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CIS 410-02

Case #1

Burlington Northern: The Ares Decision (A)

Burlington Northern is a railroad delivery company that has taken up a large portion of the railroad industry since the 1970’s. Due to the increased utilization of trucks as a “door to door” delivery option, the railroad industry has started to decline. Burlington Northern is faced with a tough decision regarding whether to adopt a very costly information technology system known as ARES which is a subcategory of the already used technology used in aviation. This technology, though very costly, will help greatly improve efficiency while reducing costs down the road. Burlington Northern should employ this system incrementally while maintaining a clear and transparent end goal of deploying the entire system across all regions that the company resides in.

Before explaining the reasoning behind this decision, we must first identify the entire environment that the company exists in and Porter’s Five Forces (Jurevicius). First, the suppliers: since Burlington Northern is a shipment company, they must have goods that need to be delivered. Burlington Northern ships and operates around seven key products. These products are coal, agricultural commodities, industrial products, intermodal products, which are huge containers that are typically shipped on train or ship (Rodrigue), forest products, food and consumer products and automotive products. The producers of these products are indeed Burlington Northern’s suppliers. Next, we have the customers: for Burlington Northern, the customers they deal with are the consumers that request the aforementioned products that Burlington Northern ships. Third, we have new entrants: with the increased use of trucks and aviation to move products place to place, there are huge immediate competitors to rail roads in general due to their increased reliability and speed. Fourth, we have the substitutes: again, since there are other ways that certain items may be shipped arguably faster, there are many substitutes to delivery. Lastly, we have Intra-Industry competition: In this industry the text proclaims Union Pacific to be the largest competitor of Burlington Northern in the railroad industry. Union Pacific often uses new technology to greatly improve their service as shown by their current website that they employ drones to manage their resources. With a competitor often using new technologies to improve their service and efficiency, it would be detrimental to Burlington Northern to not follow suit.

Now that we know what elements surround Burlington Northern, these aspects will be utilized to support the decision to adopt the system incrementally. Burlington Northern is riddled with massive problems that cause operating malfunctions, delays and accidents. One of the most troublesome problems they face is the way they are communicating information. The text explains that Burlington Northern employs many train dispatchers that keep track of thirty trains while only really being able to comfortably keep track of six or seven, leaving over twenty trains as overlooked, rarely managed variables for disaster. Train tracks create very dependent modes of transportation. What I mean by this is that due to the lack of differing route options, trains must rely on other locomotives on the route far more than any other transportation mediums. Due to this, indecisiveness or inaccurate recording can be detrimental to not just the train in question, but all trains following the same route in a given period of time. This translated into many shipment delays and even accidents. Another major problem with the current means to communicating is that when a railway needs maintenance, a MOW crew is sent out, their job is to clear any debris from the tracks or the immediately surrounding area (McMahon, Mary, Wallace). Using the old system, BN had to make educated guesses a lot of times to ensure their safety or spend hours communicating with other dispatchers trying to figure out if there was incoming traffic. Due to the time consuming nature of this tasks, the railroad company had to even make decisions as drastic as cancelling the trip entirely. The new system will allow for better communication and algorithms that will plan out routes far better than they had done in the past. This will show a decrease in accidents and shipment delays, and an increase in overall efficiency. Another problem they face is that the lack monitoring equipment necessary to allow for continuous travel. The train would need to be stopped, and the conductor would walk around to the fuel tank to see fuel levels, because of this, they would refuel at every fuel station even when unnecessary. This caused a multitude of delays. The new system would have health monitors of sorts on the train to point to any troublesome attributes of the locomotive.

Burlington Northern has key stakeholders that will be affected by any and every option they face regarding accepting the system wholly, partially or not at all. The main stakeholders I will focus on are the dispatchers, train conductors, suppliers and the consumers or customers. I will now describe how each stakeholder will be affected by each plausible decision starting with not deploying the system at all.

The dispatchers job will be unchanged yet troublesome. It is obvious that their workload is significantly too high judging by the fact that they are able to only truly account for seven out of thirty of their allotted trains. They will remain comfortable in knowing that their jobs will not change much but will be over stressed by the amount of trains that they are still dealing with on a daily basis. Train conductor jobs will remain unaffected but still dangerous. Due to the unforeseen and impossible to account for variability of the delivery industry along with the company’s inability to accurately locate trains or communicate effectively, the conductors job remains very dangerous. The fact that accidents and costs of damaged equipment can be reduced by a dollar amount of 20 million, the current system is unacceptable in terms of safety. The suppliers will most likely look elsewhere in a shipping medium if possible due to the rise in the truck delivery industry and aviation as well. Eventually, they will decide the slow nature of the railroad industry with a system so poor is unacceptable and will be inclined to move to a different medium of transportation in order to produce more product because they can move it quicker. Customers will become impatient with the amount of delays and missed time windows due to the incompetency of the current system. They too will be forced to look to a different railroad company or medium of transportation if they plan to order more goods or are receiving the goods at a slow rate. This option is unacceptable for all stakeholders. While it adds a certain level of comfortability, the dangerous and slow nature of this current system creates far too many problems that massively outweigh simple comfortability. These delays can cost thousands of dollars as shown in the article “Determining Freight Train Delay Costs on Railroad Lines in North America” (Lovett, Alexander, et al.).

