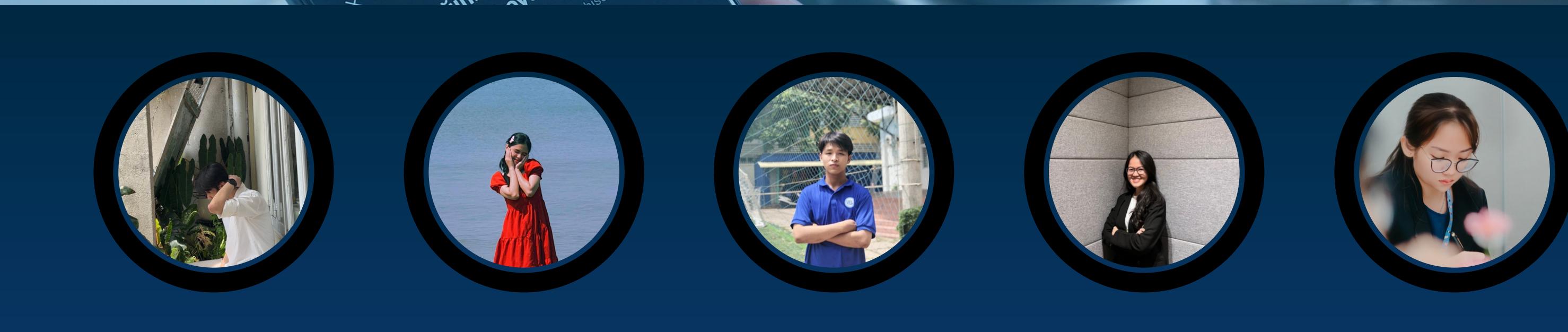
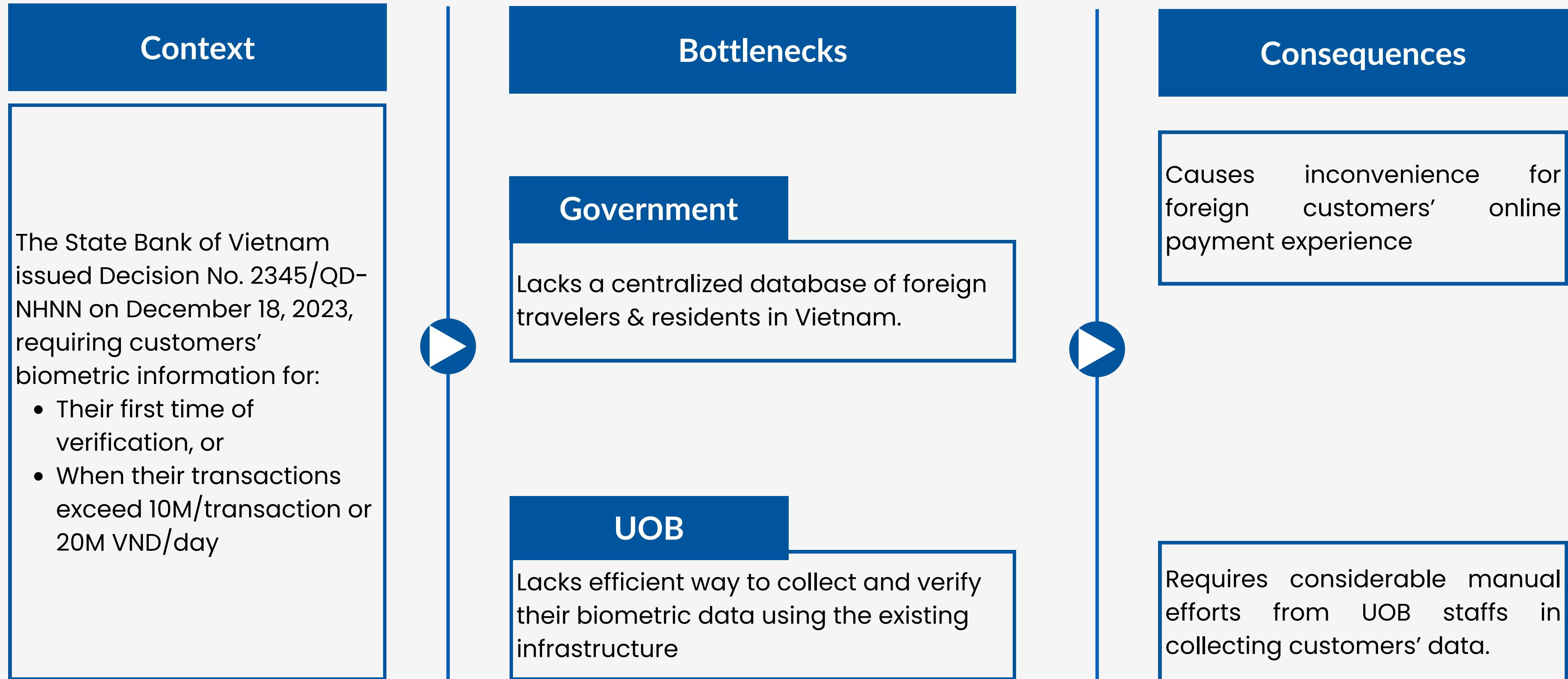




