Bad Guy Case Study

Team

Stacks

**Introduction, Business Overview, and Problem Definition**

The Los Betas drug cartel has been experiencing an increased loss of product that is to be delivered to the United States through once successful delivery routes. Our organization has operated these routes for years, practically uninterrupted by American federal agents compared to other organizations. We have earned a shipment success rate of 70%, which allows us to have a competitive advantage over other cartels operating between northern Mexico and the United States. We have achieved this success by using financial influence and intimidation tactics to encourage agents to allow shipments to not only clear the border, but to also reach their final destination in America. Recently, however, federal agents have seized large shipments or product across all forms of transportation: boats, automobiles, and airplanes. Our success rate has dropped to 50% over the past two years. Federal agents have achieved this increase in seizures through tactical advantages gained by collecting data on our transportation methods and utilizing advances in technology to determine our next move. Revenue has decreased over the past two years because of the agents’ new tactics. Aside from lost revenue, we are also experiencing lost manpower. Workers are being arrested (or killed) at an alarming rate, and it is only a matter of time before a rat is in our midst. Furthermore, this has created concern among our suppliers, who feel that our risk of an informant infiltrating the operation, and in turn tracing a trail to those suppliers, is greater than ever before. We are beginning to lose our competitive advantage over other cartels through increased costs of supply, loss of manpower, and loss revenue from seized product. Unfortunately for us, we cannot use our financial influence or intimidation tactics on a machine that process and analyzes data at a rapid rate. We need to develop a plan within the realm of advanced data analytics to immediately handle our law enforcement crisis.

Our primary goal is to increase our shipping success rate by 25% over the previous two years’ rate. This will allow us to achieve a 30% increase in revenue while increasing costs by only 15%. We will focus our efforts on specific geography in the United States including the Gulf Coast region, the mid-Atlantic region, and the US-Mexico border. Although we have been impacted across all methods of transportation, we have determined that maritime transportation offers the best opportunity for growth while limiting costs.

**Data Collection**

 **Data Collection Problem**

Data collection will be the biggest challenge we face in pursuit of our goal. It represents the most important aspect of improving operations and it also represents our biggest constraint. Given that the organization is an illegal one, data must be discretely and covertly gathered while also being gathered in a repetitive and predictable fashion to the organization. Without reliable data we will not be able to reach the immediate goals of the organization. The data collection problem revolves around **competitive intelligence, data availability, and data security**.

Competitive intelligence will be difficult to gather because our main competitor is not another drug cartel. Since law enforcement is our main competitor, our definition of competitive intelligence addresses an entity whose objective is to disrupt our operation without being a direct competitor in our industry. This poses a unique challenge to the organization because, unlike a direct competitor in the industry, we cannot use normal competitive intelligence methods including researching their prices, comparing their product to our product, or investigating their marketing techniques.

**Competition for Limited Resources and Market Share:**

Drug Interdiction is a joint effort among global partners to interrupt drug smuggling by air, sea, and land. As efforts have increased, cartels have become more creative to bring their product to its customers. In doing so, we have also become more vulnerable in this drug trafficking.

Shipment methods for cocaine have changed over the years from going directly from Columbia to the United States by air to going to Central American/Mexican border via boat or semi-submarine and then overland into the United States.

Coca bush cultivation remains limited to Bolivia, Columbia, and Peru and has consistently declined since 2008 in all three countries. When comparing seizures of cocaine worldwide, the greatest amount a (in tons) has been seized in South America.

The Southwest boarder (SWB) of the United States is the principle arrival zone for most of the illicit drugs smuggled in the United States. The SWB is of significant emphasis and focus for the interdiction agencies of the United States and Mexico.

Our primary goal is to increase our success rate by twenty five percent over the previous three years’ rate. This will not only allow us to make up the ground lost to recent seizures, but will also represent an increase beyond previous success rates. We believe that the proposed methods will provide a twenty five percent increase in successful shipments within twelve months after implementation. Success will not only be measured by successful shipments to destination cities throughout the United States, but will also be measured by a reduction in cocaine seizures in the originating country of Columbia[TBD] The most important and challenging aspect of improving operations and revenues will be our access to real-time data and ability to respond to this information. With extensive financial resources, we should not limit spending to securing and utilizing superior technologies, data collection methodologies, and transportation solutions.

