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2017 Commercial Transportation Trends

Incumbents must adapt to keep up with their customers

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Introduction

If you lead a commercial transportation company, you're heading toward one of two starkly different futures. If you run Carrier A, you continue to travel down the path you've been on. You provide shippers with cheap and reliable service using established product and performance definitions and metrics. If you run Carrier B, you embrace innovation. Your business bears only passing resemblance to what it was before. By adopting aspects of advanced vehicle-related IT systems, automated fleet management, cloud-based data analytics, robotics, location detection, and autonomous vehicle technologies, you have gained the flexibility and capabilities to shift gears and focus on the most profitable services based on your customers' ever-changing needs.
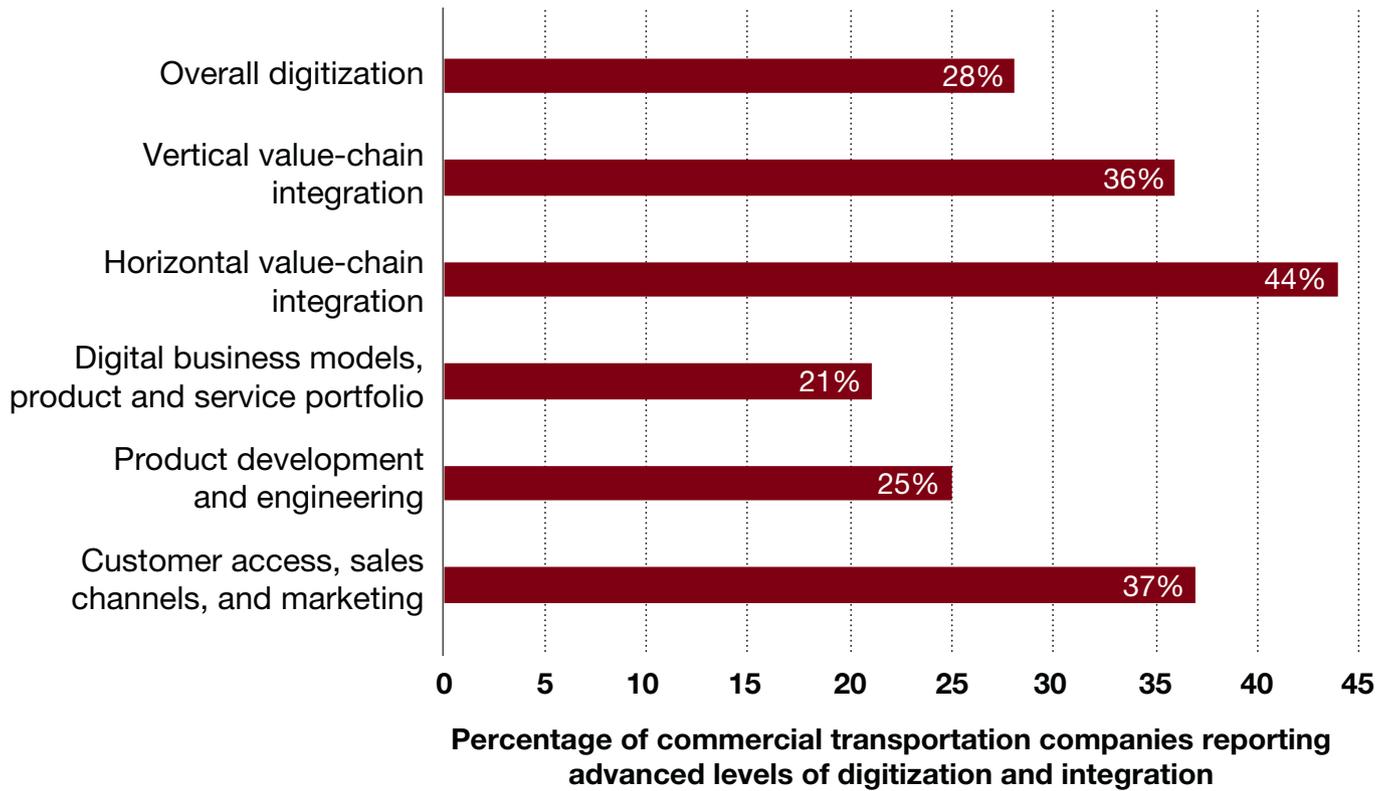
The outcomes are all too obvious: Carrier A earns lower and lower margins, faces commoditization, and, quite possibly, is eventually rendered obsolete by more technologically adept competitors. Carrier B becomes a strategic partner to shippers with a growing market share while expanding the quality and breadth of its services.

