DIGITALTRUST

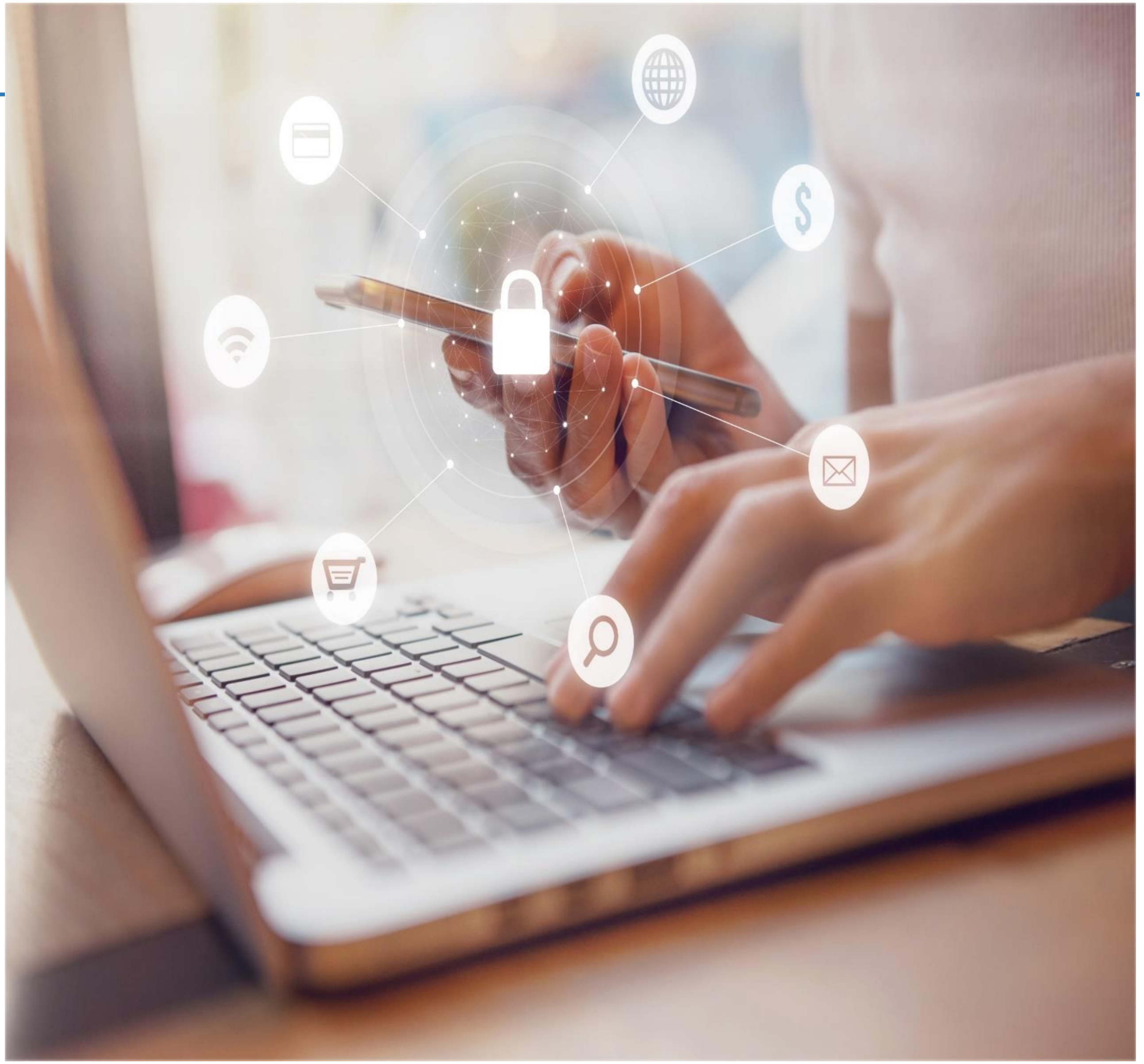
Digitizing a Nation: Technology is only one piece of the puzzle

Level 12, Aldar HQ, Abu Dhabi,
United Arab Emirates

DIGITALISATION IN THE UAE IS DRIVING PROGRESS ACROSS THE SPECTRUM

Health, Education, Government Services, Transportation, Financial Services and more…

Stretches across the Digital Economy



OVERALL, THIS IS IMPROVING QUALITY OF THE DIGITAL ECONOMY

- Increasing Productivity
- Improving Economic Opportunity
- **Higher Quality of Life**

(There is a reason the UAE has a Ministry of Happiness)

HOWEVER, THIS IS ONLY POSSIBLE IF PARTICIPANTS HAVE CONFIDENCE IN THE SYSTEM ITSELF

We need to establish **TRUST**

ESTABLISHING TRUST

Trust:

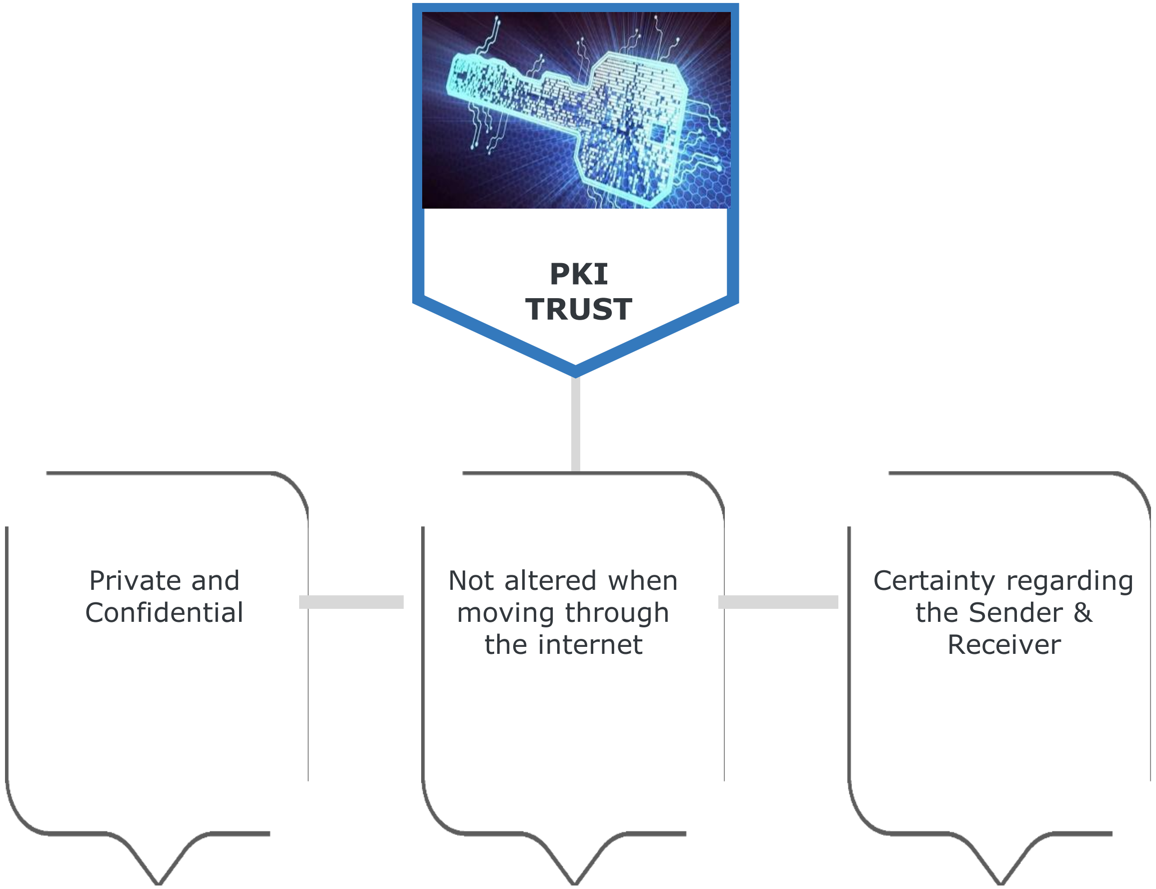
Confidence or assurance that a person, system or thing will behave exactly as you expect, or alternatively, in your best interests

