CHAINYARD

Digital Transformation in Road Transportation

Developed a blockchain solution that helped a roads and transport authority to ensure compliance, security, and enhance customer experience

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CONTEXT

CLIENT

- A roads and transport authority of a country in the Middle East
- Responsible for developing integrated and sustainable roads & transportation systems
- Provides legislation and strategic plans of transportation in the city

KEY DRIVER

- Ensure regulatory compliance and security besides improving customer trust in vehicle rentals

CHALLENGES

- Legacy system used earlier by the police department causing delays in reporting rental activities data to the rest of national security authorities
- Multiple systems operating in silos being used to capture data resulting in duplication and potential of incorrect or missing information
- Older technologies & design making it difficult to re-engineer

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SOLUTION – KEY COMPONENTS

A DECENTRALIZED REPOSITORY FOR ALL RENTAL ACTIVITIES ACROSS REGION

INTEGRATION & INTERFACE

- Integration with rental agencies, police, insurance, toll road system, foreign affair systems, and identity system
- Interface through API, web, mobile application, and kiosk

BLOCKCHAIN & SMART CONTRACTS

- Decentralized data store ensuring single source of truth
- Effective data validation
- End-to-end transaction traceability
- Smart contract between rental agencies and users

PORTAL & ANALYTICS

- Comprehensive data reporting
- Fast & accurate elastic search
- Advanced analytics including driver behavior
- Performance monitoring

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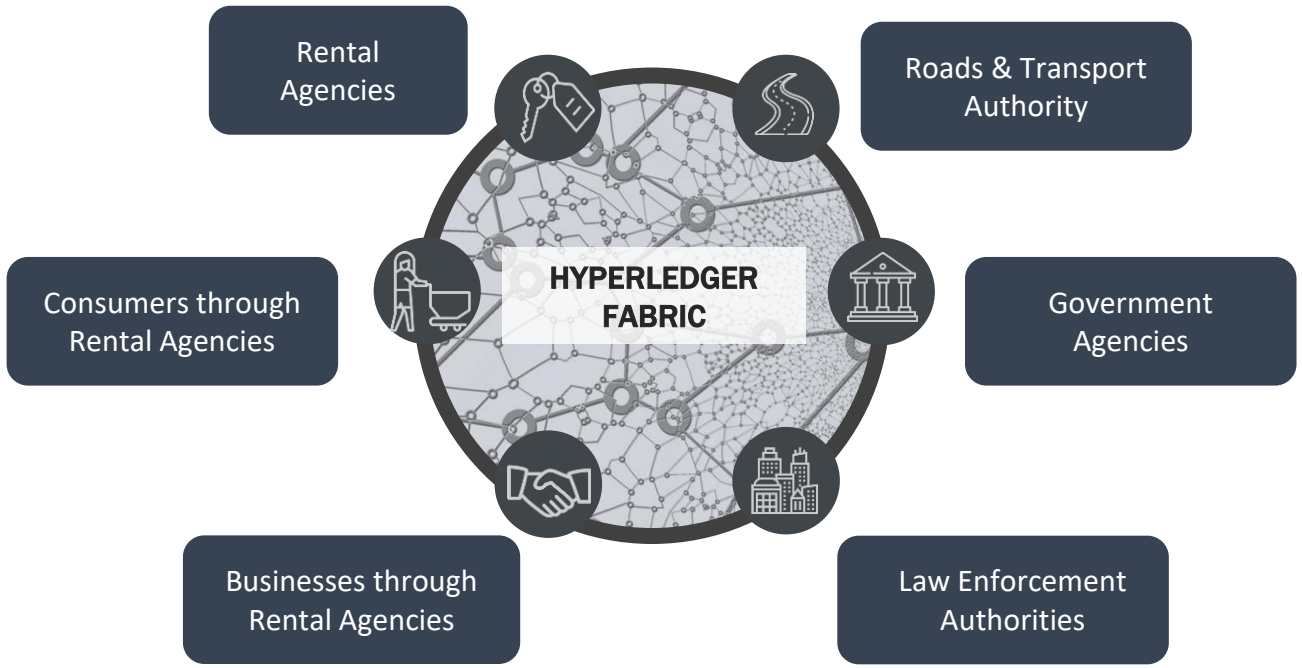
SOLUTION – PARTICIPANTS & KEY TECHNOLOGIES

