

IT TECH OFFICE SINGAPORE.



IT Tech Office Singapore



Rolls-Royce
Motor Cars Limited

IT TECH OFFICE SINGAPORE – MISSION.



IT INNOVATION OFFICE
SINGAPORE

As part of the BMW Group IT Innovation Network, our mission is to evaluate early-stage technologies, gather insights and transfer the key outcomes to business solutions. We achieve this by developing agile projects together with local start-ups, universities and other corporate innovation hubs.

BLOCKCHAIN

- Singapore consistently ranked top city for blockchain development.
- Initially focused in FinTech, the ecosystem is moving towards other industries and use cases.
- Active Sstartup scene.

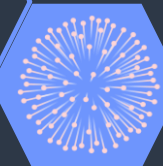


FOCUS AREAS



CYBERSECURITY

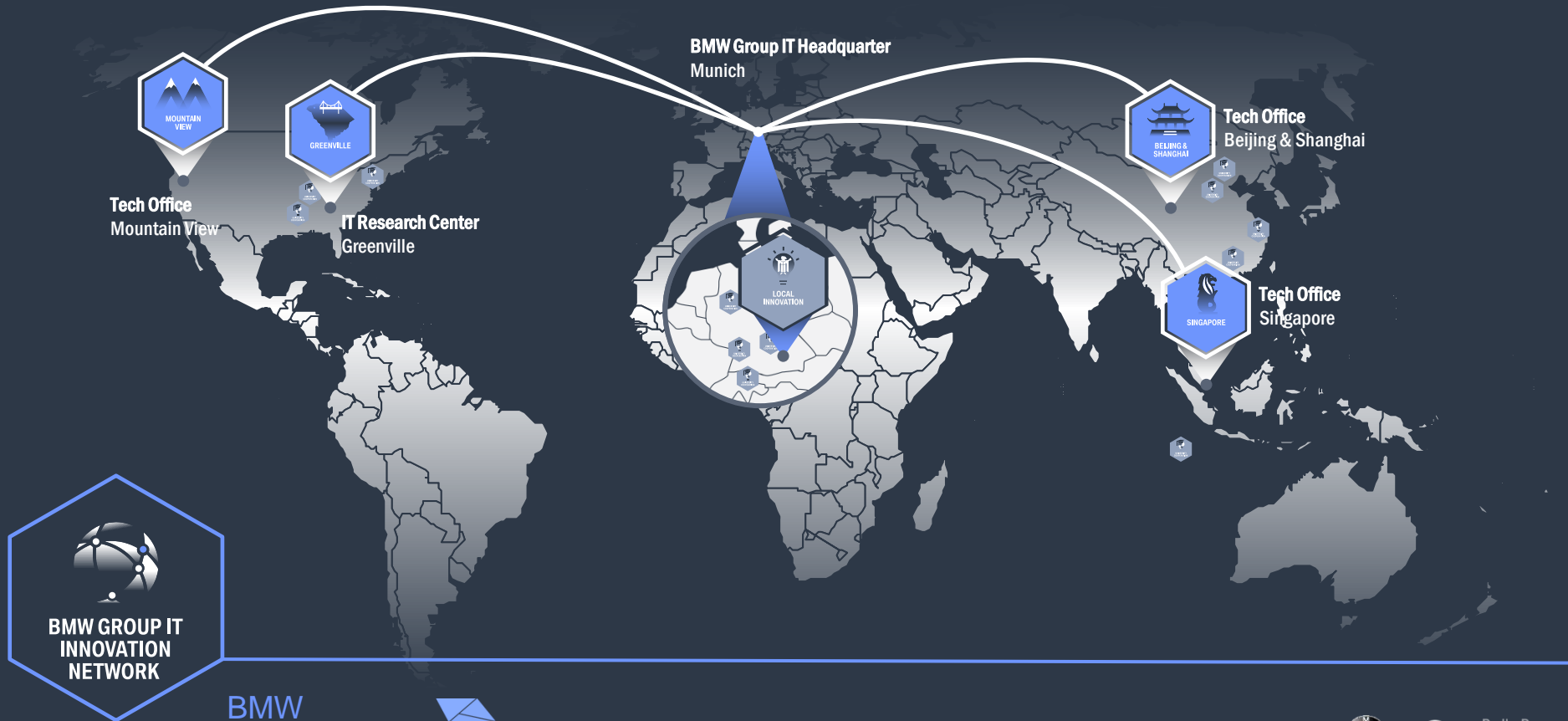
- Close cooperation with BMW Regional Security Team.
- Singapore is ranked amongst the most cyber-secure nations, but further progress still underway.



