

Student: **Hector Orellana**

Business Street Smarts Summary

Business Street Smarts focuses on assessing on communication of information, sources of information, assessing those sources of information, and supporting the opportunity to make well informed choices.

The session dealt with effective outbound communication, assessing inbound communication and reports, reviewing intellectual property and critical information, how and where fraud and corruption can occur, managing contracts and engagements and how to manage any comprehensive due diligence assessment.

Signature projects included:

Addressing and rewriting the disastrous memo by Oscar Munoz of United Airlines after security officers rendered a ticketed passenger unconscious while trying to remove the man so a crew could be repositioned.

Crafting an Intellectual Property (IP) and Critical Information (CI) assessment registry so a company could understand what bit of IP and Ci they had and who should have and not have access to the information. IP and CI represent over 80% of the book value of most companies and those are the most stolen and compromised assets. This section is of significance as so many young professionals will be entering companies who only significant assets are intangibles and they need to be accounted for and defended.

The final session dealt with Due Diligence and working real life scenarios that were from real life cases – not imagined case studies where the teams of students both presented on their two cases studies and assessed the other team’s analysis and dissection for their cases studies. The case studies bring to life the value of the tools taught.

All professors and students worked on the interdisciplinary project. The project was not easy, it was very hard. As a group all of the students dissected the electric vehicle industry. The purpose was to learn to work as part of a diverse group and at the same time learn about electric vehicles. From this knowledge gathered, they were to assess a single electric vehicle company. This is part of the process of applying unique research to an industry and applying that research and knowledge to an individual company.

The Communications Exercise is to rewrite the Oscar Munoz Memo

Oscar Munoz Memo:



September 8, 2015

Dear fellow employees:

Today we are announcing a series of executive changes, which are effective immediately. I recognize that this news is unexpected, and I want you to hear it directly from me, as United's new CEO.

Jeff Smisek, Nene Foxhall, EVP of communications and government affairs, and Mark Anderson, SVP of corporate and government affairs, have stepped down from their roles. These departures are in connection with United's previously disclosed internal investigation related to the federal investigation associated with the Port Authority of New York and New Jersey.

In addition, the company announced Henry L. Meyer III, a current United director and the lead independent director, has been named non-executive chairman of the board.

As we move forward, let me take a moment to tell you a little bit about myself. As you may know, I have been on the board of directors of United, and previously Continental, for more than a decade. I am also a longtime United customer. Before today, I was the president and COO of CSX, one of the largest railroads in North America. Prior to that, I worked for several well known consumer brands including AT&T, Pepsico, and The Coca-Cola Company.

I took this job because I am excited by what we can do together. There is incredible opportunity for innovation, for earnings growth, and for improving an experience that is essential to the vitality of global business and to the personal lives of millions of people. I will be relentless in pursuing these goals, and I hope and expect that all of you will share that same passion.

In the coming weeks, I will be making my first visits around the system. I want to

talk to as many of you as possible because I want to get to know you and what you think about how things are going. How can we operate better? How can we better serve our customers? What support do you need to deliver that? You'll be seeing me frequently; I intend to regularly travel the system to hear about our operations directly from you – and you can hold me accountable for that.

In my career, I've found that three things are critical to any successful business. First, we must focus on customers and what we can do help them. In the telecommunications, consumer products and railway businesses, there are very real consequences if you don't meet the consumer's needs and desires. There are also substantive rewards for doing so, and especially for exceeding customer expectations. Every day, you win or lose customers based on the slightest change in value and quality.

As you know, in the airline business, this is especially critical. Getting people where they want to go, reliably and happily, can make or break their ability to succeed in a work endeavor or to hug a family member at an important moment.

At United, I will dedicate myself to making our airline flyer-friendly. Continued...

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Second, in any organization, especially a great airline, it's all about teamwork. I like to refer to this as "shared purpose." We are in a service business, and the thousands of people who work here are the key ingredient determining our success. To get our passengers where they want to go safely and happily requires thousands of us working together with a shared purpose of supporting each other in serving our customers. To achieve this, we must create and sustain a respectful dialog about our common goals – an ongoing conversation among ourselves. We cannot do this apart.

Third, I am excited to be a part of a company and industry that demands innovation. The world around us is changing. There are new forms of loyalty programs and affinity groups, a constantly changing regulatory environment, plus new digital and networking technologies that are emerging on a daily basis. At United, we will embrace this change, and make this an energized and exciting place to work.

Above all, my career has taught me that safety is paramount. Our passion for the safety of our people and our customers must be at the core of everything we do.

As we bring this airline forward, I promise to hold true to these principles of

customer focus, teamwork through our shared purpose, continual innovation, and of course, safety.

