Case 1 Analysis: Burlington Northern

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**Executive Summary:**

Burlington Northern Railroad was faced with the opportunity for advancement in their industry by investing in the ARES system. This decision should consider many factors, and upon analysis of this case, I suggest Burlington Northern Railroad to implement the ARES system in full.

**Burlington Northern Overview**

Burlington Northern Railroad (BNR) was founded in 1970 when several separate railroad companies merged into one. Their specialty was transporting large quantities of raw materials quickly for a cheap rate. They handled bulk and wholesale orders, with coal being 1/3 of the materials they moved. Their single-rail system was outdated and costing them time and money because when another train needed to pass by, one train would have to exit on a side rail. The conductors had poor communication about scheduling of other trains, which caused some deliveries to be late. By investing in the new ARES automated system, they would be able to track the position and speed of their trains, communicate with other conductors, reduce collisions, and more.

**Burlington Northern Mission, Generic Strategy, and Organizational Structure**

BNR aimed to serve their customers (mainly companies) by transporting large amounts of goods or materials across their service territories using their single-railway system. Their strategy at this time was ‘cost leadership’, using economies of scale, since they provided this service inexpensively to a wide range of customers. Train dispatchers had specific territories they attended to and looked over 20+ trains each. Communication was poor and not united, so schedules interfered and caused delays. Work crews repaired BNR railways when they knew there was a good chance a train wouldn’t come through at that time.

**Porter’s 5 Forces**

The railroad industry in general was not vulnerable to new entrants because of the huge costs and effort required to start a new railway business. BNR was established and had the knowledge transfer from their merger companies to learn from. The threat of substitutes was much more of a concern, since the demand for huge transportation trucks such as semis was increasing. Although trucks were more expensive to use for bulk transportation, they were more reliable and gaining popularity for short distances. Supplier factors to consider would be the cost of train fuel, materials to fix/build/maintain trains, and labor unions or contracting companies. If these costs go up, BNR may be required to raise prices for their customers. Buyers in this case would have power in areas where there are substitutes available for their transportation needs. They could use trucks, boats, or another railroad company, unless BNR was the only accessible one. Switching companies and starting new contracts could be costly, though. BNR’s main railway competitor was Union Pacific (UP), who had the upper-hand since they utilized double tracks. This proved to be a big advantage for UP, so BNR needed to step up their game. BNR would have benefited from analyzing some of Mallach’s questions for IS Professionals, such as “what is your firm’s strategy for each of its key lines?” (Computerworld P. 37) If BNR knows their strategies well, it would make this ARES decision easier.

**Stakeholders in Burlington Northern’s Dilemma**

The stakeholders that would be impacted by the decision on the ARES system (besides BNR owners themselves) includes employees, customers, people receiving the materials, and communities their railway ran through. The ARES systems was expected to save money on labor, resulting in layoffs and less new employees being hired. Customers of BNR that pay to transport their goods could suffer if the ARES implementation is a disaster, and they might be forced to find another transportation company. If the ARES system succeeds, the consumers of the materials might receive their items faster and more reliably. Railroad systems pollute nearby communities and can cause accidents, so BNR needs to consider that when looking at huge new processes.

**Alternative Actions**

**Option 1: Do Not Implement ARES**

The first option BNR should analyze is to forgo the ARES system and focus on improving their own system internally. This could be much less expensive (since the ARES system costs over $350 million and is a high risk), but BNR needs a plan to get out of debt. BNR could launch new enhancement projects and find great project managers to ensure financial success. There are other ways to improve productivity and timeliness of deliveries besides implementing this new system. Mallach might discourage this option though, since he believes in teaching people “to work and live during technological change” (Computerworld vol. 30 iss. 41 pg. 37). Although he wrote that piece for a more modern time, it is still true in BNR’s era since they are on the verge of a new transportation technology era.

**Stakeholder Impact:**

If ARES was not implemented at all, customers and investors might start inquiring about their late orders or the company’s debts. They will wonder what BNR’s long-term plans are and may leave for another company if they don’t get answers. Employees would have better job security and probably not get laid off, but they would still have to work with old equipment in unsafe conditions. Communities might be glad since construction wouldn’t take place for a while, but their deliveries might still be late.

**Option 2: Full ARES Implementation**

BNR could go all out and implement the entire ARES system at $350 million. This would include improved communications, better equipment, and a control center. This system, if successfully executed, could solve most of BNR’s problems with safety, late deliveries, communication, scheduling, and more. BNR would definitely be upgrading their technology so they could better compete with more modern companies like Union Pacific. This would likely be the approach taken by Frederick Taylor, the pioneer of scientific management mentioned in Images of Organization. He would say to ‘use scientific methods to determine the most efficient way,’ (p. 23) and even though works would lose their jobs, it may be best for the company in the long run. The character Alex from The Goal might disagree, learns that replacing workers with machinery was an impulsive attempt to increase productivity, but in the end, his inventory didn’t reduce and he didn’t save money (p. 28).

**Stakeholder Impact:**

Customers of BNR would be most positively impacted by the full ARES implementation, assuming that rates aren’t increased too much to offset the project costs. Deliveries would be reliable, communities would be happier about the increased safety concerning their own vehicles, and over time BNR may decrease rates if they start profiting from this system. The railroad business might benefit from a mechanistic management approach, where “organizations that used machines became more and more like machines” (Images of Organization p. 17). With this in mind, employees might be least interested in this option because ARES would save BNR money on labor, leading to layoffs. Despite this, the employees that remain would have better resources and increased safety/work conditions.

**Option 3: Partial ARES Implementation**

It may not necessary to implement the full ARES system, so BNR should fully analyze the vital components of ARES that will yield benefits that outweigh the costs. For example, BNR might only implement the control center and communications, but leave the equipment/vehicles out of the equation and find those resources elsewhere over time. In The Goal, Alex ponders the concept of quality, and low-cost production makes him think of efficiency as it relates to quality (pg. 38). In this way, Alex is considering how the Triple Constraints of Management are affecting his plant. Likewise, BNR needs to consider these constraints for the ARES project. Improved communications are very important to the future operations of BNR if they plan to keep competing in the industry, so they should think about their long-term plans and whether ARES can supplement them effectively.

**Stakeholder Impact:**

If only parts of the ARES system was implemented, BNR could better manage negative impacts on stakeholders by leaving out certain parts. If the new vehicles from the ARES system would pollute communities, BNR could only build the control center. Since their customers and consumers are suffering with late deliveries due to the single railway and collisions, BNR might want to focus on ARES’s communications improvements so that dispatchers could coordinate their trains better, resulting in more reliable deliveries. Employees might not like this option either, since there would still be layoffs, and any cuts from the ARES implementation would probably just reduce their new resources.

**Recommendation**

After analyzing all the factors presented above, I recommend that BNR implement the full ARES system. The biggest negative impact would be on the employees, who would lose some of their jobs, but the remaining employees would be safer and have more up-to-date equipment. Communities and consumers of materials would get more reliable deliveries with this new system. They and employees could count on less collisions and train accidents. Customers may need to pay more than before to cover the implementation costs, but they would benefit in the end. If it goes as planned, BNR would profit and climb out of debt, allowing them to stay in competition with Union Pacific.