SMART CITY

- New 2019 strategic topic for IT Tech Office Singapore.
- Strong government commitment to transform Singapore into a Smart Nation through several initiatives.
- Great opportunities to leverage the ecosystem built in Singapore in connection with BMW initiatives.

BMW GROUP IT INNOVATION NETWORK.



BMW GROUP IT
INNOVATION
NETWORK

BMW
GROUP THE NEXT
100 YEARS



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IT INNOVATION PROCESS.



Ideation.

- Problem statement definition
- Value Proposition
- Scout for potential solution partner



Prototype.

- Technical feasibility study on selected user stories to proof the technology
- Business case & Roadmap



Pilot.

- Build solution with full solution stack to accommodate selected user stories
- Conduct field test to validate the proposition



Project.

- Enhance pilot solution based on results
- Add functionality



Production.

- Continuous Improvement
- Experience enhancements through iterative user feedback



IT Innovation

BLOCKCHAIN IN AUTOMOTIVE AND AVIATION INDUSTRY

SHARED CHALLENGES

AUTOMOTIVE INDUSTRY



Vehicle lifecycle management



Carsharing & mobility services.



Carbon economy environment incentives



Critical part tracking in supply chain.



Repair service history of vehicles/aircrafts.



Enhanced customer loyalty schemes.



Alternative (crypto)-payment methods.

AVIATION INDUSTRY



Border/customs clearance solutions.



Customer ID verification & sharing.



Inter-airline fare settlement systems.

BLOCKCHAIN USE CASES ALONG THE VALUECHAIN

- Electronic Car Wallet
- Over-the-air Secure Software-Update
- Parts tracking

- Internet-of-Things
- **3D Printed Parts**

- Pay-How-You-Drive Insurance
- **Verifcar for Used Car**
- Registry Entry for vehicles
- Smart Charging
- **P2P Car Sharing**
- Mobility Coin / Payment Services
- Self-Owning Vehicle



- Asset Accounting
- Risk Management
- **Identity and Access Management**
- Component- / resource tracking
- Immutable Data Backup

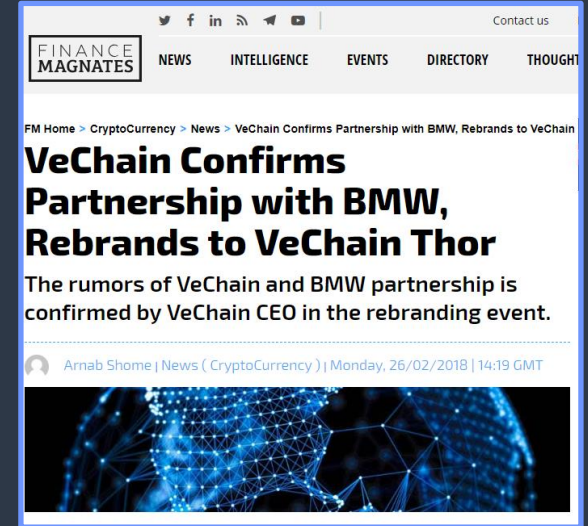
- Verifying of Original Accessories
- **Trace-and-Track of Shippings**
- Vehicle registration transfer
- Targeted Recalls
- **Loyalty**

VERIFYCAR.

VEHICLE DIGITAL PASSPORT ON THE BLOCKCHAIN.



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Odometer fraud is widespread and has a negative impact on trust



33% of second hand cars sold in Germany have manipulated odometer data.



