BLACKCHAIN CONSULTING

2020

BLOCKCHAIN & THE AUTOMOTIVE INDUSTRY

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Growth Hacking | Advisory Services | Token Architecture & Development

PRACTICAL APPLICATIONS OF BLOCKCHAIN WITHIN AUTOMOTIVE

There exists numbers of usecases of blockchain technology in the automotive sector. Twelve use case groups have been identified and presented in this document.

These 12 use case groups are derived from an initial analysis of over 40 use cases researched by Deloitte and were shortlisted and combined to cover the breadth of the automotive market and blockchain applications. With each use cases defined below, we have outlined a range of individual use cases.

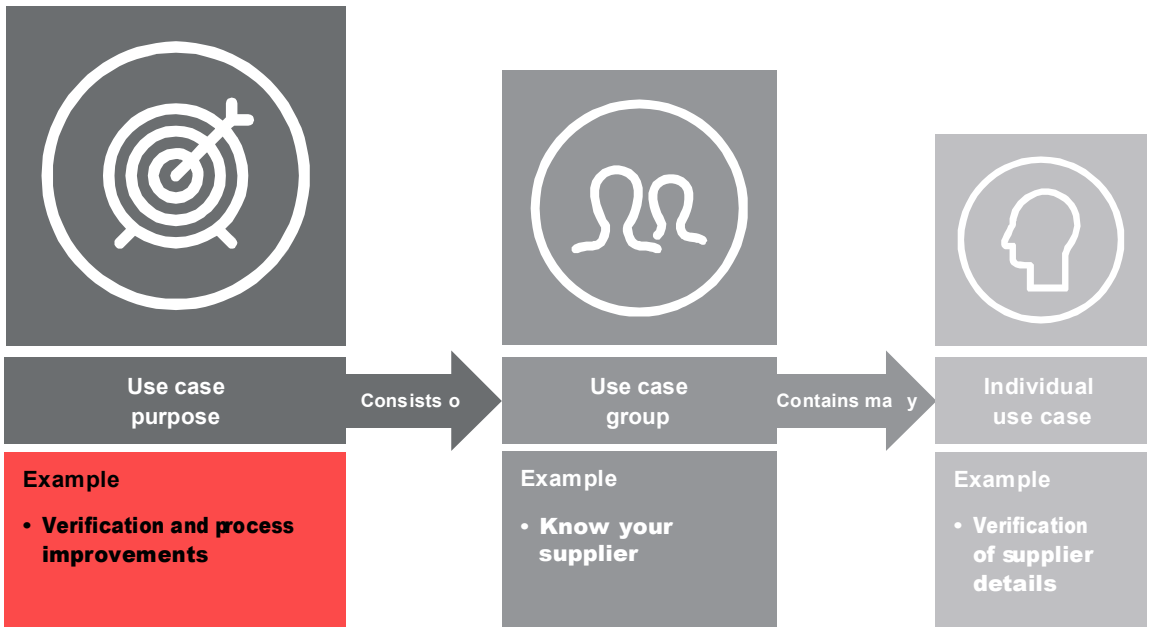
Depending upon the reason for the blockchain application, the use case groups have also been allocated to 'use case purpose'. The three 'use case purpose' categories are:

- Verification and process improvements – to improve process efficiencies across the supply chain and back office.

- Vehicle management and incentives – to improve vehicle information and usage data across the industry.

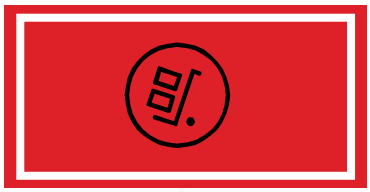
- Finance, payments and insurance – to improve transactions processes and information relating to this.

We have categorized each use cases in Figure 1. Figure 1 shows an example of the hierarchy of categories relating to use cases.



VERIFICATION AN PROCESS IMPROVEMENTS

To enable verification and process improvements, there are a number of blockchain use cases across the value chain. Below are the four use case groups within ‹verification and process improvements›.



