Burlington Northern: The ARES Decision

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**The Problem**

Burlington Northern Railroad is a large railroad company that is pondering on whether to invest in ARES (Advanced Railroad Electronics System). The investment will cost about $350 million dollars. It is expected to improve railroad operations with technology to increase service time and productivity. The investment would be so large that it would affect the whole Burlington Northern Organization. The managers of BN are essentially divided on whether to invest in ARES. ARES has offered them a lot of benefits that can improve the maintenance and tracking of trains, better communication, and planning for maintenance of way (MOW) crews. Currently, BN has no way to record and analyze their current performance because of poor record keeping and inaccurate data so there is no indicator that ARES may actual help BN with improvement. Many in BN are worried that ARES is offering too much thus the staggering cost for the service. BN thinks that they can get these benefits and just the benefits they need a lower price. Given the benefits offered, is it worth investing in ARES or are there other, cheaper business paths BN can benefit from?

**Industry Competitive**

**Mission Statement**

Burling Northern is a railroad company that transports a wide range of goods and commodities to customers nationwide.

**Core Competency**

Burlington Northern is involved with the transportation of seven primary segments: coal, agricultural commodities, intermodal, forest products, food and consumer products, and automotive products. Coal and agricultural commodities are there largest source of revenue and they excel in this through investing in lands that have a good supply of coal (Power River Basin) and can produce agricultural commodities, especially grain (Midwest and Great Plains) as well transporting them in a timely manner.

**Primary Markets**

The market for Burlington Northern depends on the demands for their primary segments. Their long-term contract customers are involved with the coal segment. Other markets were those who produced these products such as grain-producing regions and it was BN’s job to transport these goods.

**Generic Strategy**

Burlington Northern uses a cost leadership strategy. With this strategy, they follow economies of scale, meaning in the transportation industry, they must be cheaper than the competition. The market sets the price. We see this as other competitors of BN are other railroad companies such as Union Specific and trucks. The main issue they have with trucks is their low price and efficiency in quickly transporting goods. This strategy emphasizes efficiency (Tanwar), which is one of the main reasons BN is reaching out to ARES.

**Porter’s Five Forces**

**Supplier Bargaining Power**

Supplier bargaining power is dependent on the demand of the good or commodity they own. Wheat and other agricultural commodities sell well if the market has a big demand for it. As for the supplier of train equipment, I assume it would be low because maintenance seems more common than replacing actual units.

**Buyer Bargaining Power**

Buyer bargaining power is high for Burlington Northern. There are a lot more competition other than railroads in the transportation industry. One of their main competitors are truck companies as they offer the same services at a cheaper price and faster service. Therefore, customers/suppliers have a lot of options on which type of transportation they choose to transport their goods and they will most likely pick the cheapest option.

**Threat of New Entrants**

Threat of new entrants is low for Burlington Northern. There are really 2 main sources of transportation of goods on land and that would be trucks and railroads. There are already built railroads nationwide. It would be too expensive and time-consuming to build new railroads. A new entrant coming in would benefit from an already set of standards and equipment from the railroad industry but would only stand out if they had some form of technology that would increase their flexibility and efficiency.

**Threat of Substitutes**

Threat of substitutes is high for Burlington Northern. As customers are price-sensitive, there are other railroads that can acts as a substitute. The main substitute would be the trucking industry. Deregulation made truck prices go down pressuring trains to go down as well. Trucks have taken over the transportation of a lot of goods. Trucks are mostly used for commodities that are light, high cost, extremely time sensitive and come in small lots. Trains transport commodities that are heavy, low cost, and low time sensitivity, and come in large lots. The two compete for the commodities in between, but historically, trucks have been taking over those contested commodities. Therefore, customers seem to be choosing trucks more over trains.

**Threat of Infra-Industry Competition**

Threat of infra-industry competition is high for Burlington Northern. They compete to have the lowest price and best service. Union Pacific is their main competition. UP has made investments in heavy-duty double track and new, fuel efficient engines for carrying coal. Coal is BN’s biggest source of revenue and if UP is doing better in terms of service and efficiency, it would be a real threat for BN’s reputation and financial security.

**Stakeholders**

**Burlington Northern and Employees**

This includes Burlington Northern as a company and its reputation in the market. Employees include the conductors, MOW crews, maintenance crew, executives and higher-ups, and any person that works in Burlington Northern. They are deciding whether to invest 350 million dollars in ARES.

**ARES**

This includes the team that is proposing new and advanced technological solutions to BN. The decision of BN and whether the project is a success will steer them to a good or bad reputation.

**Customers**

The customers of Burlington Northern are the ones producing their revenue. If ARES is a success, they will be able to transport their products very quickly. If it is a failure, they will have to look for a new company to invest in. The customers that deal with coal are usually under a long-term contract, so they have the biggest risk of all the clients.

**Alternatives**

**Do nothing**

This option is to do nothing and not invest in the ARES project. Operations will operate as they have been, and the railroad will continue to operate on their normal schedules. 350 million dollars will not be invested in ARES. Burlington Northern will accept their current state in the market.

1. **Impact on stakeholder: Burlington Northern and Employees**

Burlington Northern will continue to operate as normal and nothing change for employees. The company may cut ties with the ARES project team.

1. **Impact on stakeholder: ARES**

ARES will lose the financial opportunity and business opportunity to get their name out. They will most likely look for other companies who would like to pursue their technology.

1. **Impact on stakeholder: Customers**

Customer will continue to use BN as their transportation choice. They will continue with normal operations and if in the future there is a quicker service, they will most likely cut ties in BN.

