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# Burlington Northern Case Study

# Mission Statement and Background

Burlington Northern is a logistics and distribution company that focuses on transporting commodities, such as coal, wheat, grain, etc., for the upper Midwest United States railway system using a cost leadership strategy. The company not only owned a large railway system, but also large amounts of natural resources and land grants holdings that contained minerals, timber, oil and gas. Using the 800 trains per day on their route, Burlington carries enormous amounts of inexpensive goods, goods that are susceptible to things such as weather or time. Coal was their largest revenue stream, $1,504,000 compared to $718,000 in revenue earned from their second largest revenue stream agriculture.

Burlington is currently contemplating whether or not to invest in ARES. ARES is an automated railroad control system. The system uses GPS technology to track locomotives every second. This allows the system to narrow the location down to 100 feet, rather than 10 – 15 miles as it is now, and accurately track the locomotive’s speed, something that was not possible before.

ARES can create schedules to avoid conflicts, limit the amount of meet-and-passes, and put more locomotives on the tracks to increase efficiency and utilization of assets. Also allows dispatchers to directly monitor and communicate with conductors through the system.

The system allows monitoring of a locomotive’s health and efficiency, the Locomotive Analysis and Reporting System (LARS). This was accomplished by monitors throughout the engine and other parts of the locomotive, and the data is accessible on the on-board computer and by the dispatcher.

# Generic Strategy

Their generic strategy was cost leadership. As an organization with a large market share, this strategy was successful. They were constantly looking to increase efficiency, such as lower cycle times when delivering coal to speed up deliveries and properly utilize their assets. The market had high entry barriers, such as large initial investments, but this did not entirely stop competition.

# The Problem

As new technology emerged from other companies their prior investments were erased (Tanwar). Such as a major competitor, Union Pacific, having fuel efficient engines in their trains for carrying coal. Burlington’s train conductors had no way of telling how much fuel they had without physically getting out of the train and looking at the gauge on the very back, forcing them to refill at every stop. Trains were controlled by dispatchers, but the dispatchers were not able to accurately locate trains. There were no gauges or readings on the older locomotives that would give warning of failures.

Trucks began coming into the logistics and distribution market and taking over any contested commodities. They were much more flexible, able to be located more accurately, and could go door-to-door within cities and towns, unlike trains. Trucks were able to recover from delays and were far more reliable. Burlington began to lose more revenue as trucks were able to deliver assembly parts faster.

The ARES has already been tested in a closed-loop segment, the Minnesota Iron Range, with 17 locomotives. The system began evaluation and improvements and became a full command center system. The price to implement this system to all of Burlington’s roadways is $350 million, more than they have invested in a single improvement before. Burlington executives are not sure whether it is worth it to invest and implement.

# Five Forces

## Competitive Rivalry

There was a lot of competition, as there are in cost leadership strategies. Large competitors, such as their rival Union Pacific, made large investments to improve their service making Burlington’s prior investments value decrease, such as their investment in heavy duty double tracks and fuel-efficient engines. Burlington still had outdated locomotives that were hard to maintain(Tanwar). Although, Burlington was the number one hauler of spring wheat, and number two hauler of corn.

## Threat of New Entrants

The threat of new entrants was low. A large initial investment is required to enter the logistics and distribution market. There are lots of equipment, land, and other expensive assets required to even begin operating. This created a high barrier for entry, and for exit. Unprofitable companies were forced to continue competing.

Knowledge of the industry is also a barrier to enter. Engineers were needed to build and maintain the railroads, along with the locomotives that went on the railroad. Knowledge of how to coordinate a large logistical operation needs to be known.

To generate revenue and overall be profitable, economies of scale were required. By consistently aiming to lower costs and improve processes, running more routes more times was needed to generate revenue. The Minimum Efficiency Scale deterred new entrants.

## Threat of Substitutes

The truck delivery system becoming more popular after WWII was a large issue. The train organizations, not only Burlington, lost revenue from the contested and time-sensitive commodities to trucks. Organizations began using trucks to transport products for multitudes of reasons. Trucks were more reliable, could recover from unforeseen delays unlink trains, were able to access cities and deliver to the doorstep while charging two to three times more than railroads.

## Bargaining Powers of Suppliers

Burlington’s suppliers do not have a large amount of bargaining power. They already have and have been using the assets needed for their operation. They have their own maintenance-of-way (MOW) to maintain their railroads and locomotives. The only suppliers that have bargaining power are the fuel suppliers. Burlington is forced to buy fuel at whichever price is offered to them due to it being crucial to the operation.

