**Case Analysis: Burlington Northern: The Ares Decision**

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**Problem Statement**

Burlington Northern faced a problem in the 1990s. This problem can be explained by the theory of constraints, which states that in order to maximize production capacity of the system, throughput at the bottleneck needs to be maximized (Goldratt). In Burlington Northern’s case, the constraint is the outdated technology. They were not able to track the trains’ locations well enough. This led to scheduling errors with the trains and a poorer quality of service than they wished for. Senior executives needed to decide on what they could do to eliminate this constraint so that they could improve service and be able to raise prices, and thus improve profitability. They debated on whether investing in the ARES (Advanced Railroad Electronics System) technology, which would automate the train control system, would be the answer to this problem.

**Industry Competitive Analysis**

I. **Mission Statement**

Burlington Northern (BN) is a logistics and distribution company and their mission is to haul goods for providers of primarily commodities such as coal and grain by employing a cost leadership generic strategy. A cost leadership generic strategy is a strategy that involves taking advantage of economies of scale by producing high volumes of a product for a large consumer base and producing that product at a cost reduction (Tanwar 12). This generic strategy applies to Burlington Northern as they have one of the key components of a successful cost leadership strategy, which is to have preferential access of an input, which in their case is the considerable natural resources they owned, including land that contained mineral, timber, oil, and gas. Burlington Northern’s revenues came from transporting high-volume productions of commodities for a large consumer base. These commodities included coal, agricultural commodities, industrial products, intermodal, forest products, food and consumer products, and automotive products. Their strategy meant that they did not focus on only one thing done so well that it is difficult for others to compete (as in a focus strategy), nor were they concerned with differentiating themselves for fear of substitutes (Barker), which is further explained in the ‘Five Forces’ section of this paper, and that they were more concerned with cutting costs in their productions.

**II. Five Forces**

Porter’s five forces are power of customers, power of suppliers, threat of substitutes, threat of new entrants, and competitive rivalry. The following is an analysis of each force and how they affected Burlington Northern and the company’s environment.

The first one, power of suppliers, is a force that explains the relationship between buyer and supplier. If the supplier holds bargaining power, then they can influence prices in the market and availability of supplies (Team FME 23). In Burlington Northern’s case, the bargaining power depended on the product bringing in revenue. Their biggest source of revenue, coal, was supplied mostly by the Powder River Basin in Montana and Wyoming, where BN owned the mines that were built there. The bargaining power in this case lay with BN as they did not have to worry about their suppliers controlling the price of the coal, which stayed relatively consistent. However, their second biggest source of revenue, grain, was supplied by grain traders, who were able to deal for the best prices. The pricing and shipment of grain was more unpredictable than coal, and so BN had less bargaining power when it came to the supply of grain. Even after the Certificates of Transportation (COT) program was passed, which allowed BN to lessen some of the unpredictability of pricing and shipment, they still needed to be careful with their planning and coordination in their grain operations.

The second force, power of customers, is a force that explains the relationship between seller and customer. If the customer holds bargaining power, then they can influence prices and quality of products in the market (Team FME 25). Burlington Northern’s two biggest revenue-bringing products, coal and grain, are commodities that are heavy, low cost, and have low time sensitivity, meaning that they are suitable to be transported by train, rather than by other means of transportation, such as by truck. The fewer options there are for customers, the lower their bargaining power is. Therefore, Burlington Northern’s customers had low bargaining power for their main commodities.

The third force, threat of new entrants, describes the threat companies face when there are new entrants in the market who can increase the bargaining power of customers. Current sellers in the market will try to erect entry barriers, such as copyrights, patents, or contracts (Barker). In Burlington Northern’s case, there was not really a threat of new entrants as there were federal acts passed that limited entry of new competitors. Managers of BN believed that the U.S. would pass legislation for acid rain, increasing the demand for low-sulfur coal, which BN had invested in.

The fourth force, threat of substitutes, explains how the threat of substitute products or services, which meet a consumer’s need but in another market, can affect the competitive environment and subsequently profitability for the producers of current products or services by allowing consumers to choose the substitute products or services instead. Because Burlington Northern followed a cost leadership generic strategy, which is less concerned with this force in Porter’s model, the threat of substitutes was not a great concern for them. They were not worried about needing to diversify their product or service; they were concerned only with doing it cheaper.

