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# BURLINGTON NORTHERN RAILROAD

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CASE 1 

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## Executive Summary

The current problem that Burlington Northern Railroad faces is the decision to invest \$350 million on the ACRES project. ARES( Advanced Railroad Electronics System) is an automated railroad control system that will give operations better control to assets and also provide better service to the customers. The purpose of this case is to determine if the investment in the deployment of their ARES System would be a beneficial business decision for Burlington Northern Railroad. The company must determine both tangible and intangible benefits of the system and deliberates whether the investments will yield improvements. (Hertenstein and Kaplan)

## Background

Burlington Northern Railroad was created in 1970 and was formed when four different railways merged into one company: the Great Northern Railway, the Northern Pacific Railway, the Spokane, Portland and Seattle Railway, and the Chicago, Burlington and Quincy Railroad (Wikipedia). This company also owned natural resources such as minerals, timbers, oil, and gas with a total asset worth \$6,146 million and \$465 million expenditure in 1989. Their biggest revenue came from coal following by grain. The railroad company has been seeking a “control system” to increase efficiency and decrease the cost of trains. Richard Bressler, Burlington Northern’s chairman and chief executive began to get fascinated by the development of the Global Positioning System (GPS). ARES became one of the first applications of GPS technology that produced accurate terrain profiles of the track and have locomotive displays that included current train location, track profile, switch positions, and signal locations. (Schwartz 2014 )

## Concerns

After the deregulation, Burlington northern finds that intra-railroad competition serves as their major concerns, and to outperform the other industry, they must make some changes by improving the potential factors that made impact their optimization of operation.

Factors that affected the train's delivery speed include:

- utilization of old technology by the dispatchers
- sudden maintenance of train disrupts the overall time flow
- Inefficient communication methods
- Unable to track fueling amount
- Observation failure and breakdown of train
- Delays due to lack of information about the train

## Porter's Five Forces

### **Threat of New Entries: Low**

The threat of entry is low for a railroad company due to the high barrier for entry. The cost includes huge capital for funds, equipment, laborers, and railroads are high.

### **Bargaining Power of Supplier: High**

Since there isn't too much railroad company due to the high barrier for entry, BN has a greater degree of leverage in certain areas. For suppliers are less likely to bargain for heavier product but suppliers to have higher bargaining power in lighter product because they could easily switch to a transportation sector such as trucks or ships.

**Bargaining Power of Buyer: High**

Although there is a limited amount of railroad companies that the customers can choose from, the improved service from the trucking company allows the customer to leverage for seeking the lowest price possible.

**Threat of Substitutes:**

The transportation sectors such as trucks and cars serve as a threat of substitutes for shipping cheaper items. Burlington Northern has faced substantial market share losses in commodities to the trucking companies as these trucks provide timely delivery with door-to-door service.

Another transportation unit such as airplanes is used to transport more precious products as well as boats to ship different goods.

**Competition:**

Burlington Northern competes with Union Pacific and other railroads company in its market and customers. Union Pacific serves as a direct competitor because they made investments in heavy-duty double track, and fuel-efficient engines to increase their efficiency in the transportation of coal. This becomes a major threat to Burlington Northern since coal serves as their major source of income.

## Industry Competitive Analysis

### **Mission Statement**

Burlington Northern is a railroad transportation company that ensures the goods and products to reach the destination quickly, cost-effectively, and promptly.

### **Company's Generic Strategy**

The strategy that Burlington Northern Railway uses is differentiation which the company aims to outperform its competitor by providing different but better services to its customers.

### **Organizational Structure**

The decision-making is centralized with headquarters making the decisions and contains the integration of multiple supply chains and modes of transit. However, their older network, vehicle selection, and technology limit the management and efficiency in operation. The current CEO wants to have a clear strategic focus on maximizing cash flows. He hoped to reduce debt by reaching a debt-to-total capital ratio from 76% down to 50% by 1994.

### **Key Stakeholders**

*Burlington Northern Employees:* any decision made by the company impacted the employees

*Customers:* a direct consumer that experience the change of system BN make

*Shareholder:* people that own shares of the company or an executive member.

## Benefits of ARES

ARES became one of the first applications of GPS technology in the railroad industry. The railroad spent approximately \$15 million on the ARES prototype on its Iron Range route through Minnesota from 1987-1989 (Baseline). To measure the key benefits of the ARES, BN hired consultants that investigate and generate a report of their result of the implementation of this project. After the measurement, the major outcome includes:

- reduced expenditure on fuels, labor, equipment, and trackside equipment
- Increased rail operation safety
- Enhanced customer service
- Reduction in hauled time and yard time
- Decreased probability of train control system-related accident
- Increased dispatcher productivity
- Improved business management

## Problem

Top management is skeptical about implementing ARES. It is very costly and an extremely large project to take on and the cost of the project most likely will exceed over \$350 million. In the late 1900s, the railroad industry's financial performance was poor and by implementing ARES, Burlington Northern will be the first to move on automated locomotive systems so the outcome cannot be guaranteed. Executives also worry about whether Burlington Northern's traditional organization can adapt to and exploit ARES's technology and concerns are raised as the objective of this project began to blur since this technology seems to be the proposed solution for all

problems that have occurred(Cash). Burlington Northern cannot predict how much more a customer is willing to spend for a 1 percent improvement in service.

## **Recommendation**

### **Implement ARES**

Burlington Northern decides to implement ARES by investing \$350 million of its capital fund.

The main benefits of implementing the ARES system concluded by the experts include: increased rail operations safety, better operating efficiency through improved customer service, improved dispatcher productivity, greater capacity on each rail line, higher productivity from maintenance crews, and better estimates of railroad arrival time. The ARES system would greatly increase the service it supplies to its customers. By 1989, the ARES prototype was deemed a success proving that trains could reliably be located in real-time by GPS and communications between locomotives, dispatchers, and trackside devices were carried on successfully (Positive Train Control Ran Successfully in Years-Long Burlington Northern Railroad Trial). Also, the train would stop automatically if the engineer exceeded speed limits and this greatly improved the security system.

However, the question lies in how well the customer cares about the service. The system is surrounded by a lot of unknowns and Burlington Northern is under a debt paydown but the cost of ARES is a large investment and the company cannot guarantee that more money is needed; \$350 might just be a bottom-line amount. In addition, this implementation will cause workers to be laid off since the project will greatly reduce the numbers of labor needed.



## Alternatives Solutions

### **Do Nothing**

Burlington Northern can choose to not implement ARES to its railroad system and invest the \$350 million capital fund into other areas. Although ARES. Without spending that money, the company will not find the pressure to increase debt during its debt paydown plan. By not implementing the ARES system, Burlington Northern is faced with the decision to maintain the same way of operation. This meant that there will be no relief for dispatchers, no degradation in the duties of conductors, and also no changes in the delivery rate.

### **Partial Implementation of ARES**

A partial rollout of ARES to enable BN to not invest a huge amount of capital and increase its debt. While some benefits such as reduced cycle time, better tracking capabilities, and improved service can continue to increase revenue, BN also will lose potential advantages that the full ARES project can offer. A scaled version of ARES will contain less complexity, fewer investments in infrastructure upgrades.

## Citation

Baseline. "Putting Safety ." *Page 2 - What Price Railroad Safety?*, 2002

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