As more and more interactions between entities take place in a virtual environment, how can we trust that we are dealing only with who or what we expect?

"The key to high-quality communication is trust, and it's hard to trust somebody that you don't know.‟

-- Ben Horowitz (VC firm Andreessen Horowitz)

PKI TECHNOLOGY
MAKES TRUST POSSIBLE



PKI TRUST

Private and Confidential

Not altered when moving through the internet

Certainty regarding the Sender & Receiver

To send any type of data across open public networks like the internet **securely**

To create and send **reliable digital signatures** instead of handwritten ones

To reliably **know who you are dealing with** for transactions in cyberspace

PKI IS MORE
THAN JUST TECHNOLOGY

Although PKI requires the use of the strongest validated encryption technologies, **TRUST** cannot be achieved by technology alone

A strong **governance structure** for how the technology will be deployed, operated, used and relied upon is necessary. Policies and processes are defined, implemented and audited

Clarity on relationships and responsibilities of users, service providers and relying parties are published and enforced

IDENTITY ASSURANCE

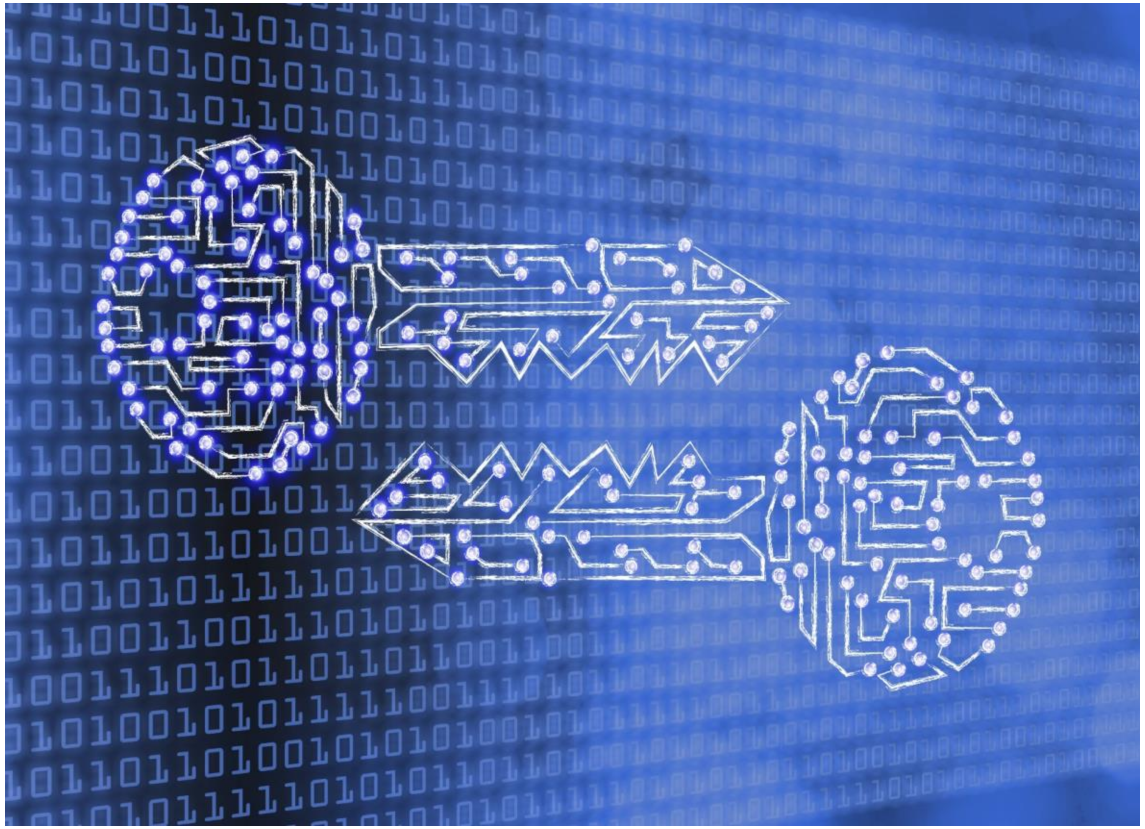
- Identity Assurance (IA) is a foundational element of effective security and TRUST
- Knowing who is at the other end of a transaction event is key to Digital Trust
- Identity Assurance is a measure of confidence in the true identity of the entity at the other side of a transaction

IDENTITY BINDING

… dictates the strength of an authentication event. It asks the following questions:

- How was the original identity verified?
- What processes were used to ensure the subscriber/user is the rightful owner of their claimed identity?
- Was trusted biometric verification used, such as a photo ID or fingerprint from a trusted authority?
- How reliable are the sources of identity information?
- What type of credential was issued?
- Is it resistant to tampering, counterfeit or exploitation?