The last force in the model, competitive rivalry, describes the threat to existing sellers in the market by other competitors in the same market. A major competitor of Burlington Northern was Union Pacific (UP). They were a significant competitor as they had invested in new technology for heavy-duty double tracks and fuel-efficient engines for carrying coal, which led them to have excess capacity, unlike Burlington Northern. BN also faced competition with their five other commodities previously mentioned from the trucking industry, which was able to ship the same commodities, but faster, and more importantly, door-to-door. This gave customer’s more buying power as they were interested in faster and more personal service. This last force in Porter’s model was the one Burlington Northern was most concerned with as it was the greatest threat to profitability thus far.

**Key stakeholders**

A stakeholder of an organization is anyone who is affected by the organization’s operation and performance, and typically has a vested interest in the company. There can be both internal and external stakeholders. For Burlington Northern, the internal stakeholders consist of the following: 1. The sponsors of the ARES project, which included the vice president of Technology, Engineering, and Maintenance, Don Henderson, and executive vice president of Operations, Joe Galassi, 2. All staff members, who can be divided up as the firm’s corporate functions (which includes finance, strategic planning, marketing, labor relations, the Operations Department, and the Information Systems Services, and all employees within those departments, including those that worked on the trains and railroads themselves, such as the conductors, dispatchers, and maintenance-of-way (MOW) crews), and 3. Senior executives, such as the CEO and COO, who were deciding on whether or not BN should invest in the ARES technology. The external stakeholders consist of all of Burlington Northern’s customers.

**Possible Solutions**

There are three possible solutions outlined in this paper. The first option is for Burlington Northern to implement the ARES project. The second option is for Burlington Northern to adopt a different technology that they were exploring, known as the Advanced Train Control System (ATCS). The third option is to do nothing and forego implementing any project and continue to do what is currently being done.

The first option, implementing the ARES project, would impact the stakeholder groups in a few major ways. First, the cost of implementing the system, estimated at $350 million dollars, would affect the sponsors of the project who risk losing money if the project does not succeed in bringing in revenue. Second, implementing a new technology would affect all internal operations, from upper-level management to the lower level employees working with the new technology. The Information Systems Department would need to make sure that the new technology can be implemented effectively, given that the automated technology was considered years ahead of its time. Implementing ARES would require significant organizational changes as the technology alone could not deliver benefits, and the company’s business processes would need to be redesigned and the operation’s department would need to redesign new roles and responsibilities. Finally, the external stakeholders, consisting of customers, would be affected in that they would receive improved service due to the technological advancements ARES would bring to the company.

The second option, implementing the ATCS project, would impact stakeholder groups in a few ways as well. First, the cost of the new system would affect the owners of the company in that they would need to spend money on the new system and risk not bringing in enough revenue to offset that investment. Because ATCS cannot monitor the location of maintenance-of-way vehicles as accurately as ARES nor employ full safety benefits as ARES can, there is the risk that the technology would not increase revenue enough to offshore the costs of implementing the system. This would also impact all workers as there would not be increased safety benefits. And secondly, if the technology was successful in improving service, this would impact the company’s customers, who are the external stakeholders.

The last option, which is to do nothing, would affect each of the stakeholders as well. There would be no costs incurred, so all sponsors and owners of the company would not lose money in that regard. All middle and lower-level employees would continue to employ the same business processes and practices, so there would not be a change in the scheduling, and therefore the problems of there being train delays and difficulties tracking down trains would persist. And finally, the customers would be affected in that they would not receive an upgrade of service.

**Recommended Solution**

The recommended solution is for Burlington Northern to implement the ARES technology. According to Dr. Kalakota, a “company can add knowledge value to a product or service through innovation…” (Kalakota xiii). Innovation in technology is a good way to stay ahead of competitors, and implementing the ARES technology would allow for this as it would improve train scheduling, which would improve service, which would improve customer satisfaction, leading to an increase in sales and revenue. The reason implementing ATCS is not advised is because it would likely be too difficult to implement any automated technology in the future as the technology is too different, and because there would not be the same benefits possible that ARES would bring, such as full safety benefits. Along with this, not implementing any new technology is also not advised as there would not be an improvement in service nor pricing, which BN needs, otherwise they risk losing business to their competitors.