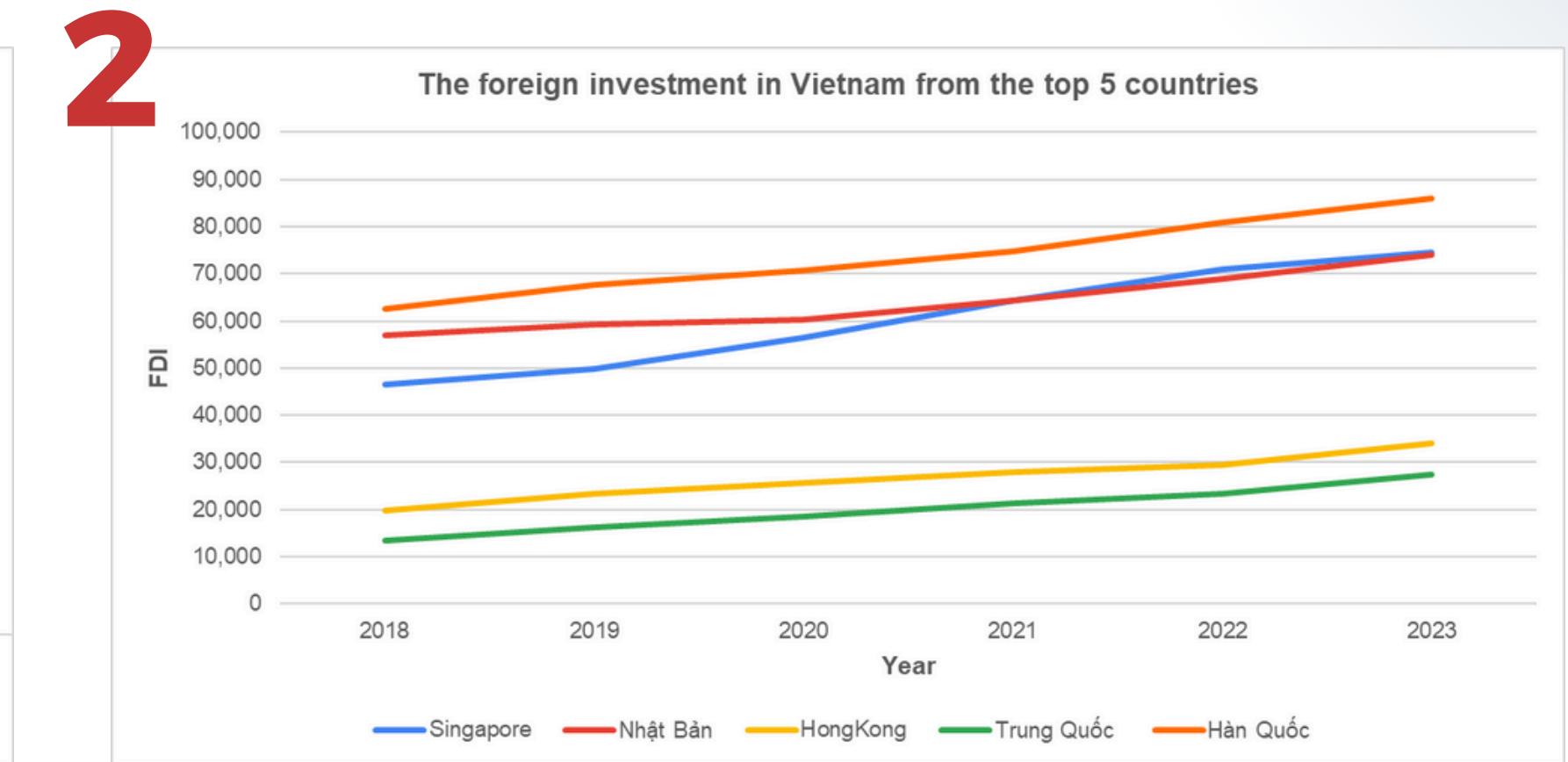
