of the high grade logs needed by its sawmills and plywood mills. On the other hand, with the alternative technology, the company would be able to meet a higher percentage of its needs because of a more precise cutting of the trees, thereby saving more than \$ 5 million in purchased logs each year.

* Based on Shank, J.K. and Govindarajan, V. (1992), Strategic Cost Analysis of Technological Investments, *Sloan Management Review*, 34(1): 39–51, <http://www.dsisd.k12.mi.us/mff/Products/ToMarket.htm> (accessed on June 5, 2004).

The returns to the loggers are virtually identical for using both the technologies. Therefore, the logging contractors are not willing to make a switch to the processor-forwarder technology, even though Yakima-Olympia is willing to offer long-term contract guarantees.

DISCUSSION QUESTIONS

1. What are the implications of the *current technology* vs *alternative technology* on various functional strategies, in particular (a) human resource strategy, (b) supply chain strategy, (c) operations strategy, (d) customer relations strategy, and (e) fiduciary strategy?
2. Given the business strategy of Yakima-Olympia, which technology is more supportive of the appropriate functional strategies?
3. What should Yakima-Olympia do?

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