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CIS 410

Burlington Northern

Case 1

Business Strategy and Mission:

Burlington Northern is a train-based shipping company. They transport mostly raw material and low-impact goods: namely coal, fuel, and industrial goods. These goods are shipped in high quantities and are shipped regularly to keep up with buyers' supply needs. Their mission is to provide these goods in a timely manner for all sorts of companies by way of their railway system. Because these products are not time-sensitive for most companies, Burlington operates currently as a leader in cost for their primary business strategy, as their service is liabbe to the threat of substitutes. BN are heavily susceptible to competitors who will offer the same product: logistics. The difference between two companies that offer logistics is how efficient they can get from point A to point B, and cost-leadership strategies are universally interested in being as efficient as possible, or at least more efficient than their competitors (Tanwar). This is where the Advanced Railroad Electronics System comes into play.

Meeting, Passing and ARES:

Burlington Northern's railway system converges onto single tracks, meaning that a human operator will have to stand by and switch tracks to either side depending on which track was sending a train forward. Known as a "meet-and-pass", this track switching was estimated by BN to occur several thousands of times on a given day. The technology used to switch the tracks was implemented in the 1920s, and train data was kept on pen and paper and manually entered by the dispatchers waiting at their respective rail convergences. As is evident, there is a decently high probability for human error given these circumstances.

ARES is a system that began development in the early 1980s with the eventual goal being a nearly autonomous railway control system. Burlington Northern saw ARES as a means to not

only save on capital, but also improve efficiency tenfold over competitors by eliminating all elements of human error. Closed-loop prototypes were put into rigorous testing, and by the end of the decade ARES had evolved into a much more sophisticated and advanced system than initially envisioned, sapping roughly $15 million in research and development (Burlington). Still, despite the initial investment, ARES was envisioned as a means to bolster BN's business model and make their company more attractive than both other railroads as well as the burgeoning trucking industry.

The Problem:

ARES's implementation will cost Burlington Northern an estimated $350 million, and to add to the financial cost, there is a functional cost associated. As the years went by and project scope and management shifted, the original company executives who oversaw the initial development of ARES have since left the company, and their successors are unfamiliar with the steps taken that led to the current project and its wide scope. Consultancy firms were hired to assess the possible benefits that could come from ARES's full development and implementation, but their findings were uncertain (BN). The present problem boils down to one decision: go with ARES or stick with the current way of doing business.

Porter's Forces of Competition:

As stated previously, Burlington Northern is highly threatened by substitutes. Logistics involve getting goods from point A to point B, and BN merely a rail-based logistics company. Trucking companies are starting to become more attractive as they can operate on roadways versus railways, meaning they have a higher ability to make up lost time, and drivers can operate autonomously (ie, without a rail operator or train traffic coordination system) (BN).

Competitive rivalry is also a big threat to Burlington Northern. While they face competition from the increasingly popular trucking industry as stated above, they also face a rival in the Union Pacific railway company, a company who has dual-track rail lines and upgraded technological infrastructure.

Bargaining power of buyers is high in this scenario, as the cost any customers would face to switching to another railway or even a truck-based delivery system is low. They hold the power of negotiation in this case, and BN are mostly at the mercy of their customers.

The threat of new entrants for Burlington Northern is considerably low. A new railway-based delivery service would need to implement their own railroad, purchase trains, obtain multiple clients and construct stations in order to be even remotely successful, and this is near impossible for a new entrant without a considerable initial investment. Even considering the profits of a railroad, the equipment and infrastructure is very much a single-use system, meaning the technology wouldn't be useful for anything other than a railway, meaning their only chance of profit is obtaining clients in an already failing industry (FME).

The bargaining power of suppliers is low. The biggest money-maker in this scenario is the coal company, and they deliver on BN's own lines, meaning they control the negotiations. A big reason why BN has stayed in business this long, one can assume, is because of the movement of coal and commodities along their own self-made rails.

Burlington Northern's Stakeholders:

Stakeholders in Burlington Northern's business decision include the obvious immediate parties: employees, managers, executives, customers and stockholders. The decision either way will have an impact on individual employees and could potentially cost jobs and livelihoods.

Should BN go forward with ARES's implementation, rail switch operators will more than likely be laid off. However, should BN forego ARES and fall behind in the competitive environment, employees could be laid off anyways to save cost. Stockholders would feel repercussions in much the same way, as poor performance yields little money and high cost with no return is another method of throwing away investors' money.

What to Do and Why to Do It:

At first, reading this case I surmised perhaps Burlington Northern could partially implement ARES at a lower cost and lower risk. However, this doesn't seem like a viable option due to a mix of old and new infrastructure, so I have concluded that the two options are to either implement ARES in its entirety or to continue business-as-usual and abandon the project.

Implementation of ARES has a large upfront cost of $350 million, which is made up of an $80 million control center, $80 million invested into a data link between trains and the control center, and another $200 million worth of onboard equipment. Successful implementation of all this equipment and assuming no further expenses will be incurred, BN can expect earnings on its investment, stakeholders can expect to benefit monetarily, and customers can expect more efficient, more timely deliveries. Alongside these benefits, BN can also expect to lay off several employees who were previously responsible for switching tracks manually. However, should BN exceed that initial $350 million investment, which is a likely scenario, the entirety of the monetary benefits and profits will be gone, and it will take several years for Burlington Northern to get out of the red. This may cause customer costs to increase, and could therefore drive customers to switch to other railways or trucking services to maintain lower costs to themselves, effectively rendering Burlington Northern's investment completely worthless.

If Burlington Northern decides to do nothing, they do not recuperate the $15 million investment already made into ARES. They still face the threat of substitutes in the form of Union Pacific and trucking companies, however the risk of some miracle advancement to singlehandedly eliminate all competition and keep the railway viable and competitive would be avoided completely. In this scenario, stakeholders would be unaffected by any immediate action taken by Burlington Northern, and they could take steps to internally restructure their business processes and business model. In doing this, perhaps BN could figure out why their information collection was so inaccurate instead of relying on a $350 million investment to fix the problem for them. “Fantasizing about silver-bullet solutions results only in heartbreak when none is forthcoming; working harder and longer using an outdated business model results only in company-wide frustration and fear” (Kalakota, Robinson). Clearly market analysts agree that looking inwards is always the first step when a problem arises, and I tend to agree with them. If Burlington Northern want to remain competitively viable, their best chance of doing so is to forego ARES in its entirety and instead focus on improving on smaller levels within the company’s organizational structure.