It was possible before now to avoid making a choice, but no longer. 2016 was a breakout year for new technologies in the commercial transport industry, even while many companies still resisted them. Although information systems have been disrupting carrier operations and logistics for years — compelling companies to develop sophisticated data networks that respond ever more quickly to customer shipment demands, track shipments more transparently, and offer faster and more definitive delivery schedules — only now are these technologies being implemented by a raft of new competitors with fresh business models.

Exhibit 1

Commercial transportation companies are lagging in digitization efforts

How would you classify the current level of digitization in your company?

Category	Percentage
Overall digitization	28%
Vertical value-chain integration	36%
Horizontal value-chain integration	44%
Digital business models, product and service portfolio	21%
Product development and engineering	25%
Customer access, sales channels, and marketing	37%

0   5   10   15   20   25   30   35   40   45

Percentage of commercial transportation companies reporting advanced levels of digitization and integration

Source: PwC, "2016 Global Industry 4.0 Survey — Industry key findings"

A changing landscape

Among 2016's notable developments:

- Amazon announced Prime Air, a new program that will deliver packages by drone to shoppers within 30 minutes of order placement. The first Prime Air shipment was completed in early December 2016 to a customer in England.

- Uber's autonomous trucking arm, Otto, made its maiden voyage in October, delivering 50,000 cans of beer via self-driving vehicle plying the Colorado highways from Fort Collins to Colorado Springs.

- Arizona-based startup Local Motors embedded IBM's Watson Internet of Things for Automotive into a driverless shuttle bus manufactured by 3D printing. Olli, as the bus is called, boarded its first passengers on the streets of a shopping district just outside Washington, D.C. Local Motors plans to produce commercial cargo vehicles based on this design.

- Skuchain, a Silicon Valley startup, has created a transportation supply chain application using blockchain. Because blockchain, the concept behind bitcoin, essentially creates a series of verifiable and auditable information packets out of each transaction, it has been promoted in financial services as a potentially secure platform for direct business-to-business activities. Implemented in the commercial transportation arena, this technology could foster more seamless and transparent communications and interactivity between carriers and shippers, possibly cutting out distributors and other intermediaries, which add cost for customers.

