**Case Analysis**

**Burlington Northern**

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**CIS410**

**Burlington Northern**

Burlington Northern is a railroad and substantial natural resource including extensive land grant holdings containing timber, minerals, oil, and gas. Burlington Northern delivers their products and company's products by train to companies in the mid and west United States.

In 1989, Burlington Northern's total revenues were $4,606,286 and the net income was $242,991, which decreased from the year 1988 by $93,231 in total revenues and increased by $87,241 in net income.

***Issues***

* Burlington Northern's largest competition in its largest source of revenues is Union Pacific "UP". UP has a better, more fuel-efficient engine for carrying coal, the problem with Burlington Northern is that it has single-track lines.
* Burlington Northern had great advantage in grin, its second largest source of revenues with little competition from truck delivery companies.
* "Meets and passes", is a system, managed by dispatchers, where one train has to direct off the siding so that the other train may pass.
* A train running off schedule will affect all other trains. Some of them will speed just to get on schedule, which can cause accidents.
* The dispatcher is responsible for 20 to 30 trains in one shift in her/his territory, which they can focus on 5 to 7 trains.
* The dispatcher is not aware of the delay of trains in other territories because the dispatcher only sees their information for their territory.
* Maintenance of way crews "MOW" is unable to repair the train until they get approval from the dispatcher.
* The engineer has to fuel every time the train passes a fueling station because they do not know how much fuel they have.
* There is poor tracking of the train's health.
* There are errors on the picking up and dropping off cars in each location.

***Stakeholders***

* John Anderson is the executive vice president for marketing and sales. The truck's delivery affects him because fruits and vegetables are time sensitive.
* Dick Lewis, the vice president of strategic planning was afraid that the railroad's competition would lower their rate because the trucks' advantage is that they get the products door to door.
* Mark Cane vice president, service design, the BN is leaking technology.

***Alternatives: Advanced Railroad Electronics System "ARES"***

Advanced Railroad Electronics System "ARES". It costs $350 million. It will use integrate control (technology), communications and information to BN. ARES will place electronic units (GPS) in the trains to calculate the train's position within 100 feet. The GPS will send signals of its location every second, and it will easily estimate the speed of the train. ARES will develop the communication network to connect between the train and a control center.

**Benefits**

* The control segment will receive information on the train's position and speed, then warn the dispatchers of any violations and it will minimize the accidents.
* The control segment will help MOW crews schedule for labor time.
* The control segment will show the dispatchers the activities in their territories, crews, and work orders for any train.
* The vehicle segment "Train and MOW vehicle" will display the information from the control segment to communicate to the dispatcher.
* The dispatcher will have control over the train if he/she sees anything wrong.
* The vehicle segment has energy management systems that tracks profile, conditions, speed limits, power, and car weight then, gives the train a recommendation for the speed to minimize the fuel usage.
* The vehicle segment has Locomotive analysis and reporting systems that uses a number of sensors and discrete signals to monitor the health and efficiency of the train.
* The data segment will communicate back and forth between the control center, train MOW, and track monitoring.

**Impact on stakeholders**

* With ARES, products with time sensitivity will arrive on time with no delay.
* With ARES, the delivery will be faster and have no damage of the products.
* With ARES, the control center will know where the train is and its speed within 100 feet, and can communicate with each other better.
* The customers will be happy due to faster deliveries and low rates, but they have to pick up their products from the station.

***Alternatives: build extra track lines, add tucker in the train, and deliver to doors***

Burlington Northern will build an extra track line or a bridge for "meets and passes" and lines for repair stations. Numbers and names will be assigned to every track line. They will add trackers in all the trains and use radar (uses in ships) in control center. They will put fuel measure in fuel tanks. Every train will carry two locomotives. They should buy trucks. It will cost about 100-150 million.

**Benefits**

* By numbering and naming the train track line, it will be easier for the pilots and dispatchers to communicate about the train location.
* Putting radar in the control center will show the dispatcher all the trains in the area and from where they are coming.
* Putting a fuel measure in the train tanks will save on fuel and show the pilot if he/she needs to stop by the fuel station.
* Building bridges and extra line by "meets and passes" will save fuel.
* Building repair lines will make the MOW work anytime the train parks without risking damage to the train.
* Add another locomotive for emergency break down.
* Delivery products to doors cheaper the trucks company.

**Impact on stakeholders**

* The products with time sensitivity will arrive on time with no delay.
* The delivery will be faster and no damage of the products.
* The control center will know where the trains are.
* The customers will be happy due to faster deliveries and lower rates.
* Customers will pay extra for delivery to doors.
* Saving fuel will help increase revenue.

***Alternatives: Do nothing***

**Impact on stakeholders**

* Loss of customers with products that are time sensitive.
* Increase train accidents and lose the products.

***My recommendation***

Burlington Northern should use the Alternatives: build extra track lines, add tucker in the trains, and deliver to doors. I recommend this because it will have many features that other company do not have, like trains, trucks, and resources. Burlington Northern could use the train for long distances then transfer the cars to trucks for short distance. Most companies would not bother with paying extra money for full service because it will save them money and time. Burlington Northern should first start with adding extra locomotives to the trains to reduce the delay time. For example, if the first locomotive breaks down then the pilot can switch to the second locomotive to get to the repair station, line, or destination. Then, adding radar to all the control centers will make it easier for dispatchers to see all the trains in the area, where they are coming from, and it will reduce accidents. Numbering and naming the train track lines will fix the communication between the pilots and dispatchers. Putting a fuel measure in the trains' tanks to show the pilot how much fuel they have will save on fuel and time. It will be a waste of time for the engineer to go back to the tank to see if there is enough fuel or fill it when it does not need it, and stopping and pulling back will use a lot of fuel. Building bridges and extra lines by "meets and passes" will save fuel too. Building repair lines will make the MOW work anytime the train parks without risking the lives.

The right answer is do nothing