I want our customers, my fellow workers, and our communities to respect each other and take pride in our accomplishments. Thank you for your dedication to our customers and to United, and I look forward to meeting you soon.

A handwritten signature in black ink, appearing to read "Oscar", with a horizontal line extending to the right.

Student's re-write:

Dear Team,

While the facts and circumstances about what happened last night aboard 3411 headed from Chicago to Louisville are still evolving, I'm upset to hear about it and have decided to include a recap from the preliminary reports filed by our employees.

The situation started when the customer was asked to deplane, but he refused. Our employees, after insisting, contacted the Chicago Aviation Security Officers. When the officers arrived, the customer defied them and they physically removed him from the aircraft.

I deeply regret that this situation arose. To avoid these situations from happening and continuing to offer a great experience, I commend you to continue going above and beyond to ensure we flight right.

There are lessons we can learn from this experience; we are taking a close look to the circumstances surrounding this incident. Treating our customers and each other with respect and dignity is the core of who we are, and we must always remember this no matter how challenging the situation.

Oscar

Summary of flight 3411, as depicted by our employees

- On Sunday, April 9, after United Express Flight 3411 was fully boarded, United's gate agents were approached by crewmembers that were told they needed to board the flight.
- We sought volunteers and then followed our involuntary denial of boarding process (including offering up to \$1,000 in compensation) and when we approached one of these passengers to explain apologetically that he was being denied boarding, he raised his voice and refused to comply with crew member instructions.
- He was approached a few more times after that in order to gain his compliance to come off the aircraft, and each time he refused and became more and more disruptive and belligerent.

- Our agents were left with no choice but to call Chicago Aviation Security Officers to assist in removing the customer from the flight. He repeatedly declined to leave.
- Chicago Aviation Security Officers were unable to gain his cooperation and physically removed him from the flight as he continued to resist - running back onto the aircraft in defiance of both our crew and security officials.

The Next exercise is the understanding of Intellectual Property and Critical Information

Crafting an Intellectual Property (IP) and Critical Information (CI) assessment registry so a company could understand what bit of IP and Ci they had and who should have and not have access to the information. IP and CI represent over 80% of the book value of most companies and those are the most stolen and compromised assets. This section is of significance as so many young professionals will be entering companies who only significant assets are intangibles and they need to be accounted for and defended.

Student's work:

See Archives-2/Hector Orellana/ IPCI ASSET REGISTER Hector Orellana.xls

Based upon the research we did as an interdisciplinary of studying the EV industry each student took the time to analyse a company in the EV industry

Student report:

Lightning eMotors Report

Lightning eMotors

Lightning eMotors' focuses on Business-to-business sales, clients are couriers such as DHL and transportation companies like Soderholm Bus. Brand partnerships like this suit the company best, it allows them to supply them whole "green" fleets and complete package for charging and data collecting, account managers are key to engage clients. They should keep focus on this segment, transportation (goods or passengers) who are looking for a zero-emission fleet. To engage customers and strengthen the relationships Lightning eMotors can: Develop their custom specialty adaptation vehicles, to cater a need that is not covered by other competitors; Maintain quality in processes and services while keeping the familiarity in the products; integrate all their services to cover the overall demand of the customer, this includes the electric vehicles, charging solutions and Lightning analytics software.

There are some activities that are crucial to ensure the business' success, this are:

- Lighting Analytics development: Lightning analytics is the data collecting and analysis tool under Lightning Energy (Subsidiary). This service allows the company to stan out above the company by providing extra value to the fleet buyer, it allows the client to have an overview of their fleet and act according to the data. If this tool is developed further, it can attract clients for its usefulness.
- R%D: During this initial industry stage, it is crucial to develop new products, processes or services that aren't being done by the competitors to acquire new customers. However, research must be a constant task since it will bring insights on possible revenue in the future.
- Key partnership building: Lightning eMotors focuses on B2B sales and the services offered after the acquisition of EVs, building partnerships with transport companies is the pillar of their sales channel and a good relationship with partners allows them to keep providing their services. Also, partnerships with suppliers are important since there is currently a growing demand for EV batteries (The main and most cost intensive component) and computer chips.
- Service: Post-sale services are important key since not only do they provide additional revenue streams but they build on the relationships with customers.
- Charging station availability expansion: The infrastructure for the EV market is still very small, one of the deciders for companies to switch to EVs is the availability of charging stations.

| | Three Months Ended March 31, | |
|--|------------------------------|-------------------|
| | 2021 | 2020 |
| Revenues | \$ 4,591 | \$ 695 |
| Cost of revenues | 5,318 | 852 |
| Gross loss | (727) | (157) |
| Operating expenses | | |
| Research and development | 648 | 243 |
| Selling, general, and administrative | 3,920 | 2,249 |
| Total operating expenses | 4,568 | 2,492 |
| Loss from operations | (5,295) | (2,649) |
| Other expenses | | |
| Interest expense | 1,611 | 334 |
| Loss (gain) from change in fair value of warrant liabilities | 20,539 | (166) |
| Other expense, net | (9) | (1) |
| Total other expenses | 22,141 | 167 |
| Net loss | \$ (27,436) | \$ (2,816) |

- The company expects to sell 500 units or \$50 million in revenue in the short term.