**Invest in the whole ARES Project**

This option is to invest 350 million dollars to the ARES project in hopes of improving current operations. This would enable BN to gain additional control over its operations. Using new technology, ARES can generate traffic plans that can improve movement of trains and MOW crews which would lead to less time loss during shipments. They would also improve communications and make BN stand out among its competitors if it succeeds as they will be the first in the industry to have automated trains. In contrast, if it fails, BN would lose millions of dollars and their customers and potentially lose business.

1. **Impact on stakeholder: Burlington Northern and Employees**

350 million dollars will go towards the ARES project. Employees can benefit from this technology as operations will be much quicker and safer. On the other hand, job security may decrease for those working close with the trains due to automation.

If the ARES project fails, Burlington Northern will lose a lot of money and reputation and its employees may lose their jobs.

1. **Impact on stakeholder: ARES**

ARES will get the chance to work on the project with BN. They will work with the implementation of technology and get the chance to get their name and build their reputation. This will be a big financial and business opportunity if it is successful. If it is unsuccessful, they will lose trust from other potential business partners and get a bad reputation.

1. **Impact on stakeholder: Customers**

If successful, customers will benefit greatly as their products can be shipped on time and possibly earlier than their scheduled date. They will be able to get more products to ship which would mean more revenue and possibly an expansion to keep up with demands. This will improve business for them and will gain trust in BN.

**Invest in some parts of ARES**

This option is to invest in ARES but not in the whole project. ARES proves to be a very complex project. Exhibit 8 shows ARES Cost Breakdown where the project is broken down to three categories and costs. The three categories are Control Center for 80 million, Data Link for 80 million and On-board equipment for 200 million. Henderson from BN proposed this alternative as to limit cost by taking out some ARES features such as LARS and the energy management system.

1. **Impact on stakeholder: Burlington Northern and Employees**

Burlington Northern will not fully invest in the ARES project. Instead, they will break down the project to their needs. This will cause some confusion and will cost time as different parts of the project will be implemented at different times. Employees will need to continuously adjust to the changes introduced in daily operations and this may increase stress and the amount of work and employees need to go through to adjust to these changes.

1. **Impact on stakeholder: ARES**

ARES will not be able to implement the whole project but sections at a time. This will prove difficult as most of the modules depend on one another. This will cause a big change on the how the implementation of the project will take place.

1. **Impact on stakeholder: Customers**

Customers will not be immediately affected. Normal operations will continue. They may move to other companies if BN introduces too many changes over time. Some changes may be better and some may be worse and customers will either continue to trust in BN or move to other competitors.

**Recommended Solution**

I recommend that Burlington Northern invest in the whole ARES project. BN’s main goals are to be safe and to have a profitable rail operation. ARES looks at things at a global optimum as projects depend on one another to be able to operate. “ARES team concluded that the primary known benefits of ARES were to be measured in reduced expenditures on fuel, equipment, labor, and trackside equipment; damage prevention and enhanced revenues” (Hertenstein) all of which are components to BN’s goal of safety and profitability. ARES can build a better communications plan to improve traffic and movement of MOW crews. This will improve safety and time management. This would also mean faster service and will give BN the upper hand in service and efficiency with other competitors, especially the trucking industry. Dispatchers can determine when and where trains are, giving them better control and a better overview of the railroad system. Jobs will also be much easier with automation and technology. Better record-keeping and reporting can also enhance operations by finding bottlenecks. In E.M Goldratt’s The Goal, Alex Rogo focuses on looking for bottlenecks, “If we find one in which demand is greater than capacity, then we’ll know we’ve got a bottleneck.” Demand for fast service of shipments is greater than BN’s service capacity. With the ARES technology, this bottleneck can be solved, giving BN an opportunity to look for other bottlenecks. Fixing bottlenecks will help BN in helping pay for the 350 million investment. This investment will pay overtime if the project is a success as they will become the major company in the railroad shipping business and will gain more customers, especially since BN would be the first to introduce automation in the industry. This will give them a great upper hand and will force other competitions to adapt or lose by creative destruction.

**Rejected Alternatives**

Do nothing would lead to more losses. BN has already identified core issues of efficiency and the threat of the trucking industry taking over. Threat of infra-industry competition, threat of substitutes and supplier bargaining power are simply too high for BN to choose this alternative. To keep up with the competition is to implement technology that will improve efficiency, service and safety. BN will eventually lose its current customers to the trucking industry unless they are able to innovate their current operations. Solving their business needs will solve their client’s needs and doing nothing will cause loses for both parties.

Investing in some parts of the ARES project would be my second alternative because it is cheaper. This alternative focuses on the local optima, fixing problems in isolation. This will cause internal issues as other parts of the business will complete for efficiency. ARES consists of three segments: control, data, and vehicle. BN can choose to invest in these separately at different times, but this will cause conflict. The control segments would know the train’s position and check to see if trains are following proper operating procedures. This segment also helped with MOW crews and their schedules. The data segment helps the control segment and the locomotives communicate. The vehicle segment is basically an upgrade of the current trains to help with maintenance, communication and other aspects of locomotive performance. If one of these segments were to be improved or implemented without the other, then the other segments would be lacking and would cause conflict. For example, if BN were to implement the vehicle segment for better trains and speed, this would not matter as lack of communication will hinder this segment’s full potential. Although this option is much cheaper, it will cause a lot of issues and will generate more bottlenecks. Eventually, BN will have to invest millions of dollars towards ARES to make these individual segments work.

**Citations**

Goldratt, Eliyahu M., *The Goal*, The North River Press, 1984. Print.

Hertenstein, Julie H., Kaplan, Robert S., *Burlington Northern: The ARES Decision*, President and Fellows of Harvard College, 1991. Print.

Tanwar, Ritika, *Porter’s Generic Competitive Strategies*, IOSR Journal of Business and Management, 2013. Web.