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RUSCA & SUPPLY CHAIN

Rutgers University Supply Chain Association



Rutgers University Supply Chain Association

Shaping the world's future Supply Chain leaders

April Showers Bring May Flowers!

RUSCA is proud to present our final newsletter of the semester. This issue aims to delve into supply chain relevant issues with student perspectives.



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FOR RUSCA SPECIFIC EVENTS, SEE PAGE 11

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Best Buy to Best Cost

By: Somik Shah

Back in November 2008, one of the biggest electronic retailers filed for bankruptcy. Many experts saw red flags, such as a lack of innovation, in such a competitive industry and thus predicted the downfall of Circuit City. Their inconvenient locations, coupled with not aggressively pursuing the gaming industry made them less appealing to customers who began to favor other places like Wal-Mart. The nail in the coffin was when they fired their best (and highest paid) sales staff to replace them with cheaper and less experienced personnel, compromising their customer service, and in turn their brand name to a point of no return (Hamilton). Once the NYSE dropped their stock because its value had plummeted to 10 cents a share, it was all over.

The downfall and passive nature of Circuit City allowed Best Buy and Amazon to secure large shares of the market. Nevertheless, Best Buy was not doing well in 2012 as they had bad publicity and diminishing revenues due to the cheap prices and convenience of Amazon pressuring them. The concept of "show-rooming"- customers browsing the store to test products in person and then going home to buy them online - was a real killer for Best Buy, who for a long time seemed to be going the same way as their predecessor (Melendez). However, when Hubert Joly took over as CEO in 2012, he implemented many changes to cut costs and make the customer experience more enjoyable. To combat show-rooming, he first slashed the prices on Best Buy's products to ensure that customers could not necessarily find a better price online. This drove up sales, while cutting profits as their Gross Margin dropped from 25.1% to 22.4%. (Green). Price matching was a well thought out move, but what else needed to be done? The real challenge was to tactfully cut costs without jeopardizing the customer experience.



Hubert Joly analyzed many inefficiencies in the supply chain as well as other extraneous costs, leading him to fire several hundred employees that he felt were not needed, most of which were middle managers or non essential personnel in the headquarters. Furthermore, he noticed that Best Buy was not good with handling product returns, costing them almost \$400 million per year so he implemented improved reverse logistics procedures (Melendez). The initiatives saw a sizable gain, as Best Buy saved almost \$390 million in unnecessary expenditures within the last three quarters of 2013, from decreasing many layers of management to make a more efficient supply chain. Additionally, customer service did not take a hit because he made sure that all the cost cuts would not affect store level employees and management, because they were focused on higher level administration and warehousing.

The above measures served to make the company more cost efficient, but did not develop a competitive edge against online supergiants like Amazon. In 2013, Best Buy only made \$2.3 billion in sales online out of 1 billion



website visits, or \$2.30 per view. The abysmal returns were due to their archaic, and extremely expensive, system of handling online orders. Best Buy owns 23 distribution centers in the USA, but previously they only served to physically supply the stores with inventory as needed without regard to online orders. Therefore, if a product was not available in a distribution center, it could not be purchased online. It also made transportation costs expensive because online orders could only be shipped from one of the 23 distribution centers, not from the stores. Joly solved this guandary by having its several thousand retail stores act as distribution centers with employees shipping online orders locally. This initiative drastically reduced transportation times and cost while increasing product availability online by adding store inventory to their website, making for a more lithe supply chain through improvement in logistics (Green). In 2014, Best Buy had reduced its costs by \$1 billion from the previous year, while actually increasing spending on customer service, saving them from the same death spiral Circuit City went down.

Just three and a half years ago, Best Buy was in danger of filing for bankruptcy, but by optimizing excess in their supply chains through the implementation of a few cost cutting initiatives, they came out stronger than before. They provide prices that compete with Amazon, along with the added benefit of enabling customers to touch and interact with products before purchase. By constantly striving to improve the efficiency of supply chains and logistics, companies can make unprecedented turnarounds for the better. The moral of the story is that supply chains and processes can always be made more efficient, and retailers can never truly feel satisfied in such a competitive market. The challenge lies in finding the balance between efficiency and quality.

