*Gudgel, Alexander*

*Burlington Northern*

Case Analysis

Burlington Northern is in a partially monopolistic market. They have high bargaining power when it comes to shipping mass amounts of product like coal. The case stated that there was little to no competition from trucks transporting coal and that coal was mainly a long term contract to customers. Other commodities such as grain, fluctuated in demand quite frequently, due to harvest times that occurred throughout the year. The demand of the product and service time needed by the supplier plays a large part in determining the bargaining power of Burlington Northern.

Buyers that use Burlington Northern’s service have bargaining power depending on the product they’re wanting to transport. Burlington Northern cannot match the service time that trucks can when transporting goods that need to be supplied to the inner city. Due to this, these products tend to not use Burlington Northern’s transportation service. Essentially buyer bargaining power depends on the goods needing to be shipped.

The possibility of new entrants into Burlington Northern’s market is very low due to the location of their rail service that creates a partially monopolistic market. There is one substitute to Burlington Northern’s service mentioned in the case and that is trucks. There is not much you can do about substitutes, other than increasing your core competences to gain a competitive edge. Burlington Northern’s competitors are Union Pacific and organizations providing truck services to transport goods. Making your competitors weaker than you is what you want to accomplish because it keeps the government from regulating the market.

The mission of Burlington Northern is to develop a sustainable railway service that is competitive and can produce the best utilization of assets to deliver goods. Burlington Northern’s generic strategy is differentiation because their competitors (Union Pacific and trucks) are providing a similar service. Burlington Northern must find a way where their price and delivery service has a competitive advantage over its competition. The organizational structure is a functional structure but needs improvement. According to Cash “the functional structure requires extensive information exchange among functions. Cross functional procedures have to be created to process orders, manage inventories and cash, coordinate product and design changes, and execute other business processes.” [1] Burlington Northern is trying to improve their information exchange and designing changes with the ARES system. Burlington Northern’s CEO implies in the case that the company must improve delivery service and improve utilization of assets. The ARES system may not be the best place to start improvement.

The first problem area I found is the “meet and pass process”. Certain trains can be sided because the other train needs to pass first, due to behind schedule. This causes the train that is sided to also fall behind schedule, this is the definition of a “bottleneck”. According to Goldratt “a bottleneck is any resource whose capacity is equal to or less than the demand placed upon it.” [2] The siding insinuates that the bottleneck is idle which, according to Goldratt “make sure it is never idle.” [3] Since the trains are potentially behind schedule that means you are losing throughput which means losing sales from inventory that could potentially be on the next train. The stakeholders affected in this problem are the dispatchers coordinating which train should side and which one should not.

The solution to this problem should not be the ARES Meet and Pass Planner because of the fact that they have not tested it to where they actually controlled trains. The case also mentioned bugs in the prototype. Investing in a system that has not been properly tested is a risk you do not want to take. A better solution to the problem would be to invest in heavy duty double track like their competitor Union Pacific. This would increase capacity and in return help increase the bottlenecks capacity to turn inventory into throughput.

The second problem area has to do with quality control. The maintenance stations are set up on most of the railroads for trains to pass every several days. Going off of the first problem, if you can set up maintenance stations before the bottlenecks you can increase efficiency. According to Goldratt “Perform quality control before the bottleneck.” [4] By doing this there is less of a chance your inventory will be faulty after it passes the meet and pass planner bottleneck. This way you are being more efficient by making sure the inventory going through the bottleneck is pushing your service towards throughput and not towards more delay. The stakeholders affected would be the maintenance workers.

The solution to this problem should not be the ARES Locomotive Analysis and Reporting system because the testing was done in the Iron Range. The maintenance station there was passed daily instead of every couple of days as on other parts of the railroad. Again, this is not data that is worth the risk of investing in. The solution would be strategically placing maintenance stations before the meet and pass sidings while decreasing the amount of sidings due to the new implementation of the heavy duty two-way track.

The third problem area has to do with the functional structure of Burlington Northern and why they’re having issues trying to implement the ARES system. One of the reasons Burlington Northern is having so many issues implementing the system is because the functional structure is not set up to be innovative. According to cash “Functional structure is poor on responsiveness and poor on adaptability.” [5] The stakeholders affected would be the organization as a whole.

