NTDA Market Outlook

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Connecting the Trailer Industry Throughout North America

National Trailer Dealers Association

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Trailer sales are trending up. July set a sales record for the month and August appears to be on track to do the same. The expectation is for far more sales to come in fall and winter, so much so that some fleets are placing orders early just to secure their place in line for next year's product. With the economy humming, this should be no surprise to those in our industry.

Trailers carry the load, hauling the majority of the nation's freight, delivering food, fuel, medicine, and supplies thanks to reefers and dry vans, flatbeds and dropdecks, and everything in between. The U.S. trucking industry was responsible for over $700 billion in economic activity last year, hauling more than 70% of all domestic tonnage.

Despite our thriving economy, the trailer industry is changing. Technology, demographics and transformations in last-mile delivery and right-now logistics, plus ongoing regulatory scuffles means that trailers will change, trailer dealers must prepare, and trailer manufacturers need to embrace the new. That is why the NTDA has created the *NTDA Market Outlook*, a quarterly publication that analyzes how new technologies and shifting economic dynamics are impacting the trailer industry now and will for years to come.

This inaugural issue looks at the ROI of solar technology on trucks and trailers and how upcoming California Air Resources Board rules may soon ramp up the need to solar panels. Insights regarding trailer telematics and their economic benefits as well as safety improvements will also be explored. Guest contributor Bill Wade, with Wade & Partners, will discuss the so-called "Amazon Effect" and its impact on the tire industry. Lastly, the NTDA will share macroeconomic outlook data as well as trailer sales and production data to help you make better informed planning decisions.

The *NTDA Market Outlook* will deliver information regarding new technology, actionable data, useful charts, analysis and stories impacting the trailer industry. As always, the NTDA welcomes your feedback.

The publication will be a free download behind the Member Section of the NTDA Web site and a link will be e-mailed to members. For those who wish to purchase a printed copy of the publication, it will be available for an annual subscription fee for $49.

To submit articles or to advertise in this exciting new publication, contact NTDA President Gwen Brown at gwen@ntda.org or call toll-free 1-800-800-4552, direct dial (810) 229-5960 or mobile (810) 844-3124.

Venture Capitalists Missing out on Autonomous Truck Potential

By Brian Hall
NTDA Public Relations & Meetings Manager

It was the best of times, but it could be even better times. According to Freight Transportation Research Associates, Inc. dba FTR in Bloomington, IN, U.S. trailer orders for July 2018 were a record 28,000, bringing unit sales over the preceding 12 months to 350,000. The relatively good news is expected to continue, with new fleet orders plus a growing economy propelling the industry through 2019. Unfortunately, critical limits on how many trucks can be on the road — and thus how many trailers get sold — will continue to hamper industry growth and create an unnecessary headwind on the overall economy.

Autonomous trucks could all change that by carrying freight almost 24x7, enabling platooning of trucks and putting far more trailers on the road than ever before. It is hard to overstate the potential of autonomous trucks. Warren Buffett, CEO of Berkshire Hathaway told shareholders last year, "If self-driving trucks become predominant on the roads, it could steal business from (Berkshire-owned) Burlington Northern." Burlington Northern is also known as BNSF Railway.

Buffet is right to be concerned about his bet on the railroads. Trucks already carry the vast majority of freight in North America, about 70%, but with autonomous vehicles that number should grow even higher. Meaning, far more trailer sales.

Trucking carries 70% of North American freight and that number should go higher with autonomous technologies.

CARS AHEAD OF TRUCKS

Given the numbers, it is surprising that so much investment in autonomous vehicles remains focused on cars, not trucks. After all, even John Krafcik, CEO of Waymo, the self-driving car unit owned by Google, notes, "Self-driving trucks may emerge before self-driving taxis." Yet just last month, Uber announced it is shutting down their autonomous truck division Otto, the company it acquired for $650 million. This, despite successfully trialed cargo hauls in Arizona — albeit still with a human driver present.

Recall it was an autonomous Otto truck in 2016 that hauled a load of Budweiser from Fort Collins through Denver before arriving in Colorado Springs, CO. The head of Uber's Advanced Technologies Group Eric Meyhofer says shuttering its autonomous trucking division will allow the company to focus its attention "exclusively with cars."

MARKET STARTING TO SHIFT

According to the *New York Times*, last year companies and investors funneled "over $1 billion into self-driving and other trucking technologies" though much of that was focused on improving logistics, on-demand delivery, mapping and monitoring.

Interestingly, we found a few companies have recently received sizable investments to build autonomous trucks.

Over $1 billion was invested in self-driving and other autonomous trucking technologies just in 2017. Expect more.