If BN decided to partially introduce the product they would be focusing on the system at a local level and not at a global level. The problem with this is that there is no clear goal where you want to be system wise as a whole and it provides major imbalances. Even if a portion of the company is working at greatly more efficient rates, the bottlenecks will slow down the system as a whole. The system is only as strong or as efficient as the weakest link in the chain. Therefor, the company as a whole would only operate at the maximum efficiency of the slowest or least efficient link in their chain. While this would eliminate some bottlenecks, others would persist or arise. Dispatchers would be mostly likely affected heavily if any part of the new system is introduced because most of the problems BN faces have to do with the communication and the planning out of routes. Conductors would likely see a greater focus on safety and an overall safer work environment due to the better communication of locations and routes among trains that are not normally part of each dispatcher’s thirty train subset. Suppliers would likely see an increase in the amount of goods they can ship with the increased efficiency and also a faster turnaround on when those shipments arrive and theyre ready for the next shipment. Consumers would see a decrease in product delivery time and also a reduced amount of delivery time slot delays. This option would certainly help BN at local measurements but with the increase in substitutes in the delivery industry, a slight increase only to be halted by a bottleneck which did not receive an updated system is not effective enough to cause BN to remain on top of the delivery world for very long.

This leaves us with the final and best option. To adopt the system incrementally to allow for further testing before implementing it wholly and at scale while maintaining a very transparent goal for the system as a whole. The case brings out that many of the chief officers of the business since the start of the minor testing had moved on and many people didn’t even realize why the testing in Iron Range was taking place. Any organization needs to deploy a very clear mission and direction that they want the company to go towards or achieve. Being able to adopt the system slowly would allow for further testing of the areas of the system that got very little testing in Iron Range. It would also allow for easier updating of the systems rather than trying to update it when it’s deployed at scale. It would also allow for testing to be done outside of their most controlled environment. Iron Range is described as a location where trains are checked more routinely and schedules are more invariant. Testing on an area that has higher variability will show the true capabilities or issues of the new system. By slowly implementing the system and eventually scaling at a company wide level, employees will be able to slowly adapt to the system, the system will be able to be tested to avoid some unforeseen issues with it, and BN will save costs when they likely need to update a system that is not yet scaled globally across the organization. Conductors will have a safer environment to work in. Dispatchers will have an easier means to make them more comfortable at accounting for a heavy load of trains. Consumers will see a much more efficient company that delivers things on time and efficiently. Suppliers will be able to move more product due to the major reduction in delay. Most importantly, the system will be able to spread across all parts of the organizations’ chain. This will allow the inevitable bottlenecks or “… any resource whose capacity is equal to or less than the demand placed upon it” (Goldratt) to appear at a much higher efficiency level for the organization as a whole.

**Works Cited**

* Rodrigue, Dr. Jean-Paul. “Intermodal Transportation and Containerization.” *THE GEOGRAPHY OF TRANSPORT SYSTEMS*, people.hofstra.edu/geotrans/eng/ch3en/conc3en/ch3c6en.html.
* *Union Pacific*, [www.up.com/index.htm](http://www.up.com/index.htm).
* McMahon, Mary, and O. Wallace. “What Is Maintenance of Way?” *WiseGEEK*, Conjecture Corporation, 17 Jan. 2018, [www.wisegeek.com/what-is-maintenance-of-way.htm](http://www.wisegeek.com/what-is-maintenance-of-way.htm).
* Lovett, Alexander, et al. “1 Determining Freight Train Delay Costs on Railroad Lines in North America.” [www.railtec.illinois.edu/articles/Files/Conference%20Proceedings/2015/Lovett-et-al-2015-IAROR.pdf](http://www.railtec.illinois.edu/articles/Files/Conference%20Proceedings/2015/Lovett-et-al-2015-IAROR.pdf).
* Goldratt, Eliyahu M., and Jeff Cox. “Chapter 18.” *The Goal: a Process of Ongoing Improvement*, Productivity and Quality Publishing, 2013.
* Jurevicius, Ovidijus. “The 5 Powerful Forces That Impact Your Profit.” *Strategic Management Insight*, 27 May 2013, www.strategicmanagementinsight.com/tools/porters-five-forces.html.