A New Era of Delivery System

By: Sophia Zhou

From Google's self-driving car project to Amazon Inc.'s delivery drone system, part airplane and part helicopter, scientists at Massachusetts Institute of Technology are exploring the possibility of underground networks of delivery vehicles. The research and development was sparked by a 2001 U.S. Congressional injunction declaring that at least one third of ground combat vehicles known as Ground Combat Vehicle (GCV), also known as "baseline weapons including a 25mm auto-cannon and a 7.62mm coaxial machine gun," are to be un-

"Supply chains and processes can always be made more efficient, and retailers can never truly feel satisfied in such a competitive market."

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"The idea behind PEV's to operate underground is innovative and efficient in terms of logistics for companies that handle shipping orders." manned by 2015 (Ground). MIT's institute for Data, Systems and Society and MIT-affiliated logistics groups are focused on crowded urban centers for these small, self-run three-wheeler vehicles to deliver goods faster and more efficient than ever to businesses (Loten).

MIT's Professor Sertac Karaman, is one of the developers of the robotic project as well as in charge of the team that developed the "Persuasive Electric Vehicles," or PEVs. These vehicles run on either pedal or electric power to operate on a GPS system, 3-D laser scanner, and digital cameras all comprised of the current military technology.



The PEVs function through the use of computer vision algorithms which power the cameras and one planar laser scanner (Loten). Moreover, these tricycle-designed low-speed vehicles are designed optimally to move goods underground during off-peak hours, which would finance operating costs. This small but mighty vehicle is capable of traveling autonomously to pre-determined pickup locations, as a result, companies would be able to economize their distribution costs.

The delivery system of MIT's underground prototypes' have significant advantages over aerial delivery systems. According Professor Karaman, the foundation has already been established for the subterranean drones (Loten). A large amount of the urban infrastructure, including subways, sewers, channels for telephone (for those who still use them) and electrical cables, is intact and already underground. De-



spite planning for the addition of these underground drones, some concerns over their risks remain. Professor Karaman tells Wall Street Journal's CIO Journal, "It only takes a kid with a rock to take down a drone," when it comes to safety of others. Aside from children, birds of prey may intercept the drone before it lands at its destination.

While, the implementation of an underground conduit of deliveries has undergone extensive research and testing, there are potential risks. There are barriers including cost that come with the latest laser scanners and maintenance that can render the project too expensive to sustain. Another possible issue logistics firms or companies shipping merchandise to customers have is cyber security since these sovereign vehicles can be disabled or hacked. A disruption "can be as easy as disrupting a laser scanner with a mirror, Professor. Karaman states (Loten). Another tricky area include the insurance and regulatory policies. Only a few of U.S. cities currently permit the operation of autonomous vehicles including: California, Florida, Oklahoma, Hawaii, and Nevada (Loten). New service channels would have to be unearthed for the delivery vehicles, which would undoubtedly yield disruption for city residents. The idea behind PEV's to operate underground is innovative and efficient in terms of logistics for companies that handle shipping orders. The underground routes would link to distribution centers across the city, customer pickup centers (i.e. package lockers), and smaller depots (i.e. freight rooms). Goods are projected to be delivered more reliably than heavier transportation medians, namely trucks and more efficiently as it will not advance traffic congestion, which has a become a major issue with industrialization. This system is just one of the many beginnings to a new era of delivery methods: that could potentially change the delivery industry.

Supply Chain: The FedEx Major

By: Brandon Daley

In today's world, supply chain management has come to be known as the "FedEx" major and rightfully so. FedEx, overtime, has grown into the nation's number one supplier of logistics, raking in \$43.31 billion dollars annually and placing 65th on Fortune 500's top rated companies (Fortune). What people haven't always recognized, however, is that this notion has grown more factual overtime, slowly at first but with much more rapidity in today's marketplace.

