TABLE OF CONTENTS

→ Introduction
→ Executive Summary
→ Key Insights
→ Key Industries: Impacts and Benefits
  → Transportation and Energy Infrastructure
  → Energy and Basic Materials
  → Financial Industry
→ Strategic Challenges
Between November 16 and 21, 2016, Wikistrat ran an online simulation to examine how the application of artificial intelligence to commercial transportation and delivery will affect three industries:

- Energy and Basic Materials
- Finance
- Electricity/Transportation Infrastructure

During this six-day exercise, more than 20 artificial intelligence and industry experts developed 21 scenarios mapping the AI-led technological breakthroughs that will occur between now and 2026. They also described how these breakthroughs will impact the industries in question. They then voted on the likelihood and impact of each scenario.
EXECUTIVE SUMMARY

- The over-a-trillion-dollar transportation industry is on the verge of a revolution that will create ripple effects in other industries such as energy, finance and infrastructure.

- Artificial intelligence applied to commercial transportation will change the way goods are transported and delivered even before vehicles are automated.

- The transportation industry will not only move goods, but also produce huge amounts of data. Firms need to expand and cleverly integrate their in-house data analytics capabilities into their organizations. The industry winners will increasingly leverage data analytics to optimize their logistics, simplify their distribution networks, predict demand patterns, and fulfill the increasing customer demand for deep analytics.

- Transportation infrastructure will be most affected by these changes, followed by the electricity, energy and basic materials industries. The financial industry will gain superior risk management and pricing ability as well as more accurate forecasting of key factors.

- This transformation will generate risks and opportunities. New entrants may blossom, incumbents may scramble to adapt their models, and some may disappear.

- Cyberattacks may temporarily disrupt supply chains. Inadequately tested AI technologies may result in accidents or flawed automated decisions, including killing motorists or damaging goods. Excessive automation could cause unemployment spikes and social tensions.
KEY INSIGHTS

 Automation in transportation is not just about unmanned vehicles. AI technology will impact transportation and logistics before vehicles are automated. Out of the 21 scenarios created in this simulation, six dealt with unmanned vehicles. The rest identified AI technologies that require partial transportation automation (e.g., platooning) or leverage data to deliver greater efficiency (e.g., via crowdsourced delivery).

 Commercial transportation and logistics will stock and crunch an increasing amount of data. The expansion of data analytics capabilities will benefit transportation firms. Though it is still unclear who will own that data, the other industries analyzed would gain from accessing such an expanded dataset.

 Supply chains and operations will see hyper-optimization. Blockchain, RFID, 3D printing, crowdsourced delivery, changing consumer demand, and logistics management systems that use AI at different levels will change the transportation and logistics industries. The crowd expects this transformation to accelerate.

 These revolutionary changes will prompt a rethinking of business models. For some firms, sacrificing transportation margins for deeper data may become an option. Incumbents’ hesitation will benefit new entrants.
KEY INDUSTRIES: IMPACT AND BENEFITS
TRANSPORTATION AND ELECTRICITY INFRASTRUCTURE

Analysts rated the transportation and electricity infrastructure scenarios as having the greatest likelihood and impact. Moreover, half of the scenarios focused on transportation infrastructure. This is not surprising, as the AI-driven commercial transportation revolution will inevitably affect the infrastructure that underpins it.
The crowd expects substantial impact from platooning (a technology that allows control of two or more trucks from a leading vehicle) within five years. As platoons become longer, infrastructure spending will increase as highways are repurposed and dedicated traffic lanes are created.

Analysts predict that European countries will lead due to their excellent rail services and greater acceptance of government involvement. Transportation infrastructure will benefit from less wear and tear, faster transportation and deliveries, and reduced spoilage. Electricity infrastructure will improve capacity factors.

Rail gives many of the advantages expected from autonomous vehicles without the expense of very complex systems in each vehicle that are subject to failure. In Europe, with its highly advanced rail systems, it would appear that optimization across rail and truck systems would occur before autonomous trucks, platooning systems and so forth.

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AI technology will improve a critical information source for any automated driving system: maps. Analysts expect remote sensing platforms (as well as drones, ground and sea bots) to supplement and eventually dominate the task of creating accurate maps. Real-time maps will support automated commercial services outside major cities and expand transportation and logistics datasets, resulting in broader benefits across various industries and sectors.

Dynamic road transport route analysis will benefit road infrastructure. According to Forbes, U.S. traffic congestion costs the trucking industry $50 billion every year. Analysts believe AI technology will allow identification and prediction of traffic patterns, devising of alternate routes, and advice to truckers on optimal courses of action. Dynamic traffic data will come from commercial vehicles and, at a later stage, from drones. The road transportation industry will benefit from improved utilization and reduced road maintenance requirements; studies have shown that excessive traffic increases road temperatures and surface degradation. Lower traffic congestion will reduce the cost of health insurance, a major expense for the industry.
According to McKinsey, deliveries by the day and by the hour will be common. This will result in frequent delivery rides, lighter truck loads, greater intra-city logistics, and expanded small electric van fleets. Electric utilities will have to power an increasing number of charging stations.