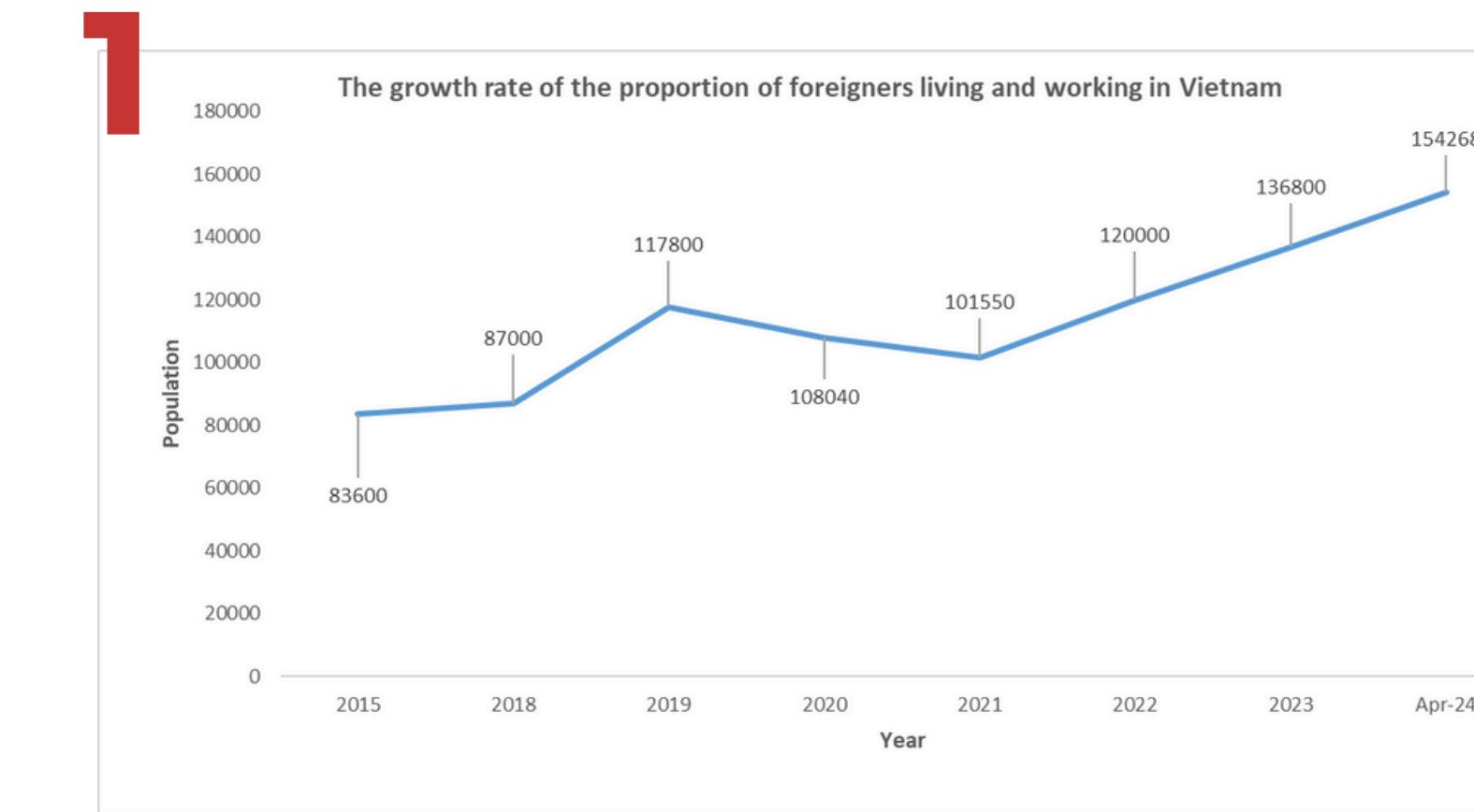
GLORY TECH