Since its conception in 1971, FedEx has always sought expansion by merging smaller, less heralded companies into the Fed-Ex family. In 1984, the company made its first acquisition with Gelco Express, a Minneapolis based package-courier whose main customers at the time were little more than the pigs and cows of the many farms in Minnesota; FedEx placed them in 84 countries worldwide (Prince). Since then, FedEx has done this many times over.



What has also separated FedEx from other leading competitors has been its tenacity to deepen its roots once established in other countries. In 2015, FedEx acquired TNT Express (TNTEY), which currently holds operations overseas in Europe, the Middle East, Africa, and Asia, all places FedEx has affiliated itself within the past several years (Prince). One primary reason for the acquisition was that FedEx has recently pushed harder to establish a strong presence within European borders, a spot mostly occupied by the Dutch company DHL (Bloomberg). Nevertheless, FedEx is universally known is because it touches down on nearly every nook, ridge, and cranny of the globe.

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http://images.fedex.com/ images/ascend/us/ shippingservices/img-pile-ofboxes-357.jpg Finally, throughout time, FedEx has always asserted its dominance through reliable service, an impressive feat considering its operations today span 220 countries worldwide (Prince). Many large-scale logistical corporations place too large of an emphasis on large-scale movement of consumer goods. However, by spreading around regional hubs responsible for particular places, this enables the flow of goods to not get too congested. Furthermore, goods are on the go twenty four hours a day. With FedEx Overnight, customers can be assured that their new iPhone, Fitbit, or other trendy gear is always moving, so long as your package doesn't exceed the weight of your bedroom dresser (app. 150 pounds).



FedEx has grown into a universally recognizable brand. Its main facility in Memphis, Tennessee even holds a bit of celebrity value (it was used in the movie Castaway with Tom Hanks). Through mergers, persistence, and reliability, FedEx has created a solid foundation with which it has been able to grow upon with time, and today it stands at the forefront of its other competitors. Unlike DHL, the United Parcel Service, and other niche competitors, FedEx has diversified itself in a variety of markets, ranging from freight to express to logistics. This is especially critical in America's fickle economy because while one market falls another has the potential to trend up. During a transition year for FedEx in 2014, ground service faced a precipitous decline in consumer interest because of an extended two to three day shipping time (Bloomberg). Customers today anticipate getting an order almost immediately. However, FedEx during that time bulked up its airfare to compensate for shortcomings on land, as the company expected EPS (earnings per share) to nearly double from seven to 13% (Bloomberg). The same cannot be said for FedEx adversaries and other less diversified companies are forced to resolve their specialty or face dire consequences. In the end, FedEx shows no signs of slowing down and we have no reason to doubt it. Their slogan "Relax. It's FedEx" attests to that.

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"Historical data helps companies to build forecasting models by providing rich evidence"

Supply Chain Visibility and Forecasting Accuracy

By: Miranda Wei

In order to better address customer needs and maintain reasonable operating cost at the same time, companies are eager to improve their supply chain. There has been a lot of discussion around how to increase forecasting accuracy and visibility of supply chain. Many companies agree that the main challenge lies in "connecting the dots". When Schneider Electric decided to build a system for achieving endto-end supply chain visibility three years ago, "it needed to put together a strategy that encompassed multiple sites and external partners, both upstream and downstream" (Schneider). Considering the complexity and the number of parties involved, companies are facing obstacles and uncertainty in enhancing supply chain visibility and forecasting accuracy.

A big challenge comes from "Big Data". With the help of new technology, companies now have access to enormous amount of data. The data can be a trap to the business since it comes from different directions and it's usually not visible across the network. These make it tougher to analyze data and obtain insightful conclusions, which result in "data paralysis". In order to better leverage data and extract useful information, it is very critical for companies to decide where to focus Moreover, Mark Ramirez from Trinity Rail said his company "found simulation to be a more important initiative than factory optimization. They needed to devise multiple scenarios and model its business according to a variety of possible outcomes. Only then could it 'collaborate to determine what they are going to make and when'" (What's). Historical data helps companies to build forecasting models by providing rich evidence, and performing simulation enables them to predict the future as well as prepare for it.

