CARCONNECTIVITY consortium®

Digital Key “Release 2”

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CAR CONNECTIVITY CONSORTIUM OVERVIEW

Global consortium, bringing car, handset and head-unit industries together	• Established in February, 2011.
Objective is to develop smartphone-based connected-car solutions	• Membership open to any interested company. • Solutions are platform agnostic and not owned/governed by a single member. • Runs certification programs to ensure compatibility.
CCC Work Items	• MirrorLink® (established). • Digital Car Key (established). • Car Data Market Place (new).

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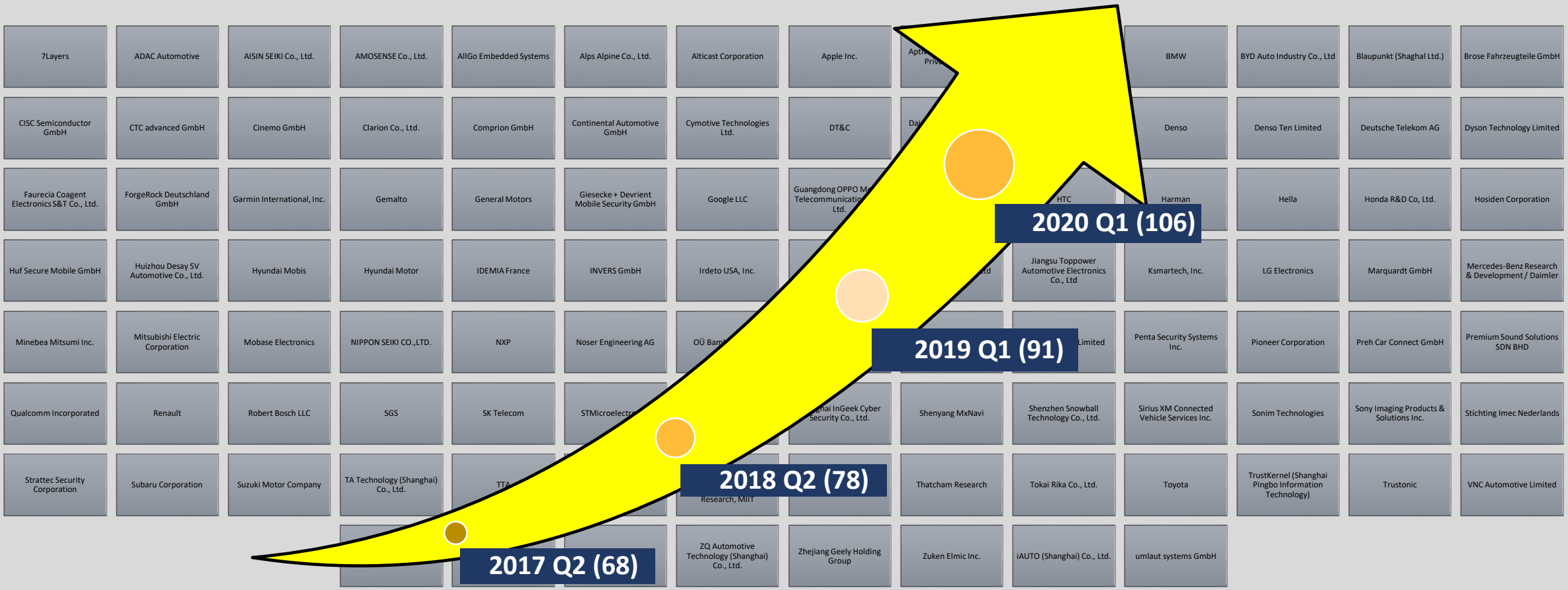
MEMBERSHIP DEVELOPMENT