KNOW YOUR SUPPLIER (KYS)

Capturing, storing and verifying supplier details, using external information can be done through a blockchain based solution. This process can be performed prior to supplier providing services to automotive organisations. After verification, the contracts of the suppliers can be easily stored on the blockchain and payments will only be executed when a service or product has been fulfilled. To inform future contractual agreements, and to support supplier performance - data can be also be provided ‹off-chain›.

PROVENANCE/ TRACE AND VERIFY PARTS

Parts can be verified and traced to the roots of production with the help of blockchain based solution. Service centres and car manufacturers will be able to access a transparent supply chain.

CONNECTED SUPPLY CHAIN

An end-to-end supply chain can be created using blockchain that will help the automotive industry to seamlessly order or sell, track and pay for goods once they arrive at their destination. All the documents will be uploaded on the blockchain and can be accessed by the parties. ‹Smart Contracts› can be used to automatically create trigger points and perform actions based on that trigger point. For example, payment after an agreement is reached.

TARGETED RECALL

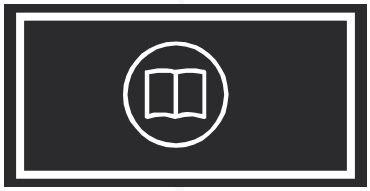
Defective parts can be identified by the car manufacturers leveraging a blockchain based solution. With data present on the blockchain, car manufacturers will be able to prepare for recalls and issue service bulletins for these vehicles. Huge recall costs could be saved. The blockchain solution will also help in tracking the servicing of the recalled vehicles - whether repaired by dealer or not. This data may be used for regulatory reporting to government.

VEHICLE MANAGEMENT AND INCENTIVES

Across the value chain there are a number of blockchain use cases aimed at enabling vehicle management and incentives. The four use cases groups within 'vehicle management and incentives' are described below:

DEALER AND CUSTOMER INCENTIVES

Within the OEMs network, a loyalty network will be there that records dealer and customer purchases and issues loyalty points. These points can be redeemed and used as a currency. Example - A customer has gathered a lump sum amount of point that may buy him some parts without involving any money in the transaction. This way the loyalty points supplements cash. Once the loyalty points are redeemed, the dealer›s account would be updated for participants on the network to view.

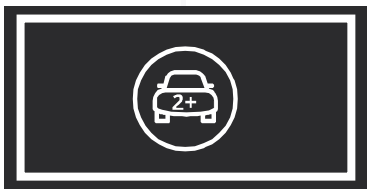


EXTENDED VEHICLE LEDGER

A blockchain based solution that securely stores, updates, traces and shares vehicle data (including telematics) across OEMs and with external parties in real time. The vehicle ledger could include the storage of a car's maintenance and ownership history and would enable OEMs and other authorised parties to view and update the vehicle data to the blockchain.

RIDE-SHARING AND ON-DEMAND MOBILITY SERVICES (MAAS)

Trip will be monetised with the help of a blockchain based solution. This solution records and executes agreements and monetary transactions. A network of connection can be made between smart vehicles, car sharing providers and the end-users in a secure and reliable manner. The network will have data registered directly from the users and car-sharing providors and will be highly secured. Such data could include vehicle location, keys to unlock the car, agreement terms (e.g. cost per mile, insurance details) and user payment information.

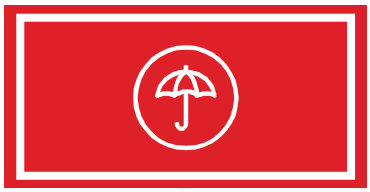


ODOMETER FRAUD

A blockchain based solution that uses an in-car connector to send vehicle mileage data on a regular basis to its 'digital logbook'. Nobody will be able to tamper odometer, and if they do then it can be audited with the help of mileage on a system via a smartphone app. The blockchain will be used by the car owner to log their mileage and at the time of selling their vehicle they will receive a certificate of accuracy that confirms the veracity of their car›s mileage.

FINANCE, PAYMENTS AND INSURANCE

Across the value chain there are a number of blockchain use cases aimed at enabling finance, payments and insurance. The four use cases groups within 'finance, payments and insurance' are described below.

