
Burlington Northern Case Study

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Table of Contents

Overview	3
Mission Statement	3
Generic Strategy	4
Organizational Structure	4
Porter's Five Forces Analysis	5
Problem	6
Stakeholders	7
Alternatives	8
Recommendation	10
Works Cited	12

Overview

Burlington Northern Railroad is a company that is the result of merging four different railroads. The organizations main operation is a vast rail system, but it also operates many other subsidiaries in various industries such as commodities, agriculture, etc.

Burlington Northern is debating how feasible investing \$350 million into an automated railroad control system known as ARES (Advanced Railroad Electronics System) would be. ARES would completely overhaul how railroad operations were planned and controlled, therefore giving Burlington Northern better control over its assets. All in all, by investing in ARES virtually all parts of the organization would be affected by its implementation.

Mission Statement

Burlington Northern Railroad primarily operates as a railroad transportation organization. Coal is their largest source of revenue, resulting in one-third of total revenue. Nearly all of the coal business is under long-term contracts from fewer than two dozen customers. Along with coal hauling, they serve as the main hauler of spring wheat. However, demand is more sporadic than with coal. Supplementary to the transportation operation, Burlington Northern owns significant natural resources such as land grants that contain minerals, timber, and gas. Burlington Northern's goal is to maintain a sustainable business model that will generate revenues by providing efficient, reliable, and affordable transportation services to their customers.

Generic Strategy

Burlington Northern is pursuing a cost leadership strategy to achieve sustainable competitive advantage. According to Tanwar, to be successful with this strategy a considerable market share is generally required (Tanwar). There are high barriers to entry for the railroad industry because of the investment needed to start, allowing Burlington Northern to possess a considerable market share. For example, Burlington Northern maintains 23,356 miles of track to be used by their trains. The main emphasis of this strategy is on efficiency, which is what the organization is trying to improve through implementing ARES (Tanwar).

Organizational Structure

Burlington Northern maintains a functional organizational structure. They are able to create an initial division of labor, focused around business functions, based on the diverse operations they have (Cash). Burlington Northern's corporate functions were located in Ft. Worth, operational functions in Overland Park, and additional staff in St. Paul. Common activities are grouped together allowing the functions to work collaboratively to help the organization achieve high performance. Burlington Northern operates in a fairly stable environment and has a mission to provide efficient, reliable, and affordable transportation therefore promoting economies of scale. This organizational structure aligns with the generic strategy adopted by Burlington Northern because of the emphasis on functional expertise and efficiency.

Porter's Five Forces Analysis

Porter's Five Forces Analysis helps an organization identify potential opportunities and risks while keeping the competitors' activities in mind. The forces Burlington Northern's competitors can exert on the market and how they can affect the long-term success of the organization are measured with this analysis (Porter).

1. Competitive Rivalry: Burlington Northern's main competitor in the coal industry is Union Pacific Railroad. Union Pacific was able to be a major competitor in this industry because of their investment in double track lines, fuel efficient engines, and new technology. Comparatively, Union Pacific was believed to have excess capacity for transportation of coal, while Burlington Northern was reaching capacity because of their single track lines.
2. Threat of New Entrants: The threat of new entrants is very low because of the significant capital required to build the infrastructure to be successful. Burlington Northern itself was the result of merging 4 different railroad companies together. Along with the capital needed to start, Burlington Northern and Union Pacific already have a significant market share making it a difficult industry to enter.
3. Threat of Substitutes: Manufacturing trends have resulted in the service time provided by trucking to increase in value because of their ability to provide door to door delivery. Trucks are able to offer a level of reliability that railroads cannot. Truck drivers are able to make up for unexpected delays and are 90 to 95 percent on time. The customers that trucks appeal to are sensitive to consistent and reliable deliveries. While the cost of trucking can be two to three times as much as rail, those customers are willing to pay that.

4. Bargaining Power of Suppliers: Not much was mentioned about suppliers. However, we can assume that the railroad industry would be sensitive to fluctuations in the basic supplies needed for operations such as fuel and equipment. The nature of the industry requires maintenance therefore allowing suppliers the ability to manipulate prices based on the demand from the market. Burlington Northern has little bargaining power with the suppliers because their success is dependent on supplies, but they do control a large share of the market allowing them to have more of an influence than a smaller railroad.
5. Bargaining Power of Customers: Burlington Northern's main source of revenue stems from the coal segment. This segment is supported mainly by two dozen long-term contracts with customers. The small collective of customers allow them to possess bargaining power. The demand for coal was reasonably static allowing fluctuations to be less likely, thus lowering the likelihood of customers driving prices and switching costs.

Problem

Burlington Northern has 23,356 miles of track and 5,000 junctions that result in 25 million distinct routings. Each day approximately up to 800 trains will travel around 200,000 miles on these tracks. Unlike its competitor Union Pacific, Burlington Northern uses single tracks resulting in "meets and passes" to occur. This results in one train waiting for the other pass before it can proceed. An estimated 10,000 meets and passes occurred each day. Because of the nature of the single track, if a train is running behind schedule it could affect many other trains resulting in a bottleneck. According to

Goldratt, “the capacity of the plant is equal to the capacity of it’s bottlenecks” resulting in a decrease of output, or in this case train routes (Goldratt). The trains were monitored by a dispatcher, who at any given time could be monitoring up to 30 trains. The technology utilized by the dispatchers is the same as what was in place during the 1920’s resulting in frequent miscommunication and inefficiencies, while Union Pacific is investing in new technologies to improve their processes. The data that Burlington Northern has on the trains and railroad is user submitted which is not only inefficient, but it can also compromise the integrity of the data leading to unseen consequences. These issues, along with many others, have prompted Burlington Northern executives to consider implementing ARES and evaluating the impact it would have on the organization.