GAINING MOMENTUM

China's TuSimple, an autonomous truck startup with its U.S. headquarters in San Diego, raised $55 million at the end of last year. That's in addition to the $20 million the company raised earlier in 2017. TuSimple said it would use the new funds to build autonomous truck test fleets in China and in the U.S. The company is testing its vehicles on a highway between Phoenix and Tucson, AZ.

Autonomous truck manufacturer Embark's $30 million in Series B funding from Silicon Valley venture capital group Sequoia Capital this July will be used to help Embark grow its autonomous truck fleet from five vehicles to 100.

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RECENT AUTONOMOUS TRUCK VENTURE FUNDING

COMPANY	FOCUS	TOTAL FUNDING	2018 FUNDING
TuSimple	Autonomous Truck Fleet in U.S. and China	$83 million	Raised $55 million, November 2017
Embark Trucks	Autonomous Trucks on Freeways (not last mile)	$47 million	Received $30 million in Venture Funding July 2018
Kodiak Robotics	Fully Autonomous Trucks	$40 million	Garnered $40 million Initial Investment From Venture Capital Group Battery Ventures
Starsky Robotics	Fully Autonomous Trucks	$20.3 million	Received $16.5 million in Venture Funding March 2018

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Embark equips its Peterbilt semis with LiDAR sensors, cameras and software. The company is based in Ontario, CA, near busy Los Angeles and beckoning desert highway, but for now is concentrating on developing autonomous trucks that can haul loads from major pickup and drop-off points right off highways, while having a human pilot driving elsewhere.

Over $180 million in autonomous truck venture capital in the past year.

Kodiak Robotics received $40 million in venture funding that the company says will be used to develop technologies for enabling trucks to be retrofitted for autonomous driving. This technology includes sensors, cameras, computer processors and radar. Kodiak was founded by individuals with ties to Otto, which Uber acquired and recently shut down, and Google's self-driving team.

San Francisco-based autonomous trucking company Starsky Robotics took in $16.5 million in venture capital earlier this year, just as the company announced it completed a seven-minute drive on a closed course without a human in the truck. However, earlier this year, Embark completed the very first sea-to-sea trial by a autonomous truck, traveling from Los Angeles to Jacksonville, FL, suggesting the company is making rapid gains.

MULTIPLE PILOTS

Even if tech industry venture capitalists are failing to see the opportunity with autonomous trucks, existing automotive companies continue to push forward.

According to GearBrain, Daimler plans to have autonomous Mercedes trucks on the road by 2025. Daimler uses a system called "Highway Pilot" to navigate highways without human assistance. Daimler is also big into using autonomous trucks for platooning, which the company claims will lower fuel usage by 10% and improve road safety.

Google-backed Waymo continues testing its autonomous technologies on cars and trucks, operating point-to-point truck pilots in the Atlanta, GA area.

Volvo is also testing autonomous trucks, and like Daimler is focused on the platooning model, where multiple (self-driven) trucks can cruise very close behind one another.

Software is a $350 billion industry, but trucking is a $700 billion industry.

Tesla unveiled its own truck in late 2017, announcing plans to offer the vehicle for sale sometime in 2019. These will not be fully autonomous but will instead use Tesla's popular "Autopilot" service, a semi-autonomous system that controls the vehicle's acceleration, braking and steering, though primarily in ideal conditions. Tesla drivers are still expected to have their hands on the wheel and fully alert.

Yet, it seems like the big money remains focused on cars and car hailing services, not trucks. Ford recently created a new division, Ford Autonomous Vehicles LLC, to get a jumpstart on the autonomous future. Ford said it expects to "invest $4 billion in its AV efforts through 2023, including its $1 billion investment in Argo AI, the company's Pittsburgh-based partner for self-driving system development."

In May 2018, Japan's SoftBank Group said it would invest $2.25 billion with General Motors to support the automaker's autonomous vehicle technology efforts.

According to *Forbes*, whereas the U.S. software industry is worth about $350 billion, trucking is a $700 billion industry. Autonomous trucks may prove safer, should enable significant savings in fuel costs and greenhouse gas emissions, and further ratchet up the economy and consumer demand for on-time delivery. Silicon Valley is missing out on a huge opportunity.

SOME AUTONOMOUS TRUCK TECH LEADERS

- Waymo
- Starsky Robotics
- Embark Trucks
- Tesla
- Mercedes
- Volvo

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Trailer Telematics Add Value in World Thirsty for Data

TELEMATICS DEFINED

Telematics is the communication of data over distance. It uses GPS, sensors and power sources to gather inputs from tires, doors, from inside a trailer, track the trailer's present location, and sends that information to the driver and other parties — fleet office, maintenance department, distribution centers, even customers tracking their goods.