To Successfully Digitize a Nation
Requires several elements to be present:



- National PKI service to enable digital Trust Services (Confidentiality/Integrity/Assurance)
- National Certification Policy (CP) to define the basis upon which the NPKI operates
- National Digital Identity services to enable the highest assurance of participants in the digital economy
- National Digital Signature services to facilitate digital processes and transactions
- Legal Recognition of Digital Identities and Digital Signatures as equivalent to their analog counterparts

INTRODUCING UAE PASS

WHAT IS UAE PASS

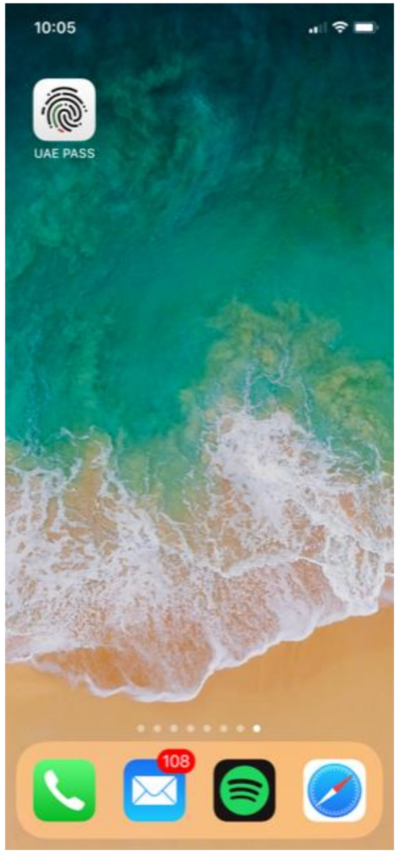
- Smart Dubai, in collaboration with the Telecommunications Regulation Authority (TRA), has inaugurated UAE PASS, a National Digital Identity and Signature Solution for all citizens, residents and visitors of the United Arab Emirates.

- UAEPASS provides a single digital identity that allows the user to access services for both local and federal government entities, in addition to other service providers. The solution introduces mobile based authentication to users who can simply validate their sign in using their smartphone. It also allows users to digitally sign and validate documents, in order to minimize their visits to service centers to sign important and time-sensitive documents.

WHAT IS UAE PASS

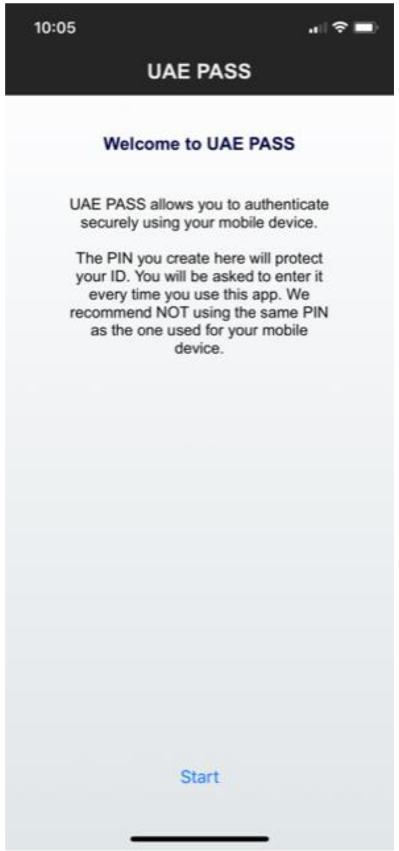
- **Mobile based ID**
  - PKI-based authentication
  - Keys in TEE/SE protected by PIN or TouchID
  - Easy enrollment through Emirates ID, Dubai ID, SmartPass, and other Trusted IdPs
- **Cloud based ID**
  - Keys stored in cloud HSM protected by user password
  - Under the sole control of the user
- **Contextual Authentication**
  - Standardize service providers (e-government, banking, etc…) user authentication
  - Secure user identity based on 2FA on PKI credentials and out-of-band verification
- **Transaction and Document Signing**
  - Provide recognized digital signature for documents and transaction
  - Enable service providers to easily integrate digital signing services

WHAT IS UAE PASS



الهوية الرقمية

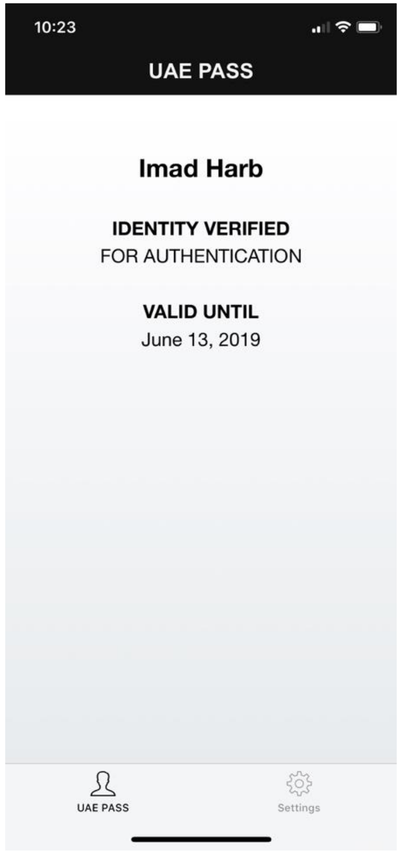
UAE PASS



Welcome to UAE PASS

UAE PASS allows you to authenticate securely using your mobile device.

The PIN you create here will protect your ID. You will be asked to enter it every time you use this app. We recommend NOT using the same PIN as the one used for your mobile device.



