DISRUPTION: UNDERSTANDING THE RISKS AND REWARDS OF INDUSTRY-CHANGING TECHNOLOGIES

Constant disruption – specifically coming from the emergence of innovative technologies – is demanding more and more attention *and* action from executive leadership. For some companies, new technology can spell the next generation of a product to maintain a competitive edge. For others, it may signal more comprehensive change that includes a total organizational transformation – even the adoption of a new business model. Add the speed with which disruptive technologies are developing – in some cases as little as two years – and you have a topic that cannot be ignored.

Companies in the commercial vehicle industry that stay ahead of the technology knowledge curve will be better positioned to take advantage of such innovation. Those that lag behind – as evidenced by major retail corporations being left in the dust by **Amazon** and its e-commerce revolution – may find themselves quickly in survival mode.

Cornerstone Growth Advisors has identified five major disruptive technologies that have the potential to impact all aspects of the commercial vehicle industry on an enterprise wide basis:

- Electric Vehicles
- Additive Manufacturing (3D Printing)
- Autonomous Vehicles
- Blockchain
- Last Mile Delivery

ELECTRIC VEHICLES (EVS) – THE FUTURE IS NOW

No one thought the giants of the automotive and energy industries would ever allow anything but the status quo of gasoline and diesel driven vehicles. Yet from 2012 to 2016 the U.S. electric vehicle market grew 32% on an annual basis and is now close to 40%. And this trend is global. France, India, Norway and Great Britain have all announced plans to end the sale of gasoline and diesel-powered cars in the next 20 years. Ten other countries have mandates in place to boost the sale of electric vehicles. Recognizing the inevitable, automotive OEMs have begun to announce plans to phase out gasoline and diesel engine powered cars, and transition to both additional and alternate sources of energy.

Coming to a Charging Station Near You…

Some experts predict that by 2025 – a mere 7 years away – the majority of new vehicles, including cars, transit busses and trucks produced globally, will be electric powered. Even if these prognosticators are not correct, all signs still point to a high percentage of vehicles worldwide being EVs.

In the case of commercial vehicles, the market is already moving toward EVs. **Tesla**, **Cummins**, and **Nikola** are working on electric powered trucks with Nikola announcing the Nikola One, which it says will be 100% electric driven with batteries fed by hydrogen fuel cells. This truck is expected to hit the market in 2020. Elon Musk, head of Tesla, has unveiled the company's E-Semi truck and plans to start production of an all-electric, heavy-duty truck in the next three to four years. Noteworthy is the fact that Tesla does not expect to employ traditional distribution channels for sales and service. **Daimler** also has plans for an electric truck lineup and its **Mitsubishi Fuso Truck & Bus** Division has started small scale production of the electric medium duty Fuso Canter. Cummins has recently announced their Class 7 Urban Hauler Tractor designed for local delivery.

Of Interest to Those in the Parts and Service Business…

The typical internal combustion automobile engine has 2,000 parts. The electric vehicle has 18. This is a significant "game-changer" for vehicle manufacturers, their customers and dealers, as service parts and labor have a big impact on the bottom line throughout the supply chain. Less parts and labor required to maintain vehicles will significantly affect traditional parts and service business models. It is hard to say for sure if we have reached the tipping point for electric vehicles, yet all indications are that we are headed swiftly down that road. Next step in the EV revolution? Large-scale production.

ADDITIVE MANUFACTURING ADDS UP

Additive manufacturing (3D Printing) – while not a new technology – is now making its way into the commercial vehicle industry. The technology employs a process whereby digital files (initial graphic exchange specifications) are used to make three-dimensional solid objects.

Potential Adverse Impact on Commercial Vehicle Industry

What does printing solid objects, instead of manufacturing them, mean to the commercial vehicle distribution sector? Simply put, if additive manufacturing replaces the traditional manufacturing process, it will forever change the all-makes and proprietary parts landscape for OEMs, dealers and fleets. Also, a decline in goods shipped via truck, versus printing locally, would likely follow. And less goods shipped equates to the need for fewer commercial trucks.

Currently, additive manufacturing has shown success with plastic parts, although a recent startup has produced two metal 3D printing systems. With development of this potential major disruptor occurring rapidly, it bears a close watch.

AUTONOMOUS VEHICLES – WHERE'S THE DRIVER?

There's no turning back when it comes to autonomous vehicles. In fact, you may already drive a car that can park itself, brake on its own and perform other driver-like functions without your assistance. Tesla promises to have a fully autonomous car ready for a coast-to-coast driverless test run by the end of this year. Most major commercial vehicle OEMs have already conducted various tests of autonomous vehicles, particularly the concept of platooning. Federal and state governments are working on favorable legislation to facilitate further testing.