  Skuchain's service and similar ones may reduce customer concerns about using smaller, less experienced carriers for part of their shipments because the safeguards built into blockchain ostensibly create parity between new entrants and larger, established companies in safeguarding and tracking shipments step by step and from door to door. Also possible, though, is that established carriers will embrace blockchain to reduce transaction complexity and enhance their brand with customers.
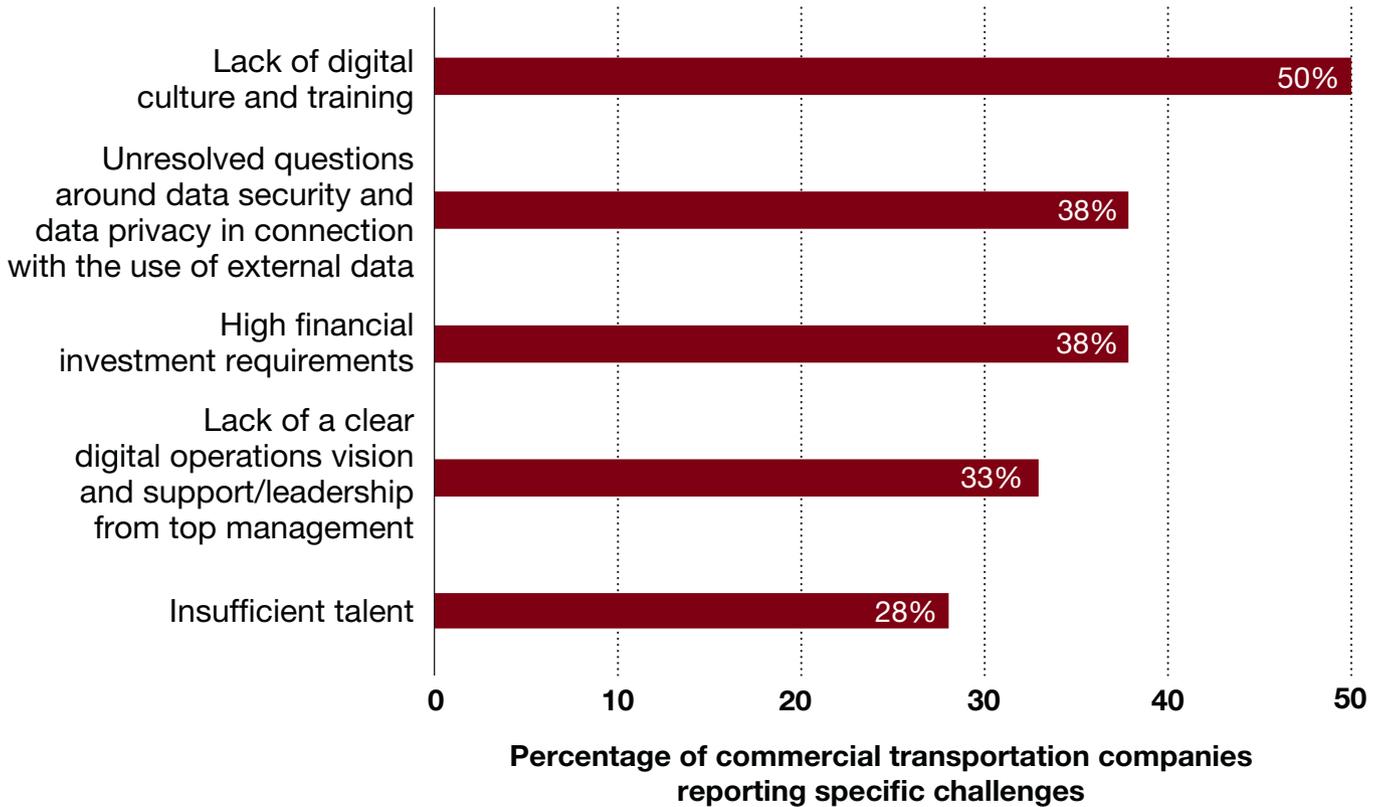
- Convoy is a one-year-old company whose software matches deliveries coming into an area with the availability of tractor-trailers from smaller local providers to maximize scheduling efficiency and minimize shipment downtime. It made news when it inked a deal with Unilever to handle a large portion of the consumer goods conglomerate's logistics in North America.

  This so-called sharing economy model, similar to what's happening in the taxi realm, is becoming a popular commercial transport option globally. UberCARGO in Hong Kong, Dolly in the U.S., and Nimber in Norway are other players hoping to make a splash in this arena. The sharing economy opens up possibilities in other areas of logistics as well. Seattle-based Flexe, for example, offers on-demand warehousing by matching available space in a location with requests for expedited warehouse facilities. Flexe bills itself as the "Airbnb for warehouse space."

- An even bigger disruptive force is on the horizon: the rise of free-floating, contractual services, the shipping versions of an e-marketplace. The "operators" will be cloud-based platforms that coordinate entire routes for shipments by choosing among carriers, hubs, depots, and warehouses to find the most efficient use of capacity. In this environment, the owner of a single truck can compete head-to-head with companies owning hundreds of vehicles.

Exhibit 2
Challenges in designing digital operations

What are the biggest challenges or inhibitors for building digital operations capabilities in your company?

