When the ground beneath your feet is shifting, do you stand still or leap forward?

Industrializing the blockchain for automotive

Innovation matters: insights on the latest disruptive technologies
What does “industrializing the blockchain” mean?

In the last year, all the hype has been on bitcoin and cryptocurrency, but what's been emerging in the background is blockchain's diverse capabilities. These include the ability to store asset ownership rights, settle payments across diverse ecosystems and automate transactions through smart contracts.

Blockchain technology can wield a significant impact across industries and sectors. It can be used to make supply chains more efficient and also enable disruptive new business models, especially concerning ownership and usage of shared assets.

“When we talk about industrializing the blockchain, we mean taking this really amazing, great cryptography and value movement and making it fit for business problems.”

Paul Brody, EY Global Innovation Blockchain Leader

Bitcoin, the world’s first blockchain, was created as an alternative to the traditional financial system. It was designed to allow parties to transact with each other in a secure, verifiable and tamper-resistant way without having to trust a bank or central authority. Removing traditional intermediaries significantly reduced the time and processing fees required to execute a transaction.

We believe these core characteristics of blockchain technology will allow modern enterprises to extract more value from their business operations. Our view is that blockchains will do for multi-enterprise networks what enterprise resource planning did for single enterprises. Companies and their partners will be able operate from a single source of truth. Transactions between multiple parties will be secure and transparent. Automation and business logic can be embedded into smart processes to enable greater efficiencies and new business models.

What does this mean for the automotive industry?

Industrializing the blockchain is one more disruption hitting the auto industry. In the last few years, players across the industry have faced perhaps their biggest challenges to date, from connected cars to the advent of electric and autonomous vehicles.

Across the traditional automotive value chain, blockchain has the potential to enhance efficiency and collaboration (e.g., through synchronization of supply chains, tracking of component provenance or immutable storage of vehicle usage and maintenance history).

However, at the same time, the automotive industry is being impacted by several significant external disruptions: electrification, autonomy, connectivity and shared usage models — leading to the emergence of new players and new business models. But these business models are in their infancy and are suffering from a number of challenges that blockchain can help address, including:

1. Increasing scalability of shared fleets by allowing fractional ownership and external investment
2. “Disaggregating” electric vehicles into core components (e.g., chassis, battery and onboard systems) and managing the value chain and economics of those separately
3. Allowing many different mobility providers to combine their offerings into a “mobility-as-a-service” offering, allowing seamless travel across cities

“The trick is to move at the pace of the customer – to know when the customer is ready.”

Philipp Schartau, EY Strategy, Mobility Innovation and Growth Director, and EY Tesseract platform lead
How is EY helping transform the automotive industry with blockchain?

**EY Tesseract**, a blockchain-based platform, can enable new ownership and usage models. The initial release of the platform enables fractional ownership of cars, managing the costs of usage and maintenance among a pool of owners. What this means at the moment is on-demand access to a vehicle at a reduced ownership cost, or the ability to lease out your vehicle to generate revenue rather than having it sit idle in your driveway. In the not-so-distant future, when autonomous vehicles become prevalent, these vehicles could become self-managed entities that generate their own profits and schedule their own maintenance, raising the question of who would bear the burden of ownership.

EY Tesseract can potentially disrupt the electric vehicle ecosystem as well — for example, by splitting the electric vehicle and the battery into separate assets. Consumers could elect to buy only the vehicle, leasing the batteries from a pool of batteries owned by a separate entity. This arrangement would allow vehicle owners to reduce up-front costs and pay for energy and storage based on usage. Owners of the batteries would be able to better manage battery health, optimize depreciation of their assets and up-cycle or recycle batteries based on their remaining life-spans. Ownership models like this could make access to electric vehicles much more affordable and enable new revenue streams for battery manufacturers.

EY is also looking at the platform to be a mobility-as-a-service (MaaS) offering, which would involve integrating car journeys with public transportation journeys and charging consumers just one payment. More and more cities are looking at MaaS with a vision that, in the future, your transportation use might become like a mobile phone subscription. For example, you pay a hundred dollars a month, and that gets you all the car and public transportation journeys you need.

The future is closer than you might think. We think we are going to see the first few live applications in the next 2 or 3 years and on a larger scale in 5 to 10 years.

What’s next for blockchain?

While a lot of people are still following the ups and downs of bitcoin and other digital currencies, some of the biggest development work around this technology is happening in the enterprise, as people are beginning to envision large-scale industrial applications, process automation and the introduction of smart contracting that we are working on. Blockchain is going to emerge as an enabling technology for new business models for greater efficiency and transparency.

While widespread adoption of blockchains has its challenges, such as scalability, transaction speed and privacy, large strides are being made to address these issues. Blockchain developers have been experimenting with off-chain data storage solutions to optimize the amount of data passing through blockchains to improve scalability. Innovations to the consensus mechanisms securing transactions are being developed to increase speed and security. Zero-knowledge proofs are promising to be the key to maintaining transaction privacy on public blockchains.

“This is the year we’ll see blockchains used for business operations.”

Paul Brody, EY Global Innovation Blockchain Leader

Looking forward, we believe that four major revolutions will significantly affect the blockchain space. First, for large-scale enterprise applications, we will see a shift away from applications running on private blockchains to those running on a public blockchain such as Ethereum. Second, application functionality will shift from merely notarization and synchronization of events to tokenization of assets. Third, we will see a shift away from using cryptocurrencies to transactions being conducted with tokenized fiat currency. Last, we predict a consolidation of parallel blockchains into industry-wide ecosystem blockchains.

We think the long-term future of blockchains is to become a public utility that enables business transactions.

The views expressed are the opinions of authors Paul Brody and Philipp Schartau.

What can other industries learn from the auto industry’s use of blockchain?

Many of the things we are expecting in the auto industry would apply elsewhere. For example, the concepts of fractional ownership and shared use can be applied to assets in multiple industries. If the asset can be shared or technology makes the asset shareable, the fractional ownership recorded on a blockchain and access controls implemented with the Internet of Things are feasible. Homes and cars are among the first items being used for this experience, but we expect that many other assets, such as boats, offices, storage spaces and other high-value assets, could be shared as well.
About EY

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Paul is responsible for driving EY’s initiatives and investments in blockchain worldwide. With blockchain services teams in the Americas, Europe and Asia, Paul’s team works with service lines to build a portfolio of services across tax, audit and business transformation. He has extensive experience in the areas of IoT, supply chain and operations, and business strategy, developed over 20 years at multiple startups, McKinsey and IBM.

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As part of EY’s global Future of Mobility team, Philipp leads the EY Tesseract program, overseeing the development, business and IP strategy, and go-to-market for EY’s new blockchain-based smart mobility platform, which enables fractional vehicle ownership and mobility-as-a-service models. Working with EY’s clients from the automotive, transportation, energy, government and financial services sectors, he has helped create new smart mobility services and scale them globally.