

# Smartphone based student cards

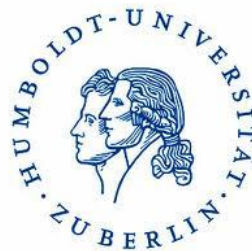
The Berlin Solution

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# An Alliance of Universities



# The past, present and future



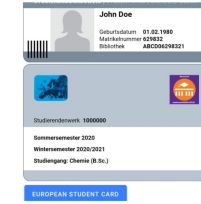
Past

- Until 2015
- Paper based IDs



Present

- From 2015
- Smartcard based IDs



Future

- From 2022
- Smartphone-based IDs

# The largest System in Europe



# 9 Universities – 1 Card – Many Functions



## Electronic Payment System

- Usable at all canteens of the Berlin Studierendenwerk
- Usable for paying for printing services, late fees at libraries



## Library Integration

- Usable for all library functions with RFID or Barcode
- Alliance-wide compatibility (register once – use all)



## Transport Ticket

- Optical ticket with TRW Technology
- Electronic Ticket from 2022

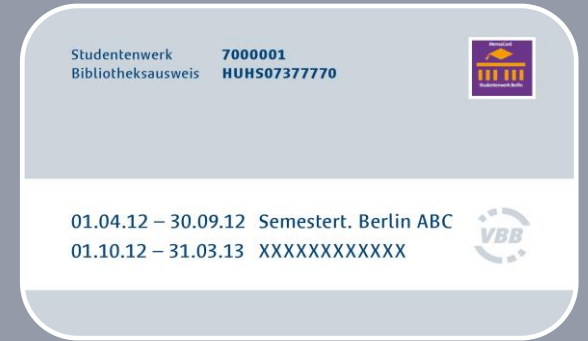
# The current process



QR-code – received  
(electronic or postal  
delivery)



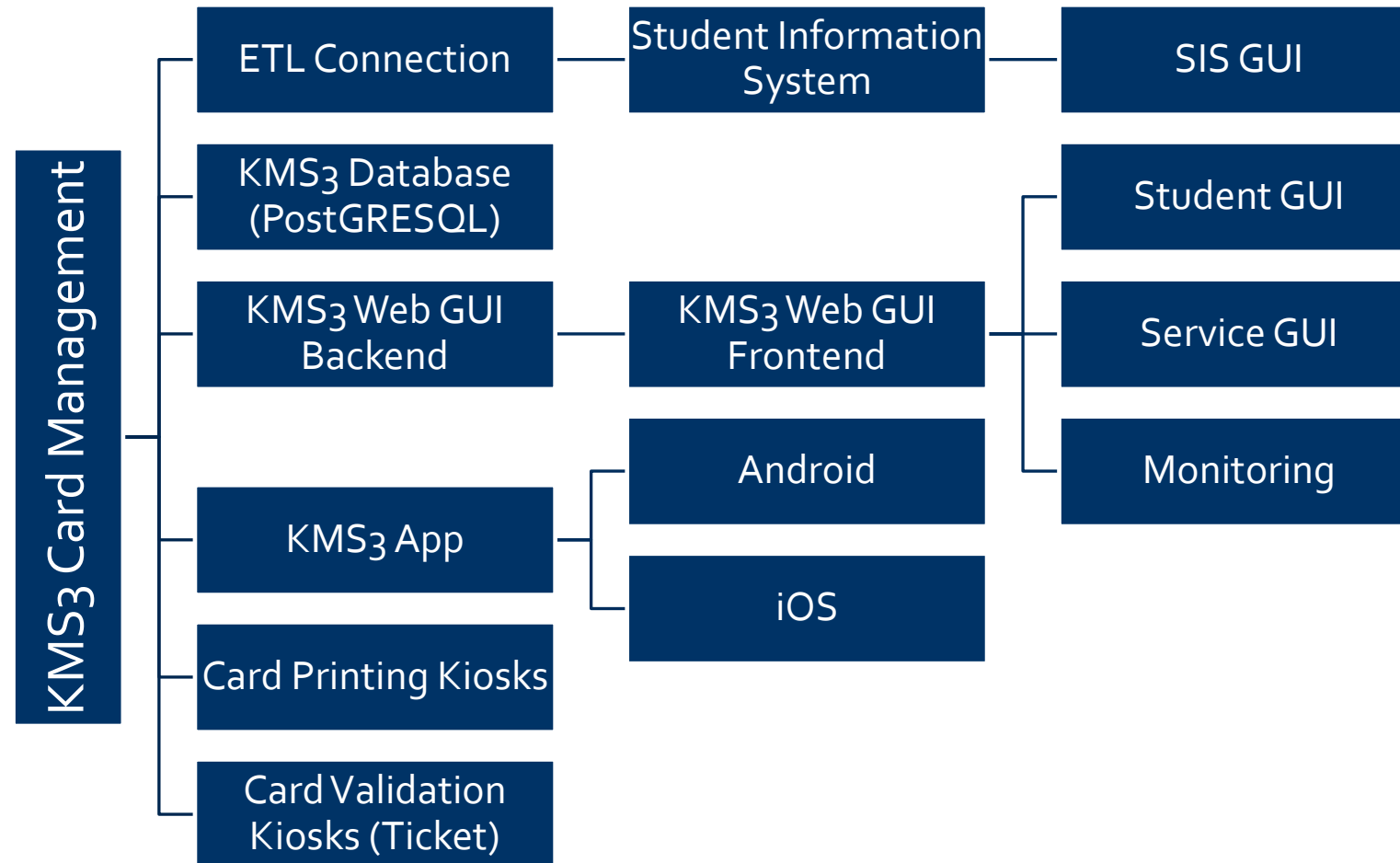
Card - received  
Through the terminal  
(30 terminals in Berlin)



