Asia PKI Consortium
India PKI Forum
International Symposium - 2019
St. Regis, Mumbai, India   05-December-2019
Cyber Security &
Public Key Infrastructure

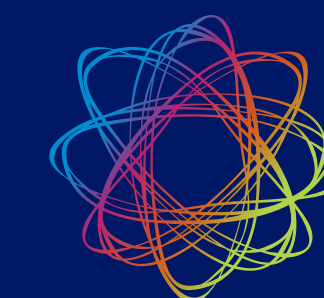# PKI based cross-border e-Services in the Digital Trade Hub of Azerbaijan

Connecting the world, going from the ancient Silk Road to modern cross-border e-trade.

A smart TRUSTED platform for GLOBAL B2B e-Commerce & B2G e-Services.

Jana Krimpe

CO-CHAIR OF GLOBAL ALLIANCE FOR NATIONAL MOBILE IDENTITIES

FOUNDER OF B.EST SOLUTIONS
HEAD OF THE MOBILE-ID CENTER

B.EST Solutions

START WITH MOBILE IDENTITY

Identity is fundamental

Identity is the cornerstone of all legal interaction between people, businesses and the state. A person's ability to prove who they are is a prerequisite to conducting banking, accessing government services and performing countless other transactions

### KEY ENABLER FOR ACCOUNTABILITY AND GOVERNANCE

We can't hold someone's wealth in an account without knowing who they are; we can't have transactions without being sure of the counterparties (KYC and KYB)

A FUNDAMENTAL HUMAN RIGHT

The United Nations recognizes identity as a fundamental human right and has included "providing a legal identity for all, including birth registration, by 2030" as one of it's Sustainable Development Goals (UN target. 16.9)

PRE-REQUISITE OF A FUNCTIONING ECONOMY

Establishing identity is foundational for economical, social and political opportunity.

SUSTAINABLE DEVELOPMENT GOALS

BEST MID
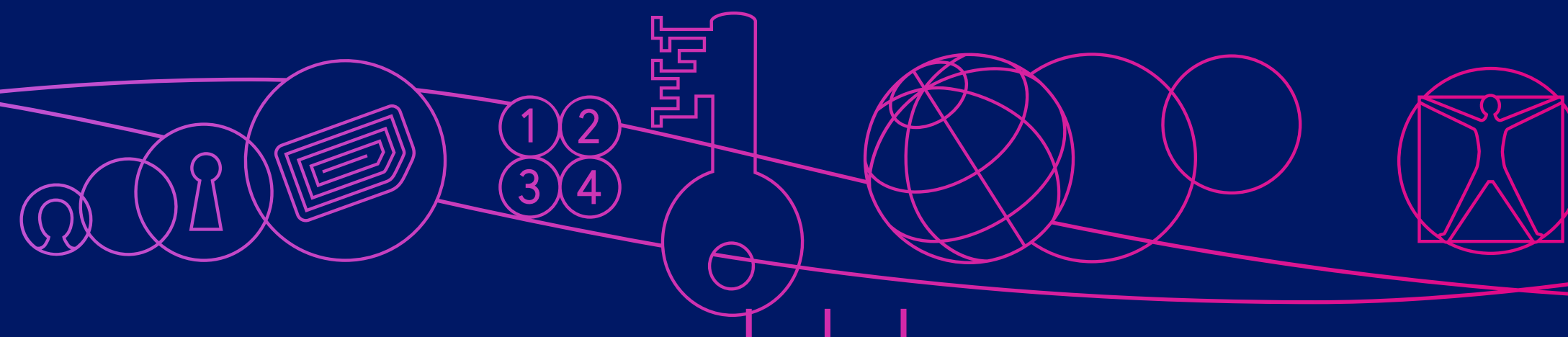
GLOBAL TRENDS TO KEEP AN EYE ON

People are going mobile

- Smartphones and tablets – fast growth ahead!
- User interface for everything
- Social distribution happens in hours