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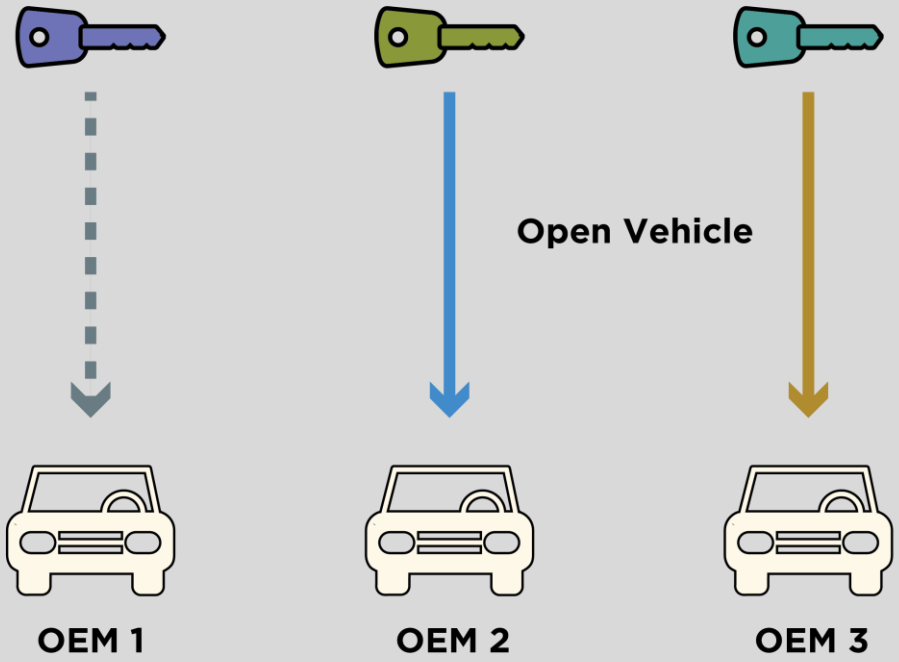
DIGITAL KEY – VEHICLE ACCESS TODAY

Industry is segregated

- Each Vehicle OEM uses proprietary key fobs & technology.
- No scale / parallel development without technology differentiation.
- Similar user story on all vehicles and devices.
- High security.



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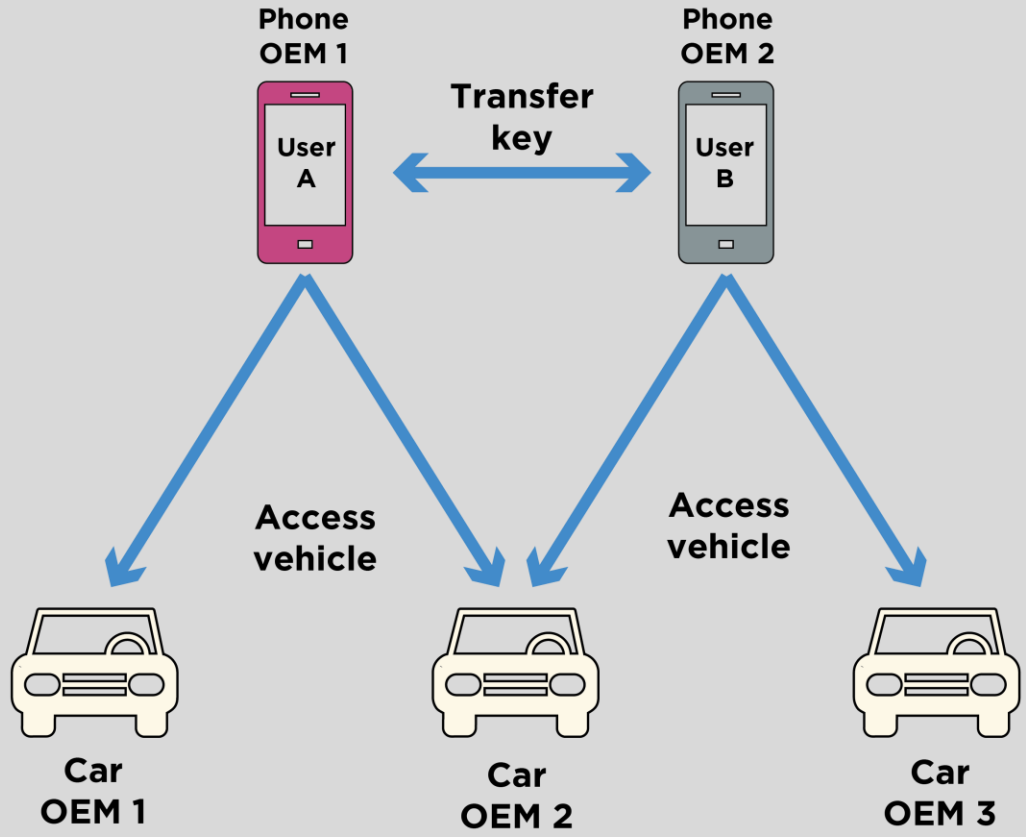
DIGITAL KEY – VEHICLE ACCESS TOMORROW