Imad Harb

IDENTITY VERIFIED
FOR AUTHENTICATION

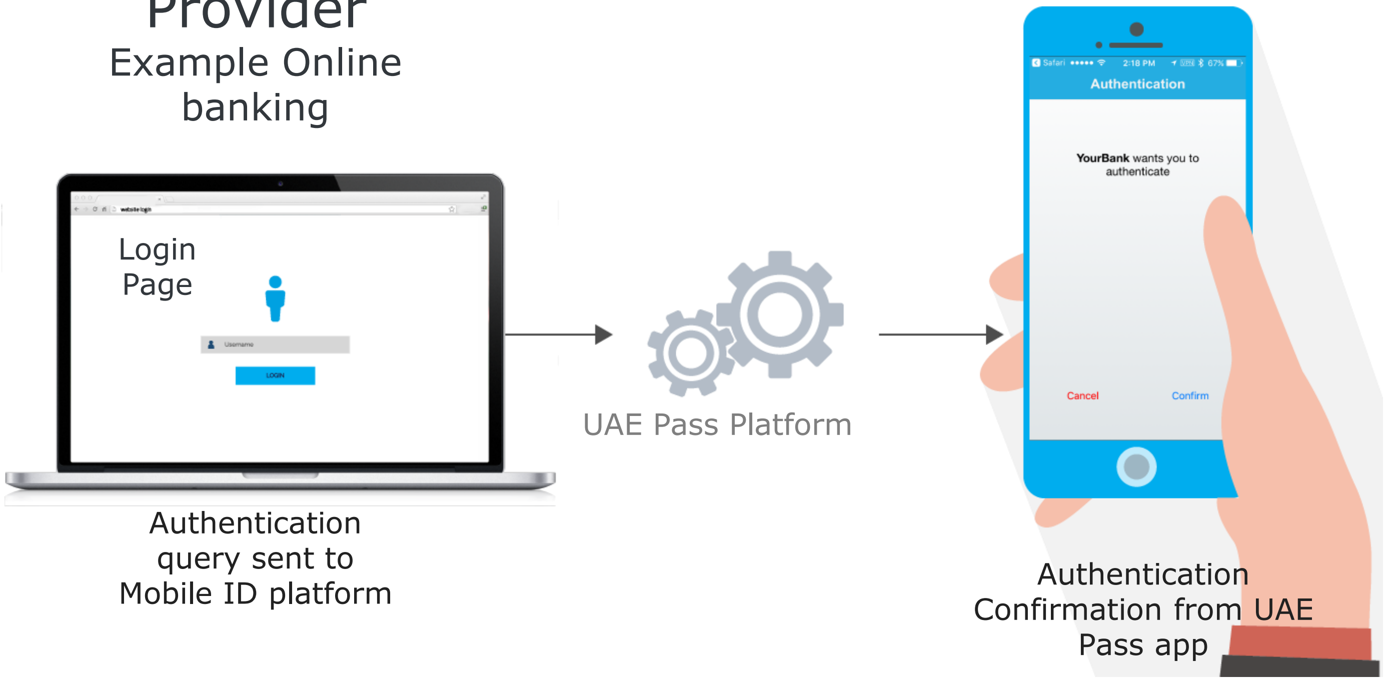
VALID UNTIL
June 13, 2019

UAE PASS Objectives

- Streamline the usability, availability and security of government services
- Facilitate an assured single unified digital identity and authentication module
- Improve customer service and satisfaction
- Integrate interoperability of government service delivery
- Implement Digital signatures recognized by the UAE legal system

WHAT ARE THE KEY SERVICES

HOW IS WORKS - 1



Service Provider

Example Online banking

Authentication query sent to Mobile ID platform

UAE Pass Platform

UAE Pass App

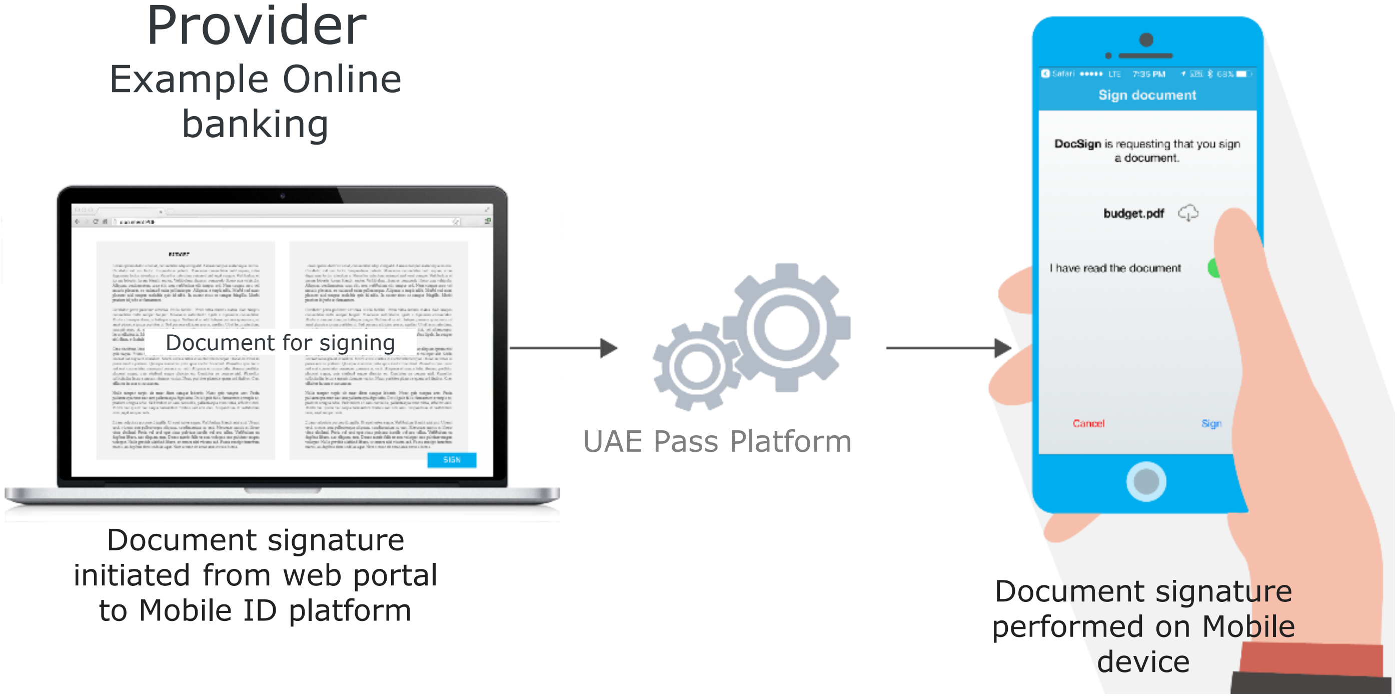
Authentication Confirmation from UAE Pass app

HOW IS WORKS - 2

Service Provider

Example Online banking

UAE Pass App

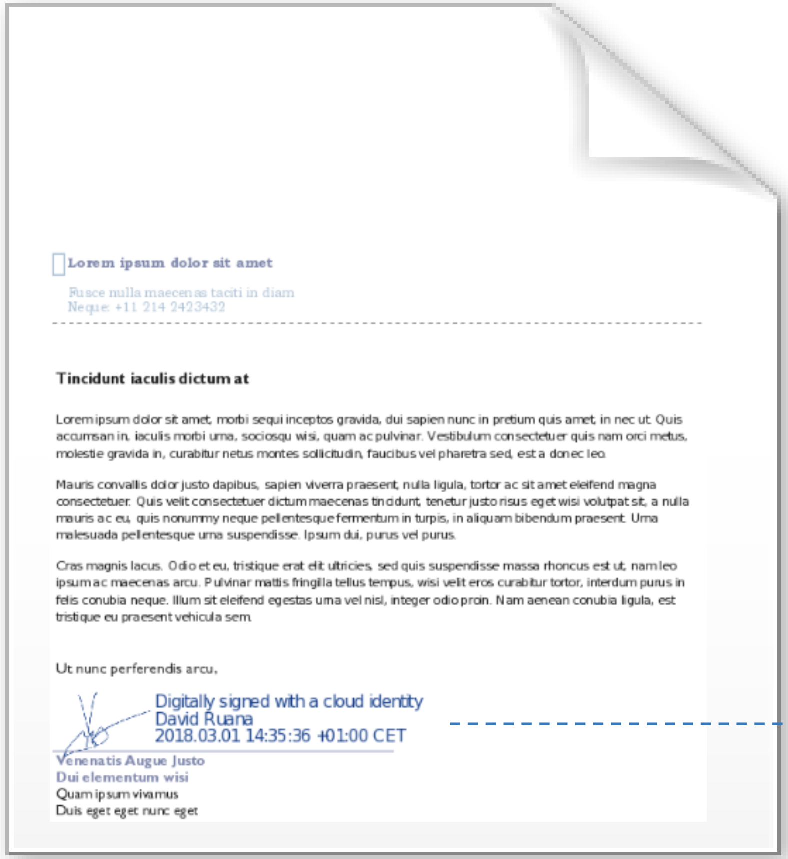


Document signature initiated from web portal to Mobile ID platform

Document signature performed on Mobile device

HOW IS WORKS - 2

Standard-Compliant
Qualified Signature



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Neque: +11 214 2423432

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Digitally signed with a cloud identity
David Ruana
2018.03.01 14:35:36 +01:00 CET