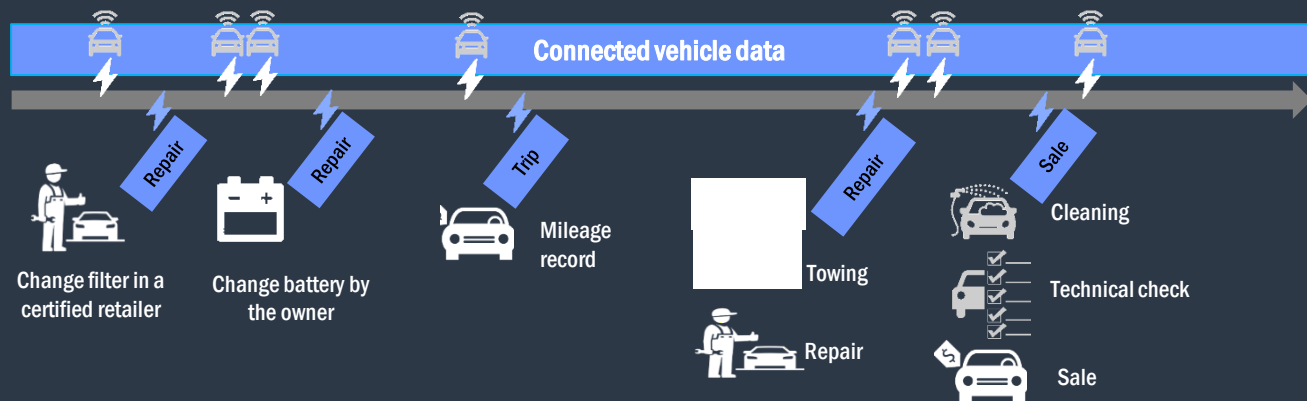
The estimated average economical impact of this practice adds up to 3,000 EUR per car resulting in a total damage of around 6 billion EUR yearly.



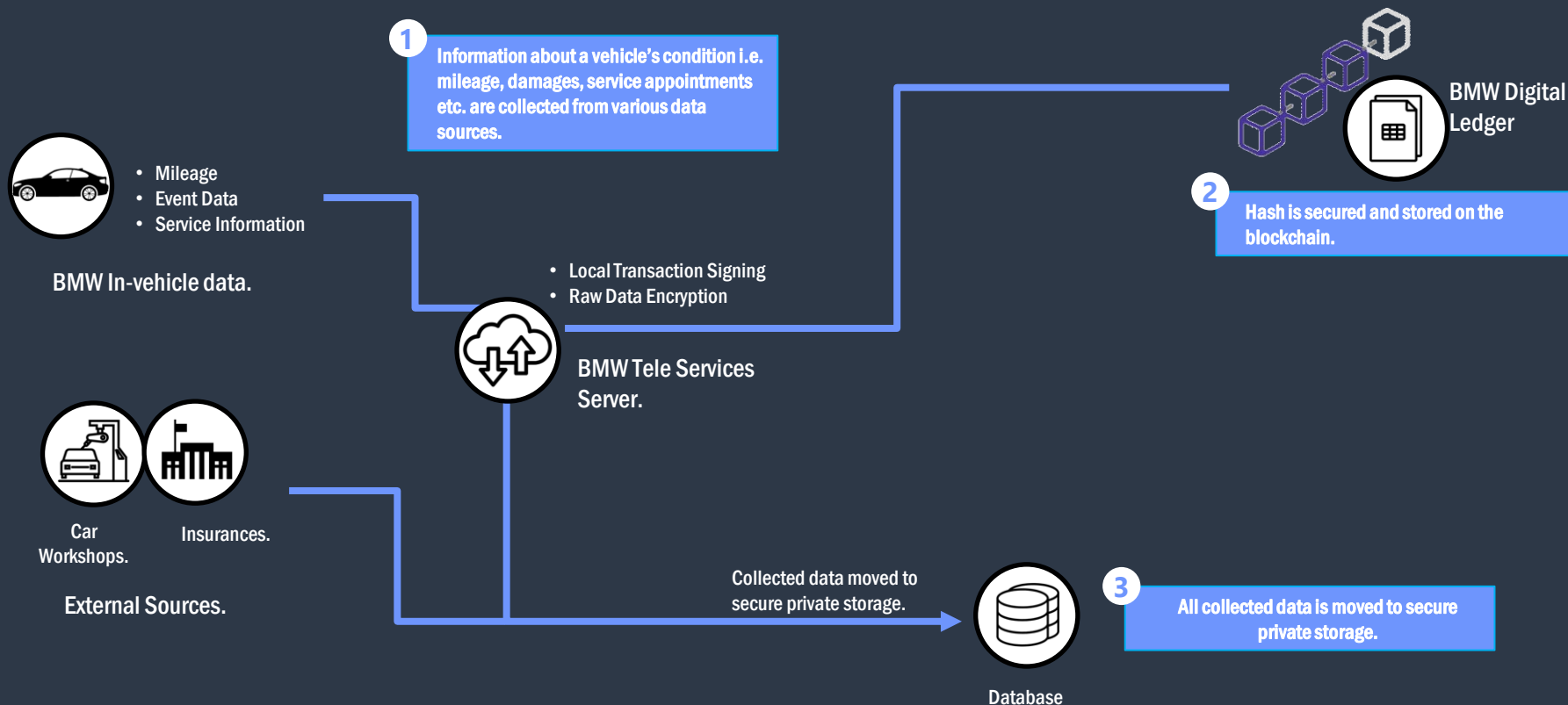
BMW's card dealerships are not able to identify all cases of odometer fraud, many times passing down the problem to second hand buyers.