By Brian Hall
NTDA Public Relations & Meetings Manager

Trailer telematics have evolved from delivering tire pressure warnings and reefer temperature data and are a necessity for fleet owners wanting to track their trailers, freight, how often the vehicle has been opened, the vehicle's state of repair, and more. This should prove a net gain for the trailer industry. As telematics-delivered data becomes more critical to a growing, on-time economy, the value the trailer provides should go up, and with it the value of the entire trailer industry as well.

It may seem counter-intuitive, but economic growth almost always trumps efficiency gains. Trailer telematics help fleet owners optimize their existing assets, getting the most use out of the trailers they already own. However, these efficiency gains have the added benefit of helping keep drivers on the road and improving freight delivery economics — these are both directly beneficial to the semi-trailer industry.

Trucks with trailers carry more freight to more places and deliver a better overall value than other transportation modes. Improving these numbers accelerates the industry's advantages over other delivery modes, and in a growing, on-demand economy, that's a boon.

MULTIPLE DATA STREAMS

Telematics is the communication of data over distance. It uses GPS, sensors and power sources to gather inputs from tires, doors, from inside a trailer, track the trailer's present location, and sends that information to the driver and other parties — fleet office, maintenance department, distribution centers, even customers tracking their goods.

Examples of trailer telematics used to measure or record several factors, include:

1. Location, including how long at a specific location
2. Door open activity
3. Mileage
4. Time-series data on temperature (e.g., in reefers)
5. What is physically inside the trailer (using RFID)
6. Wheel-end temperature
7. Lighting
8. Load capacity
9. Weight per axle
10. Interior temperature.

Metrics about dock time waits, for example, or availability and location, or performance and service requirements all deliver real-time and historic insight that optimizes the trailer's overall availability, maximizing the trailer's time on the road.

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REQUIREMENTS

Trailer telematics requires:

1. Tracking device
2. Sensors that measure an element (e.g., tire pressure, temperature)
3. Communications method to send the data to the driver nearby, and to others far away
4. Server to store data
5. User Interface to access, visualize and manipulate data.

ECONOMIC BENEFITS

Given the economic advantages of trucking versus rail, air and other freight delivery modes, improving the economic advantages of trailers even further, which telematics enables, should ultimately prove a long-term benefit for trailer dealers. This idea is often left out of the discussion, reducing trailer telematics to an efficiency-only discussion.

According to Derek Kaufman, Managing Partner, Schwartz Advisors (La Jolla, CA), a firm that provides automotive aftermarket consulting, trailer telematics improves the freight-by-trailer mode helping to grow the economy. Kaufman emphasized, "This will have much more of a positive impact on the trailer industry than any potential loss from fleet owners extracting more efficiency from their existing trailer fleet."

Telematics can improve the economic advantages of trailers over other freight modes even further.

In other words, the use of telematics to maximize the value and use of existing trailers does not mean a lesser need for buying additional trailers. Rather, it improves the economics of trailer-hauled freight even more increasing freight and thereby increasing trailer sales.

Kaufman also stated that a likely early use of autonomous trucks will be in the drop-off and pick-up of trailers. This will ultimately lead to shorter stops. With drivers spending more time on the road this again increases demand for trailers. A trucker waiting for a trailer that turns out not to available is a drag on the driver, the fleet, the economy and on the economics of trucking. Telematics helps mitigate much of that. Optimizing driver time throughout the entire hauling process means the same amount of drivers in the same time can in aggregate deliver more — all via trailers. Fears of "right sizing" the fleet may be overblown. Maximizing trailer activity improves value of trailers as a whole.

SAFETY IMPROVEMENTS

Trailer telematics should also create a safer environment. Poor (or non-existent) data now leads many truckers to wait for the available trailer, costing thousands of dollars a year, and potentially billions to the economy overall. This also puts pressure on the driver to push the vehicle once finally back on the road. Evidence shows that to make up for lost time while waiting, drivers may push themselves and their vehicles, resulting in more crashes. Smart trailers can improve the economy and our safety.

THE KNOWLEDGE ECONOMY

Trailer telematics offers a better understanding of how a trailer is being used, or not, how it is performing, what maintenance it will require, and delivers significantly better knowledge of freight loads and conditions. The more awareness of the trailer and its requirements, the more optimum its use. With telematics, a driver can know if a trailer is actually available. A service department can know for sure what maintenance is required, and how soon. Less time waiting for a full trailer, fewer service surprises reducing lifetime costs, and a deeper understanding of what's inside the trailer all support more shipping, meaning more trailers.

