Journey to Excellence of Digital Transformation

Mobile ID & Local Currency

Korea’s Mobile Driver’s License
KOMSCO chak

2022. 11.
Contents

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II  Mobile ID

III  Local Currency
KOMSCO at a glance

Who are we?
About KOMSCO

State-owned enterprise with a long tradition

Experience in exporting Banknotes, Coins, NIDs, Passports, Security inks, etc.

Seasoned workforce with comprehensive knowledge

70 years

50 years

1400 people
What KOMSCO provides …

[ Business portfolio ]

- Security Printing
- Mintage
- Security Paper & Inks
- ID Products
And… Solutions from Core Competencies

[ Business portfolio ]

**Brand Protection**

**Mobile Payment**

**Mobile ID**

- [Mobile Driver’s License]
Mobile ID

Korea’s Mobile Driver’s License

Ministry of the Interior and Safety
Contents

1 Understanding of Mobile ID
2 Korea’s MDL & Use Cases
3 Expected Values
Understanding of Mobile ID

What is Mobile ID all about?
1-1. Understanding of Korea’s ID Concept

Korea’s Top 3 ID cards

<table>
<thead>
<tr>
<th>Resident Registration Card</th>
<th>Passport</th>
<th>Driver’s License</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.jpg" alt="Resident Registration Card" /></td>
<td><img src="image2.jpg" alt="Passport" /></td>
<td><img src="image3.jpg" alt="Driver’s License" /></td>
</tr>
</tbody>
</table>

- Resident Registration Act
- Passport Law
- Road Traffic Law

- Plastic card
- Electronic Passport with IC Chip

Issued according to the relevant laws and regulations by the government
The state formally certifies an individual's identity
1-1. Understanding of Korea’s ID Concept

However, the current identity authentication system is...

**Offline**

Financial institution
Public institutions

- Identity verification with a **plastic card with disclosed information**
- Inconvenience, vulnerable breakage
- Concern of Forgery and tampering

**Online**

- Various authentication in untact era
  - public certificates, mobile authentication
- Mass personal information leakage
  - Big brother issue
- Concerns about surveillance society

**“Confusing”**

Vulnerable to personal information leakage
1-2. Paradigm Shift to Digital ID

**Siloed (Centralized)**
- Personal information is stored and managed by each service provider by governing the Personal Information Protection Act

- In order to use the service, personal information should be provided. IDs/PWs are different from each service provider and should be maintained by person efforts and the inconvenience of memory

- Still popularly used system

**Federated**
- Reliable 3rd party authentication method to conquer disadvantages of siloed identities

- Oauth service providers such as Google, Naver, and Kakao are representative.

- As a result, personal information is becoming more centralized, increasing the threat of massive personal information theft attacks, and 3rd party dependence.

**Decentralized**
- Personal information is owned by individuals, not service providers, and used for authentication

- As the service provider can authenticate without storing personal information, only the amount of personal information necessary for the service is stored

- The duty and right for the handling of personal information is moved from a service provider to an individual
  - the technical implementation of self-sovereign identity is DID (Decentralized ID).
1-3. DID & VC

**DID (Decentralized Identity-Identifier)**

- DID(identity) is a SSI’s technical implementation model and identity information authentication system in which a personal information management entity generates and manages IDs.
- DID(identifier) in a narrow sense is the only identifier in the DID blockchain network.
- Example “did: komsco:3k9dg345adf4958djfk”

**VC (Verifiable Credential)**

- VCs include DIDs, details of certified qualification for DID owners, and individuals can own multiple VCs, just like they own several IDs.
- The signature of the agency that issued the VC is included for example adult certification, driver’s license, resident card, university graduation certificate, student ID, home address, etc.
Objectives

1. **(Citizen) Provide the minimum personal Info online and offline**
   - Self Sovereign Identity enables Users to present and authenticate personal Info

2. **(Government) Establish ONE national digital ID platform**
   - Enhance quality of nationwide public services and make better policy decisions

3. **(Service Provider) More useful services by guaranteed security**
   - Lessen burden of ID authentication and costs of usage of private certification
**An inclusive solution** ONE mobile ID enables citizens to prove who they are online, authenticate to website, confirm transactions, and digitally sign documents.