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Visual appearance of the digital signature PDF-embedded

WHO ARE THE USERS

TYPES OF USERS

User Types	Enabled Services	Credentials
Verified Users (Valid Emirates ID or Passport) (e.g. Resident, Nationals)	W W W Online Authentication	**Mobile Certificate** (ECC / RSA based)
	Online Document Signing Mobile Based Signing	 **Cloud Certificate on HSM** (RSA based) **Mobile Certificate** (ECC / RSA based)
Unverified Users (e.g. Visitors)	W W W Online Authentication	**Mobile Certificate** (ECC / RSA based)

User Types

UAE CP Levels	User Types	Enabled Services	User Experience
Level 4 In-person proofing, no in-person antecedent - *KIOSK* -	EID Verified Users (Valid Emirates ID) (Resident and Nationals)	Online Authentication Online Document Signing - /High	Mobile based Authentication Cloud based signing
Level 3 In-person proofing, in-person antecedent - Remote -	Verified Users (Valid gov ID) (Investors, resident and nationals / no kiosk enrollment)	Online Authentication Online Document Signing - /Medium	Mobile based Authentication Cloud based signing - consistent user exp.
Level 2 Remote proofing using 2 IDs, confirmed address / phone number			
Level 1 Confirmed email address	Unverified Users (e.g. Visitors)	Online Authentication	Mobile based Authentication

High Level Description of Assurance Levels

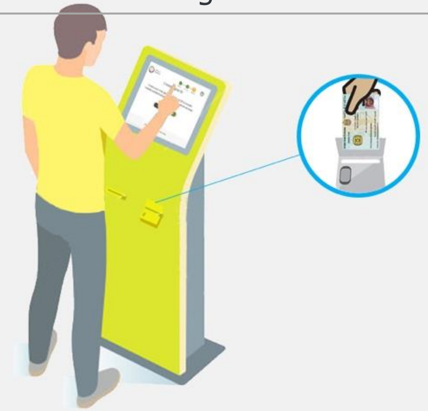
	Level 1 Confirmed email address	***Level 3*** In-person proofing, in-person antecedent - Remote -	***Level 4*** In-person proofing, no in-person antecedent - *KIOSK* -
Enrollment channels*	📱 💻	📱 💻 👥 Mobile and laptop requires validation APIs, and/or remote agent validation	👥 RA agent and Kiosks requires Emirates ID card readers and validation with ICA
Collected Attribute Categories*	- Basic personal Info - Contact info (Email + Mobile)	- Basic personal info - Identification document info - Contact info (Email + Mobile)	- All data from Emirates ID - Contact info (Email + Mobile) - Additional bespoke data, e.g. AD gov data
Example of Use Cases	- Informative services - Public services	- Rentals, e.g. cars, apartments - Select government services	- Establishing business, e.g. EODB - High values assets transfer, e.g. real estates - Banking
Signing Enrollment	- N/A	- Using the any verified user authentication	- Emirates ID Biometric verification
Step-up Approach*	**Requires remote or agent validation**	**Requires Kiosk enrollment or RA with biometric**	

*) Details provided in subsequent pages

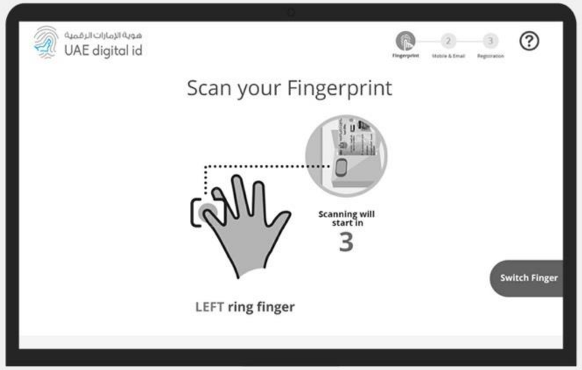
Kiosk authentication enrollment for Level 4 users

Verified Authentication Credentials

User visits a kiosk for high level of authentication



User authenticates with his fingerprints



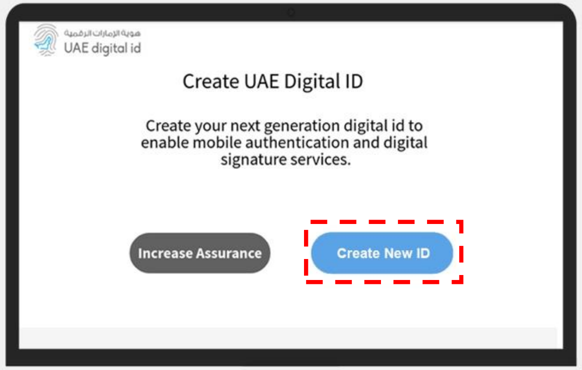
UAE digital id

Scan your Fingerprint

Scanning will start in 3

LEFT ring finger

Kiosk allows for increase in assurance or new user

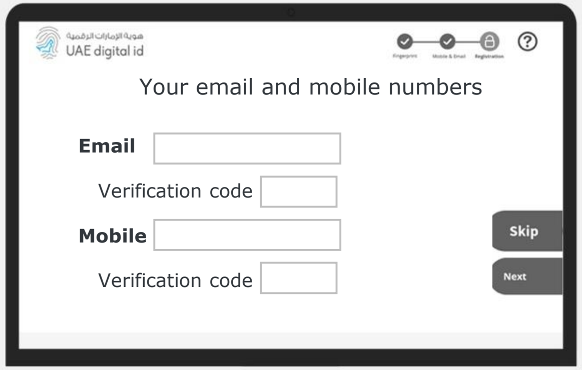


UAE digital id

Create UAE Digital ID

Create your next generation digital id to enable mobile authentication and digital signature services.

