

# Use case of blockchain technology

## Car Maintenance Book



**Julien Jimenez,**  
*Security & blockchain Expert*

**The blockchain technology enables a group of users with a common goal to create an authenticated and accountable distributed chronological tracking system (through use of a ledger) of transactions or events. The functioning of the blockchain is guaranteed without the intervention of a central authority or central maintenance, but thanks to a self-managed peer-to-peer network of application nodes. The transactions are validated by these participants throughout a calculation process. The security relies on mechanisms based on cryptography. Moreover, the duplication of the ledger on each computer of the network makes it extremely difficult to falsify or remove a record.**

Initially set up in 2008 to support digital payments in Bitcoin, the blockchain presents interesting features for many other situations. Indeed, as all transactions are registered in the same ledger, it is possible to track the different owners of a product or to track events related to an item to collect its "genealogy".

With its key assets of unquestionable authentication and accountability, this innovation will bring many benefits, such as infrastructure reduction costs and quick settlement of transactions. Nevertheless, this technology is still young and users lack experience to identify and prevent potential risks. And if payment was among the first use case, the blockchain can now be used every day in a broader scope. As the first steps at Worldline, we have applied this technology to already existing processes. Here is a use case of blockchain technology in the automotive environment, offering a safe and forgery-proof car maintenance book.

### What is the Car Maintenance Book?

Nowadays, car owners no longer trust garages, or perhaps only trust their usual garage. In fact, many customers have had to face unpleasant surprises: invoicing of unnecessary services, costs exceeding the estimate without the customer's prior agreement, repairs invoiced but not carried out. The purchase of a second-hand car also provokes the same mistrust: the buyer doesn't know if the maintenance and repairs described by the seller have really taken place...

Starting from this observation, we have designed a way to re-establish this trust, based on the blockchain emerging technology dubbed the "Trust Machine" by the Economist. The principle of the Car Maintenance Book is to apply the blockchain technology to a vehicle log book.

The Car Maintenance Book will allow a climate of trust to be re-established, and improve relations between the various participants in the automotive sector and individuals.

### What is innovative about this solution?

Specifically it consists of a digital version of the vehicle log book, made up of a mobile app and a service provided by professionals, allowing the operations they carry out on the vehicles of their customers to be registered and certified.

However, there are already mobile apps that fulfil the same function as a digital log book, but with a third party that has full control over the data; the innovative part of our concept lies essentially in the technology used: the blockchain. It allows all the operations carried out on a vehicle to be tracked, and once they have been recorded, all modifications can be prevented, either by the garage or by the owners themselves.

The Car Maintenance Book uses a different blockchain from Bitcoin, which offers more possibilities for future developments of the solution. This blockchain fosters the development of new value-added services and brings opportunities for enterprises to enhance customer relationship and brand intimacy.

### What are the advantages of blockchain technology for car maintenance?

Car maintenance can involve various participants with prior certification, such as the manufacturer, spare part vendors, independent garages, repair centres and individuals. The blockchain architecture is a distributed architecture similar to the "peer-to-peer" file exchange systems. It allows each participant to operate independently, storing their own copy of the blockchain, without the constraint of a central system operated by a single participant.

In the blockchain, each record generates an operational cost. However, the shared infrastructure and the associated costs automatically redistributed among participants allow various participants to interact in the blockchain, with no competitive barrier to entry.

# Car Maintenance Book

## What are the advantages for consumers?

For the vehicle owner, the first advantage is taking control of their personal data. In fact, the Car Maintenance Book allows all the vehicle data to be returned to the owners. The owners have a cryptographic key that only they can use, which unlocks access to the vehicle data. If they like, they can give access to (or even sell) part of their data to an insurance company for a customised quote, or to a future buyer if they resell their vehicle.

When reselling a second-hand vehicle, there are various types of fraud: under-estimating the vehicle mileage or "forgetting" to declare a serious accident to the car. The recording of maintenance operations in a blockchain prevents any subsequent modifications and this guarantees the vehicle history. This is a form of insurance for the buyer, to have information certified by all the people who have worked on the vehicle. It's also a guarantee for the seller that they can resell their vehicle at a fair price.

## And the advantages for the other participants in the value chain?

Generally, the Car Maintenance Book helps in the fight against fraud. This system guarantees the transparency of information on the vehicle status, and also ensures prevention of counterfeiting of spare parts, by tracking all the parts used for repairs. The entire sector therefore benefits from better customer relations and a significantly more professional image.

Developing and storing the blockchain on which the Car Maintenance Book is based means the manufacturer can access their customers' data, whichever garage they use, and considerably improve customer relations.

## How could the usage of the Car Maintenance Book be extended?

The Car Maintenance Book could eventually allow several users to share the same car and to register the number of times the car is used by each user, and for how long. The history of car user data and the conduct analysis will make it possible to customise insurance contracts on a "pay as you drive" basis.

## What are the assets of Worldline on this point?

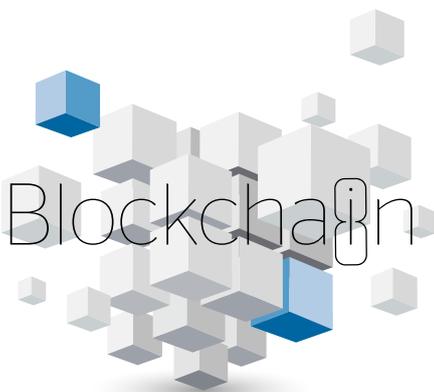
Worldline is a key player in the development of services linked to connected objects, particularly in the automotive sector, with connected vehicle projects for Renault, Michelin Solutions and a lorry manufacturer, as well as in the domain of connected domestic appliances with BSH and Gorenje. The Maintenance Book could easily be applied to any connected object.

Worldline has taken an interest in blockchain technology since its launch in 2013, with the work done on the acceptance of bitcoin for making Internet purchases or on Worldline POS Terminal. In 2015 and 2016, Worldline developed other demonstrations using blockchain technology to manage financial assets such as company bonds or lists of lost or stolen cards. A project with start-ups (Paymium, Ledger) and university laboratories (INSA, ENSICAEN) was also launched in order to find a reliable, trackable identity management solution using blockchain.

## About Worldline

Worldline [Euronext: WLN] is the European leader in the payments and transactional services industry. Worldline delivers new-generation services, enabling its customers to offer smooth and innovative solutions to the end consumer. Key actor for B2B2C industries, with over 40 years of experience, Worldline supports and contributes to the success of all businesses and administrative services in a perpetually evolving market. Worldline offers a unique and flexible business model built around a global and growing portfolio, thus enabling end-to-end support. Worldline activities are organized around three axes: Merchant Services & Terminals, Mobility & e-Transactional Services, Financial Processing & Software Licensing. Worldline employs more than 7,300 people worldwide and generated 1.22 billion euros revenues in 2015. Worldline is an Atos company.

For further information  
[infoWL@worldline.com](mailto:infoWL@worldline.com)



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