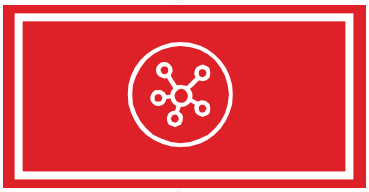


INSURANCE CONTRACTS

Insurance firms will be able to create personalised vehicle insurance contracts. This contract will be created taking into about the actual driving behavior. Using the blockchain technology, the solution will automate the payment of insurance and financial settlement following an insurance claim. The blockchain will store data related to: • Driving behavior events • Safety events (e.g damaged parts, collision). This data will be furthur used to articulate insurance premiums and payments.

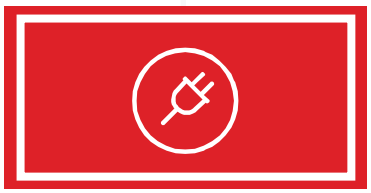
AUTO LEASING AND FINANCE

A blockchain based solution that connects the involved entities when leasing a vehicle to a customer in a secure way, from performing KYC customer checks (e.g. licence and credit check) prior to leasing the vehicle, storage of leasing agreement/contract on the blockchain, through to automated payment once the vehicle has been returned.



CONNECTED SERVICES

All the services that fall under ‹miscellaneous› category will be connected through the blockchain based solution. This will enable the vehicle owners to purchase, say, infotainment services seamlessly based on pre-defined contracts and agreements stored and executed on the blockchain.



ELECTRIC VEHICLE PAYMENTS

A blockchain based solution that manages contracts, billing and payments when an electric vehicle owner charges their vehicle at a charging station owned by a third party or discharges their electricity from their EV to the grid to support the stabilisation of the energy network (e.g. transporting energy from rural areas to cities).

BLOCKCHAIN OPPORTUNITIES

Blockchain's value – based on business benefits

Deloitte Enterprise Value Map is the base that has been used in this report to articulate the value to business of the blockchain opportunities. The criteria include factors that support organisational growth through:

- better operating margins – including factors that support the selling and administrative side as well as cost of goods sold

- expectations – including factors that affect company strengths and perceptions.

- strong revenue growth –including factors that support volume and price

- improved asset efficiency – including the effectiveness of property, plant and equipment as well as inventory

Over 500 strategic and tactical elements are there within the above mentioned Value Map, that can influence these criterias and can grow business.

A score was assigned for each strategic and tactical element. The score was based on whether the use casen would be relevant or whether an inherent problem in the industry can be solved. There were some considerations given, of which one was to determine whether or not the blockchain use case would be the most appropriate solution.

The resultant range of values for the blockchain use cases is shown in Figure below. A higher position represents a higher value.

Assessing blockchain's complexity

blockchain use cases is shown in Figure below. A higher position represents a higher value.

The complexity criteria are based on the level of business change required, unique participants and active participants (volume), the number of services and whether the use case has been tested before.

The potential range for complexity or ease of implementation of the blockchain use cases is shown in Figure. A position further to the right represents a more complex implementation and adoption process.

Strategic choices will affect the attractiveness of use cases

Depending on the aims and objectives of the business, there are four segmented of impact - Deloitte analysis:

BLOCKCHAIN OPPORTUNITIES

1. Trial Projects

Compared to other complex opportunities, these opportunities are more attractive and less complex. However, due to narrow focus of the blockchain application, the immediate value is lower.These include blockchain opportunities relating to odometer fraud, electric vehicle payments and dealer and customer incentives.