## Bargaining Power of Customers

Burlington’s customers have a moderate amount of bargaining power, depending on the availability of other railroad systems that would deliver to the same region. Customers can demand faster delivery, less delays, and lower costs for their deliveries as there are other competitive organizations that are available.

Their bargaining power may increase with the introduction of trucks, the customer may not require a lower cost but a higher quality of service. Trucks offered a higher quality in multiple aspects compared to locomotives and were an easy substitution.

# Organizational Structure

Burlington was headquartered in two different locations. The first was the Operations Department based in Overland Park, Kansas. This department oversaw dispatchers, operators, supervisors, R&D, maintenance and more operational areas of the company The second location was the Corporate Functions located in Fort Worth, Texas. This headquarters oversaw all finance operations, such as investments, accounting, etc., marketing, strategic planning, and labor relations. IT Operations were in St. Paul Minnesota.

The president and CEO controlled all of the financial and strategic planning, any communications and public affairs, labor relations, and dealings with the government and regulations. The Chief Operating Officer controlled marketing and sales, equipment, engineering and maintenance, commodities, and the ARES project.

# Stakeholders

The first stakeholder group would be the shareholders within the company, including executives. The shareholders have benefitted already from the debt payment plan being announced and rising the price of shares. Failure to implement a successful solution could cause the price of shares to plummet, destroying the shareholders’ investment, forcing them to pull out of the company, leaving the company with less access to future potential capital.

The second stakeholder group would be the employees of Burlington. Previous improvements in productivity have already caused a 50% decrease in employees. The employees will be the ones being trained how to properly use the solution to increase efficiency.

The third stakeholder group is the customers. They are affected by the solution, or lack thereof, by experiencing the changes in efficiency from delivery speed and service quality. They may receive different costs and delivery times, which will affect their own supply chain’s.

# Alternatives

## Alternative Implement ARES

The first alternative is the full implementation of the ARES. The ARES would accurately track locomotives to 100 feet, rather than 10 to 15 miles. Location would be tracked every second, meaning that speed could also be calculated, something that couldn’t be done before. This would also allow MOW crews to work on tracks in a timely manner, rather than guessing if they are able to work on a specific segment and being called back as they got there due to a train coming. The GPS location tracking also lowers the number of accidents and injuries from locomotives colliding with each other from simply not knowing they were there.

With the system all areas of Burlington’s tracks would have increased efficiency, fuel-consumption savings, and many other service improvements to all customers. The cost of $350 million may be worth it to implement and have returns of much greater. As Goldratt said, “Make money now, and in the future”. The initial implementation would boost revenues just from increased efficiency alone, while drawing in more customers when the reliability level of trucks has been matched.

This alternative would provide greater value for the shareholders later on, although initially the additional debt may decrease the price per share. As revenues are increased and costs decrease the organization becomes more valuable. Employees would have more skilled jobs, being able to make more money for less laborious and more skilled work. Customers would receive higher quality service and possibly at a lower cost due to the aspects such as fuel-consumption saving.

## Alternative Do Nothing

The other alternative is to do nothing and continue the standard operations. The test implementation in the Iron Range costing $15 million will still be used only in the Minnesota area. They will continue their cost-leadership strategy trying to remove bottlenecks in other ways than a new system. Eventually they will have to focus how to get rid of bottlenecks, such as the amount of meet-passes. If the bottleneck is elevated, throughput will increase(Goldratt).

This alternative allows the shareholders to be more confident in their investment, as there is no added risk or debt that will lower the value of the organization. Employees would not be as affected by this alternative than the other, as nothing is being changed. Customers would still receive the same level of service, expecting delays and sporadic increases in costs.

# Recommendation

It is my recommendation that Burlington goes with the first alternative and implements the ARES. Implementing the system may cause struggles in the beginning, as all initial implementations do. Increase of debt, while currently paying off debt, can be a bad sign to potential investors and decrease value. It may interrupt some operations in the areas that they are currently implementing. These issues will be resolved once the system has had the time to be fully integrated.

Removing the bottlecaps in the overall business structure, instead of specific aspects at one time, increases overall throughput in the organization (Goldratt). This will allow cost leadership strategy be easier to maintain. Allowing their technology and investments to not be outdated(Tanwar).

Over time the savings and increased revenues will overcome the initial investment that was required. This will also allow Burlington to be the first organization in the market to implement a fully automated system such as this. The increased safety and awareness is also helpful politically, especially in labor unions for railroad workers.

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