Big Data → service innovation

- Real-time data – uploadable, findable, sharable
- Processing costs fall rapidly → accessibility improves
- Data mining and analytics: finding patterns
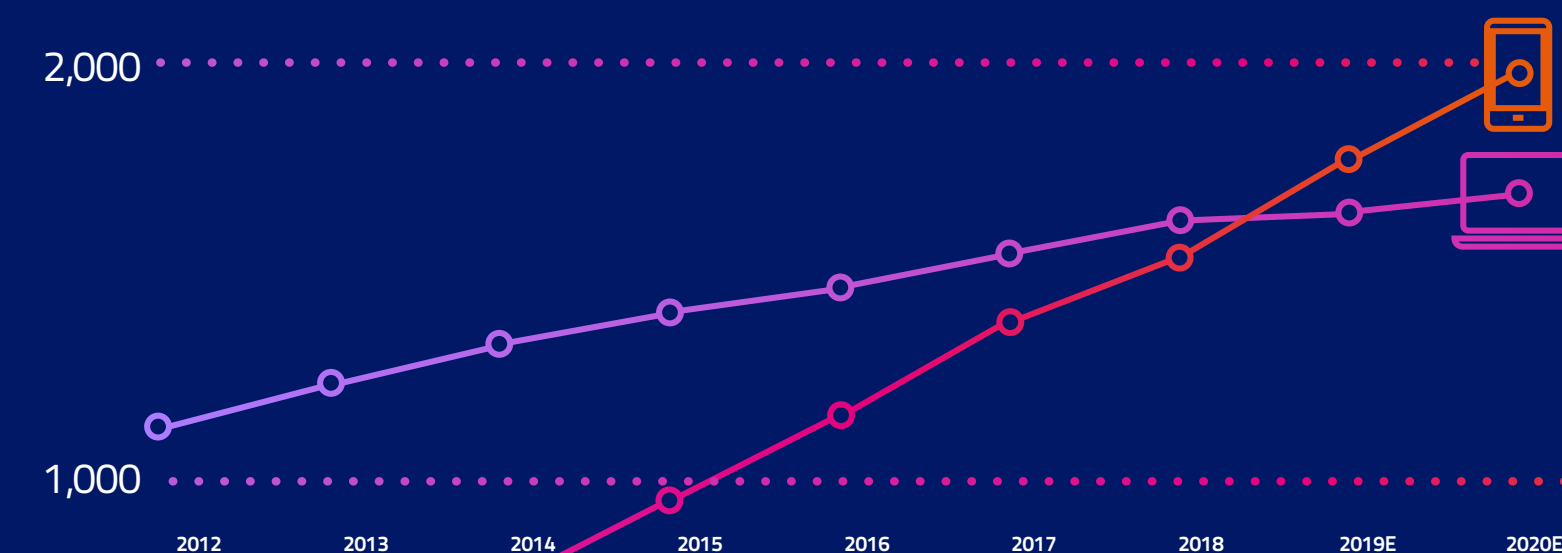
But: cyber threats are intensifying

People are leaving their offices

**People consume
more and more sevices digitally**

Global Mobile vs Desktop internet user projection

DEFINITIVE DATA AND ANALYSIS FOR THE MOBILE INDUSTRY

Global data

Unique mobile subscribers and mobile internet users
Assessing the growth story: beyond subscribers

Mobile connections, includeing licensed cellular IoT **April 2018**

8,513,747936

▲ + 6,20%

Unique mobile subscribers **April 2018**

5,061,223,170

▲ + 3,72%

Revenue/year FY 2017

$1,05T

▲ +1,64%

ARPU/month FY 2017

$9,49

▼ -3,05%

UNIQUE SUBSRIBERS

2017
5,0
billion

2025
5,9
billion

2,1%
CAGR

MOBILE INTERNET USERS

2017
3,3
billion

2025
5,0
billion

5,4%
CAGR
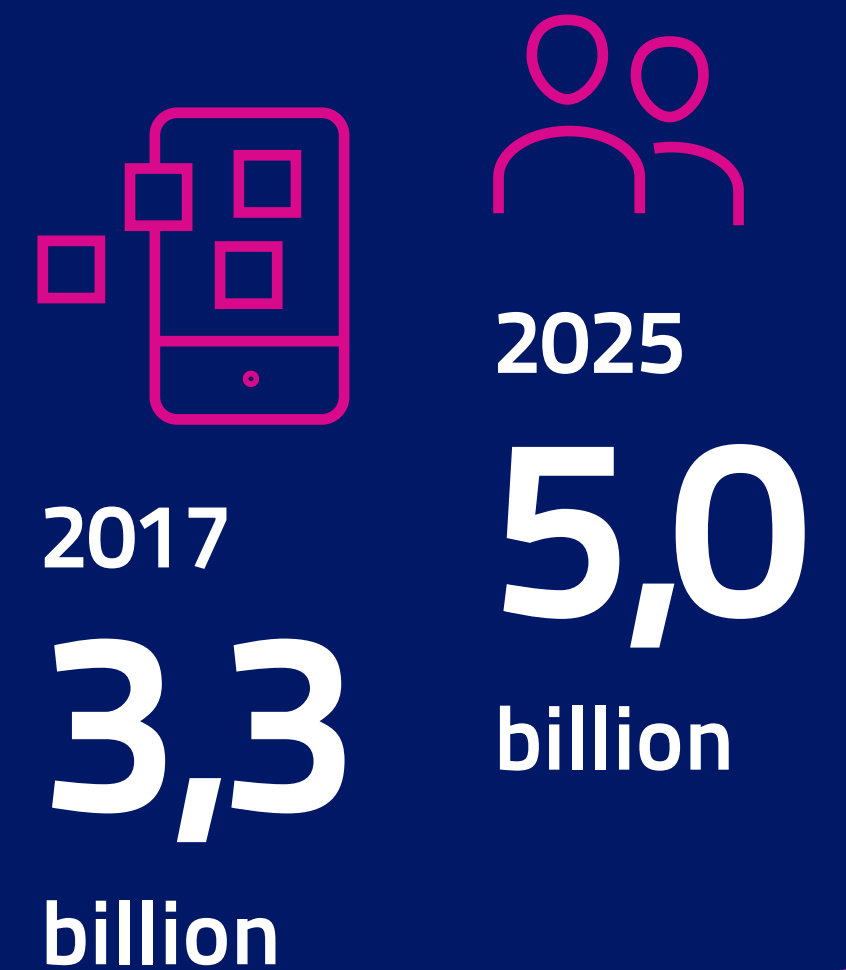
Source: GSMA Intelligence 2018, current year-end data except interpolated subscribers and connections