User add email and phone numbers



UAE digital id

Your email and mobile numbers

Email

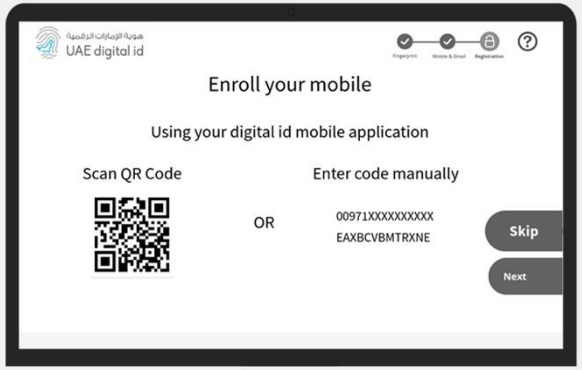
Verification code

Mobile

Verification code

Multiple steps

User gets his enrollment code …



UAE digital id

Enroll your mobile

Using your digital id mobile application

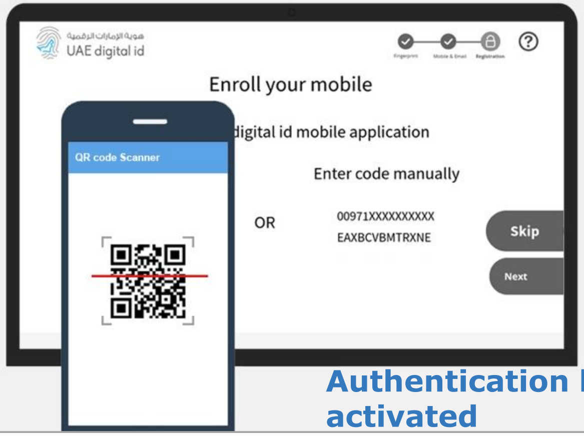
Scan QR Code

OR

Enter code manually

00971XXXXXXXXXX
EAXBCVBMTRXNE

… and enroll the device



UAE digital id

Enroll your mobile

digital id mobile application

QR code Scanner

OR

Enter code manually

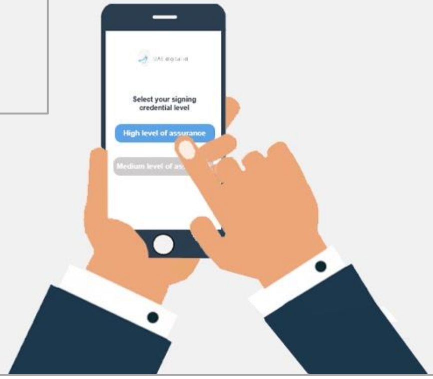
00971XXXXXXXXXX
EAXBCVBMTRXNE

Authentication keys activated

Level 4 Signing keys enrollment – For verified users (Level 4) only

High Level Signing Credentials

User selects to create a High level of assurance signature



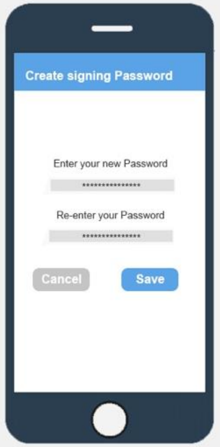
UAE digital id

Select your signing credential level

High level of assurance

Medium level of as

User enters the his signing password



Create signing Password

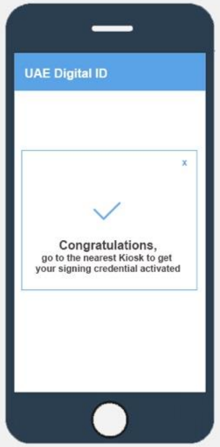
Enter your new Password

****

Re-enter your Password

****

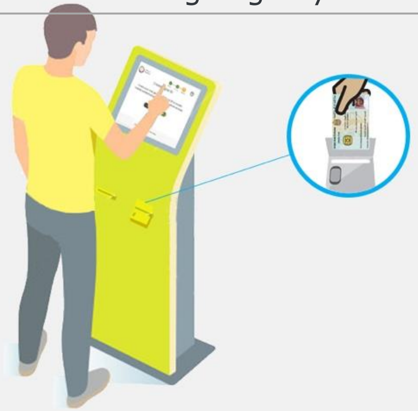
User creates his signature credentials – **Signing keys pending kiosk activation**



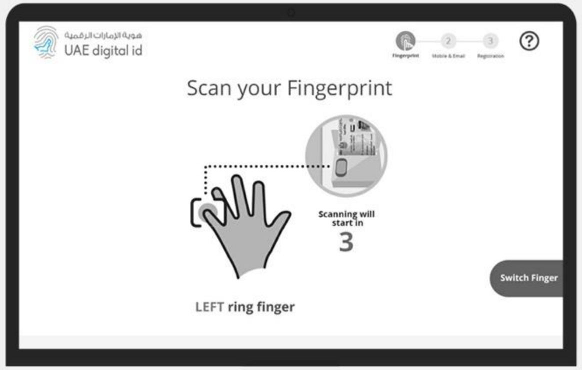
UAE Digital ID

Congratulations,
go to the nearest Kiosk to get your signing credential activated

User visits a kiosk for signing key activation



User authenticates with his fingerprints



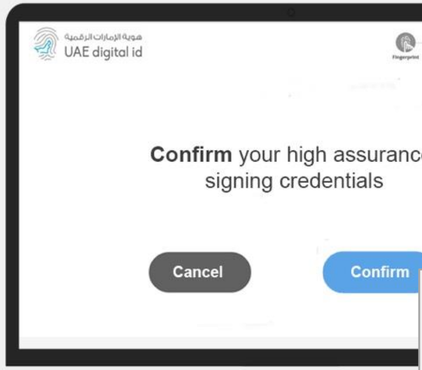
هوية الإمارات الرقمية
UAE digital id

Scan your Fingerprint

Scanning will start in
3

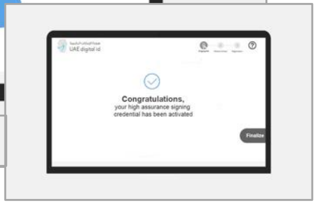
LEFT **ring finger**

Kiosk detects pending signing key for confirmation



هوية الإمارات الرقمية
UAE digital id

Confirm your high assurance signing credentials



UAE digital id

Congratulations,
your high assurance signing credential has been activated

- **Signing keys activated**

Authentication enrollment for Level 3 users – Example of remote verification

Verified Authentication Credentials

User fills the required information, click on next

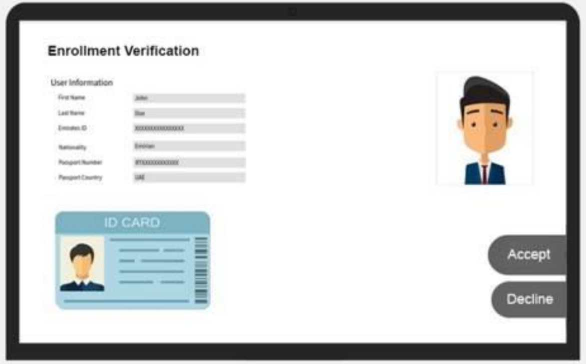
Hello,
John Doe
User Information

User makes a copy of the ID using the mobile camera

ID CARD
الهوية الرقمية
UAE PASS

User makes a selfie picture or video

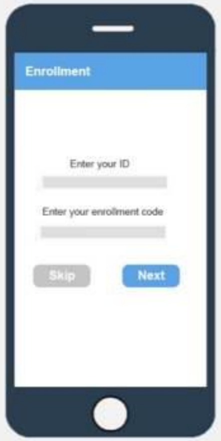
Remote agent checks and approve the user