Card - validated  
Through TRW kiosk  
(45 kiosks in Berlin)



# Under the hood



# The Campuscard eCard App

- Middle term replacement of the physical cards
- Both Android and IOS
- Full feature compatibility
- New features optimized for the eCard



# Device Compatibility



iOS 12 or newer  
iPhone 6 or newer

- From 2014



Android 6 or newer  
with integrated NFC

- From ca. 2015

# Features

## Phase 1

- Information and authentication
- Full European Student Card Integration
- MyAcademicID Integration -> Demo Today



## Phase 2

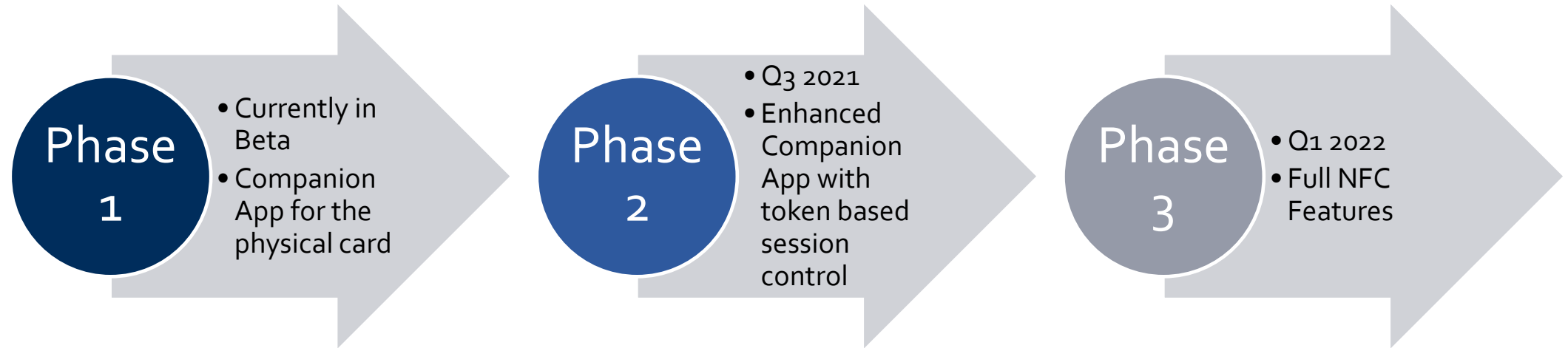
- Token based session control
- Additional features which require Write Access (Terminate card, Order replacement card)