The fear of trailer telematics is that optimizing freight means fewer trailers, but trucking — with trailers — is the dominant form of freight delivery and improving the economics should lift the industry even higher.

Telematics also makes it easier to imagine the trailer as the true hub of modern 24/7 commerce, digitally linked to dealers, truckers, distributors, manufacturers and customers. With telematics, trailers become a critical data nexus in a world thirsty for more data.

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NACFE Study Provides Clarity on Solar Panel Uses

By Brian Hall
NTDA Public Relations & Meetings Manager

In June 2018, the North American Council for Freight Efficiency (NACFE) released its 65-page "Confidence Report: Solar for Trucks and Trailers" documenting the various use cases for solar panels.

The report finds the primary impetus for solar panels on trucks and trailers, for now, is to support the growing "comfort demands" of drivers, and partly in response to idle reduction regulations. A third incentive is the addition of tracking requirements and telematics for trailers, whose systems effectively require solar power.

MAIN FINDINGS

The two primary financial use cases for solar panels for tractors are to:

1. Supplement battery HVAC systems and hotel loads without adding additional batteries, and
2. Drastically reduce, if not completely eliminate, roadside assistance calls for dead batteries. According to the report, it is typical for a truck to experience at least one dead battery call per per year at a cost of about $600 inclusive.

DRIVER HAPPINESS

Though it is harder to measure, solar panels on tractors are likely to increase driver happiness by supplementing HVAC and "hotel load" power requirements. A truck solar system can "trickle charge the truck batteries, ensuring they maintain a minimum voltage." Enabling the HVAC system to run through the night increases driver comfort and restfulness and thus potentially improves driver retention — and the cost to sign and train a new driver at about $5,000, the report estimated.

This trickle charging also reduces "deep cycling" of the truck and HVAC batteries, extending their lives; another financial benefit, albeit small. In addition, the solar power installation assures a minimum charge over a 34-hour restart period — making solar power an alternative to an engine start/stop system.

Another potential benefit is that the addition of solar panels appeals to millennials who will make up half the U.S. workforce by 2020.

CAUTION

Fuel savings are a "negligible" benefit of truck solar systems, stemming primarily from reducing the load on the alternator. Using solar to enable the HVAC systems batteries to run the truck without running the engine is primarily a "happiness" benefit to the driver but has only negligible savings on fuel.

Also note that for fleets examining the ROI of solar panel installations, be aware that these are not easily removable. When a tractor is sold, the solar install effectively goes with the new buyer. Calculate the solar ROI, then, based on the actual ownership period of the tractor. (This also applies to trailers.)

SOLAR FOR TRAILERS

The NACFE report confidently recommends solar power for trailer telematics, many of which are already built into these systems. However, for larger electric loads, such as reefer engine starting, liftgates and electric pallet jacks, solar panels cannot yet replace the batteries (or other power solution), but they can keep trailer batteries at a higher average state of charge, versus simply charging solely with the tractor or the refrigeration unit alternator, for example. This extends the life of these batteries and may prevent possible roadside assistance calls for dead batteries, or prevent a service, such as a liftgate, not operating for an entire shift.

Solar for supporting trailer telematics and aiding the reefer battery have a reasonable certainty of payback.

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The addition of solar panels appeals to millennials, who will make up half the U.S. workforce by 2020.

1. **Telematics:** Providing location (and other data) on a trailer, whether connected to a tractor or not, can be fully provided using solar power.

2. **Liftgates:** The supplemental power from solar panels augments the power coming from the engine alternator, maintaining the liftgate batteries at a higher average state of charge, which extends battery life.

3. **Transport Refrigeration Units:** These typically have a battery dedicated to starting the diesel engine that drives the refrigerant compressor used to maintain proper temperature. The diesel engine's alternator also helps keep the battery charged (and may supply power to other trailer-mounted devices). A solar panel can provide current to the battery, keeping it at a higher state of charge and extending its life. This is a cost savings of sorts, but again, there is no (or negligible) fuel savings for that dedicated engine.

4. **Refrigeration Unit Unattended:** The refrigeration unit battery may become discharged because it still draws a small amount of power while unattended, leading to costs of recharging it and reducing its lifespan. Solar panels mitigate this.

BOTTOM LINE

Current market-available solar installations should deliver payback to a fleet operator by extending the life of batteries, reducing the total number of batteries necessary, and by eliminating (or greatly reducing) the need for roadside assistance. The payback on these are rapid and verifiable.