<table>
<thead>
<tr>
<th>Service Provider</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Public</strong></td>
</tr>
<tr>
<td>Gov’t website ID Authentication</td>
</tr>
<tr>
<td>Issuance of certificates</td>
</tr>
<tr>
<td><strong>Finance</strong></td>
</tr>
<tr>
<td>Opening of bank accounts</td>
</tr>
<tr>
<td>Issuance of certificates</td>
</tr>
<tr>
<td><strong>Private</strong></td>
</tr>
<tr>
<td>Car rental &amp; Hotel check-in</td>
</tr>
<tr>
<td>Purchase of liquors</td>
</tr>
</tbody>
</table>

DID* based Blockchain Platform

* Self-Sovereign Identity

* Decentralized Identifier
Use case: Korea’s Mobile ID projects

What is the progress of the world first national DID reference?
Roadmap for National Digital ID

It is the on-going long term journey with phase by phase project.

Era of national digital ID

Mobile Public Officer ID

The Ministry of the Interior and Safety, National Personnel Office

Mobile Driver’s License
(National Police Agency Road Traffic Authority)

Distinguished service to Veteran
(Ministry of Patriots and Veterans Affairs)

Certificate of veterans’ registration
(Ministry of Patriots and Veterans Affairs)

National Identification
(Ministry of the Interior and Safety)

DID/blockchain-based mobile identification platform

DID/blockchain-based National ID card common platform

Phase I (2021 ~ 2022)

Foundation

Pilot (2020)

Expansion

Phase II (2023)

Completion

Phase III (2024 ~)

Public and private converged services
Review and design of various civil services

Converged services In-App implementation
Implementation of various civil services
2-1. Mobile ID of Public Officer
2-2. Mobile Driver’s License

Identify yourself with your mobile, whatever you want anywhere

**Issuer/Operator**
- Issuance
- Operation
  - Publicly trusted ID card issuance/operating agency

**Holder**
- Self-Sovereign Identity
  - Integrated online and offline authentication

**Verifier**
- Public
  - Web Verification
  - Certificates
- Financials
  - Bank Account
  - Certificates
- Private
  - Rent Car
  - CVS

**Decentralized (DID) Blockchain Platform**

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>Milestone</td>
<td>Starting Project</td>
<td>Development of MDL system</td>
<td>Pilot Operation</td>
<td>▲ Pilot period</td>
<td>Legal amendment of MDL act</td>
<td>Roll out Nationwide</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**As a national ID,** **Guarantee Creditworthiness**

**Safe and reliable,** **Establishing a common national platform**

**Useful and various Service Expansion for people**

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2-3. Major Considerations

How can you trust someone in online? Is DID/Blockchain enough?

1. Must visit the driver’s license test center

2. Fill out the issuance application form (Personal Information)

3. Authentication and reception (Face-to-face mandatory)

4. QR/IC Card

5. Issuance of mobile driver’s license at site

6. Registration of authentication method (Biometrics)
2-4. Our final effort, Korea Mobile Driver’s License

Mobile Driver's License App

Smart driver's card equipped with the same IC chip as the e-passport
# Use Case 1

How does Mobile ID work in real life?

1. **Confirm identification by law enforcement official**

<table>
<thead>
<tr>
<th>ID Request</th>
<th>Presentation</th>
<th>QR Code Submission</th>
<th>QR Code Verification</th>
<th>Completion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Request to present ID</td>
<td>Open Mobile ID application</td>
<td>Create a code on request</td>
<td>Photo the QR code</td>
<td>Complete the verification</td>
</tr>
</tbody>
</table>

![QR Presentation Diagram]
Use Case 2

How does Mobile ID work in real life?

2 Confirm identification by civil servants at government offices

<table>
<thead>
<tr>
<th>ID Request</th>
<th>Open Mobile ID App</th>
<th>Photo QR Code</th>
<th>Approval of Info provision</th>
<th>Verification</th>
</tr>
</thead>
</table>

Request to present QR code for ID
Open Mobile ID application
Photo the QR code
Pop up messages of the request
Complete the verification

QR Scanning
Use Case 3

How does Mobile ID work in real life?

3 **Open a new bank account by untact**

Open a Bank App → Approval of Info provision → Verification of ID → Agreements on Terms → Completion

**Begin to open an account with Mobile ID** → **Face recognition** → **Enter a pass code** → **Completion of verification** → **Process of opening an account**
4 Confirm identification on e-government websites

Select a way of ID verification at a website

Push notification

Request of verification

Verification process

Completion

Enter personal Info & Select ID verification

Check push notification

Process of verifying identification requested on the website
### Use Case 5

**How does Mobile ID work in real life?**

#### Confirm identification for renting a e-scooter or a car

<table>
<thead>
<tr>
<th>Log in to service website</th>
<th>Approval of Info provision</th>
<th>Verification driver's license</th>
<th>Completion</th>
</tr>
</thead>
</table>

1. **Open Mobile ID App and photo QR on a scooter**
2. **Service App(Scooter) requests to verify ID**
3. **Verification requested on Mobile ID App**
4. **Ride a scooter**
Expected Values & its Ecosystem
# Expected Values