BEST MID

MOBILE-ID IS EASY

Mobile-ID requires
no device upgrades
on the customer side
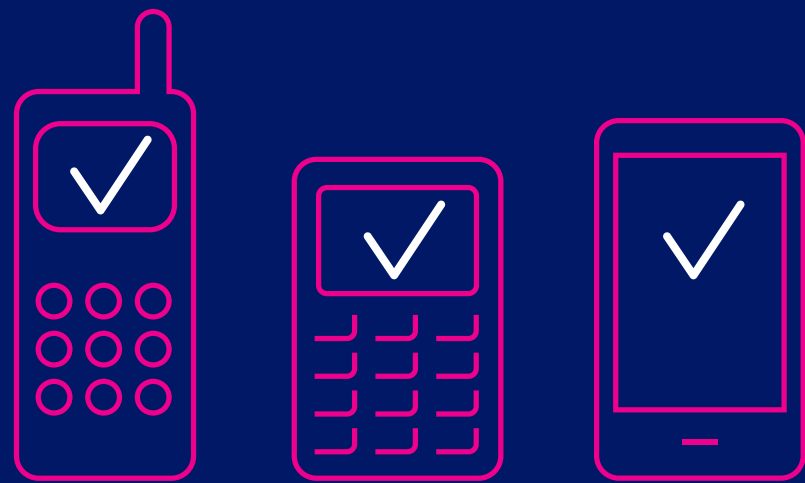
All you need is a
mobile phone
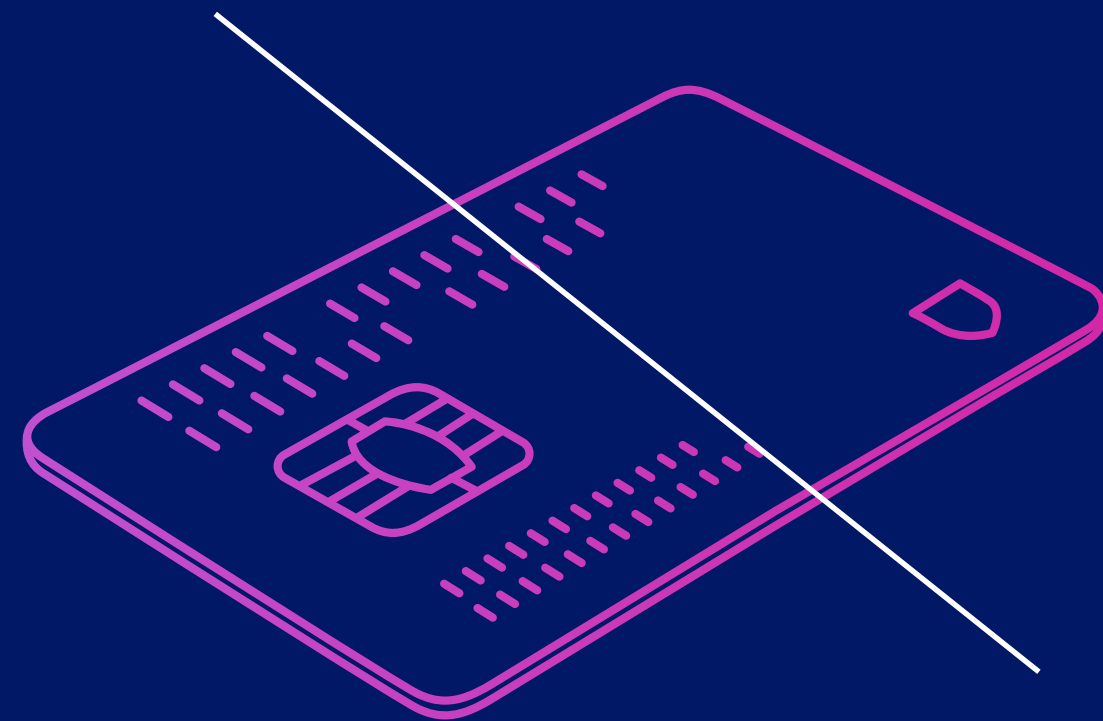with secure SIM