APP-TO-APP: VNelD & PASSPORT UTILIZATION



OPPORTUNITIES



3 Government

- Actively promote digitalization
- Implement the collection of biometric data of foreign nationals (egov.chinhphu.vn)

4 User

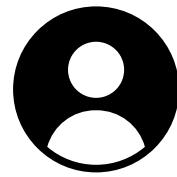
- The global all-in-one trend's impact on the finance and banking industry (congan.com.vn)

General Process: Collect biometric data (i) and compare it with official data (ii) to verify the user's identity.



For the bank

- The bank accesses a government-verified database with customers' personal data for biometric verification.
- Technologies are used to collect and cross-reference customer data with this database.



For the users

- Users authorize the bank to access their data in the official database.
- Users provide their biometric data to the bank for matching.

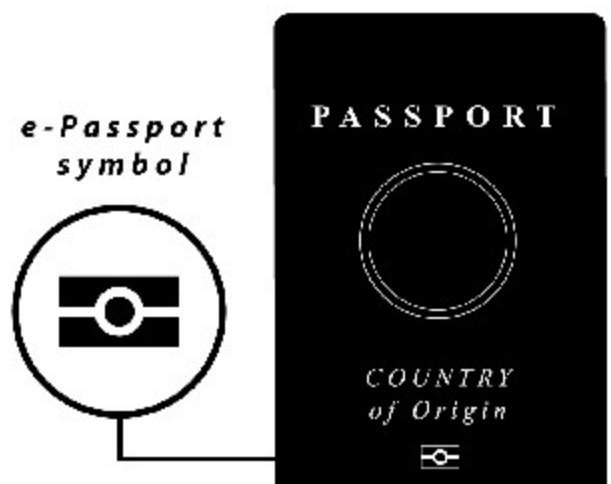


Prerequisite

- Customers' data must be stored in an official, verified database first and the bank must have legal access to use this data for authentication.
- All processes must comply with the legal framework of the respective country.
- Based on Decision No. 718 /QĐ-NHNN, Foreigners can verify their identity in two ways: (i) using an electronic identification account or (ii) in person.

From this general process, two potential solutions are developed, covering both short-term and long-term needs. The solutions are focused on utilizing the VNelD app for e-identification and using eKYC as an alternative solution to in-person verification at bank branches.

STAGE 1



Verification by Passport

- Comparison between biometric data in **passports** and data collected via **eKYC**
- **NFC scanning** is available for e-passports.
- Fast, secure, **no need to visit the bank**.