HOW IT WORKS – STORING & SECURING THE DATA.

- Created a digital maintenance book and verified mileage record for each vehicle on the blockchain
- Information uploaded by related parties instead of the car owner, and it is timestamped and secured by the blockchain
- Car owners control the read / write access rights to the digital passport
- Data collected can be shared with potential buyers, insurance , etc. When the vehicle is sold, it can be transferred to the new owners
- Ownership of the vehicle is safely stored on the Blockchain

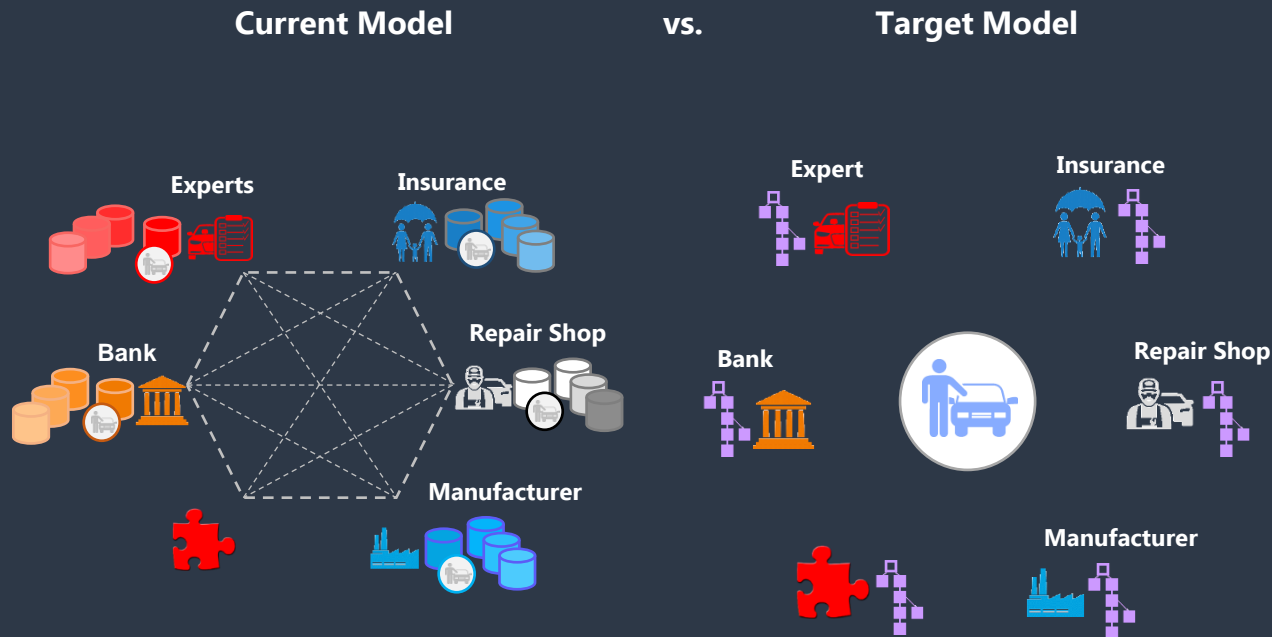


VERIFYCAR - HOW IT WORKS.



VERIFYCAR – VEHICLE DIGITAL PASSPORT ON THE BLOCKCHAIN.

- Since the digital maintenance book can provide trusted data, it can reduce the due diligence effort by a potential buyer, an insurance company, a bank, etc.
- The digital passport can increase the value of second-hand vehicles and the ownership can be transferred
- The brand and car owner can receive rewards for providing services or data



BMW X DHL KEYCHAIN.

INTRODUCING THE BLOCKCHAIN TO AFTERSALES LOGISTICS



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BMWxDHL KEYCHAIN – PROJECT OVERVIEW.

NTT data





