



# BURLINGTON NORTHERN: THE ARES DECISION

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## **Executive Summary**

The purpose of this case study report is to determine the alternative strategy that Burlington Northern Railroads should take to benefit all stakeholders during the ARES decision, to implement technology that will make their train operations more efficient and in higher demand of the competition. Burlington Northern (BN)'s competitive strategy will be observed to narrow their strengths and weaknesses among competition. The process of introducing and implementing an Advanced Railroad Electronic System (ARES) will be given alternative decisions and will a recommendation will be given on which is the best implantation strategy and why.

## **Problem Statement**

In one day of operations, Burlington Northern Railroads must be operated by dispatchers, who manage over two dozen trains, are responsible for communication of trains crossing shared tracks, thousands of stops, and scheduling track repairs for maintenance-of-way (MOW) crews. BN has 5,000 junctions that has a combination of 25 million possible routes a train can take. They were able to identify inefficient utilization of resources and sought a solution. Their plan was to introduce ARES to integrate communication, data, and control technological processes into their operations using GPS satellites to locate the trains' position and speed at all times. The problem is BN did not have data evidence to support the value of ARES using supporting data for proving long-term projected process improvements, increase in productivity, and effective use of ARES resources. BN's current plan to introduce ARES backfired because they lacked a focused plan and a stakeholder-centric goal to justify the need for integrating ARES technology into their operations.

## **Industry Competitive Analysis**

### Mission Statement

Burlington Northern Railroads is a North American railroad company founded in 1970. Their operations are headquartered across three branches in Ft. Worth, Texas, Overland Park, Kansas, and St. Paul, Minnesota. Burlington Northern is for the delivery and shipment of a heavy amount of resources such as coal, grain, and lumber across the country in an efficiently process. Their generic strategy is to implement new technologies to differentiate their railroad operations from others. They are seeking to increase the demand to use their railroads by making their tracks significantly more efficient as their competition.

### Threats

Union Pacific is BN's main competitor and threat of being a substitute to their company. Union Pacific has made innovated improvements for carrying coal such as increasing their carrying capacity by using doubled tracks, while BN operates using single track lines. Single track lines are a huge threat to their ongoing and frequent usage of the rails that could be used to transport tons of more product. Northern Pacific has also invested in railroad technology and uses fuel-efficient engines. BN is also at risk of new market entrants such as trucks that can manage to ship large amounts of light and time sensitive loads directly to the customer. Trucks still lacked the advantage for bulk and heavy commodity shipments. A solution for successful output is to "Increase throughput while simultaneously decreasing both inventory and operating expenses" (Goldratt). This requires all different competitors to know their market and operate to the requirements of the system to make money.

### Customers

BN had seven primary product segments. These sectors were coal, agricultural, industrial products, forest products, intermodal, food and consumer, and automotive. Coal is their primary source of revenue in 1989 and 1988, next being agricultural products, and industrial

products are third for both years. Their largest customer industries have a necessity to ship high volumes of commodity products, constantly. One exception for the constant demand for shipping were the agriculture customers. Their harvests and shipments fluctuate throughout each season at separate times in different regions. "Dependency limits the opportunities for higher fluctuations" (Goldratt) and therefore BN must prepare for changes in their customer demand, because losing a customer for an entire season requires a change in operations to continue to make money.

### **Stakeholders**

The stakeholders within the ARES project are everyone that is involved with anything Burlington Northern. From customers to employees, this change will affect a lot of future users and potential customers. The dispatchers are one of the primary users of the system. They oversee the tracking and communication of each train and will need to improve the process of train passes and stops using the data provided through the ARES technology. Another stakeholder are the customers from each sector. Their shipments should only benefit from efficiencies after the implementation of ARES or else they could refuse to use BN railways if the cost to change is attainable. The stakeholders at the top of the chain and the most important to the project are the executives, since they are introducing and making all the crucial decisions for the ARES project. If their objectives make the railroads ineffective, then they could fail the entire company, while losing millions in the process.

### **Alternative Decisions**

#### Solution 1

In the ARES project, BN needs to weigh their alternatives to identify the best solution to their problem. The first solution is to do nothing. The company would not have to spend the

hundreds of million dollars invested into the ARES project. The Executives will continue to make a profit for the company for a few more years. They will lose the ability to compete with technologically advancing companies. The ARES project benefits will be lost, and the employees of BN will rarely see change. High employee satisfaction will be prevalent since they have a low acceptance to change.

### Solution 2

Create more available resources for a data analytics success measurement support team. A large portion of BN's difficulties at the beginning of their implementation of ARES was a lack of credibility for a multi-million-dollar project. Having a majority of your resources put into data evidence and information, their stakeholder adoption and customer transitions could have been significantly smoother. The Strategic Decisions Group which was hired to help ARES study the strategic benefits of ARES to allow BN to use the technology to its full potential. This strategy allows for the stakeholders to have an understanding of the benefits and actually seek rewards beyond physical money exchanging. Stakeholder adoption could have happened much sooner in the process if everyone was aboard for the implementation. Lack of solution-oriented data research and development is a bottleneck to BN. "The capacity of the plant is equal to the capacity of the bottleneck" (Goldratt) and "an hour lost at a bottleneck is an hour lost for the entire system (Goldratt). BN was stuck in a descent because they spent millions of dollars on a project that had a negative affect on the stakeholders that operated trains the same way for decades.

### Solution 3

Increase the prices through marketing the new ARES technology. If BN can prove through marketing strategies that their product is more efficient for the customers and decrease asset

utilization for the employees, then they could increase market price. Technology and innovation often come at an increased price, so to raise your prices to increase revenue, BN will need to explain their reasoning. The target audience of the marketing strategy are all stakeholders from the customers to the employees. The customers need to be influenced to buy-in and use the product, while the employees need an understanding of the reasoning for change and take advantage of the introduced changes. This may not work if they lack a convincing platform to get out of debt. The large amount of money spent on the ARES project looks like an unknowledgeable decision until they see long-term returns on investment.

### **Recommendation**

The best solution for the problem would be to use the data intense functionality of the ARES to present data to stakeholders for a simpler adoption to the technology. For BN to see the benefits of the ARES, they should understand “the goal is to make more money now as well as in the future” (Goldratt). Early product adoption by all stakeholders will allow for the company to quickly recover from their investment debt and increase shareholder value. This will be done through having data prepared to present to the dispatcher, customers, MOW crews, and management with increase revenues, improved customer satisfaction, and increased safety when passing. Doing nothing would not be a reasonable option because the company will likely failover without a change in railroad technology. Lead competitors have already been operating on innovative processes that BN could not achieve. A marketing strategy would not be the best option because the costs. Data research is more profitable than marketing in this situation because quantitative reasoning is always necessary for trains to operate successfully. The company would have to spend more money into debt without facts and evidence of ARES in action results. This is where data driven tactics thrive.

## Implementation Plan

Their data analytics research group should be formed into the ARES Strategic Decisions Group. Their efforts were done by individual consultant but should have been a full team's effort. This will be more profitable because the data research will then be put back into the development of the ARES technology to make improvements based on operations that failed to reach their goal. Dispatchers will be able to manage several trains effectively and management will be able to make precise decision with a data team. Near the conclusion of *The Goal* it states, "The unavoidable consequences are longer queues. Longer queues cause some orders not to be fulfilled on time..." (Goldratt). This also applies to train queues or passes. They are unable to be avoided and you cannot simply create more train tracks. In turn you find a solution, such as data.

## References

Goldratt, Eliyahu M., 1947-2011. *The Goal : a Process of Ongoing Improvement*. Great Barrington, MA : North River Press, 2004.