As with tractors, the use of solar panels on trailers make sense as a means of extending battery life and reducing the need for roadside assistance. This is where the ROI focus should be. Keep in mind, however, that solar panels could have an impact on branding elements and their placement. Also note that solar panels are not likely to positively impact the residual value of the trailer.

NTDA Allied member, eNow maker of solar power technologies for the transportation industry, maintains a fuel savings calculator on its Web site, https://enowenergy.com.

CARB Aiming for Zero Emissions on TRU Idling

In September 2018, the California Air Resources Board (CARB) will hold another public workshop to promote its efforts to cut diesel emissions from transport refrigeration units ("TRUs") while idling at grocery stores, packing houses, distribution centers and similar loading points. CARB says many TRUs often idle for 2–6 hours for unloading and loading.

Many of these refrigeration units must also "pre-chill" before loading, according to CARB, and in rare instances, such as Halloween and Thanksgiving, they may be kept idling for days to store overflow product.

CARB ultimately wants to accelerate the adoption of zero or near-zero emissions technologies to power refrigeration units, though many of these technologies are not yet practical, and could potentially add weight to trailers.

CARB is presently advocating for broader adoption of "hybrid" TRUs, which are less reliant on diesel consumption, and for "electric standby" TRUs that have both a diesel and electric engine. The diesel could generate power for the refrigeration system while in transport and the electric while idling, for example. To help spur adoption of these, CARB wants grocery stores and distribution points to build the necessary plug-in infrastructure. Waiting trailers could plug-in and keep the unit sufficiently cold while idling, but without running off diesel.

TRU COSTS

CARB estimates that "conventional diesel trailer TRUs cost roughly $28,000–$30,000," while trailer "eTRUs," (hybrid or electric standby) will cost $4,000–$6,000 more.

There are about 44,000 California-based TRUs, and an additional 18,000 out-of-state TRUs operating in California on any given day — with about 147,000 out-of-state TRUs operating in the state at some

point during the year. All TRUs based in California are required to register with CARB. This also helps CARB in its efforts to track vehicles and determine how long they are kept idling at loading points.

Because of its interstate commerce, California regulations often become adopted throughout the rest of the country.

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Amazon Aftermarket Chaos Creates Issues for Commercial Tire Industry

By Bill Wade
Corporate Management & Innovation
Wade&Partners

John Passante, a seasoned aftermarket veteran and leading traditional channel optimist, has sent me three panicked emails in the past couple weeks. If I didn't know him to be generally unflappable, the term "Henny Penny" might be sharply descriptive. Especially troubling to him was the news that Monro had thrown in with the Amazon DeathStar.

He was right about one thing — the replacement tire business — mostly unchanged for 80 years is unrecognizable after four months of turmoil. See how fast it can (and has) happened.

Goodyear Tire & Rubber and **Bridgestone Americas** announced in April they are forming one of the largest tire distribution joint ventures in the U.S. **TireHub**, LLC will provide U.S. tire dealers and retailers with a comprehensive range of passenger and light truck tires from two of the world's leading tire companies, with an emphasis on satisfying rapidly growing demand for larger rim diameter premium tires.

TireHub will combine Goodyear's company-owned wholesale distribution network with Bridgestone-owned Tire Wholesale Warehouse. The transaction should enable Bridgestone and Goodyear to grow their respective tire businesses and capture enhanced value for their brands.

Then, on May 9, 2018, the 800-pound gorilla entered the industry, as **Amazon.com** teamed up with **Sears Holdings Corp.** to allow customers to buy replacement tires online and have them installed at the troubled department store.

The moves signal radical changes in the replacement-tire market. Manufacturers are taking control of their own distribution, cutting out wholesalers like **American Tire Distributors (ATD)**, and along with retailers are developing their own Internet capabilities to reach consumers directly.

Monro, Inc. announced that it has collaborated with **Amazon.com** to provide tire installation services at Monro's retail tire and automotive service centers throughout the Eastern U.S. Monro's tire installation services are now available to customers who purchase tires from Amazon and select the Ship-to-Store option. Monro will receive the selected tires and complete the tire installation at the date, time, and location designated by the customer.

Radical changes in the replacement tire market

ATD has begun laying off employees. ATD, owned by TPG Capital and Ares Management LP (NYSE:ARES), has grown from a single tire store in 1935 to 140 distribution centers and 4,000 employees. It had $5.3 billion in revenue in 2017. Despite its size and scope, however, a recent CreditSights report questions whether the company can stay solvent.

Addressing employees after announcing cuts, CEO Stuart Schuette claimed, "We make the change. We are the innovators,

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the disrupters and the leaders. We have a plan that we are working through with our sponsors." I hope few of those reading this ever have tried to sell this message.