STAGE 2



App-to-App Verification
VNelD app - to - Banking app

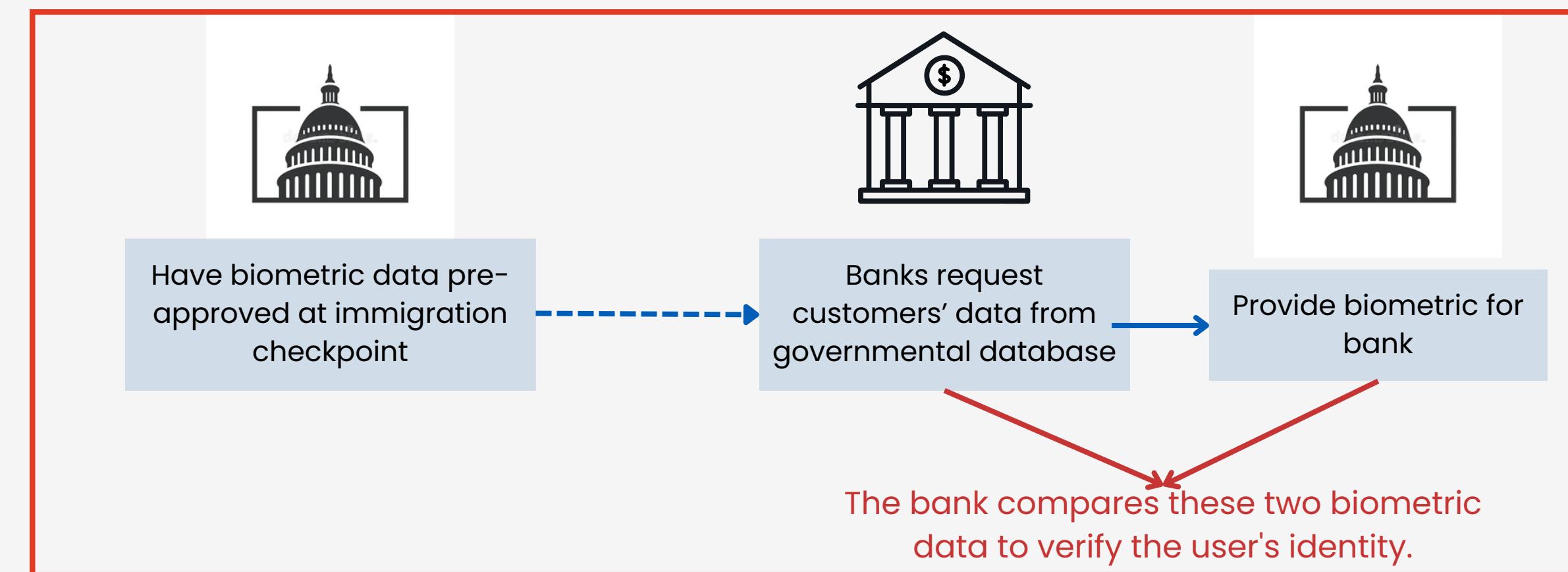
- Comparison between biometric data in the **National Population Database (NPD)** and data collected via **eKYC**
- Fast, secure, **no need to visit the bank**.
- Already implemented (**Vietcombank**)
- **No need NFC scanning**

E-PASSPORT VERIFICATION BY NFC TECHNOLOGY: USER FLOW

WHAT?

User Log-in	"Bio Information Update" Selection	Face Scanning	ID Card Capture	NFC Scanning	Information Confirmation	OTP Verification
User logs into the banking app.	User selects the 'Update Information' feature (name may vary by app).	User scans their face using the phone's front camera.	User scans their face using the phone's front camera.	Foreign users scan their chip-based passport	User reviews and confirms the captured information.	User completes the OTP verification process.

HOW?



WHEN?

At home

Register Digital Identity

Access the VNeID web portal/ app to register a digital identity for the first time.



Online via VNeID portal/ app

Provide Biometric Information

Using AutoGate to provide biometric, which will be stored in National Database of Immigration.



Offline in Autogate

Upgrade to Level 2 Digital Identity

"The data collected at the entry step will be compared with the data that was '**pre-qualified**' at step 1."



Process and send the results via email, SMS, or app notifications

Biometric verification using app-to-app process

Follow the process and complete the verification.