Lack of digital culture and training	50%
Unresolved questions around data security and data privacy in connection with the use of external data	38%
High financial investment requirements	38%
Lack of a clear digital operations vision and support/leadership from top management	33%
Insufficient talent	28%

0　　10　　20　　30　　40　　50

Percentage of commercial transportation companies reporting specific challenges

No time to stand pat

With this onslaught of new entrants and this level of disruption, commercial transportation companies — particularly established, high-asset businesses — can no longer expect to be insulated from competition. Yet only 28 percent of the industry can claim a high level of digitization today, according to a recent survey by PwC, reflecting a troubling level of reluctance among carriers to fully embrace new technologies and business models. One common refrain from these players is that they don't need to invest in new systems because their traditional rivals don't. Another rationalization is that customers are not demanding sophisticated technology from their carriers.

Our analysis draws two starkly different conclusions:

1. **Competitors.** As the industry morphs, traditional rivals will no longer be the sole or even the most threatening competition. Indeed, it will become more difficult to promptly recognize those vying for market share because they will emerge from outside the industry and target only portions of the commercial transportation value chain.

2. **Customers.** The technological gap between some carriers and their customers is large and growing. Companies that rely on carriers' ability to ship their products around the world on tight schedules, or to deliver materials from their suppliers just as promptly, are increasingly cognizant of their carriers' technological capabilities — and these companies' expectations for logistics transparency and advanced software tools used to monitor shipment activity are increasing rapidly.

Commercial transport companies have been hesitant about adopting more advanced technologies for a number of internal reasons — including the lack of a digital culture, privacy concerns, and cost — and widespread confusion about which hardware and software breakthroughs will have the biggest effect on profitability and overall organizational performance is a big handicap as well. Here are a few of the more intriguing and potentially high-impact technologies available now or on the horizon to consider:

As the industry morphs, traditional rivals will no longer be the sole or even the most threatening competition.

- **Self-driving trucks.** Well, not quite self-driving yet. Although the technology exists for autonomous trucks, it must still overcome several obstacles, including perfecting driverless software so it can operate in crowded urban environments, rather than only on wide-open highways where traffic flows freely. And vehicle regulators are still working out rules for autonomous driving permits and safety requirements. In the interim, though, commercial transport companies should begin the process of revamping their trucking fleets with self-navigating equipment that can "learn" to drive from human truckers. Through the use of myriad sensors, an artificially intelligent vehicle can evaluate road conditions and observe how the human operator responds to various "exceptions" along the route. In the process, the soon-to-be-autonomous truck would collect anecdotal data about instinctual human driver proclivities, such as not turning left into a busy side street even though the GPS suggests it is the fastest route. Moreover, communicating with one another over the cloud, these vehicles can share what they have learned and amass more sophisticated knowledge about driving than could ever be programmed in a lab. Ultimately, with this level of software and hardware development, these trucks should become better drivers than any individual human operator.

- **Real-time logistics.** It will soon be possible to integrate trucks into logistics data across the entire supply chain. Advanced telematics will enable transportation companies, through cloud-based analytics, to track and monitor such factors as truck location, the health and fatigue of the driver, the temperature and barometric pressure of the freight, and so on. Telematics will also facilitate automated freight matching. The truck trailer, relying on sensors, will be able to determine available space and weight, route, and ETA, and transmit this information to software that can generate the most efficient and cost-effective scenarios for moving loads.

- **Robotics.** UPS, DHL, and FedEx are already experimenting with robotic loading and unloading of irregular parcels. Advanced robotics, with greater mobility enabled by gyroscopes and mapping technologies, will soon be able to recognize specific shipments by size and description and move them to appropriate locations for picking and packing. A glimpse of what this will look like can be found in the robotic truck unloader recently debuting, which is able to get moving boxes, containers, and even tires into and out of semitrailers and ocean freight containers of all sizes and shapes, no matter the physical impediments. With this technology, labor costs can be reduced substantially while shipment processing and delivery times speed up.