User receives a notification, along with the enrollment code

AT&T Wi-Fi
14:28
Tuesday, April 4
MESSAGES
UAE PASS
Please enter this enrollment code
Press for more
Press home to unlock

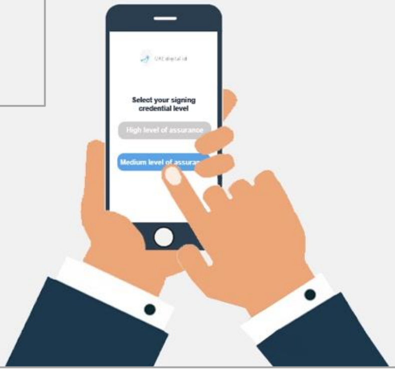
User enters the enrollment code to get the credentials



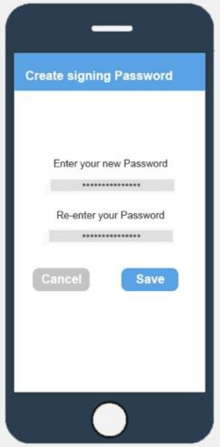
Level 3 Signing keys enrollment – For verified users (Level 3-4) only

Medium Level Signing Credentials

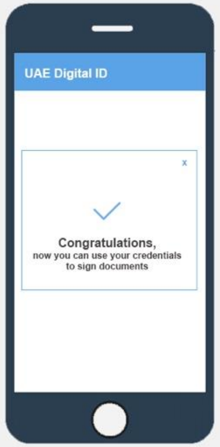
User selects to create a Medium level of assurance signature



User enters the his signing password



User creates his signature credentials ready to be used – **Signing keys enabled**



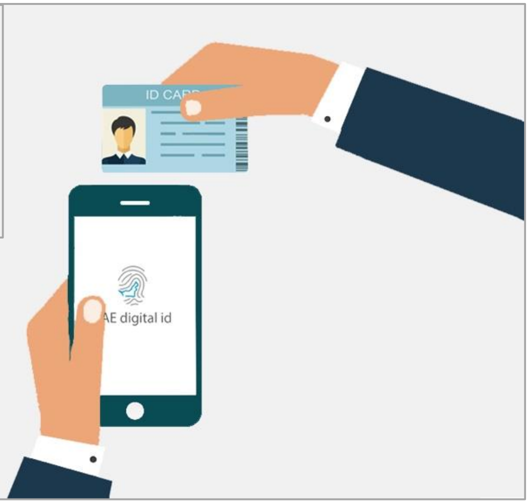
Congratulations,
now you can use your credentials to sign documents

Prerequisites:
✓ Verified user with mobile enrolled

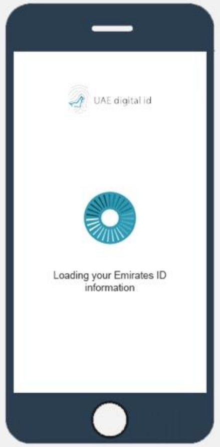
ICA Toolkit enrollment for Level 1 users

Mobile Enrollment – Level is based on ICA SDK

Using Emirates ID, user can enroll with an NFC enabled mobile.



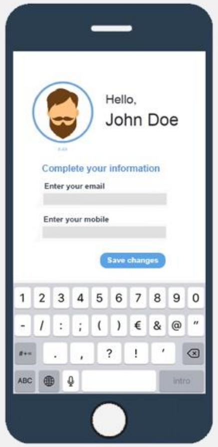
The mobile load the user information



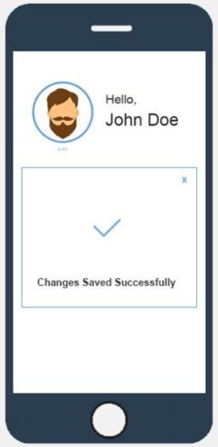
The user confirms the information (or cancels)

Hello,
John Doe

The user enters their email and mobile numbers for verification



The user is enrolled with basic level of assurance – **Authenticate enabled**

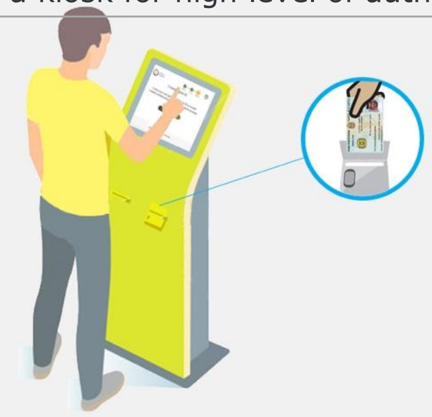


Prerequisites:
- ✓ ICA SDK for android phones
- ✓ Android phone with NFC

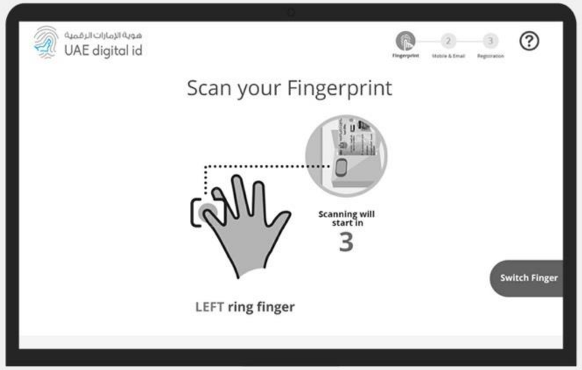
Kiosk upgrade to Level 4 users

Verified Authentication Credentials

User visits a kiosk for high level of authentication



User authenticates with his fingerprints



UAE digital id

Scan your Fingerprint

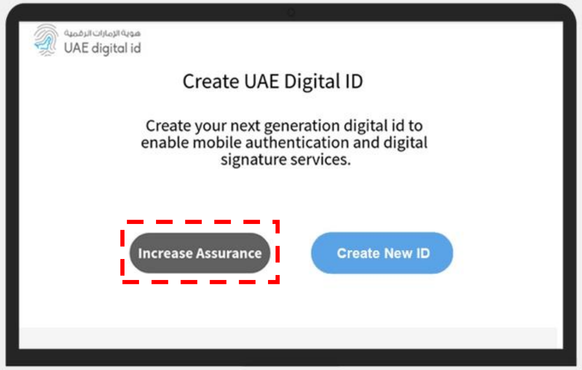
Scanning will start in

3

Switch Finger

LEFT ring finger

Kiosk allows for increase in assurance or new user



UAE digital id

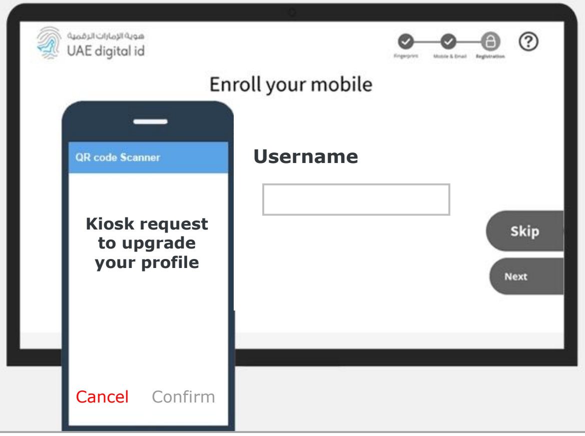
Create UAE Digital ID

Create your next generation digital id to enable mobile authentication and digital signature services.