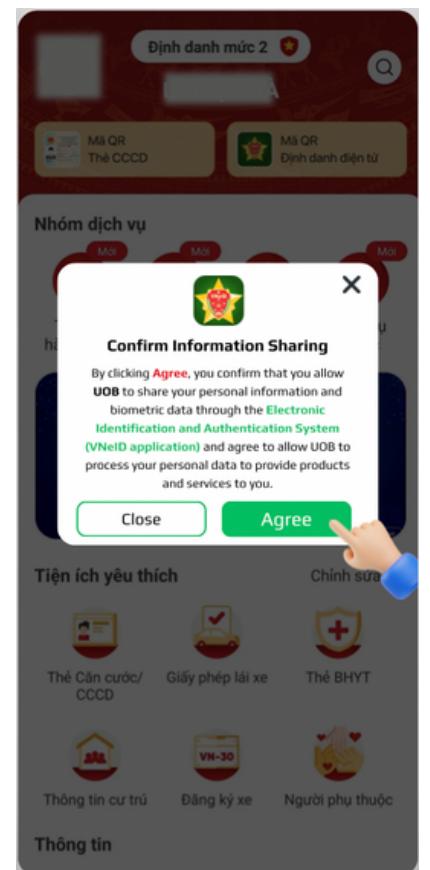
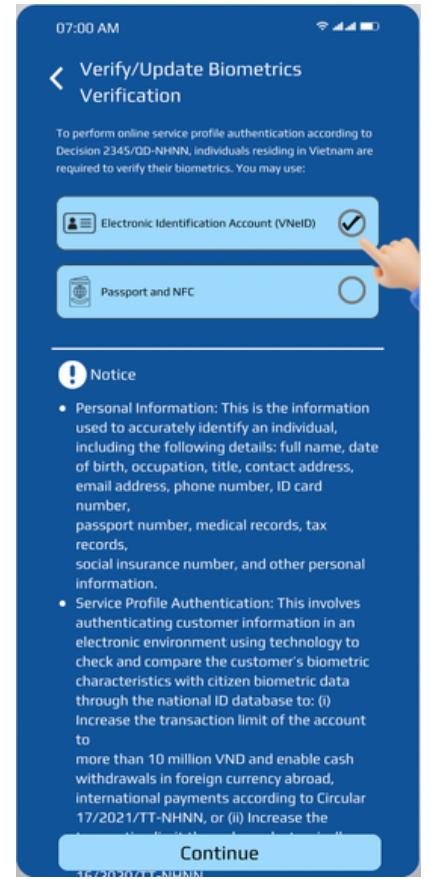
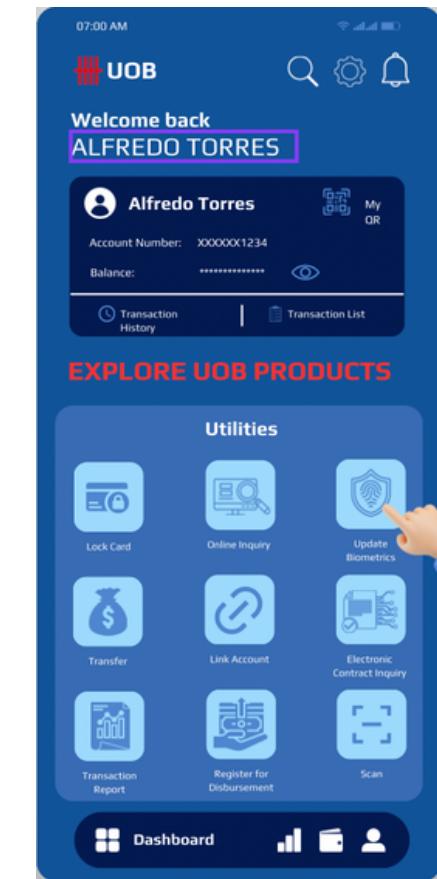


Online via UOB app and VNeID app

Immediately obtain a Level 2 identification account for secure and rapid biometric authentication, as well as for convenient use of other public services.

INSTRUCTION

- 01 Update both the banking app and the VNelD app to their latest versions from Google Play or the App Store.
- 02 Log into the banking app with the appropriate credentials.
- 03 Select the "Update Biometrics" option on the main interface of the banking app
- 04 In the subsequent window, choose to update biometric information using the VNelD electronic identification account.
- 05 The customer scans their passport and uses eKYC technology to capture biometric data without the need for NFC scanning.
- 06 Confirm sharing information with the VNelD system by selecting "Agree" - "Confirm."
- 07 Open the VNelD app, log in, and select "Confirm Data Sharing."