People are going mobile

2,000

1,000

2012 2013 2014 2015 2016 2017 2018 2019E 2020E

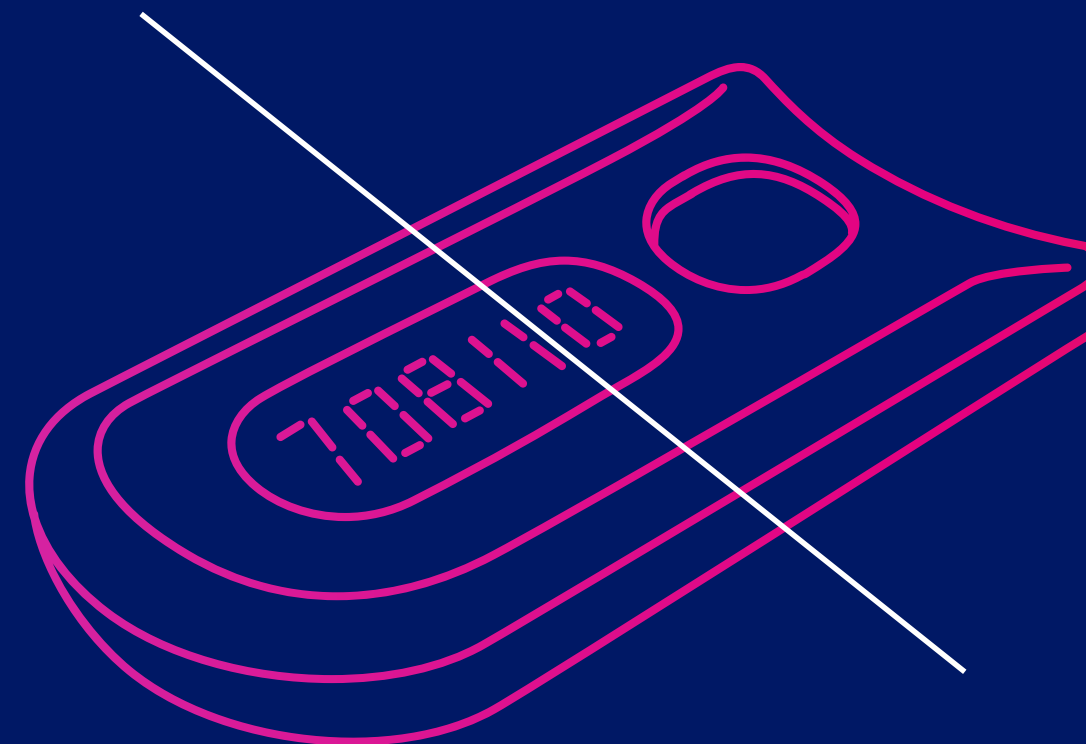BEST
MID

Mobile-ID ADVANTAGES OVER eID

NO CARD READER

NO ID CARD

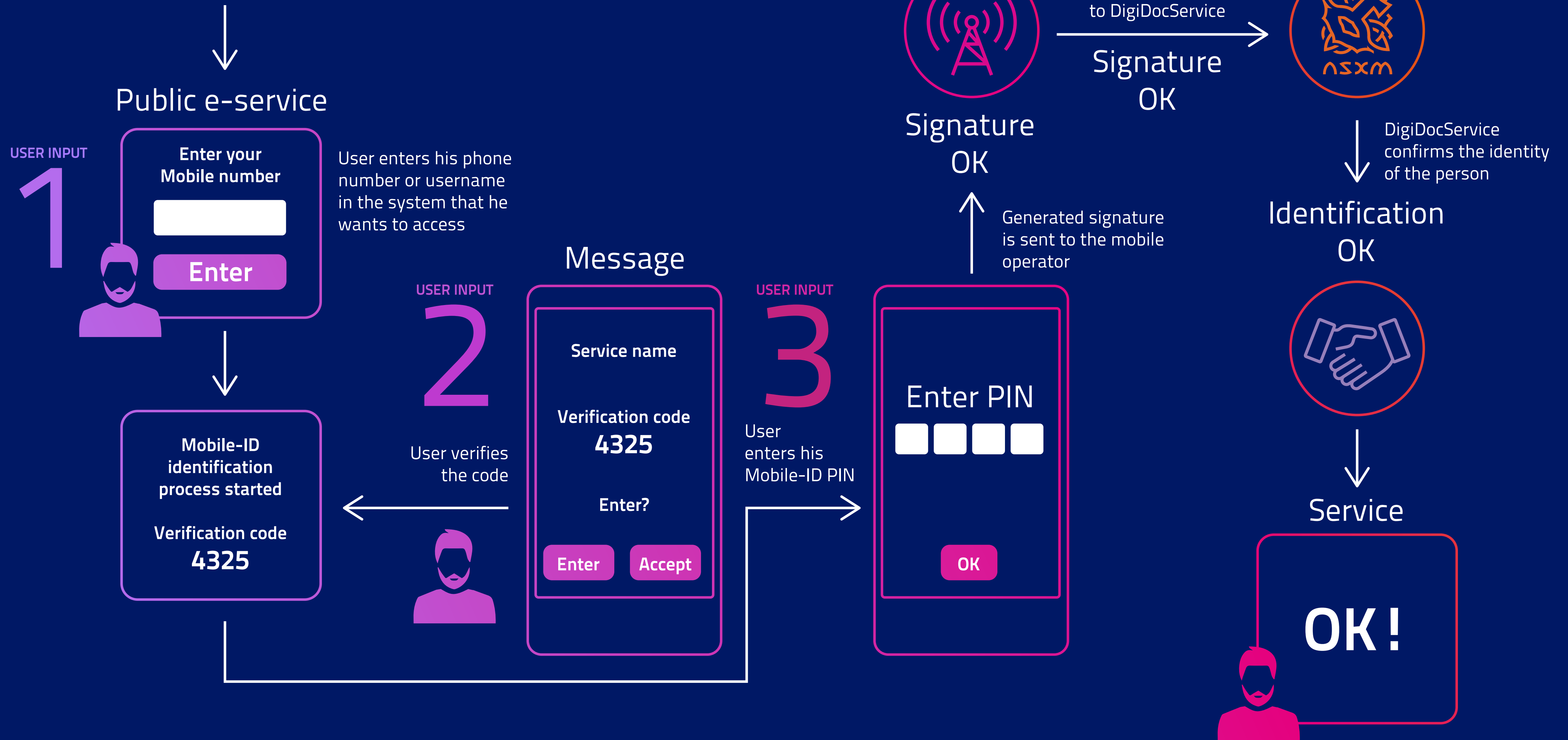**NO E-TOKEN**

NO DRIVERS & PC SOFT

BEST MID

ASAN İMZA – HOW TO USE IT

Public e-service

USER INPUT

1

Enter your Mobile number

Enter

User enters his phone number or username in the system that he wants to access

Mobile-ID identification process started

Verification code
4325

USER INPUT

2

User verifies the code

Message

Service name

Verification code
4325

Enter?

Enter   Accept

USER INPUT

3

User enters his Mobile-ID PIN

Enter PIN

OK

Signature OK