EV Market

The cost of producing an electric vehicle is, on average, higher than those that operate on internal combustion engines. Assuming a comparison between vehicles of similar quality and or purpose, it is noticeable how higher it is.

The higher costs are mostly, not including luxury or high-end details and interiors, due to the cost of producing the battery packs. A battery pack for an EV can cost

between \$7,000 and \$10,000 which according to Olyver Wyman (Global consulting Firm), can make for up to 45% increase in production cost compared to a traditional vehicle. That's almost half the cost of an ICE car just for the battery pack.

However, the cost of producing batteries is already coming down, UBS (Multinational investment bank) expects the price of kilowatt hour to drop under \$100 in 2022. In 2020 the average cost of kWh was of \$137. They also expect the extra cost of manufacturing battery electric cars versus their fossil fuel equivalents will diminish to just \$1,900 (£1,470) per car by 2022, and disappear completely by 2024.

The current cost can be explained due to the composition of the battery, the required materials are yet to be used in this industry as massively as fossil fuel. The components of the battery are the most expensive. But prices are not that stable as explained by a study from EY: "Carbon emission limits push mines and refineries to look for alternatives in processes, which along with the already large investment requirements of the industry, makes it harder for investors to inquire on the mining off these components. Another restraint to the growth of the market is the variability in prices such as lithium carbonate that dropped from around \$16k a ton in 2017 to \$6.3k in 2020, this supposes a less attractive investment."

There are a few ways to manufacture the batteries with variations on the number of metals used, but all of them are lithium based. The Lithium industry capacity is 450 kt LCE (Kilo Tons of Lithium Carbonate Equivalent), and the current production is well under that limit. The production will keep on growing with the demand posed by the EV market. An analysis by McKinsey shows that the average price of 19,500 USD per ton of 2017 will be reduced to half by 2025.

The industry of Cobalt, one of the most important metals used, is not as big as lithium's. There is some uncertainty around the production of Cobalt. Around 70% of the world's cobalt is mined in the Democratic Republic of Congo, where problems arise often with law and there are also ownership disputes. The messy situation of DRC's cobalt industry also revolves around the social concern of artisanal mines being tied to child labor and inhuman practices. This makes the supply unattractive. Furthermore, cobalt's industry faces a lack of refinery processes and it's a product which depends on nickel and copper, since it's not the main metal mined by companies. Volatility is expected, say McKinsey.

A shift to higher nickel to cobalt ratio batteries is expected. Nickel is a metal mainly used in the production of stainless steel, very little is used in the EV industry as of now. The quality of nickel that is to be used for the battery packs is really important, for stainless steel it's not. What this means is that mining and refineries don't produce huge amounts of the type of nickel for battery packs since stainless steel manufacturing is flexible on quality. The availability status of high-quality nickel could mean higher prices for the EV market or shortage of material. "Despite being abundant globally, on closer inspection, the world's supply of nickel suitable for

batteries may not be as copious as it first appears. As OEMs start to define requirements in relation to the raw materials they use—quality of the nickel, environmental impacts, social concerns, and geographical issues—the size of the pie will suddenly start to diminish and will be different for each OEM, depending on their own requirements and restrictions. Given these uncertainties and risks, certain OEMs might even want to decrease the dependency on nickel”, explains McKinsey.

Conclusion

The Electric Vehicle market is heavily reliant on the mining industry. Refinery capacities are far off from the amount of minerals and metals needed to cover the demand for upcoming Car manufacturers. There is also a political uncertainty behind the laws and regulations regarding mining, in some regions bad practices are notable as is child labor in DRC or non-eco-friendly refineries in China.

However, even though the supply chain may be limited, the EV market is just starting is still far from pushing the production limits. The amount of EVs is still relatively small and the consumer demand is growing along with the environmentally friendly trends. This demand includes companies dedicated to transport of goods or passengers who are looking for alternatives in their fleets and to appeal to the public's eco/friendly mentality.

The company Lightning eMotors already counts with important relationships with clients and shows positive behavior in their financial statements, their business has some good advantages to be exploited in the following years (Based on a market and company analysis). I would expect it to become profitable in the mid-term, even though they are currently reporting losses, and have good return on investments. In the technology sector it may take years to start seeing profitable statements.

I recommend investment in the company.

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