Decentralized rental activity information store connecting all required entities using blockchain technology



KEY TOOLS & TECHNOLOGIES

Smart Contracts Go Lang	**Micro-Services, APIs** NodeJS
Blockchain IBM Blockchain Platform (IBP), Hyperledger Fabric	**Cloud (On-Premise)** Red Hat OpenShift Container Platform
Data Store PostgreSQL	**Testing & DevOps** jMeter, Jenkins

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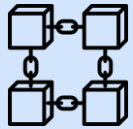
SOLUTION – OUR KEY CONTRIBUTION

OVERALL ARCHITECTURE & SYSTEM DESIGN

Played a key role in defining a highly scalable enterprise blockchain solution architecture, running on OpenShift Container platform, based on microservices and API first approach.

BLOCKCHAIN SOLUTION DESIGN & DEVELOPMENT



Handled blockchain & smart contracts solution design, development, network configuration and deployment.

SMART CONTRACT RULES DEVELOPMENT

Translated the business rules into smart contracts for rental and borrow-vehicles contracts management. Ensured integrity of all vehicle contract life cycles including payments, charges and fines.

QA AUTOMATION AND DEVOPS MANAGEMENT

Delivered 100% automated test coverage for the APIs. Designed the DevOps – CICD strategy and developed the automation pipelines.

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RESULTS – KEY BENEFITS

IMPROVED REVENUE COLLECTION

By storing & tracking end-to-end rental activity transactions in a timely manner with higher accuracy across all agencies

ENABLED & EMPOWERED AGENCIES

By providing APIs for integration, automated submission of rental information, analytics, and dashboard functions on UI

IMPROVED CUSTOMER TRUST

By ensuring higher security and trust through continuous governance, monitoring, and enforcement of regulatory compliance for rental agency operations

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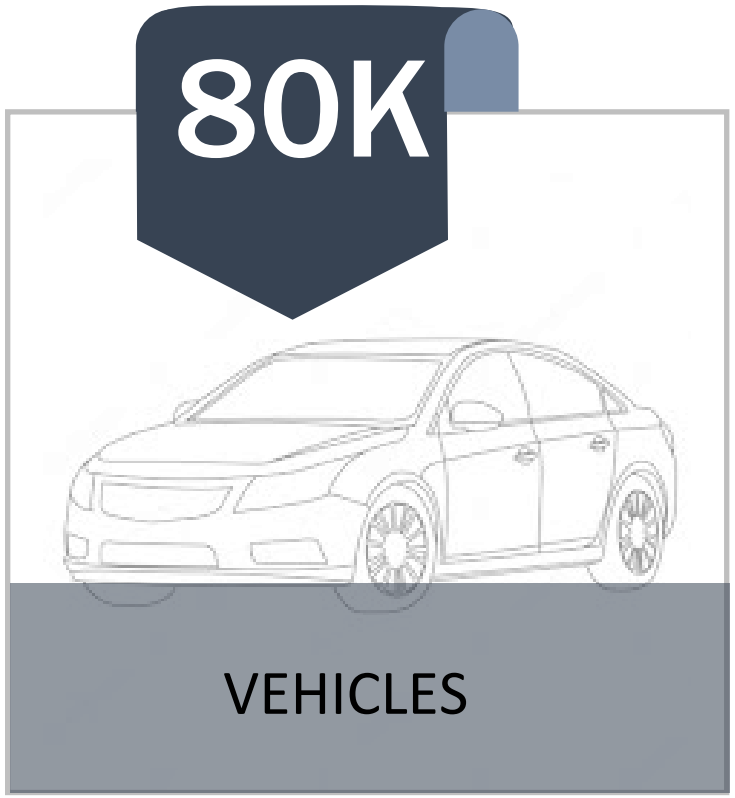
ANNUAL RENTAL USAGE PROJECTIONS (2021-22)



Note: *Data is indicative and are projections made for 2021/22*

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Customer Success Briefs

THANK YOU

Digital Customer Experience.

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