Generated signature is sent to the mobile operator

Mobile operator forwards the signature to DigiDocService

Signature OK

DigiDocService confirms the identity of the person

Identification OK

Service

OK!

BEST MID

WHAT IS MOBILE-ID?

Asan Imza: SIM based personal identification for digital services

SIMPLE

DIGITAL
AUTHENTICATION
& SIGNING

SECURE

ACCESS TO SERVICES →

Three-factor authentication

Digital certificates issued by Asan Imza cannot be used without an additional PIN code, meeting the three-factor authentication requirements of:

- "something you have" (physical SIM card),
- "something a user is"   (biometrics and face-to-face meeting),
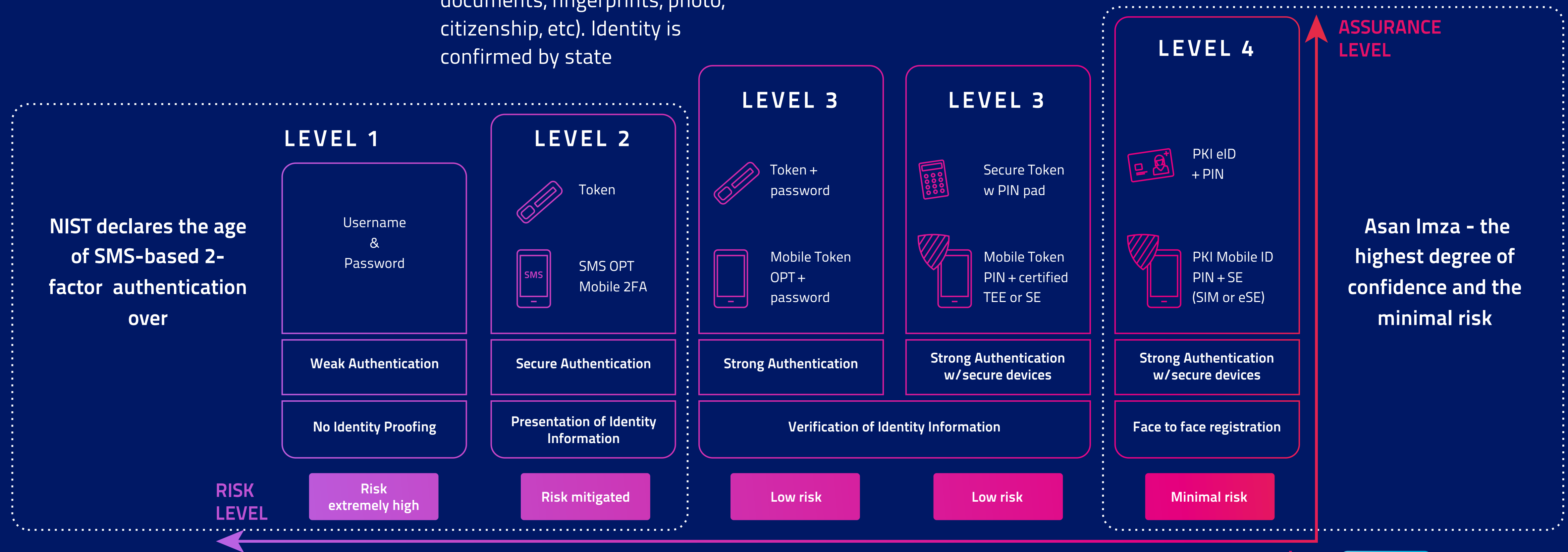- "something you know" (PIN code).