DISTRACTING STATS VS. STRATEGIC PROFIT INTENT

In the tire business, change hit like lightning. How about the vehicle parts aftermarket that is not historically known for quick change? There is no doubt that the shadow of Amazon left a trail of tears for those thinking their channel was somehow different and that personal relationships would insulate them from the Internet onslaught.

My paranoid antennae makes me wonder: Is Amazon's lack of candor part of their plan? Why should they seek to spark early competitive responses or government interruption? Consider AMZN-Biz. The last official numbers we saw for sales, resellers and buyers were at year-end 2016. Wouldn't you brag about growing 20% per month?

Will strategic revenue streams (that look to me to be sure things) from the following be enough to terminally disrupt traditional channels:

- Reseller sales and use of fulfillment by Amazon;
- B2B advertising, including training videos (pay to play);
- Last-mile delivery platform fees (shipping with Amazon's new fleet of "last mile" owner operators).

800-pound gorilla entered the industry

If startups and product bundlers don't offer clones of top-profit SKUs, then Amazon will. According to analysis by my partner Bruce Merrifield, who studies the "Amazon Effect" in more than 50 distributor channels, here are the steps required to make it work.

STEP ONE: ACHIEVE WINNER-TAKE-ALL, MARKETPLACE-PLATFORM VALUE

In digital marketplaces, value exchange reaches a tipping point and then snowballs as more buyers attract more sellers that attract more buyers. Digital value grows exponentially while operational costs drop. When you get to a critical mass, competitors simply can't follow. If you need some examples, just look at platform leaders Facebook and LinkedIn, and Amazon's own B2C Marketplace starring 100,000,000 Prime buyers.

AMZN-Biz resellers are presently curating and dynamically pricing millions of B2B SKUs because Prime customers, who are mostly millennials, want their Amazon B2C shopping experience while at work.

STEP TWO: MONETIZE PLATFORM ACTIVITY AND CLICKSTREAM DATA

Imagine that by 2020 every B2B buyer uses AMZ-Biz for long-tail needs and price-checking on commodities in parallel with their primary vendor contracts. In addition, 5G bandwidth is available in some areas and rapidly rolling out to others to permit downloading of multimedia training courses and adjacent product line infomercials to all screens 24/7.

Meaning, marginal producers, import bundlers and startup clones are now stealing share from top brands by being on Amazon with compelling content. So, top brands begrudgingly join the Amazon content management war, and they all pay to play. Won't Amazon advertising fees soar while traditional channel publication and trade show fees plunge?

Now add this to the mix: Amazon Web services is inventing free, effective, cloud-based spend management tools for big corporate buyers. In addition, Amazon knows from customer clicks and ever-better algorithms which customers are most likely to want whatever new product a producer wants to take to market.

The pull marketing option for factories now emerges! Factories can offer 10- to 90-second infomercials for a fee to the potential end-customers with reward points for watching (an Amazon patent). If customers want more, factories can provide it 24/7. Startups with micro-niche products or commodity clones won't need established channels. Amazon markets and distributes for them in a week! Pull marketing is faster and costs less than push marketing programs through legacy channels.

Some of Amazon's last-mile delivery experiments will get traction. Both delivery costs and hours-to-deliver will drop. And, Amazon will get a fee.

These scenarios require really no stretch nor imagination at all.

If big brands will lose sales and channel advantages, why don't they get started immediately to create their own vertical marketplace consortium to out-niche AMZN-Biz?

For more on the effects of Amazon and how to craft your proactive response, attend one of Bruce Merrifield one-day seminar series starting this fall. For more information, please visit http://merrifieldact2.com/amazon-business-defend-against-partner-and-out-innovate/.

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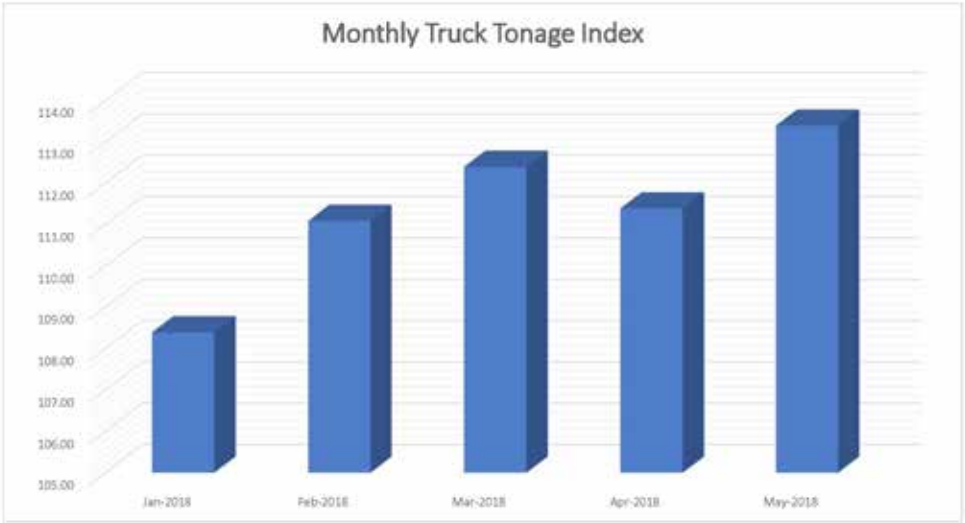
According to FTR, July's trailer orders hit a record 28,000. Summer is typically slower for trailer orders so August may see a drop though sales are expected to ramp up again starting in September.

