

RUSCA NEWS

Rutgers University Supply Chain Association | November 2019

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RUTGERS UNIVERSITY BUSINESS SCHOOL

ABOUT THE RUSCA NEWSLETTER

We are a team of writers and editors who write content based on current news and events happening in the supply chain world.

To stay updated with release dates and information, visit (pg. 14) for our social media platforms and contact information. Feel free to leave us any feedback or suggestions as well.

For previous newsletter editions, visit
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UPCOMING EVENTS:

RUSCA Study Session -
December 4th



RUSCA Runs the Rutgers Big
Chill 5K - December 7th



Krispy Kreme Fundraiser -
Orders Due By November 25th



Last GIM for Fall 2019 -
December 9th



MCDONALD'S: EVOLVING TO CHANGING CUSTOMER TASTES

By DANIEL LEE

Consuming 2% of global beef production, the conglomerate McDonald's serves over 65 million customers daily. Established in 1955 in California, McDonald's is now across over 100 countries and in the US alone has over 14,000 franchises. Worth \$149 B, a key component of McDonald's immense success can be attributed to its Supply Chain. Today, McDonald's faces challenges today such as the acquisition and transportation of local and fresh meat but the fast-food chain is sure to overcome this obstacle through its supplier relations and investments in technology.

According to Gartner, a leading research and advisory organization that gives rankings to global companies, McDonald's placed in the Master's category since 2018. Stan Aronow, Research Vice President at Gartner, says that "the key to McDonald's success is skillful orchestration across a network of strategic suppliers, service providers and thousands of companies and franchise-owned stores worldwide" (Churchill).

From the early days of this fast-food chain, partnering with suppliers has been a key initiative. Ray Kroc, franchiser and redesigner of the Golden Arches, believes in a win-win model where both the company and suppliers both benefit from their partnership. Seeing past the base price of the goods, Kroc looks towards the cost and believes that strengthening relationships with suppliers will lead to long term gains. Even through price fluctuations and market uncertainty, suppliers are confident in McDonald's purchasing agreements. Many of McDonald's partners are companies that have worked with McDonald's since the

"Worth \$149 B, a key component of McDonald's immense success can be attributed to its Supply Chain."

start. Martin Brower LLC, for example, has been a supplier back since 1956 and still continues to provide McDonald's with supplies. (Vitasek)

Kroc has compared a successful business to a three-legged stool where McDonalds' employees, suppliers, and customers are all a leg. McDonald's focuses on its employees and trusts suppliers to deliver supplies. In doing so, McDonald's concentrates on providing delicious food at an affordable price while allowing suppliers to run their own operations. McDonald's believes that when these two 'legs' are working, customers will want to eat their food. McDonalds' investment in interpersonal relationships has paid off, and so has it's technological investments (Vitasek).

In March 2019, McDonald's announced that it was acquiring Dynamic Yield, a technology-based company that has improved McDonalds' Supply Chain by allowing them to track customer's orders easier. Dynamic Yield technology monitors customer's orders and tracks inventory which shows McDonald's what ingredients and supplies they are low on (McDonalds). This complements McDonalds' need for JIT (Just In Time) delivery system; as customers demand fresher meat from local sources, McDonald's has to balance that constraint with their preexisting Supply Chain. McDonald's used to cook with frozen meats but is slowly responding to customer demand for fresh beef patties which presents a new logistical challenge of having to receive frequent deliveries from local providers to ensure freshness.

The patties cannot be frozen and on the transport to the individual franchises, patties are temperature monitored and even a single fluctuation may result in the disposal of the patties. Once the patties arrive, they have a shelf life of 14 days which serves as another challenge for McDonald's. However, McDonald's management believes that the additional obstacles that McDonald's faces for tastier, fresher burgers is worth it and the profits agree: McDonald's Quarter Pounder, the first of McDonalds' products to switch to fresh beef, has seen an increase in sales by 30%.

According to an interview with the Vice President of Supply Chain Marion Gross, McDonald's sold 40 million more Quarter Pounders in the 2019 Quarter One compared to the 2018 Quarter One. Customers are quoted on saying that the new Quarter Pounder is delicious, the beef is noticeably fresher and juicier and that the all new Quarter Pounder is a must try.