For multinational corporations, it's even more difficult to integrate data and raise supply chain visibility because various systems are adopted by different regions. Companies have to spend a great amount of time and money in order to transmit data smoothly and merge various databases. Some suggestions would be to communicate with branches regularly about the new system installation process and make sure they are aligned with the schedule decided by headquarters. It is also helpful to provide adequate training and educate global employees before the new system rolls out.

Besides the above obstacles companies encounter, they also struggle on whether to focus on improving forecast accuracy or adjusting to actual demand. For example, Trinity Rail considers that it's doing a better job responding than planning so it now concentrates on creating a "sense-and-respond" supply chain. The Vice President of Supply Chain Management, Mike Hegedus, admits the key to adjusting to changing demand is "staying tightly aligned with the sales organization on emerging and potential orders, and getting operations very much engaged in understanding what capacity the company has available" (Trinity). There hasn't been a universally agreed conclusion on whether a good forecast or prompt adjustment is more effective from a supply chain standpoint. Companies should establish their own way to approach the problem based on their current operating capacity and conditions.

Some organizations are making good progress on the connecting process. For instance, Merck has recently released a piece of information that the company is installing a new tool from Kinaxis to improve collaborative demand planning. According to Andy Walker, the Head of Supply Chain Strategy with Merck, the company's "whole new approach to demand planning' has allowed it to view all the information that it needs to run its supply chain in a single place. It can more easily



see where things are 'broken' – such as excess or inadequate inventories – and take corrective action" (Merck's). He also mentioned the biggest obstacle that Merck had in transitioning to the new tool was altering the original business practice. Many times, people are so used to the way they are doing business that they resist to any changes. What Merck did was to bring its key staff in and get them involved in the design of new system, which allowed them to see the fruitful outcomes of making transformations.

Organizations are taking advantage of high-end technology to enhance their supply chain agility. At the same time, they have to ensure the new systems are acknowledged company-wide, their staff are well-educated, and the transition runs smoothly without any interruption of business.

The Difficulties for Delivery in E-Commerce

By: Jessica Lee

Online shopping has become a significant part of the modern purchasing culture. By simply using their electronic devices, consumers can easily browse, order, and ship products directly to their front doors. Engaging in electronic commerce, or e-commerce, is especially convenient for consumers, but it has also led to financial challenges for a key player in this industry: delivery companies. FedEx is one such company that has experienced the stress of increasing customer demand in the domestic digital shopping world.

Because e-commerce has grown significantly over the past few years, FedEx has been expanding its delivery systems in order to keep up with this growth. However, expansion has increased its input costs for labor, trucks, and restructured delivery systems to \$4.8 billion, with

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"It is essential that Fed-Ex...can continuously add value to the conveniences e-commerce notably brings to retailers and customers" The spending primarily geared towards the company's ground division, which handles most e-commerce deliveries. FedEx has expressed concern over the cost increases, but describes them as necessary and inevitable because the company must expand "its network to meet growing demands of e-commerce" (Stevens).

The major concern for FedEx is its need for obtaining returns on this capital spending. On top of financial challenges from recent poor performing stocks, legal settlements, and delivery delays during the past holiday season, the operating income of company's ground division has been negatively impacted by higher costs from network expansion (Stevens). An additional strain is potential competition from its



customer Amazon.com, Inc., which has been working towards developing its own delivery system (Russolillo). While FedEx does not publicly consider Amazon as a potential competitor, others believe that an independent Amazon delivery system would reduce a significant portion of FedEx's ecommerce revenues, for "Amazon in the U.S. last year accounted for about

\$1.5 billion of FedEx's revenue. That makes up roughly 10% of Fed-Ex's ground segment" (Stevens; Russolillo).

The collective force of these past, present, and future financial hurdles, as a result, puts pressure on FedEx to ensure returns for its network expansions. To increase e-commerce returns and relieve some input costs, FedEx currently plans to increase its fees that are "attached to the growing number of large shipments" (Russolillo). However, FedEx needs to be wary of and avoid using increased fees as a primary means of boosting sales to help relieve its input costs. Although e-commerce delivery is expanding and creating opportunities for increased sales, the condition of sales relies on e-commerce businesses and customers, who make the choice of selecting FedEx as their delivery company. Their decision to do so is out of FedEx's control, and any unpredictable changes in preferences for delivery companies, in addition to competition, can affect the company's ability to both cover network expansion costs and satisfy delivery demands.

