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Blockchain's Hidden Power in the Supply Chain

Blockchain technology, best known as the distributed ledger platform that powers Bitcoin and other cryptocurrencies, holds several potential applications for the automotive industry. Trends toward automated and autonomous driving are changing the way original equipment manufacturers (OEMs) collect and store data. The disjointed nature of automotive production across geographies, time zones and a myriad of suppliers creates challenges for OEMs hoping to satisfy increasingly demanding consumers who are used to online shopping and same-day delivery.

Some characteristics of blockchain technology offer solutions to these automotive industry challenges:

- The authentication of car parts in real time with blockchain-based supply chain management systems
- Trustless communication across the supply chain with complete transparency to all parties
- The precise tracking of parts and repairs allowing for much more targeted recalls and less disruption for non-affected parties
- Fast and secure digital payments for automated leasing, financing, maintenance, and other procedures

These unique characteristics of blockchain technology can be combined with other technologies to form automotive-specific use cases. Combining big data computing and the ability to share trustless access to network information could allow the secure sharing of vehicle data between manufactures, dealers and owners while providing the foundation for autonomous vehicle communication networks. The location of the storage nodes and the nature of the information being shared will have privacy implications in jurisdictions with protections for personally identifiable information. Embedding IOT devices, such as Radio-Frequency Identification (RFID) tags, into an automated supply chain could permit greater transparency between OEMs, suppliers and dealers,

as well as the instant authentication of parts and verification of part availability. Combining artificial intelligence algorithms with real-time engine data could result in more and better location-based services.

Sharing these use cases with fleet providers, insurance companies and other third-party providers opens a universe of possibilities for custom services and digital payment options. More specifically, distributed ledger technology could provide the tracking and payments infrastructure that allows for the permissioned monetization of the diagnostic and infotainment-related big data coming out of today's connected vehicles. Basic maintenance and usage data are available to owners, dealers or third parties to facilitate simple repairs. Blockchain storage of a car's parts inventory would allow for immediate shipment of a verified replacement part to a local dealer within seconds of a part malfunction report. Sharing data on driving behavior with fleet managers or insurance companies could allow usage-based pricing and incentives. Finally, payments for services or options could be settled instantly in real time via smart contract-based digital payments between owners, drivers, service providers and OEMs. The sharing of data across such a broad spectrum of participants will require the industry to rethink data anonymization and the way it shares or disclaims liability for automotive data used by the industry collectively.

While most automakers are engaged in their own blockchain research, a number of industry players have launched the [Mobility Open Blockchain Initiative \(MOBI\)](#) to collaborate on automotive blockchain work. BMW, General Motors, Ford, and Renault were among the initial members working in collaboration with leading blockchain and technology startups, such as manufacturers Bosch and ZF, leading service providers Accenture and IBM, and blockchain-focused organizations Consensys and Hyperledger. Participants also include researchers and scientists from academic institutions and NGOs. The group's goal is to generate a common system and application programming interface in order to allow payments and data-sharing between cars. The result could be a new digital mobility system offering services ranging from ride-sharing to self-driving vehicles, with innovations in between.

While many automotive blockchain projects are in their infancy, early progress seems to indicate much more is yet to come. The rapid growth of decentralized finance, which grew from less than \$1 billion to almost \$20 billion in total locked value in 2020, and the achievement of new all-time highs for Bitcoin and Ethereum at the beginning of 2021 are likely to continue to drive attention to this fascinating technology. The increase in fintech applications for blockchain and cryptocurrency have given rise to several recent regulatory proposals in the U.S., including efforts to subject certain cryptocurrencies to banking regulations. The [Financial Crimes Enforcement Network \(FinCen\)](#) and the [Office of the Comptroller of the Currency \(OCC\)](#) have also offered clarifications about the application of anti-money laundering and know-your-customer regulations to digital payments and the ability of banks to interact with cryptocurrencies backed by fiat currencies. While the application of new digital payment regs would certainly apply to digital payment facilitators in the automotive space, the automotive sector does not appear to face any burden that cannot be addressed with traditional payments risk analysis. Indeed, the new payments regulations appear designed to facilitate more innovation rather than stymie new development.

There have been exponential increases in the use of blockchain technology in automotive over the last several years, and the pace of innovation will only increase. Initiatives endorsed by multiple OEMs are more likely to get traction than stand-alone projects, but because the number of automotive use cases is increasing so rapidly, it will likely be some time before winners and losers are apparent. As the technology evolves, Blockchain consortia need to stay abreast of legislative and regulatory developments to ensure that promising blockchain innovation, particularly in the payments space, is not stymied by regulation targeted at the more volatile cryptocurrency arena.

Questions? Contact [John Wagster](#) of Frost Brown Todd's [Blockchain](#) and [Mobility & Transportation](#) teams.

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