Stakeholders

The nature of Burlington Northern’s industry and operations lends itself to have many individuals involved and invested in the company. Outside of the direct reports, there are many other businesses that rely on Burlington Northern to supplement their needs.

- Burlington Northern Executives: The decisions that are made for major projects come from the executives, thus dictating ownership and responsibility for the results to them.
- Burlington Northern Employees: Implementation of the ARES project would result in additional employees joining the organization. The implementation of ARES would result in regular scheduling, thus eliminating the on-call culture for the workers.

However, there could be a reduction in the number of employee’s that are needed as

ARES will replace some job responsibilities. Overall, the safety of the employees could increase due to the improved scheduling and traffic alerts that are currently lacking.

- Suppliers: The companies that provide supplies needed to maintain operations are affected by the success or failure of Burlington Northern. If Burlington Northern were to go under, the suppliers revenue would suffer because of the significant market share occupied by them.
- Customers: Implementation of the ARES system would benefit consumers as it will offer more reliable and predictable deliveries. Deliveries would become more efficient resulting in another viable option for transportation sensitive goods besides trucking.
- Union Pacific: While Union Pacific is the rival of Burlington Northern, competition is healthy for the market and drives an organization to pursue differential advantage (Porter). When competition is completely eradicated, regulations will get introduced. However, they would control majority of the market if Burlington Northern fails which provides them with an opportunity to increase revenues.

Alternatives

1. Do Nothing: By default, the first option would be for Burlington Northern to do nothing. This would result in the company maintaining the current position they are in and remaining stagnant. From a fiscal standpoint, the numbers would remain relatively similar but there would not be growth from lack of investment. They would have to seek out alternative ways to remain competitive in the industry, specifically with Union Pacific. Over time, profits would decline and costs would have to be cut to maintain operations.

- Impact on stakeholders: The stakeholder relationships would remain constant for the time being. Competitors in the industry would continue to improve and invest in their operations, resulting in Burlington Northern to fall behind and potentially become obsolete to the market.
2. Full Implementation of ARES: Burlington Northern executives come to the decision to fully implement ARES into the organization. Some of the predicted benefits of ARES include increased operating efficiency, higher operational safety, and reduced expenses on fuel, equipment, and labor.
- Impact on stakeholders: If the project goes according to plan, the organization can expect to see increased productivity and revenue. This in turn can allow the organization to become even more competitive in the industry. Employees job responsibilities could vary with the implementation of ARES and some jobs would be completely eradicated. Implementation of the system would require materials purchased from suppliers, which helps to generate revenue for them. Increased productivity would result in an increase of orders from customers.
3. Invest in Infrastructure & Limited Implementation of ARES: Union Pacific has made significant investments to upgrade to double tracks and increase their fuel efficiency. Union Pacific is upgrading what the industry standard should be through this updates. Burlington Northern could implement similar infrastructure and technology into their organization, which would still allow them to be competitive. Double tracks can be integrated along routes that are likely to have many “meets and passes.” Rather than a complete overhaul of the entire operation, Burlington Northern could choose to invest in select pieces that would have the greatest impact and allow

them to remain competitive. These upgrades would allow the company to improve their service and reduce cycle time. Funds can be allocated to gradually modernize the fleet that Burlington Northern has, allowing new technologies to be implemented. ARES can be configured to log locations in a more efficient way rather than continuously. This would still increase the efficiency of planning routes. By forgoing the full implementation of ARES, it allows the technology to become more accessible and affordable as time progresses.

- Impact on Stakeholders: By implementing solutions that have been pioneered by competitors, there is less risk associated with them. Burlington Northern will still be able to compete in the market allowing growth to occur for the organization. There is a less likely chance of employee's no longer being needed because there will not be a system replacing entire jobs. Customer service time would also increase, which in turn would increase customer satisfaction.

Recommendation

Based on the information that was provided, I would recommend Burlington Northern invest in infrastructure and implement a limited version of ARES. There are many benefits that would come of this approach that would allow the organization to remain competitive in the market. Burlington Northern will still be able to expand and compete with other organizations, namely Union Pacific. Some of the original benefits associated with ARES would still be able to be utilized, but there wouldn't be a need for an entire reorganization of the systems. The alternative to do nothing is not a recommended approach in this scenario because Burlington Northern is already behind in their

technologies. Doing nothing would force Burlington Northern to remain in the position they are now, while competitors are innovating and increasing their presence in the market. While a full implementation of ARES has the opportunity to reap many benefits, the initial investment is very significant. Outside of the investment, the improved service would result in an increase in business which in turn cannot be maintained if the proper infrastructure is not in place. This would make the growth that Burlington Northern would see from the ARES implementation redundant because they would not be able to sustain the increased business.

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