Chapter IV

Isobord's Geographic Information System (GIS) Solution

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EXECUTIVE SUMMARY

Isobord, a start-up company that is setting up a new strawboard production plant in Manitoba, Canada, is facing critical operational problems that threaten its future. Isobord's product is a high quality particleboard substitute that uses straw, rather than wood, as the main raw manufacturing material. To achieve viability, Isobord must develop processes to carefully coordinate and manage its straw baling, stacking and hauling operations. Through effective information systems, Isobord has the potential to reduce the amount of equipment it needs to purchase to meet straw harvest requirements. A small investment in optimization technology could yield considerable cost savings if the efficiency of capital equipment can be improved. A geographic information system (GIS)/relational database management system (RDBMS) solution is being explored, but budget and time constraints, as well as organizational inexperience, seriously threaten the project. An information technology decision must be made immediately if there is to be any hope of implementing technology to manage the first year's straw harvest.

BACKGROUND

"... Like Rumplestiltskin, Isobord is spinning straw into a wealth of new opportunity!" The room erupted with applause as Gary Filmon, premier of the Province of Manitoba, Canada, dramatically concluded his speech welcoming Isobord Enterprises Incorporated to the small town of Elie, Manitoba. The ceremonial ribbon cutting on November 8, 1996, officially certified Elie as Manitoba's latest boomtown and home to the world's first large-scale strawboard production plant.

The new 215,000-square-foot Isobord plant is designed to produce over 130 million square feet of premium-quality strawboard per year. What makes the Isobord operation unique is its reliance on an annually renewable agricultural by-product, straw, as the primary raw material input. Most particleboard plants rely on wood as the primary input.

When it is completed, the Isobord facility is scheduled to process 200,000 tons of wheat straw per year to produce its high quality strawboard product. Initial runs of the product quickly earned great praise in consumer markets, due to the superior physical and mechanical properties of the straw-based board. Specifically, because Isobord uses straw fibers and nontoxic, environmentally-friendly isocyanurate resins in the manufacturing process, the final product performs better than standard wood-based particleboard in terms of water resistance, moisture swell, elasticity, internal bond, weight, density, strength, moldability, and screw retention. U.S. consumers of particleboard were so excited about Isobord's product that they agreed to purchase 75% of the output before the plant was even constructed!

According to Gary Gall, Isobord's president, "The beauty of the Isobord product is that it utilizes an annually renewable natural resource that was previously considered to be an agricultural by-product. By utilizing the straw we can simultaneously help to combat the negative effects of straw burning, and create a sustainable business in Manitoba." Until Isobord came along, Manitoba farmers were forced to burn straw after the harvest each fall. With the Isobord option, farmers can now sell the straw, reduce their workload, and cut down on air pollution in one fell swoop.

SETTING THE STAGE

Isobord, a start-up company headquartered in Toronto, Ontario, is in the process of developing a strawboard processing plant in the fertile Red River Valley of Manitoba, a location some 2,000 kilometers away from the head office. Isobord's ability to create a sustainable operation in Manitoba is largely dependent upon the abilities of its management team. Unfortunately, while fundraising, production and promotion have all received consistent attention by senior Isobord executives, the problem of harvesting straw has been essentially

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