The data availability problem is illustrated by what kind of data is available to be captured, the frequency at which data is available, and the accuracy and reliability of the data that is acquired. Some of the data required to reach our goal is relatively simple to acquire, including traffic data, weather data, and cargo data. But the most important data, data related to law enforcement presence and seizures, is the most difficult to acquire. Unlike the other types of data to be collected, law enforcement data is not static and is ever changing. It is very unlikely that a seizure will occur multiple times in the same area or the same time of day. It will be difficult to identify genuine trends that can be exploited, and there will likely always be inherent risk that our assessment will not yield the predicted results. The goal of law enforcement is to be unpredictable, and that unpredictability will be an extremely important factor to manage.

All data that we collect is susceptible to being accessed by unwanted entities. Loss of data, especially to an unwanted entity, would result in a colossal waste of time, energy, and money. It would also result in a severe loss of any competitive advantage that we gained from the data collection and would force us to revamp our technique from the ground up. This leaves us vulnerable to another data breach as our advanced techniques would now be known to law enforcement and we would be under more scrutiny due to these exposed advanced techniques. For these reasons, data security is a top priority. Hardware must have the ability to remotely initiate a self-destruct sequence should the need arise. Data stored in the cloud poses the highest vulnerability risk and it can be secretly accessed by an unwanted entity from anywhere in the world at any time.

Way to Gain Competitive Edge:

Due to budgetary shortfalls for fiscal year 2015, a number of multilateral exercises to prevent or reduce maritime drug tracking have been cancelled by the Unites States – increase maritime transportation of drugs.

Avoid the SWB which is heavily monitored and identify alternative land territories that may be uncontrolled or in dispute among competing cartels.

Create more security in the originating countries of cocaine (Bolivia, Colombia, and Peru) with a particular focus on one specific country. [TBD]

Use creative maritime routes and/or vehicles for transportation to the United States.

**Data Collection Problem Mitigation and Collection Methods**

Given the context of our data collection problem, our data collection methods will be extremely important.

* + Data collection
		- Hackers
		- Surveillance
		- GPS tracking of moving shipments
		- How do we receive competitive intelligence?
	+ Data Collection Methods
		- Open-source (social media APIs)
		- Traffic data (Google API to monitor cell phone location and velocity)
		- User-based intel

**Data Types: Open Source**

Open-source data collection will be achieved through a number of means. By utilizing social media outlets including Twitter and Facebook to monitor chatter from law enforcement officials in regions that we identify as geographically significant. We will employ the APIs of social media networks into a MongoDB database and use a natural language processing (NLP) tool to assess information posted online by law enforcement. We hope to capitalize on the ego of law enforcement officials to determine the times and locations where they are the most active and have the most seizures. Given that this information will be continuously collected and stored, MongoDB is the best source because of its scalability. It allows for storage and retrieval of large and growing datasets.

A MongoDB platform through Hadoop called Mortar will be implemented to facilitate NLP and recommendation engines derived from the open-source data. Mortar allows for data science tasks in very large databases and quickly returns results from analysis. Aside from the functional capabilities of Mortar, the preferred benefit is that all of its tasks and processes can be done in a secure cloud. This allows for easy access to the data and any results from NLP and the recommendation engine from any computer via a secure connection.

Figure : How Mortar Works via https://help.mortardata.com/data\_apps/mongo\_hadoop/how\_mortar\_works

**Data Types: Traffic Data**

We will also access the Google API to monitor the location, speed, and congestion of cellular phone signals. This information is useful because it allows us to gather accurate data on traffic patterns and would lend itself to useful decision making regarding ground transportation to and from maritime ports. This traffic data will focus on the gulf coast and the east coast of the United States, as this is where we think the most opportunity resides.

System Design

Laptop

External Hard Drive

Encryption technology Drive

Software to process data

Mapping Software

An understanding of VHF/UHF radio communication

Land Navigation Techniques

Sea Navigation Techniques

Security

There are several areas of focus for this project in regards to security. There is the security of the product, the intelligence data going into the decision making, and the people that we are putting in harm’s way to accomplish the goal. For the people that we are putting in harm’s way that are part of the drug trafficking business, they know what they are signing up for and I have less sympathy for them. For the people that we threaten, black mail, or in any other way make do something that they normally would not do, I have a much high concern for their well being.