Analysts expect that electric utilities will leverage larger amounts of data and push technologies to improve estimation and optimization of electricity consumption. This will result in smooth daily load patterns, improved capacity factors and increased transformation and distribution efficiency worth $20 billion per year in the U.S. alone.
The energy and basic materials industries have been keen on automating their operations as manual processes are proving unsuitable in the oil field and unsafe in the mining field. Advanced technology solutions such as AI technology can support growth and eliminate health and safety issues to a large extent. And as commercial transportation nowhere looks to discard the use of oil for this end, then AI looks to have an important future.
Oil Upstream: Analysts expect this industry to further adapt as a result of the incorporation of AI technologies such as drones for exploration and production – as well as for security, monitoring and surveillance operations. Fewer personnel will need to be deployed in hazardous operations from afar or in conflict-prone areas. The oil industry will continue to be keen on these technologies, as they mitigate reputational and legal risk. Regulatory limits exist for operating new technologies such as drones. Firm operations in regulation-friendly countries like China are most likely to benefit in the short term.

Oil Downstream: The artificial intelligence–driven combination of transportation patterns with weather and economic conditions analytics will allow companies to tailor their marketing campaigns, resulting in increased efficiency in targeting companies and consumers. Companies may become country-specific – or even company- and location-specific. Distribution will be optimized based on predictive driving patterns.

The mining industry has been attempting to mechanize those extraction processes which suffer from safety issues. For example, Rio Tinto has already operated driverless trucks in their mines. As the most accessible deposits have been gradually exhausted, companies have been adventuring into expensive and risky remote areas. Lower margins due to commodity prices have prompted firms to control costs. The crowd expects AI technology to decrease the cost of both open-pit mining haul trucks as well as mine-to-logistic-node transportation, making mining operations in the harshest regions feasible. Moreover, the cost of prospecting and opening new sites will drop.
The financial industry will harvest big data relating to commercial transportation and delivery to improve forecasting and risk pricing – resulting in superior estimation of commercial insurance and bank lending premiums, as well as superior investment returns.
FINANCIAL INDUSTRY

- **Banks and Insurance:** Analysts expect improved risk pricing and superior estimation of trade insurance premiums and reserves. Property and casualty claim fraud will be reduced as drone-assisted inspections and big data diagnostics become common. Banks will improve risk estimation in the commercial lending, commercial paper and trade finance businesses. Transportation and delivery data analytics will allow banks to defend margins, mitigate their risk profiles, and protect themselves from disruptive new entrants.

- **Real Estate:** The crowd expects a mixed impact regarding real estate. A scenario that spurred lively debate analyzed the impact of production, transportation and delivery changes on urban real estate. For example, industrial zones will not accommodate as many people, cars or restaurants as today. Downsizing of logistic warehouses will reduce space requirements; inner-city logistics will spread out, changing the supply of and demand for commercial and residential real estate.

- **Asset Managers:** Analysts see supply-chain data as key in identifying sector and product bottlenecks. Big data relating to commercial transportation and delivery will support accurate country-based supply-chain analyses and enhanced economic growth projections. For example, Two Sigma, Renaissance Capital, Bridgewater Associates and Point 72 are pioneers in the field of big data investing; other institutional investors will follow. Asset managers will market novel AI-driven investment strategies and products.
STRATEGIC CHALLENGES
STRATEGIC CHALLENGES

Management should increase in-house technology and data analytics capabilities and cleverly integrate them in their own organizations. A thorough rethinking of strategic priorities should follow. Focused strategic execution is key to reaping the benefit of the transformation while controlling for legal, regulatory, cybersecurity as well as other risks.
Firms need to invest in human resources and capital to expand their data analytics capabilities. Based on analysis by PricewaterhouseCoopers, 75 percent of transportation firms either lack significant data analytics or rely on individual employees for that purpose. This improves to 60 percent for the industries examined in this presentation. Going forward, data analytics capabilities should be used more for predictive or prescriptive analysis (forward-looking) as opposed to descriptive or diagnostic purposes (backward-looking).

AI technologies bear significant legal, political and cybersecurity risk. Their widespread adoption is contingent on regulation and, in some respects, social acceptance. Automation may increase industry unemployment: The American Trucking Association estimates there are 3.5 million truck drivers in the United States. McKinsey estimates a 35 to 50 percent cut in the total cost of trucking operations (mainly from reduction in driver cost) by 2022. Restructurings and layoffs may affect the speed of adoption of some of these technologies.

Companies should keep calm and focused – and should review their strategic priorities. Those in management must be able to understand the risks and implications of these technologies and question their relative importance for their businesses. Companies that successfully execute and innovate will reap the benefits when new norms set in.

Anticipating all of the potential adverse scenarios from automated vehicles is hard enough. Doing it with a lack of standards and regulation is technological suicide.

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