The future of vehicle access

- Digital keys are transferrable between phones.
- Intuitive: Easy overview over installed digital keys.
- Same user story on all vehicles and devices.
- High security.



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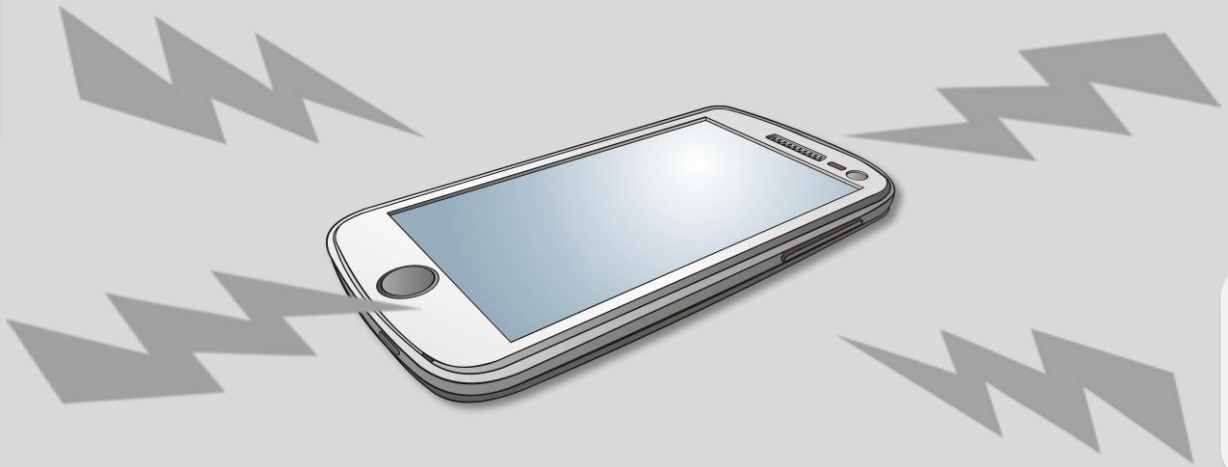
DIGITAL KEY - SECURITY AND PRIVACY CONCEPT

High customer awareness:
Current customer feedback: “Key in Smart phone – this cannot be secure”