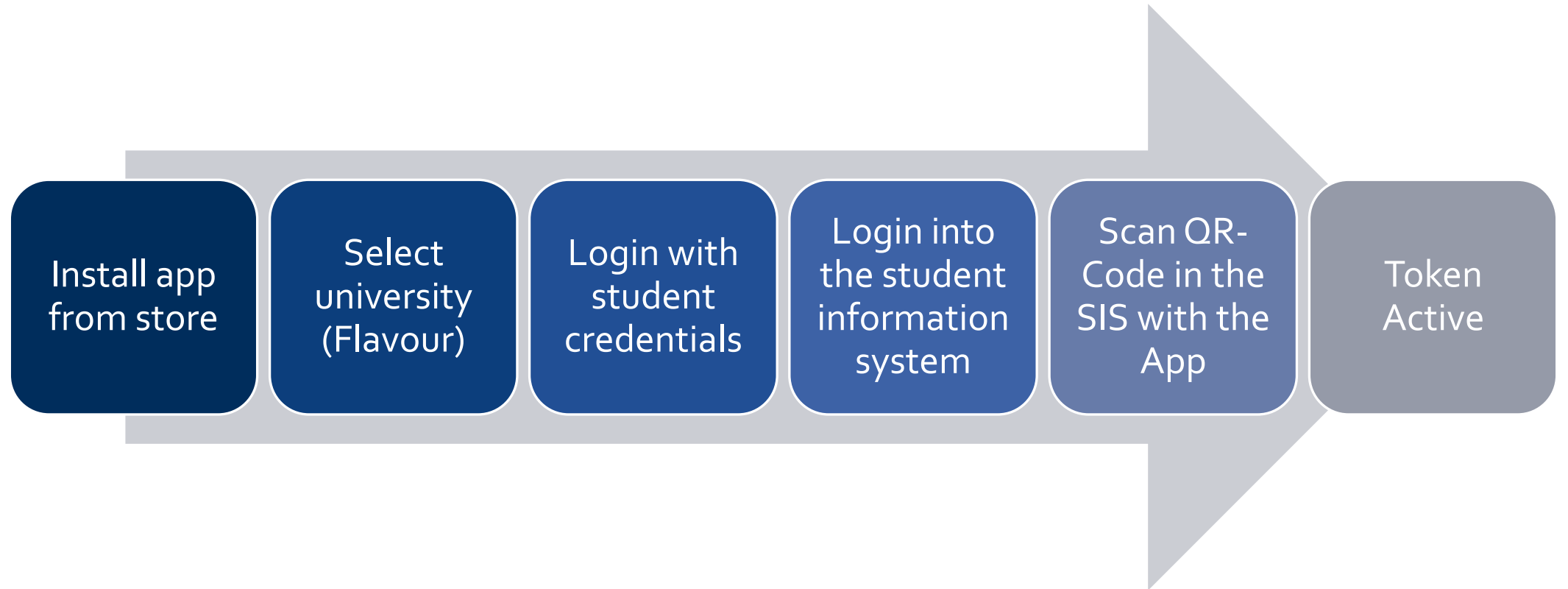
## Phase 3

- Full NFC Integration
- Mode 1: HCE
- Mode 2: Google Pay and Apple Wallet Integration

# The Roadmap



# The new process from Phase 2



# Phase 3 Features

## Library Integration

- HCE also possible for Google devices
- Second Factor: Password input at terminal