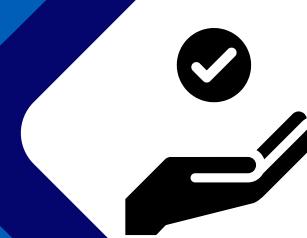
FEASIBILITY OF THIS SOULTION



The State Bank of Vietnam has officially completed the connection to and exploitation of the National Database for public service purposes. Thus, verification through VNID is safer and faster which takes just a few minutes.



This App-to-App solution is currently being implemented by Vietcombank, and foreign customers can easily open VNID accounts from home. It is fully feasible and compliant with Vietnamese legal regulations. (Decree No. 69/2024/NĐ-CP)

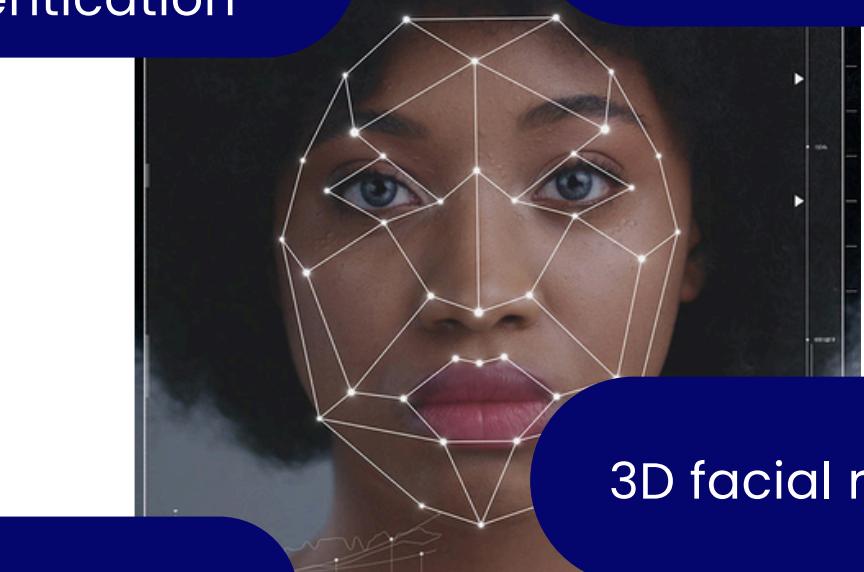


The biometric data is stored in the NPD, facilitating easier authentication for foreign users, increasing security, and reducing the risk of losing important identity documents.

eKYC (electronic Know Your Customer)

Multi-factor authentication

Integration with national database



Fraud detection

3D facial recognition

AI and Machine Learning integration

We propose using Viettel AI's latest eKYC technology, which has achieved the ISO 30107-3 certification for facial recognition (FaceID) at level 2 - the highest level in the world today.

TECHNOLOGY

E-passport

1. Reading Data from e-Passport:

- RFID Technology: Enables rapid and accurate retrieval of information.
- OCR Technology: Converts text information on passports into digital data for processing.

2. Biometric Data Authentication::

- Facial Recognition: Prominent models like VGG-Face, and DeepFace use CNNs to achieve high accuracy.
- Fingerprint Recognition: Hamming Distance and Euclidean Distance are used to measure the similarity of minutiae points in the sample.

3. Data Encryption and Security:

- Encryption Standards: AES (Advanced Encryption Standard), TLS (Transport Layer Security), are used to protect against unauthorized access.

VNeID

1. Connection Protocols:

- API (Application Programming Interface): Applications like UOB TMRW and VNeID typically use APIs to securely exchange data.

2. Authentication and Security:

- Data Encryption: Encryption techniques are employed to protect against unauthorized access. Common encryption standards include AES (Advanced Encryption Standard) and TLS (Transport Layer Security).