2. Investigate

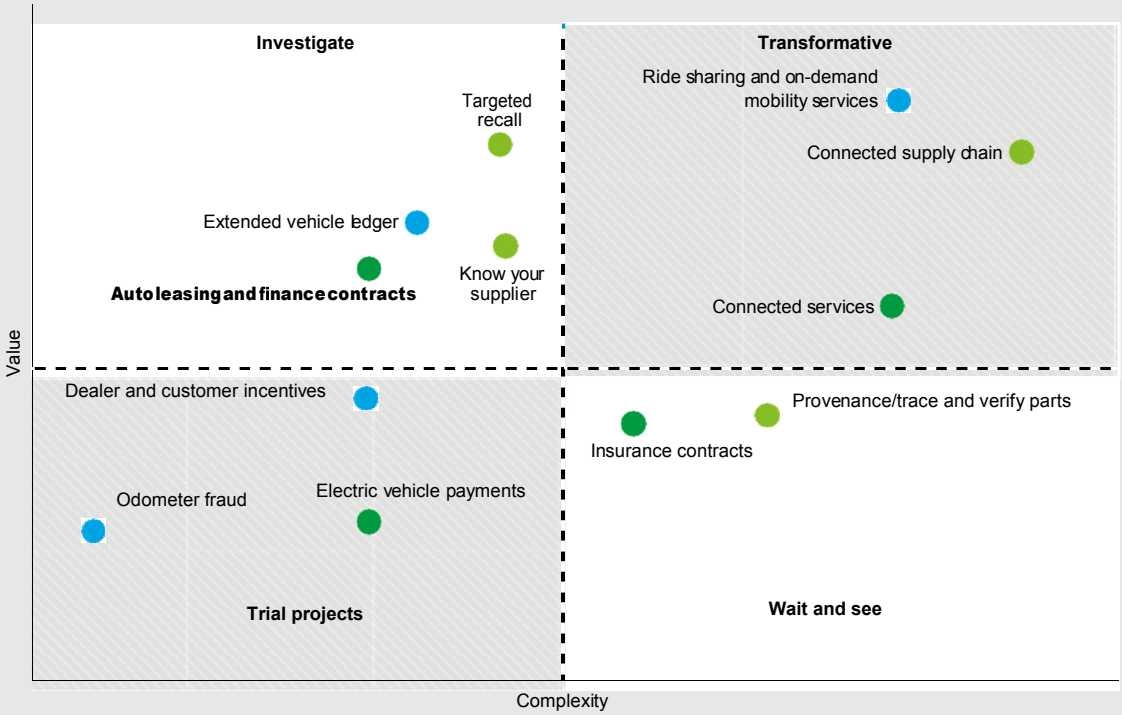
These blockchains opportunities include targeted recall, extended vehicle ledger, know your supplier and auto leasing and finance contracts.

3. Wait and see

These include blockchain opportunities relating to insurance contracts and provenance/trace and verify parts.

4. Transformative

These opportunities are the most attractive in terms of the value they offer. These include blockchain opportunities relating to connected services, connected supply chain and ride sharing and on- demand mobility services.



Key (Use case purpose)

Verification and process improvements Vehicle management and incentives Finance, insurance and payments

Source: Deloitte analysis

TEAM AT BLACKCHAIN

Giacomo Arcaro
Co-Founder & Growth Hacker

He has 15 years' experience in growth hacking, digital strategy, startup and business development. He has advised over 150 startups and has 50 managed employees into a XII Century Church in Italy for the European biggest growth hacking company. He holds the title of 'Amazon Best Seller Author' and is been known to be one of the 'Most Influencial Blockchain Evangelist' with +200 conferences all over the world.

Giovanni Casagrande
Co-Founder & ICO/IEO/STO Advisor

A known name in the world of cryptocurrency. He has been in the marketing industry for well over 20 years and have switched to the cryptocurrency industry in 2014. He's a writer, public speaker, investor and Marketing / Growth Hacking advisor in more than 100 successfully projects. His specialty was Economics in the University of Bologna and the knowledge, experience gathered from there has helped him to manage/help many businesses in the industry. 4 years ago he founded Black Marketing Guru, a successfully Growth Hacking startup in Italy.

Eloisa Marchesoni
Token Architect

Known as the youngest and most influential Blockchain expert in the field. She is an Italian-American who first started out as a startupper in the AI and IT business, while still finishing her Economics and Management studies in Bocconi. Eloisa is a renowned author, public speaker, and biz-dev, catering startups and companies wanting to innovate. Currently being the Chapter Director of Bocconi University Startup Grind Chapter, she made valuable connections and became a part of some of the main blockchain associations around the world, namely The Blockchain Council and The NYC Women in Blockchain. She will be featured in the Forbes Italy 30 Under 30 most influential entrepreneurs in 2020.