Malware on Device
Use Secure Elements for all security relevant functions

Attack Credentials
Use Secure Element for storage of credentials



RF Relay
Distance bounding with NFC

Software Relay
Direct binding between SE and NFC

**Standardization target:
Highest achievable security**

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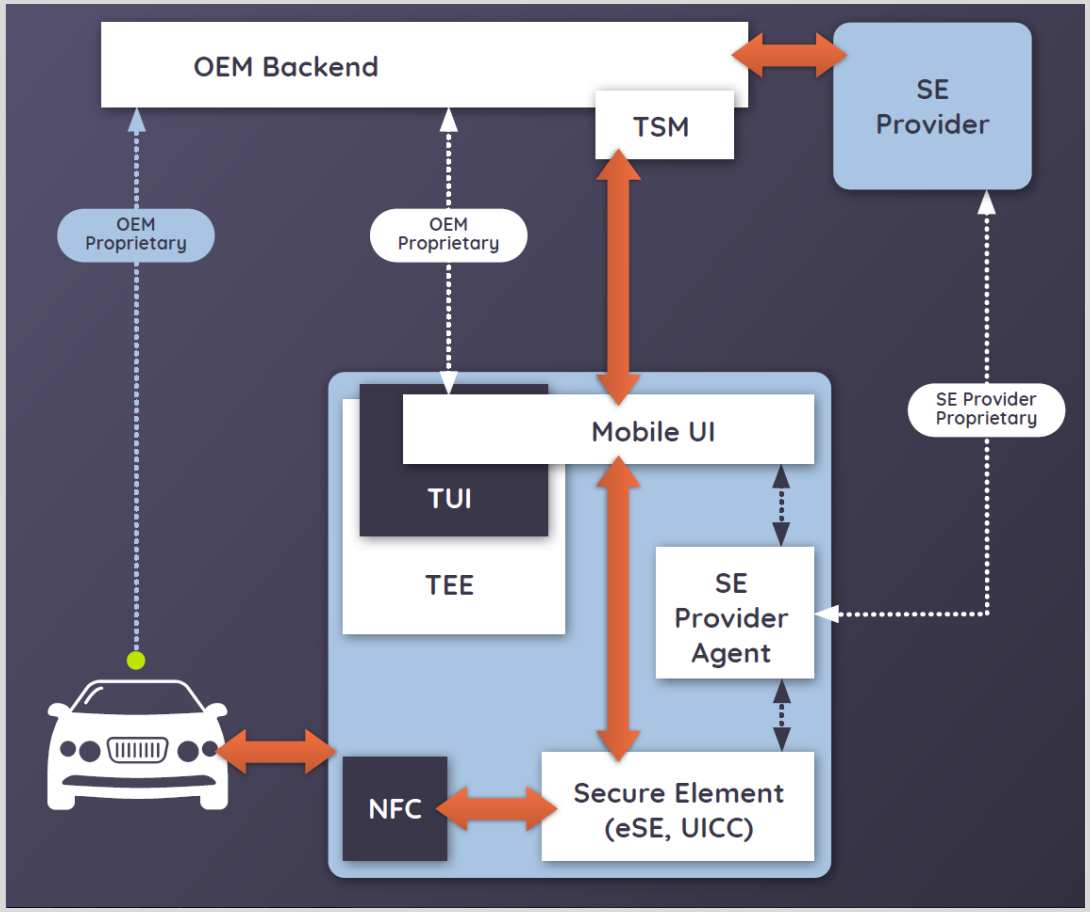
DIGITAL KEY RELEASE 1



Standardized approach to provision an applet to the Device. Main entities:

- **TSM (Trusted Service Manager):** Enables service providers (OEMs) to distribute and manage their contactless applications remotely by allowing access to the (embedded) secure element in smart devices.
- **Mobile UI:** Interface between OEM/TSM and smart device. This is also known as OEM application.
- **Secure Element:** Secure storage on smart device. It can be in the form of embedded Secure Element or UICC Secure Element.
- **SE Provider:** The owner of the SE which provides SE access to a TSM.
- **Vehicle OEM Backend:** Provisioning of digital key to the Secure Element using a vehicle OEM proprietary protocol.
- **Applet:** Vehicle OEM proprietary applet, securely provisioned to the SE. The applet implements a vehicle OEM proprietary protocol between vehicle and applet.

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DIGITAL KEY RELEASE 2

Overview

- Release planned for Q2 2020.
- Has created high industry attention – strong increase in membership numbers.
- Brings new features and use cases to the digital key ecosystem that were not included in Release 1.
- Standardized digital key applet.
- Standardized vehicle access protocol.
- Scalable architecture to support wide-scale deployment of the digital key services across different vehicle OEMs and device OEMs.
- Release 2 is not backward compatible with Release 1. Both releases can be deployed independently.

