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BURLINGTON NORTHERN CASE ANALYSIS

**Summary:**

Burlington Northern (BN) is a logistics and distribution company for commodities such as Coal and grain that was formed by merging four railroads. Burlington Northern has found its success by using rail lines that span from the northwest to the western part of Florida. While most of their tracks are in the Great Plains and the Midwest.

           Currently, BN is competing with all forms of distribution, over the last decade there have been deregulations for both trucking and railroads. Leading to a chance to take advantage of the market. Or losing some of the market's potential to the trucking industry. One of the biggest challenges that BN faces is the fact that trucks can offer door-to-door service and are more reliable with a 90-95% on-time rate, while trains only offer 75-80%. Burlington Northern faces several problems in their current operational scheme. They have outdated communication methods between the dispatcher, the trains, and the Maintenance-of-way (MOW) crews. As well there was no way for the train engineers to know how much fuel they have without stopping the train. There are also no gauges or recording systems that monitor the conditions of the train, which could lead to system failures. In addition, there are no effective scheduling systems in place to help trains with meets and passes, causing delays and errors.

**Problem:**

           The combination of all of the problems creates an obstacle that BN needs to find a way around. BN’s R&D department created an advanced railroad electronics system (ARES) that can radically change how railroad operations are planned and controlled. The question that remains is, should BN’s senior executive invest in ARES.

**Industry and Competitive Analysis:**

           The primary business function of BN is the logistics and distribution of commodities, mainly using railroads. They transport coal, grain, agricultural products, consumer food & goods, industrial products, lumber, and automotive products.

Generic Strategy

           As a railroad that transports raw materials, BN’s strategy of operation is cost leadership. Which aims to operate at the lowest cost possible to provide the cheapest rates for their services to their customers. (Tanwar, 2013). One way the BN can operate in this fashion is, coal is sensitive to cycle time, and not arrival time, so to keep coal cost low, BN dumps the coal without waiting for collection. As well, BN understands grain is time sensitive. So, BN sells contracts to move grain within 3 days, which helps steady grain prices.

Porter’s Five Forces

Competitive Rivalry

The competition for Burlington Northern was the other railroad companies such as Union Pacific which were implementing new technologies to increase their efficiency. BN’s largest piece of revenue comes from coal, representing 33% of its total revenue. (Cash, 1994). As well as the new competition from the trucking industry on other goods.

Power of Suppliers

           Burlington Northern is a distributor for most of the suppliers and has long-term relationships with them. Due to the contracts needed for the distribution of the products. There is a low threat from the Suppliers.

Power of Customers

           The threat of buying power could potentially be high due to other companies such as Union Pacific (UP) that could offer a competitive alternative. If BN does not gain a competitive edge by investing in ARES, it could fall behind UP in cost and on-time deliveries.

Threat of Substitutes

           The threat of substitutes is medium, because of the low switching cost to other distributors such as trucking, and planes. However, trains remain the most cost-effective method of shipping.

The threat of New Entrants

This threat is low for BN. Due to the high expense of entry into the market. As well as the time that would be needed to create a rail system if you are not buying an existing railroad.

**Stakeholders:**

The stakeholders of Burlington Northern are split into three categories. The shareholders that own stock in the Burlington Northern organization. The employees who maintain the daily operation of trains. These employees consist of dispatchers, engineers, and MOW crews. And lastly, the customers whose product is being shipped through Burlington Northern. These customers can be individuals or large corporations.

**Possible Solutions:**

Use of ATCS

           After designing the ARES one option is to use the Advanced Train Control system (ATCS) that the Association of American Railroads (AAR) is creating. While it was still in development, it might be a safer choice to wait and see how useful the ATCS was for other railroads. While you might be behind the curve. The goal of innovation is not to have the newest it's to improve your problems. And if the ATCS improves the problem and costs less it might be what needs to be installed. Using ATCS would allow the BN to buy a working system rather than spend money to create a system. ATCS uses transponders on the rails to show where a train is and would have the same onboard signals that ARES would have. That would allow the Dispatcher to know where the train is. And the onboard equipment would allow the engineer to not have to stop the train to know the fuel level.

Wait to make the decision

           BN could wait until the ATCS was fully developed to decide. In the meantime, it gives R&D and Rockwell International time to develop the Locomotive Analysis and Reporting System (LARS) and the Energy Management System (EMS) even more so that you can make an informed decision on which choice to go with. It delays when the money is spent, and it allows both systems to get the kinks worked out.

Invest in only part of ARES

The Cost for ARES is divided into 3 portions the control center, the data link, and the onboard equipment. All of the portions are needed to run ARES effectively, but all of ARES are not necessary. While LARS and EMS are nice things to have, they are not necessary for the use of ARES. It was estimated that ARES would cost $360 million to be produced. Well, it might be even more than that, EMS does not have an estimated cost yet, which means it would be added onto the $360 million. It was estimated that LARS would cost $35 million as part of the $360 million.

Invest in all of ARES

           Above are possible ways not to spend money on the system that BN had developed and built over the last decade. Choosing to invest $360 million in ARES, it is understood that all of BN’s issues would be solved if the system’s implementation is successful. There is a risk to investing in ARES, there is no fall guy for if it goes wrong. Understanding what ARES is capable of creating for BN is overwhelming. Not only are the communication issues get fixed which is what the main goal was. It was estimated that there would be benefits in how much can be saved in Fuel, Equipment, Labor, Damage prevention, and Enhanced revenues that the customers that the John Morton company surveyed said they would spend on the increased services that could be offered. The largest potential benefits are yet to be even determined because they haven’t been tested on how much the on-time rate would rise.

**Recommendation:**

Out of the four alternatives, it is recommended that ARES should be fully invested in. Despite the risk of investing in a new system that might have some issues to work out. There is one thing that ARES can accomplish that ATCS can not. Full safety benefits. With EMS the computer on the train can receive information on the track profile, speed limits, and weight of the train. And can calculate what speed the train should go to give the best safety and fuel consumption. LARS allows BN to spend less time on train repair by signaling when a component needs maintenance instead of breaking.

Work Cited

Goldratt, E.M., & Cox, J. (2014). The Goal: A Process of Ongoing Improvement. Great

Barrington: North River Press

Porter's Five Forces. www.free-managemenet-ebooks.com. (n.d.). Retrieved 26 January 2023.

Tanwar, Ritika. Porter’s Generic Competitive Strategies. ISOR Journal of Business and

Management, 2013.