Data from: ***FTR Transportation Intelligence***



Seasonally-adjusted Truck Tonnage
U.S. Department of Transportation, Bureau of Transportation Statistics
calculation from American Trucking Associations "Monthly Truck Tonnage Report"

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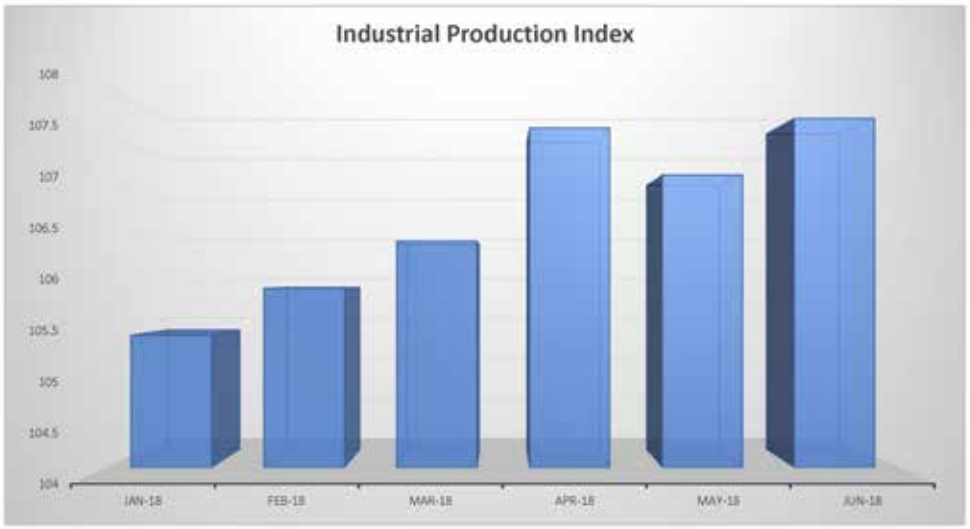
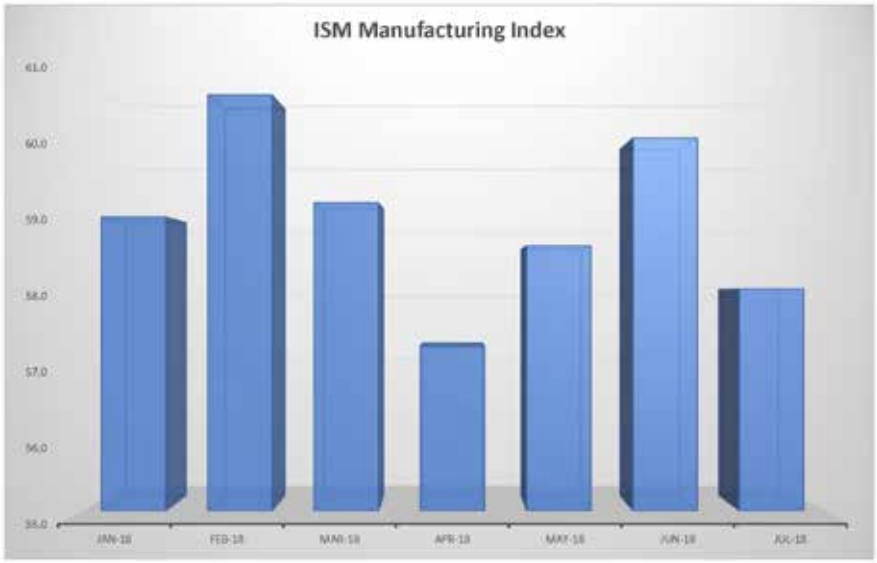


The Federal Reserve reports industrial production rose 0.6% in June 2018, another sign of a robust economy.