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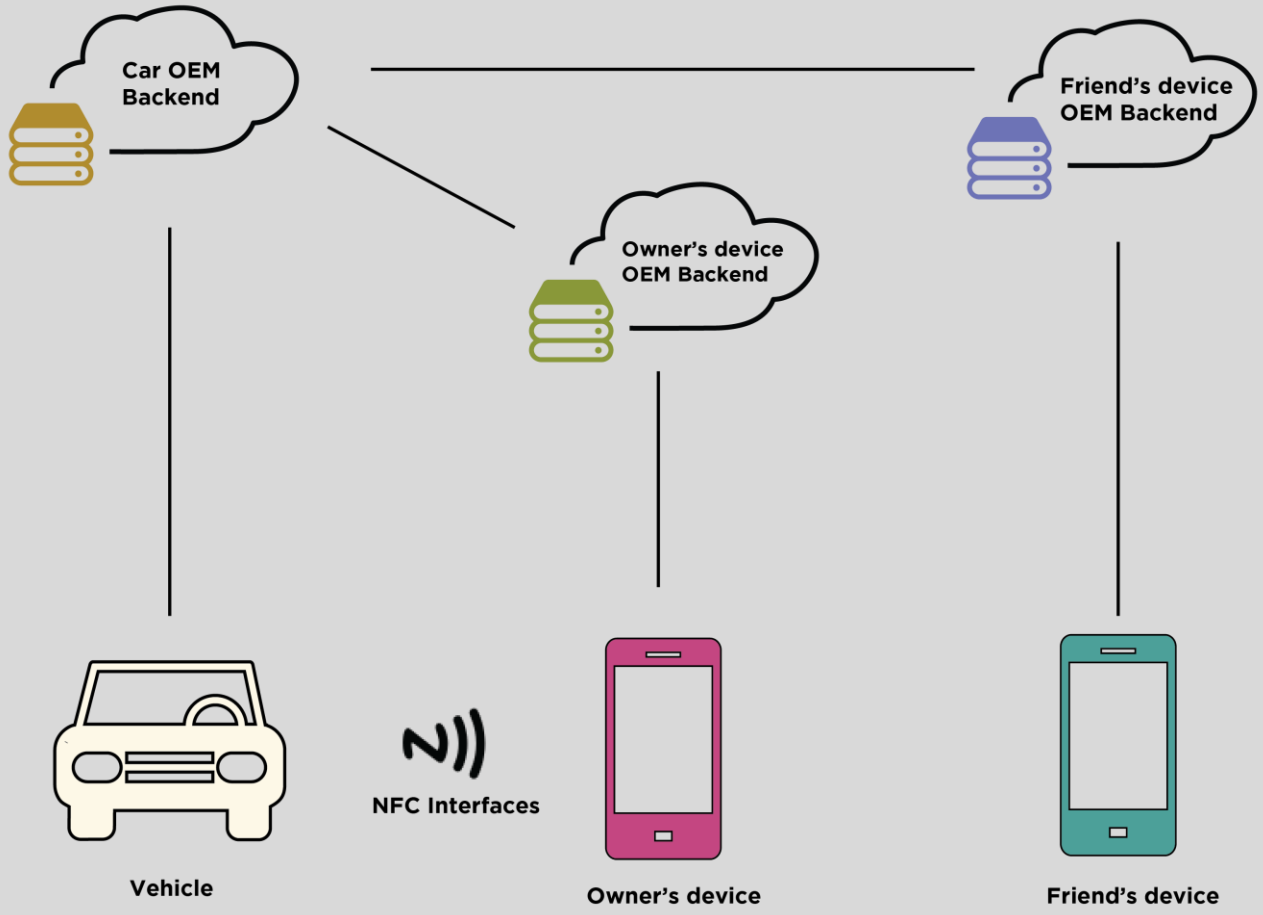
DIGITAL KEY RELEASE 2

Standardized Interfaces:

- Interface Vehicle – Smart Device.
- Interface Vehicle OEM Backend – Device OEM Backend.

Standardized Use Cases

- Unlock the Vehicle.
- Lock the Vehicle.
- Start the Engine.
- Digital Key Provisioning / Owner Pairing.
- Digital Key Revocation.
- Friend Key Sharing.
- Digital Key Entitlements – Restricting (shared) key usage.
- Tracking of issued Digital Keys for insurance purpose.



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DIGITAL KEY RELEASE 3 OUTLOOK

Accomodate additional use cases:

- Passive entry / passive start use cases.
- Remote keyless entry use cases.
- Car sharing / car rental.

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DIGITAL KEY ECOSYSTEM SUMMARY

Security

- High security to enable the application to vehicles.

Scalability

- Scalable to be the dominant vehicle access technology.

Market adoption

- High involvement from Vehicle and Smart phone industry.

Ecosystem

- Certification to ensure compliance with functional and security requirements.

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THANK YOU!

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