"McDonalds' need JIT (Just In Time) delivery system; as customers demand fresher meat from local sources"

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ORNAMENTAL FISH TRADE: AN INTRICATE YET DELICATE PROCESS

By Zijun Xu

Aquariums are a majestic creation of living art. Colorful fish dart and hide around the tanks. When walking into a pet store, walls are filled with tanks of fish from all corners of the world. How did they get there? In a society where more people are living in apartments where dogs and cats aren't allowed, fish might be the best option. Ornamental fish trade has a "retail value of over \$10 billion" with an average annual growth of at least 10%(Dey 52). There are currently over 2,500 species (Dey 52) of fresh and saltwater fish traded, with 60% being freshwater organisms. The United States is now the largest importer of ornamental fish, followed by Germany, Singapore, Japan, China, France, and the Netherlands. The supply chain of ornamental organisms is "dependent upon the provision of healthy, viable livestock, and maintaining quality control and value as the product moves toward the consumer" (PIJAC 2).

The packing process for live organisms is more complicated than for fresh food and dry goods. Prolonged stress to a cold-blooded creature can be deadly. Bags must be filled with pure oxygen, immediately stapled shut, placed into a black bag (to reduce stress during transport), and put into an insulated box for shipping. All boxes also have to be labeled with a "keep upright" sign to avoid leaks. If the weather is too cold, a heat pack may be added. Now, the boxes need to be packed and brought to the airport in under and undergo priority overnight delivery and pickup, all in under 48 hours total. From there, retailers (such as family pet shops to Petco or LiveAquaria) or wholesalers (such as Sunpet or Quality Maine) will have to acclimate the bags of fish.

For most freshwater fish, that supply chain starts at a fish farm, an ornamental aquaculture facility for better terms. Adult fish are paired up, under the proper water conditions, to mate. Upon hatching, the fry, baby fish, are fed three to four times a day with a mixture of powdered food and live microorganisms. The next phase is grow-out, where different sized fry is moved into separate holding tanks to avoid cannibalization. Biosecurity is one of the main risks(PIJAC)

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food and dry goods. Prolonged stress to a cold-blooded creature can be deadly. Bags must be filled with pure oxygen, immediately stapled shut, placed into a black bag (to reduce stress during transport), and put into an insulated box for shipping. All boxes also have to be labeled with a “keep upright” sign to avoid leaks. If the weather is too cold, a heat pack may be added. Now, the boxes need to be packed and brought to the airport in under and undergo priority overnight delivery and pickup, all in under 48 hours total. From there, retailers (such as family pet shops to Petco or LiveAquaria) or wholesalers (such as Sunpet or Quality Maine) will have to acclimate the bags of fish.

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On the marine side, around 95% of all marine fish and invertebrates are wild-caught. Approximately 85% of fish and invertebrates come from seas around Indonesia and the Philippines (Actman). In recent years, consumers have favored reef tanks over fish-only setups. This trend is mainly due to advancements in lighting, water supplements, and wavemakers that make it easier to keep corals and inverts. One of the most significant issues with wild-caught marine fish is the lack of traceability because there is a high diversity of species and a large number of small collectors. Some collectors squirt sodium cyanide, break up corals, or use explosives to make fish easier to catch. Due to the long supply chain, with numerous traders, consolidators, and exporters, the villagers who collection the fish are often paid very little. To help alleviate this issue, critical players in the trade, such

as Quality Marine and Carine’s Marine, have chosen to shorten their supply chains so that collectors get paid more to catch fish more responsibly and increase transparency across the process.

While there are still many problems with the saltwater side of the trade, people began keeping marine organisms for only around 40 years ago. Freshwater fish have been kept successfully for well over a century. A growing list of marine fish and corals are aquacultured or maricultured (growing corals on racks in shallow waters) to reduce pressure on wild stocks. Companies like Mars and Walt Smith International are partnering with locals in Fiji and the Philippines to train them in fish and corals farming so that so they can generate income to support their families. Third-party certifications like MAC to improve sustainability and traceability standards. Roger Williams University is researching new ways to improve cyanide detection in wild caught fish (Rodrigues). The freshwater side of the hobby is still growing too as students adopt bettas, children visit public aquariums, and social media spreads knowledge about the hobby. As technology and scientific knowledge advances, the aquarium fish industry as a whole should innovate, reach-out to a broader customer base and grow for a better future.