BEST
MID

ASAN IMZA – THE HIGHEST LEVEL OF ASSURANCE

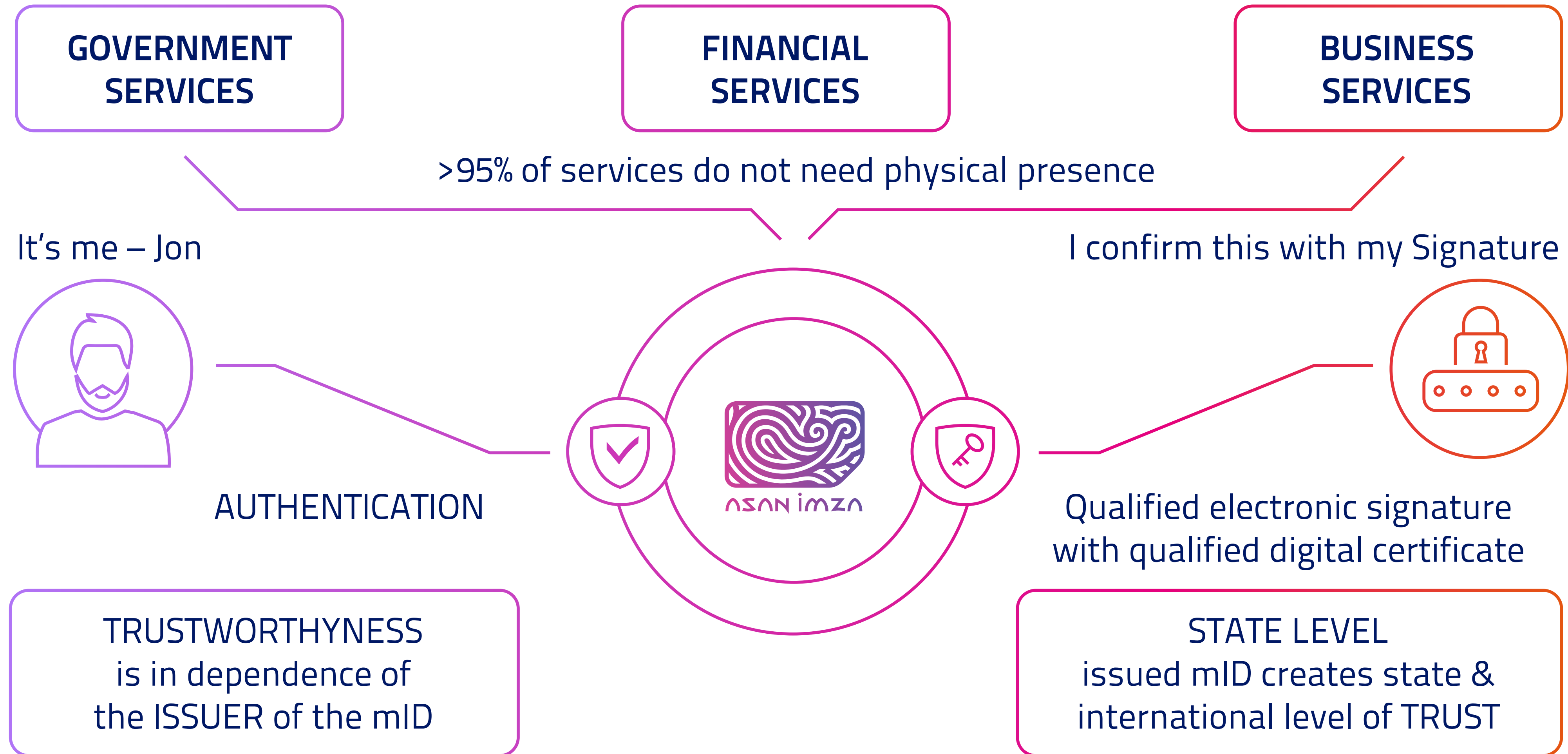- The domain of issuing identity is usually seen as a fundamental government task

- Identity management based on government knowledge and information (population registry, checking validity of identity documents, fingerprints, photo, citizenship, etc). Identity is confirmed by state

- Asan Imza - qualified electronic signature is compliant to EU Regulation No 910/2014 (eIDAS Regulation)

- Identification and method for processing mID applications must ensure high level of trust