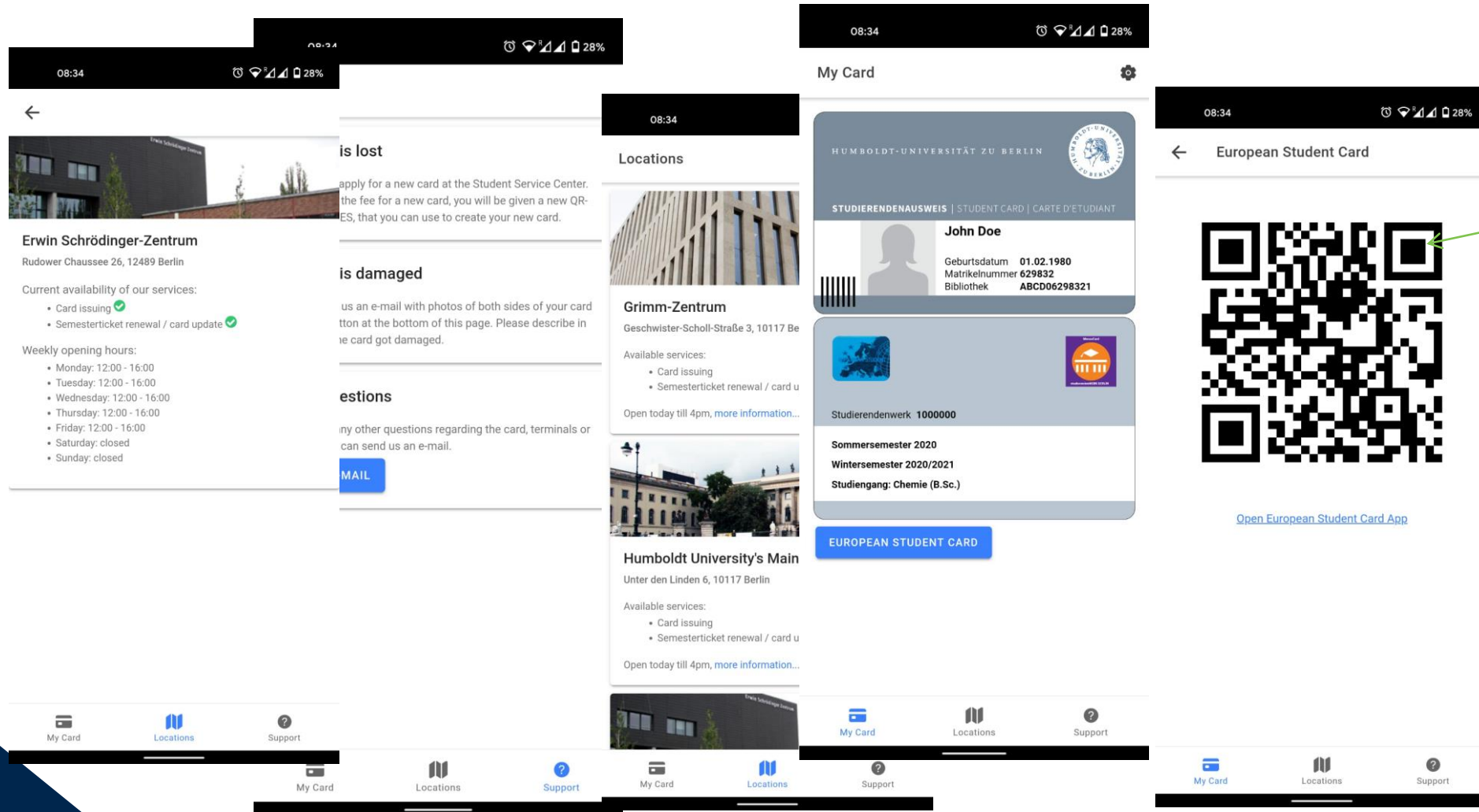
## Electronic Ticket for public transport

- VDV eTicket API through Google/Apple Transport API
- No Second Factor
- Device has to be online once every 24 hours for token challenge

## Electronic Cashless Payment

- TL1 API through Google Pay and Apple Wallet
- Google Pay and Apple Pay integration planned
- Second Factor: „Shadow Account“

# Some Impressions – Current Beta



Working  
ESC QR-  
Code

# The Security

## Phase 1

- Passive information about the card
- SSO Login with user account

## Phase 2

- Active card control
- Token to connect Student-Account and App
- Similar to Online Banking
- No Cloning possible

## Phase 3

- NFC Emulation on the card
- Google Pay/Apple Wallet API
- SW security on the device

# The Technology

- Based on our card management system KMS<sub>3</sub>
- One App for all Universities in Berlin
  - Different flavours for each
  - The student chooses the flavor when logging in the first time
- IONIC based for both platforms
- NFC communication built on the Google and Apple APIs
  - Advantages:
    - If NFC works on the phone, our app will also work
    - No hardware testing required for each smartphone model
    - It is used by JR East (Japan)

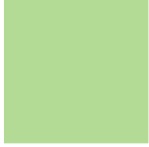


# Summary




## Cost-Efficient

- Simple Processes
- Highly Automated
- Minimal Human Ressource Requirement



## Scalable

- Usable for HEIs of shapes and sizes
- Easily Customizable



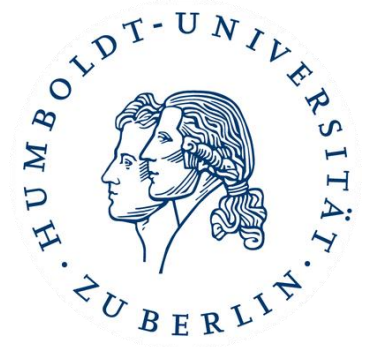
## Modifiable

- Made bei HEIs for HEIs
- Connect any Student Information System



## Networked

- European Student Card (ESC)
- European Student Card Association



# Q and A

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