The next developmental steps include driver assisted platooning, lane keeping assistance, traffic jam assist and auto docking. But before you can turn to see an empty truck cab cruising next to you on the interstate, features such as autopilot systems for highway driving and vehicle-to-vehicle connectivity will need to be produced or enhanced. Deployment of "driverless" trucks in specific areas with significant state and local governmental oversight is likely to come first. If successful, fully autonomous trucks could be common in over-the-road use as soon as 2040.

The Rewards

Autonomous commercial vehicles have the potential for huge cost savings, reduction in fuel consumption and operating costs, in addition to reducing the number of accidents. Additionally, they will be able to operate around the clock, greatly increasing productivity. The downside? Greater productivity will equate to fewer trucks needed to deliver the same amount of goods. How this will impact the current service model for Class 3-8 commercial vehicles remains to be seen.

BLOCKCHAIN MODEL COULD UNBLOCK THE SUPPLY CHAIN

"The technology likely to have the greatest impact on the next few decades has arrived. And it's not social media. It's not big data. It's not robotics. It's not even AI. You'll be surprised to learn that it's the underlying technology of digital currencies like Bitcoin. It's called the blockchain."

Don Tapscott – leading technology consultant

The Basics of Blockchain

There are numerous, complex descriptions to describe this technology. One of the best and simplest was included in a recent article on the website for the World Economic Forum. It states that "most people use a trusted middleman such as a bank to make a transaction. But blockchain allows consumers and suppliers to connect directly, removing the need for a third party. Using cryptography to keep exchanges secure, blockchain provides a decentralized database, or 'digital ledger' of transactions that everyone on the network can see. This network is essentially a chain of computers that must all approve an exchange before it can be verified and recorded."

Applications and Benefits

Blockchain is best suited for endeavors with multiple partners that are moving products. It can include suppliers of raw materials, component suppliers, vehicle manufacturers, government regulators, dealers, their customers and even drivers.

There are several benefits of blockchain. First, people or groups involved in a transaction don't have to depend on a middleman to trust each other. Blockchain brings the highest degree of accountability to transactions and relationships and allows for seamless interaction between all members of the network. Blockchain also increases security. If something happens during the process, blockchain allows the problem to be traced easily, determining exactly where the problem occurred.

As with numerous industries, Class 3-8 manufacturing, sales, leasing, warranty claims and distribution will soon adopt blockchain as there are multiple parties in the supply chain, and often a great deal of transaction risk.

DELIVERING THE LAST MILE

E-commerce has revolutionized the way we purchase goods. But today's consumers want things faster than ever before. To accommodate customers, the two-day delivery cycle, has been cut to one day – and now is quickly progressing to same day service. How last mile delivery is handled will be a key differentiator, and may determine winners and losers in the e-commerce and transportation sectors.

While improved delivery times can mean more retail sales, transporting the product that last mile – especially for same day delivery – can be costly. The good news is that customers are willing to pay more for same day service as evidenced in a recent study where 25% of those surveyed indicated they would pay the extra charge. And this percentage is likely to increase as younger consumers – who prefer same day or instant delivery – use e-commerce more. Predictions are that same day service and instant delivery will grow to a significant share of the market by 2025.

What does this mean for the commercial vehicle industry? A change in the vehicle mix is likely as warehouses are moved closer to the end user. Still to be determined is the size of trucks needed, based on the number of drop off points, and how a smaller radius of operation may lead to higher use of electric vehicles. The bottom line… disruption is on the horizon.

No Truck at All

A radical departure for the last mile delivery process might be no truck at all. There has already been talk of drone delivery of packages to the customer's door. A recent study indicated that 60% of consumers are either in favor or indifferent to drones used for this purpose. Amazon's acquisition of Whole Foods may provide them with not only an entry into the food and perishable business, but also more "dots on the map," allowing consumers to pick up/return packages, while eliminating last mile service needs completely. Drones certainly won't replace Class 8 trucks that carry heavier loads, but they do offer an alternative means of getting small packages to the end customer.

Commercial Vehicle Transportation on the Cusp

Major disruption is likely to go mainstream in a variety of places in the commercial vehicle sector as the rate of these game-changing technologies develops faster than ever. Staying fully informed on the latest changes occurring within these five areas of technology is no longer optional. It has become critical.

PRESENTING NEXTMILE

NextMile, presented by MacKay & Company and Cornerstone Growth Advisors, has assembled a team of subject matter experts along with commercial vehicle industry veterans to identify, review and synthesize relevant information on five key disruptive technologies. We generate executive-level content that covers these topics and analyze their present and future impact on the CV sector.

NextMile provides an ongoing assessment and status updates for the five disruptors that include monthly research, "breaking news" alerts and quarterly reports. A secure, proprietary website with password-only access delivers this content to subscribing clients.

The NextMile team is also available for formal presentations to senior leadership teams, boards of directors, dealer organizations, affiliates, or at industry-sponsored events related to this subject matter.

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