Rather, FedEx should focus on increasing the efficiencies of their expanded networks as they design and execute deliveries within this growing arena. By, for example, finding new ways to leverage its advanced integration technologies, FedEx can increase its efficiency of servicing the growing delivery demand. Doing so can help to decrease costs, which is in FedEx's control. As FedEx minimizes its expenses, it can reduce the financial pressures the company is, and potentially will be, facing because the decreased costs increases the impact its sales and revenue will have on relieving costs.

Ultimately, because FedEx aims to maintain its significant delivery presence in e-commerce supply chains, it is important that FedEx invests in the expansion of networks in order to better respond to and handle increasing e-commerce customer demands. But more importantly, it is essential that FedEx utilizes this investment in efficient ways so that it can continuously add value to the conveniences ecommerce notably brings to retailers and customers.

Health Care Efficiency

By: Kriti Sinha

In this day and age, the cost of health care is drastically rising. In America, "nearly one in two Americans has a chronic condition" and "four in five health care dollars are spent on behalf of people with chronic conditions (Information). Through efficient supply chain processes, health care is becoming more affordable, as supply chain is a "key to creating better end-to-end visibility about all of the products, devices and supplies used in healthcare" (Pennic). Specifically, there are five reasons as how supply chain makes the cost of health care more efficient.

The first is that supply chain automates manual processes. By automating small activities such as purchase orders and invoices, both producers and suppliers will be able to remove any such manual errorprone processes which are in the supply chain. (Pennic). E-commerce solutions such as expense management software save money and time. This method allows data to be accurately captured and stored in an efficient and effective manner, organizations to become more connected, and data to be managed properly as well.

The second reason as to why supply chain improves health care costs is by establishing an efficient and effective trade relationship with other health care companies. Processes of supply chain management allow health care industries to connect with trading partners which can help health care industries in terms of inventory planning and demand forecasting. Such relationships are very important since these key alliances will help in keeping costs down and revenues up (Pennic).

Third, supply chain processes assist health care companies to reduce waste/excess products. "By taking supply chain data and turning it into information on supply levels and use, providers and suppliers can get a better handle on how much product is needed and when, leading to a decrease in loss due to wasted, lost or expired supplies" (Pennic). Health care costs can decrease drastically if health care leaders better plan, analyze and control the use of products. Supply chain management processes help to accomplish this, thus, contributing to the reduction.

Fourth, supply chain processes can help to capture data for business requirements. "In the future, the supply chain will serve a growing role as a key component of the technology infrastructure to help capture and share much-needed data to drive greater efficiency and compliance" (Pennic). Supply chain management processes combined with technology can help to capture and store data health care industries may need. Overall, supply chain management is necessary towards reducing the costs of health care. These processes aid to manualize processes, establish trade relations, reduce waste and capture data, which will immensely benefit health care industries.

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RUSCA EVENTS



What has RUSCA been up to this past month? The following are events RUSCA has held during this past month of March, as well as those we will intend to host for April. Each information session highlighted the company's internal structure, culture, strategy, philosophy, and last but not least, employment opportunities for our fellow RBS students. Each event concluded with the chance to network with the respective recruiters and representatives.

March Events listed as follows:

3/4/16: Supply Chain Management Career Fair

3/11/16: J.B. Hunt Site Visit

3/18/16: ISM NJ Forum

3/24/16: ISM Information Session

3/29/16: Intel Information Session

Upcoming Events for April:

4/5/16: NFI Information Session

4/12/16: J.B. Hunt Information Session

4/21/16: RUSCA Banquet

RUSCA's Mission Statement:

To inspire our RBS students into learning more about Supply Chain Management and its opportunities, as well as to serve as an intermedi-ary organization on behalf of the RBS student and support the student in the pursuit of a successful internship, co-op, or full-time offer, most especially for our Supply Chain majors.

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