- **Predictive networks.** To date, commercial transportation companies have been little more than tactical service providers. They carry the boxes, but are uninterested in what is inside. All they have cared to know is where to pick up the packages and where to deliver them. That should change. Commercial transport companies have a golden opportunity to mine the data at their fingertips and ultimately expand revenue streams by selling this information to firms that can make good use of it. For example, consider consumer spending habits. A carrier is in the position to know that a particular household buys clothes from four different sources in a three-month stretch. And it is able to glean that within a particular zip code, 10 percent of the households buy clothes each month, double the percentage of an adjacent zip code. This information has to be carefully collected and reported in a way that safeguards both shipper and consumer confidentiality. But without revealing what the sources are, a carrier can share those insights with local and global retailers and e-commerce providers, among other companies that can use this grassroots information for inventory, merchandising, and promotional purposes.

Similar predictive networks can be used to improve internal operations for carriers themselves. Carriers can become more efficient by using analytics based on historical activity to deploy their fleets more effectively, improve capacity and load balance throughout their logistics chain, optimize routes, and forecast traffic and accidents. By having better insights into a customer's shipping habits and marrying this information with next-generation telematics, predictive analytics can ensure a carrier will provide the best possible on-time delivery, even during peak periods and when driving conditions are challenging.

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Exhibit 3
High hopes for future digitization campaigns

Which of the following new digital products or services do you plan to introduce and expect will generate more than 10% of your future revenue over the next five years?

Percentage of commercial transportation companies reporting specific areas
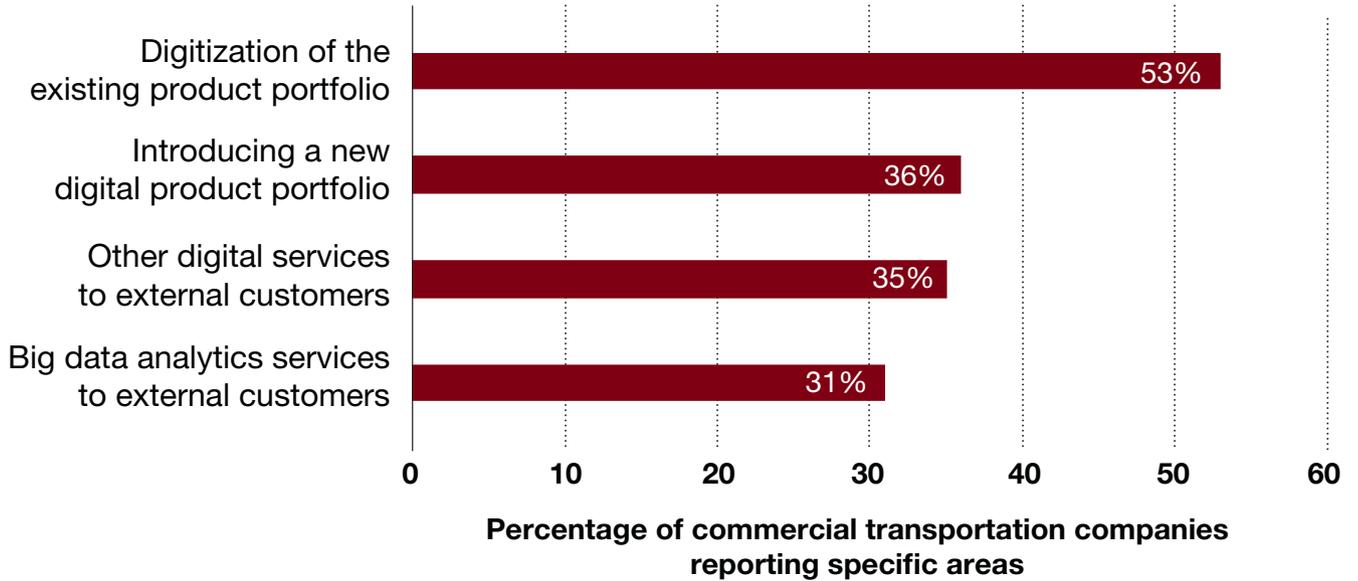
Source: PwC, "2016 Global Industry 4.0 Survey — Industry key findings"

A way out

Commercial transportation companies have a great opportunity at hand, but at this point many carriers feel that they are unable to avoid the fate of Carrier A. Ultimately, adopting new technologies and innovative business models supported by new technologies offers a path through the thicket of transformation — and a way to grasp opportunity from disruption.

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