For the equipment and data being used it needs to be light, mobile, and secure. It has to have the ability be wiped clean at a moment’s notice. A back up that is not in the cloud, online, or easily accessed also needs to create. All of this has to have an extremely small user base. The boss will want to have an understanding of what we are doing but they will not need to know all the details. As the leader of this project, we will need to find a confident and competent person that we can trust and can work in concert with the same focus and drive to finish this research project. That person will have to fully understand the consequences and pressure associated to making this a successful operation. This equipment needs to remain in a location that has physical protection (safe, guards) and as much as possible it should not be use on the internet

Ethics

The act of bringing an illegal substance into another country for profit of a foreign party is unethical at the core. During this process, we intend on breaking the law, hurting others, and creating situation which will lead to the successful movement of our product to its target location. We will put into play a method that will get yield a growth of the delivery of this product up to or past thirty five percent more than the previous calendar year. This does pose a moral and ethical personal situation for the individual but the consequences of disappointing a boss in the power of lethal position. In short, disappointing the boss in this case can be a life threatening.

Stealing data from law enforcement, black mailing members of power, government, and other agencies to gain an access point into the United States, buying training for my team members, and even sending member(s) of my team on a mission that will end in the death of them just to delivery one load of drugs, will be just some of the things I will have to live with. Doing all of this to protect my family, myself, and gain a better place of respect, power, or payment for services render from my employer.

“The use of big data is becoming a key way for leading companies to outperform their peers.”

The use of big data to accomplish a successful illegal activity is new. It has never been done in the drug business that I can track. Like you can imagine there are no strong documented records of others that may have attempted this before. The question was asked, “How do we measure the value of big data?” Erik Brynjolfsson, Lorin M. Hitt, and Heekyung Hellen Kim, Strength in numbers: How does data-driven decision making affect firm performance?, April 22, 2011 available at SSRN (ssrn.com/abstract=1819486). In this case we can measure the value of big data by the gram or by millions of dollars. That is substantial in any record. Grams of illegals drugs can put you in jail for life and millions of dollars can make your life either very easy or very hard for life. I would summarize that you can measure big data in this case like you measure the ethical pressure of performing the acts to create a thirty five percent more success of the delivery of drugs to the United States.

Effort Initiation

To get this plan up and running it will take some creativity and hard work. Like all things worth doing this will not be easy. We will need to survey the physical landscape, identify key players, key technology points, and how far we can push to accomplish our objective.

With limitless money and a high level of persuasiveness, the right and left firing limits are very large on this project. The physical internals to this program will be a laptop, external hard drives, and a method to encrypt the data being collected and the plan collecting the data. There will be several moving parts in this evolution and real-time decision making for Go/No Go will be needed. For this one high ranking officer in the drug family the effort will be massive. His/her ability to get others to do the heavy lifting and keep their name and the name of drug family out of the operation will be critical. None the less, being the single coordinator of this major effort will be a second full time job will doing all the other duties as assigned.

The drug family is going to make runs to the United States with their product. They are going to do their best to protect the product and ensure it has a safe passage to its destination. This plan to be put in place is yet another avenue for the delivery of the product or as an enhancement to the current delivery method. We will be looking to take advantage of all avenues that accomplish the end goal of getting drugs to the target. This will include over land, in the air, and over water. I feel we are staying away from digging tunnels due to the time factor that we have to show some forward progress.

Officer Thomas Jeffery

Maritime port inspector for XXXXXXXXX Port is Mr. Jeffery. He is a former US Military service member and was discharged under honorable conditions. He was married and is a single father of two children. Why am I sharing this information with you? Great question. This is how we are going to get some drugs into the US via one particular port.

Mr. Jeffery lost his wife during the delivery of their second child. He still wears his wedding band and their youngest is three years old with the oldest being five. He and his wife had plans for raising their children and the type of life they wanted them to have. The Grandparents help watch the children for he can work extra hours to pay for dance classes, sports, and private schooling. His wife was a lawyer and they had a small nest egg that is about to run out. Hence the reason why he has been working extra hours. They only thing this man loves more than is dead wife are those kids. He is the Go/NoGo decision maker for searching ships entering the port on his shifts. Getting him under control and work with us solves some major challenges.

He will respond to helping us if we threaten those kids and the grand parents. We need pictures of the kids at play and of the grand parents. These pictures need to be recent and have not been doctored in any way. They must be authentic. He will work for us and we will reward him with a very healthy amount of money to support getting his kids and family the life he and his wife had dreamed of. We will arrange for an aunt or uncle to pass and they will let those kids a healthy amount of money. He will get this money for the kids in XXXX years after he has supported our deliver of product.