Data from: Federal Reserve



The Institute for Supply Chain Management manufacturing index fell to 58.1 in July, down from a robust 60.2 in June. Nonetheless, a reading above 50% indicates manufacturing is healthy, although tariffs, pay and other factors could be causing growth to slow. Manufacturing accounts for about 12% of the U.S. economy, though has a stronger impact on trailers and trucking.

Source: Institute for Supply Chain Management

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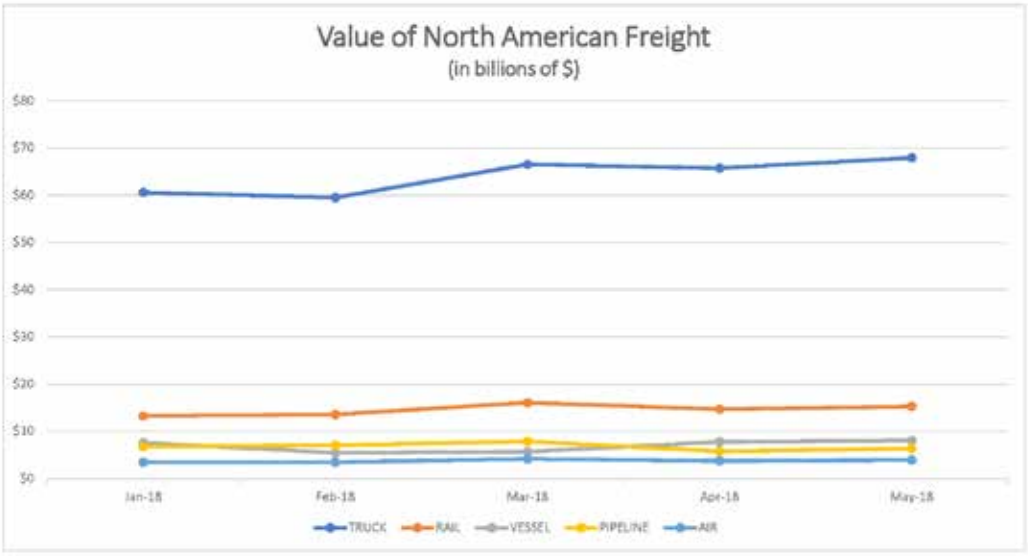
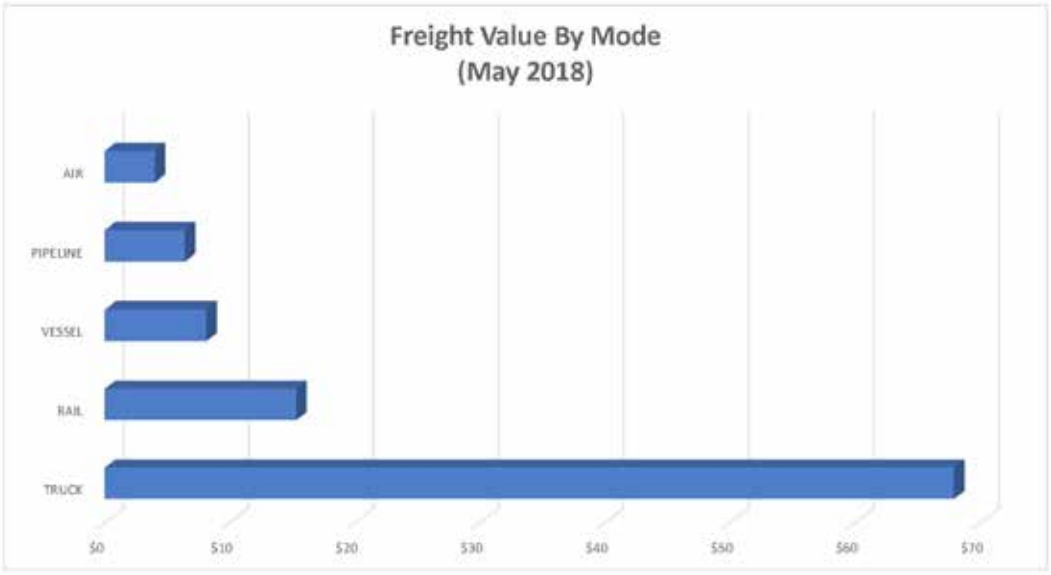


According to the Bureau of Transportation Statistics, trucking accounted for $67.9 billion of the $97.8 billion in freight carried in May. The next closest is rail, which accounted for just $15 billion.

Source: Bureau of Transportation Statistics, TransBorder Freight Data, https://www.bts.gov/transborder



Source: Bureau of Transportation Statistics, TransBorder Freight Data
https://www.bts.gov/transborder

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