The solution would be to change from a functional based structure to the network based structure because it is excellent at adaptability and responsiveness. According to Cash “It emphasizes flexible adaption in a constantly changing environment. This adaptability is the main advantage of the emerging network structure. Because people, decision rights, roles, and reporting relationships are contingent upon the particular project or event, they can be altered as required.” [6] An examples it gives that a network structure can adapt well with is an unexpected technology breakthrough like the ARES. This solution is only if you’re set on implementing the ARES. The fact that the current functional system concerning upper management has recently been filled with new executives since the start of the ARES testing 9 years ago. Provides a good opportunity for organizational change.

My fourth and final problem is the business process change and financial estimation of the implementation of the ARES system. The cost breakdown of the ARES system was split into 3 categories: Control Center, Data link, and on-board equipment coming out to be 350 million estimated. One of the biggest costs they missed is the training cost for all the new software development. Most of employees of Burlington Northern are not going to know how to work all this new software they’re wanting to push. According to Fried “Information technology deployment through applications means changes and requisite training for the application designers and developers as well as for the users.” [7]

Furthermore, the case did not mention in detail how it would conform to the business process change due to the ARES system. According to Fried “Substantive changes that allow companies to take full advantage of enabling IS technology will almost invariably require changes in business processes and in the organization that performs those processes.” [8] The stakeholders affected would be the whole organization but specifically upper management.

The solution for this problem would be to reanalyze the cost for the ARES system and try to factor in the training cost to produce the system. Otherwise you will just have a new system that no one knows how to operate. You would have a less efficient system than before. Second, you would need to analyze the changes in the business process and how the business processes would be affected by the ARES system. One change would be having a clerk report when a train arrived at a terminal. The clerk would be eliminated with the wayside signal and detector equipment that detects train movement.

The solution Burlington Northern should go with is the “meet and pass” solution. The heavy duty double track will increase capacity which in turn will increase throughput. The meet and pass solution can also solve other problems, like quality control. By increasing capacity of the meet and pass bottleneck and providing maintenance to the train before it reaches the bottleneck (considering there will still be sidings just not as many). There is less of a chance your inventory will be faulty, and losing you throughput, not increasing it. The stakeholders affected would benefit because the dispatchers would have less sidings to deal with delaying throughput and the maintenance workers would have less train breakdowns, affecting inventory and throughput.

My third solution should not be implemented because changing the functional structure to a network based structure is unnecessary, because the railroad service Burlington Northern provides does not have to be changed that drastically. The partially monopolistic market they enjoy makes it possible for them to do nothing and not implement ARES system at all. Burlington Northern does have competitors but due to the fact Burlington Northern’s railways travel through places Union Pacific does not, mass goods buyers and suppliers have few options except to use Burlington Northern’s service. The stakeholders affected, being the whole organization, would not benefit. A drastic change like that would involve most of Burlington Northern to change many business processes and employees would have to adapt quickly to the organizational change or be left behind.

My fourth solution should not be implemented because identifying the business process change and factoring in the cost of training will still not make the ARES system a viable solution to invest in. The stakeholders affected including the whole organization but specifically upper management, would not benefit because upper management is fairly new to the organization and implies they don’t know much about the ARES system. This affects the whole organization negatively because it’s a hierarchical functional structure. Also, It’s been 9 years since the start of the testing for the system and the business process and training cost analysis still has not been done. This shows that the implementation of the whole system is too much for the Burlington Northern organization to implement at one time.

To conclude, there is little evidence that the ARES system would increase service and asset utilization but there is evidence that investing in the heavy duty double track would increase capacity stated in the case. Knowing that Union Pacific is increasing capacity and above demand gives you a good enough incentive to invest in it. Since most of the executives who were there when the ARES system first started testing are gone. It opens up this new opportunity to move forward and not backwards.

**Sources**

Cash, James I. *Building the Information Age Organization*. Richard D Irwin, 1994.

Goldratt, Eliyahu M. *The Goal*. North River Press; 30th Anniversary Edition, 2014.

Fried, Louis. *Acquisition and Deployment of Information Technologies*. Louis Fried.