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LOGISTICS AND DRONES: TRANSPORTING MEDICINES ACROSS THE GLOBE

By Anthony Leung



A significant dilemma that third world countries in Africa face is mosquitoes, which often carry diseases such as Malaria. Those infected become subject to symptoms a few weeks after being bitten, and it can be fatal to those who do not receive proper treatment. The delivery of the vaccine hinders because employees are not able to traverse the rough terrain to reach medical personnel promptly. As a result of these circumstances, companies around the world are using their extensive and innovative supply chains to aid people who are suffering. The United Parcel Service (UPS) is innovating within their complex supply chain and collaborating with companies such as Gavi and Zipline, to help deliver vaccines to people in dire need of help.

Logistical systems in shipping companies such as UPS and Zipline are essential to delivering products on time and in a usable condition. The world's first Malaria vaccine "requires four doses over roughly 18 months, which makes the vaccine the most complex ever to be launched in the developing world" (Wexler). However, delivery methods that send the vaccines to African countries are having trouble reaching the areas that need them most. Trying to transfer fragile vaccines to doctors and nurses across inadequate infrastructure is difficult, and the quality of product and service between transitions often falls significantly. Logistical systems within supply chains must maintain the proper storage throughout the transportation process, and vaccines need extra attention, or they will be ineffective.

As a result of these difficulties, UPS, Gavi, and Zipline are turning towards drone transportation, which is a new technology used to

"Companies around the world are using their extensive and innovative supply chains to aid people who are suffering"



perform tasks such as recording aerial video, and now the delivery of products. Drones help expand the reach of medical treatments to people in desperate need of help, covering the process of treating people with Malaria and other vital medical conditions as well. These companies "will use drones to make on-demand, emergency deliveries of 148 high priority products including emergency and routine vaccines, blood products and life-saving medications. The service will operate 24 hours a day, seven days a week, from four distribution centers—each equipped with 30 drones" (Holder, Svingen). This solution is an excellent way of distributing to hard to reach places, and will undoubtedly impact the medical field's supply chain in numerous ways. If vaccines and other medications can be delivered here, this can lead to innovation within the delivery of other crucial products like organs in times when it is not feasible to put them on a plane or truck and wait for it to reach the patient.

Furthermore, the application of drones in logistics will impact other companies because the capabilities of drones will inspire research and development in technology. "Drones with longer ranges could eventually be a game-changer in helping meet health care needs in underserved communities and in rural areas, where doctors and patients could be miles apart from medications and supplies" (Schaper). Companies will follow in UPS, Gavi, and Zipline's footsteps after they realize how well drone technologies have improved and their new uses within society. Improvements made towards the current logistical systems will further incentivize companies to innovate and create ways to transport items to reach people in a world that continues to grow in production and consumption capacity.

"Improvements made towards the current logistical systems will further incentivize companies to innovate"