Increase Assurance

Create New ID

User authenticates and confirm profile upgrade



UAE digital id

Enroll your mobile

QR code Scanner

Kiosk request to upgrade your profile

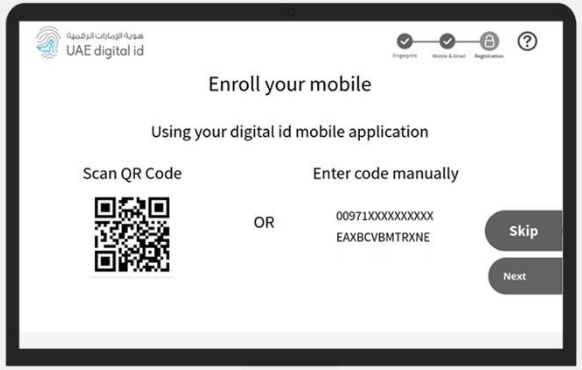
Cancel Confirm

Username

Skip

Next

User gets new enrollment code …



UAE digital id

Enroll your mobile

Using your digital id mobile application

Scan QR Code

OR

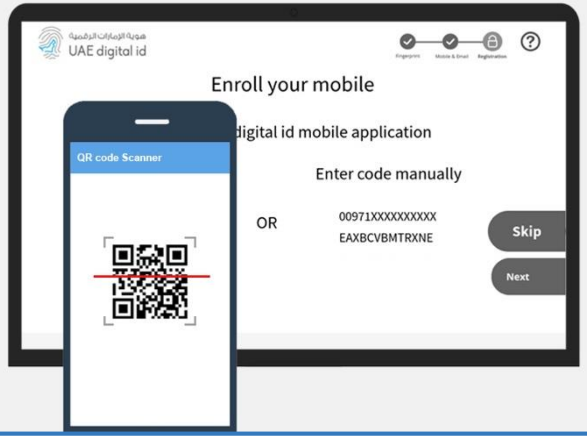
Enter code manually

00971XXXXXXXXXX
EAXBCVBMTRXNE

Skip

Next

… and enroll the device



UAE digital id

Enroll your mobile

QR code Scanner

digital id mobile application

OR

Enter code manually

00971XXXXXXXXXX
EAXBCVBMTRXNE

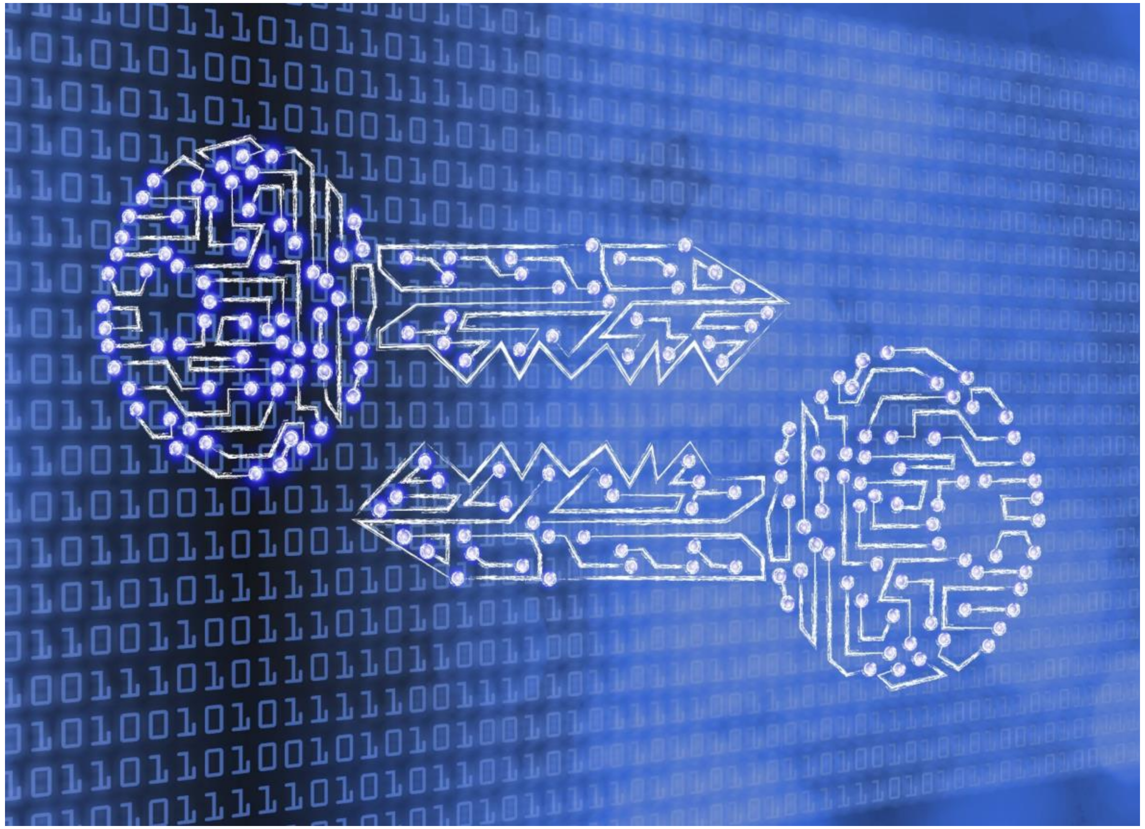
Skip

Next

Certification Authorities issues new keys and certificates

To Successfully Digitize a Nation Requires several elements to be present:

- National PKI service to enable digital Trust Services (Confidentiality/Integrity/Assurance)
- **National Certification Policy** (CP) to define the basis upon which the NPKI operates
- National Digital Identity services to enable the highest assurance of participants in the digital economy
- National Digital Signature services to facilitate digital processes and transactions
- **Legal Recognition** of Digital Identities and Digital Signatures as equivalent to their analog counterparts



- An **Accreditation and Audit scheme** to ensure the veracity of TRUST in the system

DIGITALTRUST : UAE TRUST SERVICES PROVIDER

- DigitalTrust is appointed by TRA as the UAE NPKI Operator
- DigitalTrust was the Solution Architect and System Integrator for TRA & Smart Dubai’s implementation of UAEPASS

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scott.rea@digitaltrust.ae