3. Synchronization and Account Linking:

- Tokenization: During transactions between the two apps, sensitive information is converted into tokens. These tokens can be single-use or valid for a short duration, ensuring the security of the original data.

Integrating Passport-Based Biometric Identification

1st quarter 2025

Prepare and pitch a proposal at the Government

2nd quarter 2025

Resolve regulatory and compliance constraints

3rd quarter 2025

Design and Development

4th quarter 2025

Test and QA

Pilot Launch

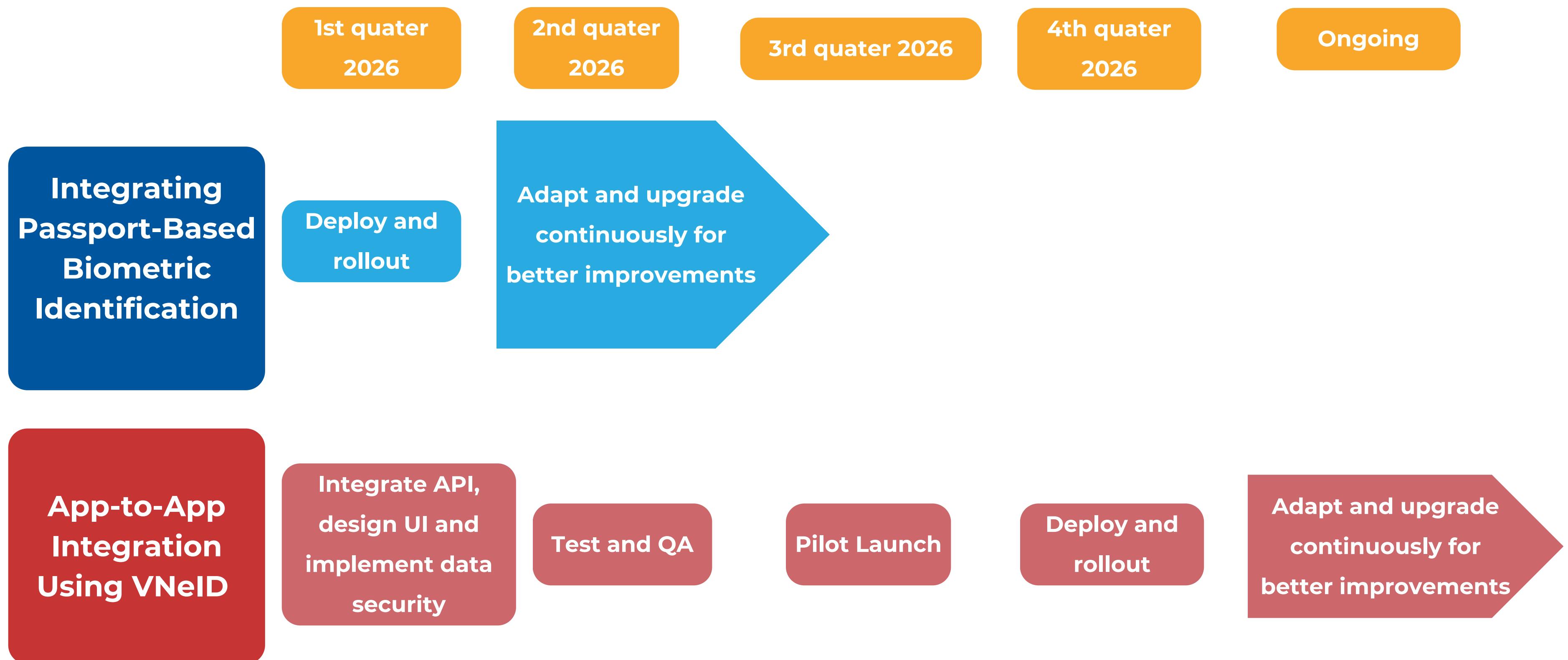
Review technical infrastructure

App-to-App Integration Using VNelD

Prepare and pitch a proposal at the Government

Resolve regulatory and compliance constraints

Review technical infrastructure



POTENTIAL IMPACTS