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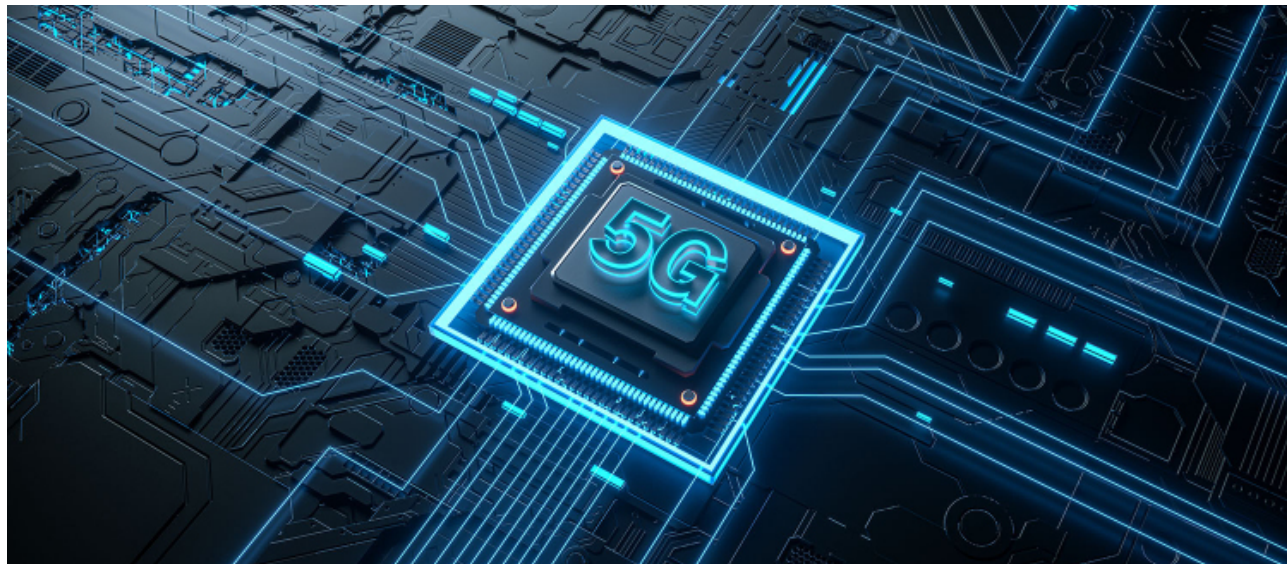
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SUPPLY CHAIN SECURITY: THE DANGERS OF 5G TECH

By Emily Chang



As the prevalence of 5G technology expands, so do the concerns about software compromised with back doors. The problem lies in supply chain security. Lawmakers are concerned that any of the thousands of engineers who program our computers and smartphone chips can install a back door, pointing out that programs to root them out are still in their infancy (Schneier). Each engineer is a link in the supply chain that could be compromised. As 5G expands from smartphones to industrial machines, drones, and even cars, there is the potential that our foreign adversaries could use a compromised link to shut down the grid entirely. Essentially, they could bring the country grinding to a halt from behind the safety of a keyboard. (Pogue)

In response to the concerns, the US is taking action to limit the amount of potentially damaging tech. The newly created Federal Acquisition Security Council (FASC) is working on a plan of action to address the supply chain risks, and President Trump declared a national emergency over “securing the information and communications technology supply chain.” (Miller) As a result, the US is rolling out new regulations that make it difficult for some foreign tech companies to conduct business in the United States. The new regulations did not name any specific companies, but many suspect that they will target Huawei, a Chinese tech giant that is working to capture the 5G tech industry and build networks around the world (Johnson).

These new controls are not universally supported by other supply chain experts. A recent poll of cybersecurity experts found that a 60% majority believe the ramped up regulations on Huawei will not make our technology supply chains any safer (Marks). Robert Mayer, the industry co-chair of the DHS’s Information Communication



Technology Supply Chain Task Force, cautions us not to ‘conflate national security issues with economic and trade issues’. Limiting trade is not a soundproof method of preventing attacks. Rather than eliminating all corrupted technology, it only reduces our chance of receiving it. Moreover, the US could lose out on revenue and advancement by shutting itself out of out of an emerging industry. Instead, the Supply Chain Task Force hopes to create a set of proposals that will reduce the national security threat without calling out specific countries or companies by name (Johnson).

To address the root of the supply chain security problem, the US needs to develop technological solutions. Current methods already allow us to scan for backdoored devices if companies release their source code and hardware designs. However, Bruce Schneier, a lecturer at the Harvard Kennedy School notes that finding a backdoor is a “needle-a-haystack problem, except we don’t what what a needle looks like”. Schnier also explains that they will be much easier to identify in the as we improve code and hardware inspection, as well as build a secure system of parts that can scan each other for supply-chain attacks. 5G devices hold a lot of promise- but before we tap into that promise, we should secure our supply chain security.