## When the mobile driver's license are available

<table>
<thead>
<tr>
<th></th>
<th><strong>Issuer</strong></th>
<th><strong>Holder</strong></th>
<th><strong>Verifier</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>With a national digital ID common platform</strong></td>
<td><strong>By having control over personal information with self-sovereign identity</strong></td>
<td><strong>As reliability and security are guaranteed, in various places</strong></td>
<td></td>
</tr>
</tbody>
</table>

## Versatile and Safe

- As a trust national backbone network, it will be jointly used for issuing various ID cards.
- Leading national innovation in the ID authentication system to improve public services and support rational policy decision.

## Only Necessary Info.

- Manage my personal information more securely both on & offline
- As a sovereign data, providing minimal information where it is absolutely needed

## more reliable and more useful

- Reduce the burden of ID verification
- Reducing the burden of certification payment costs
- Easily utilize provided SDK
DID-based Ecosystem

Public Issuers

Interface with the most popular apps
For authentication

Mobile Card
- Mobile PAY
- Banking
- Transfer

Virtual Account
- Online account opening & offline

Shared Scooter and online car rental

Kakao

NAVER

Private Issuers

Financial services

Holder

National DID-based services

ID
- Employee ID, Student ID, Membership
- IoT DID

Various ID authentication-based services

Various Certificates
- Certificate of employment, graduation certificate, transcript, vaccination

Qualification
- Certificate, private license
- IoT DID

Verifier (Service Provider)
- Identity/Eligibility-Based
- Targeted Services/Marketing

Adult Certification of alcohol/Tobacco Purchasing
Senior Priority Ticket, Kiosk Certification

NICE 정부통신

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Local Currency

KOMSCO chak

Journey to Excellence of Digital Transformation

2022. 11.
Local Digital Currency

Contents

1. What is Local Currency
2. Understanding of chak
3. Benefit of using chak
What is Local Currency
1. Local Currency

1. **Definition**: Currency that can be used in specific region

2. **Goal**: Promoting local economy

3. **Features**
   - Funded fixed rate of amount by Local Government
   - Can be used exclusively in registered stores (small local business)
   - Issued in paper, mobile (QR), card
Understanding of chak
2-1. KOMSCO’s Digital Service

- Brand Protection
- Mobile Payment
- Mobile ID

Mobile Driver’s License
2-2. Understanding of chak

1. KOMSCO's Mobile payment platform
2. Increase Local Currency and user needs about variety method of payment
3. Card type, QR type
4. Launched in 2019
5. Issuing and managing the operation of local currency
2-2. Understanding of chak

The only Public Institution of Platform operator

Local Currency MOU (2018. MOIS)

Request for make Mobile Local Currency Platform (2018. MOIS)

Request for make Card Local Currency Platform (2020. MOIS)

TOTAL SOLUTION

Paper

Mobile(QR)

Management system

Card

Paper 110

QR 42

Card 69

Management system 80
2-2. Understanding of chak

1. KOMSCO
   - Interconnecting the system with Banks
   - Providing App (for citizens and stores)
   - Providing the service of purchasing Local Currency and approving payment via app

2. Users
   - Purchasing Local Currency
   - Making a payment at local stores

3. Member Stores
   - Supporting citizens payment (installing QR kit)
   - Exchanging received Local Currency into legal tender
2-2. Understanding of chak

1. KOMSCO
   - Interconnecting the system with Banks and Credit card company
   - Providing App (for citizens and stores)
   - Providing the service of purchasing Local Currency

2. Users
   - Registering the credit card issue
   - Purchasing Local Currency
   - Making a payment at local stores

3. Member Stores
   - Supporting citizens payment (installing QR kit)
   - Exchanging received Local Currency into legal tender

4. Credit card company
   - Approving payment via app
3 Benefit of using chak
3-1. Benefit of using chak

- Safe and easy membership registration
- Convenient purchasing (virtual bank account or bank connection)
- Send gift certificate through phone number or QR code
- Setting of automated cash receipt issuance

- No membership fee
- No hassle of bank exchange
- Multiple employee management
- Attract young customers through remote payment
- Provide QR Kit and App to App payment

- Easy and convenient issuance management
- Member store data management
- Various Statistic, reporting management
- Welfare benefit application and payment management
- Fraud detection to prevent illegal circulation
3-2. Additional Service

Connect Food delivery app and Local shopping mall

- Provide connect system for using Public food delivery app
- User can use Local Currency for taxi fares.
3-3. KOMSCO Service

More Safety, more convenient

Online/Offline Total security solution Provider