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BLOCKCHAIN FOR THE SUPPLY CHAIN

By Richard

Despite the fact that blockchain technology has yet to be widely implemented, its possible utility within the field of Supply Chain is real, and it may finally be reaching adoption. Blockchain, at its core, is an unalterable shared digital ledger, which may sound simple, but it could present solutions to key problems faced in nearly every supply chain. One major application of blockchain comes from its ability to reliably track materials and goods along a supply chain, and create documentation that can be conveniently accessed by multiple parties. Essentially, blockchain would allow companies to trace materials and goods from their inception and seamlessly provide increased visibility between suppliers. Dr. Irving Wladawsky-Berger, a researcher at MIT's Sloan School of Management, believes "supply chain is the killer application of blockchain," pointing out that "[blockchain] enables trustworthy shared information among suppliers that may not trust each other." Trust is paramount in any supplier relationship, but trust does not always exist, and this is where blockchain truly shines. In the absence of trust among suppliers, blockchain can act as an unbiased source of information to verify claims because it documents the movement of goods at every point. Consider the amount of lost money due to fraud and how difficult it can be to determine when fraud may occur. Not to mention, pursuing resolution in cases of fraud is rarely easy. Blockchain would decrease fraud by making all movement more visible and verifiable, and would also make difficult, costly dispute resolution much simpler.

There should be little doubt that blockchain has useful applications within the field of supply chain, which begs the question of why it is yet to be implemented en masse. It certainly is not due to a lack of interest; over the past two years, blockchain has been the number one

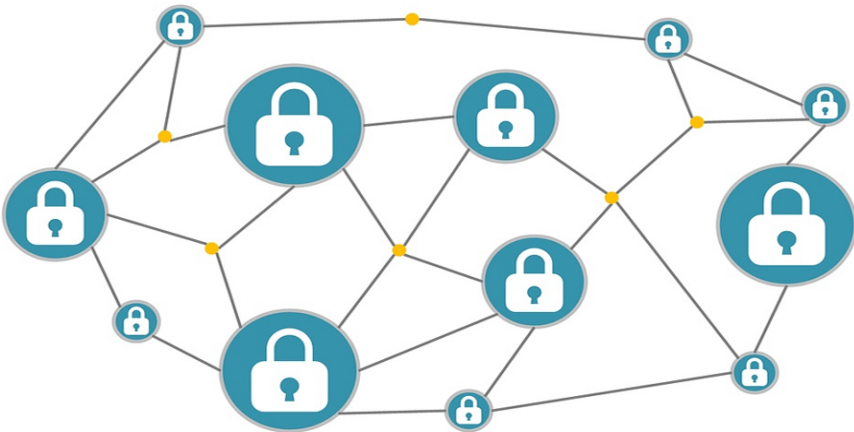
"One major application of blockchain comes from its ability to reliably track materials and goods along a supply chain, and create documentation that can be conveniently accessed by multiple parties"

"Blockchain enables trustworthy shared information among suppliers that may not trust each other"



trending topic on gartner.com. In spite of the interest though, the 2018 Gartner Supply Chain Technology User Wants and Needs Survey found that only about 9% of respondents had already made investments into blockchain. Although that number is undoubtedly higher at this point, it is still quite lackluster. The main issue seems to be a lack of understanding of what blockchain truly is, and how to effectively make use of it. The picture is not actually all so bleak for blockchain's future in supply chain though. IBM for example has invested heavily in blockchain-based services and built the technology into its recently launched Sterling Supply Chain Suite. All of this because IBM predicts the supply chain technology service industry will become a 50 billion dollar market, with blockchain being a crucial component. IBM is not the only major player making a foray into blockchain; Walmart has partnered with IBM to use blockchain to more easily trace their food products and is requiring all produce suppliers to use the technology in an attempt to decrease the spread of infections like E. coli. With IBM and Walmart leading the charge, it is not hard to see the exuberance for blockchain becoming justified within the next few years.

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ABOUT RUSCA:

We are a student organization dedicated to inspiring our RBS students to learn more about Supply Chain Management and its opportunities, as well as to serve as an intermediary organization on behalf of the RBS student and support the student in the pursuit of a successful internship, co-op, or full time offer, especially for our Supply Chain majors.

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