ASSURANCE LEVEL

LEVEL 4

NIST declares the age of SMS-based 2-factor authentication over

Asan Imza - the highest degree of confidence and the minimal risk

LEVEL 1

Username & Password

LEVEL 2

Token

SMS OPT Mobile 2FA

LEVEL 3

Token + password

Mobile Token OPT + password

LEVEL 3

Secure Token w PIN pad

Mobile Token PIN + certified TEE or SE

LEVEL 4

PKI eID + PIN

PKI Mobile ID PIN + SE (SIM or eSE)

Weak Authentication	Secure Authentication	Strong Authentication	Strong Authentication w/secure devices	Strong Authentication w/secure devices
No Identity Proofing	Presentation of Identity Information	Verification of Identity Information		Face to face registration

RISK LEVEL

Risk extremely high	Risk mitigated	Low risk	Low risk	Minimal risk

BEST mID

ASAN IMZA – MID GUARANTEED & ISSUED BY STATE

GOVERNMENT SERVICES

FINANCIAL SERVICES

BUSINESS SERVICES

>95% of services do not need physical presence

It's me – Jon

I confirm this with my Signature

ASAN IMZA

AUTHENTICATION

Qualified electronic signature with qualified digital certificate

TRUSTWORTHYNESS
is in dependence of
the ISSUER of the mID

STATE LEVEL
issued mID creates state &
international level of TRUST

BEST mID

MID (ASAN IMZA) SYSTEM IS PPP (PUBLIC-PRIVATE PARTNERSHIP) BASED SYSTEM

Stakeholders are:

- Certification Authority (ASXM)
- Mobile-ID Service Provider (B.EST Solutions)
- Mobile Operators (Azercell, Azerfon, Bakcell)
- End-users
- End-user Service providers:

    - e-Government
    - Banks
    ...

BEST MID

INTERCONNECTION SCHEME

Mobile services provider 1

Mobile services provider 2

Mobile services provider 3

MOBILE-ID CENTER

MT-ASXM

REGISTRATION CENTERS

asan xidmat

The Taxpayers' Service Center

MT

MIA

MJ

SCPI

SSPF

Banks

Other organisations

BEST MID
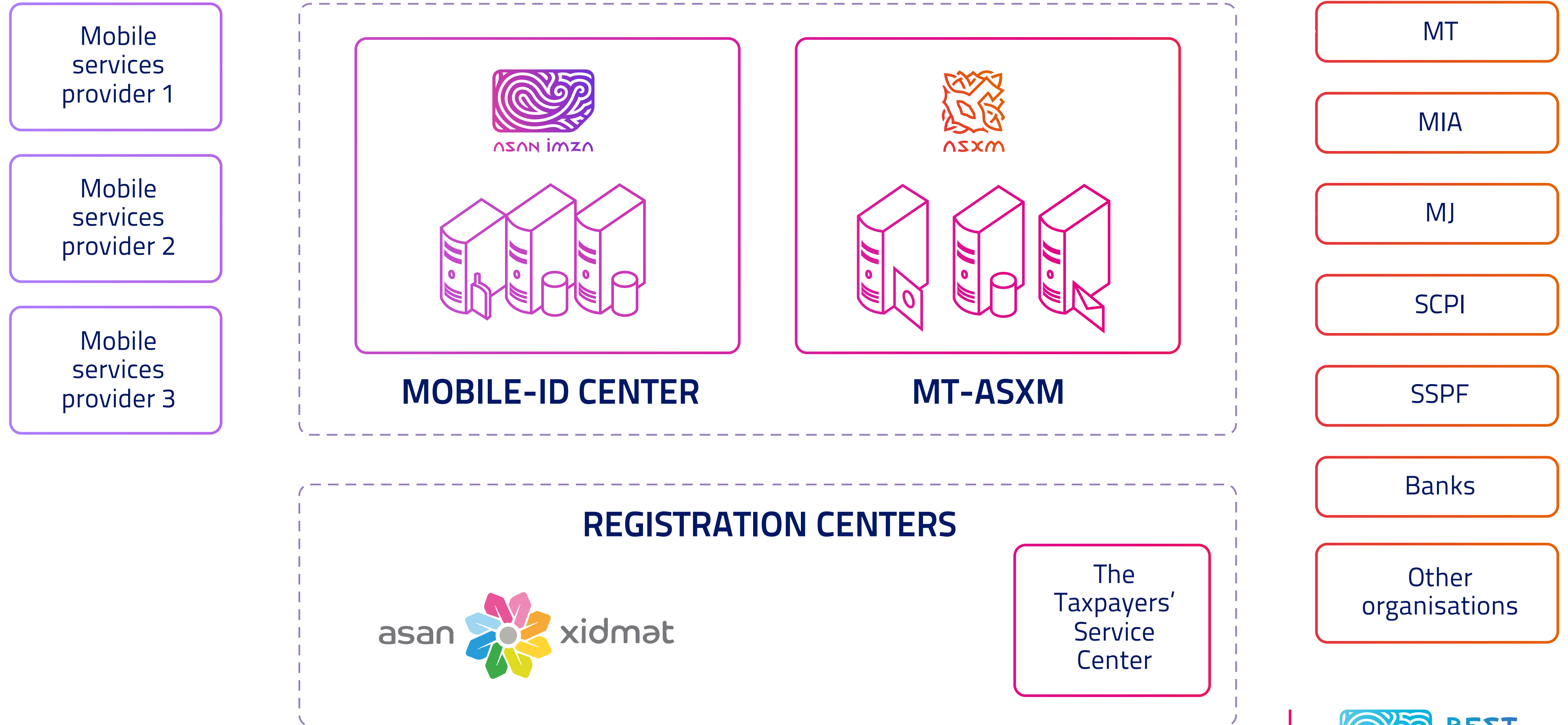
WHO IS THE mID USER?
MID FOR BUSINESS AND TO KYC / KYB / PSD2 / GDPR

Asan Imza User Group:

| INDIVIDUALS 50% | BUSINESS 47% | GOVERNMENT 4% |

Asan Imza will answer who is Sabina and who is Narmina
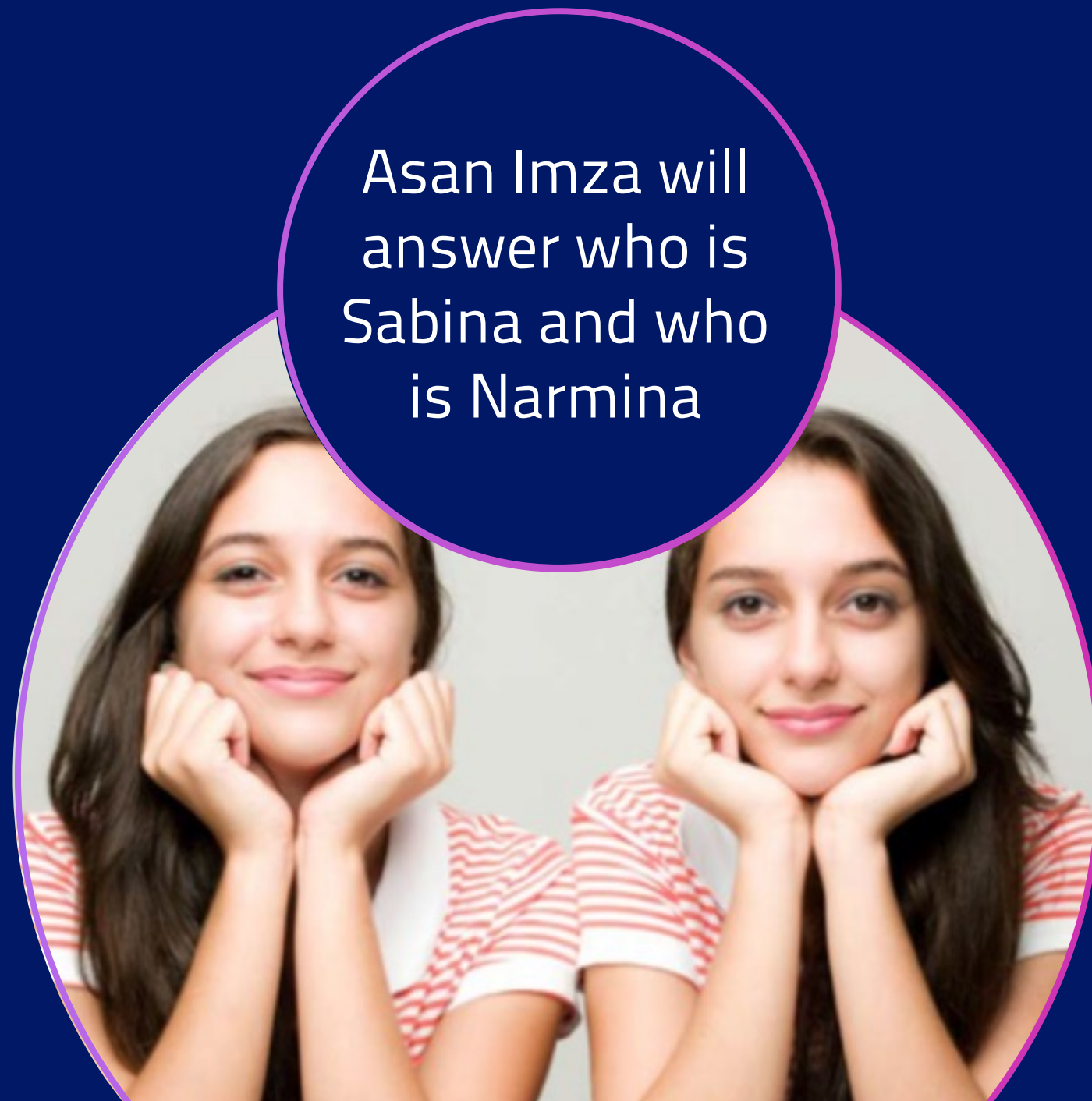
Asan Imza – one unique "National Identiy" issued by State. This identity is that which makes a person unique, i.e. itself and not another, and by extension recognizable and distnguishable from others: confers rights and duties.

BEST mID
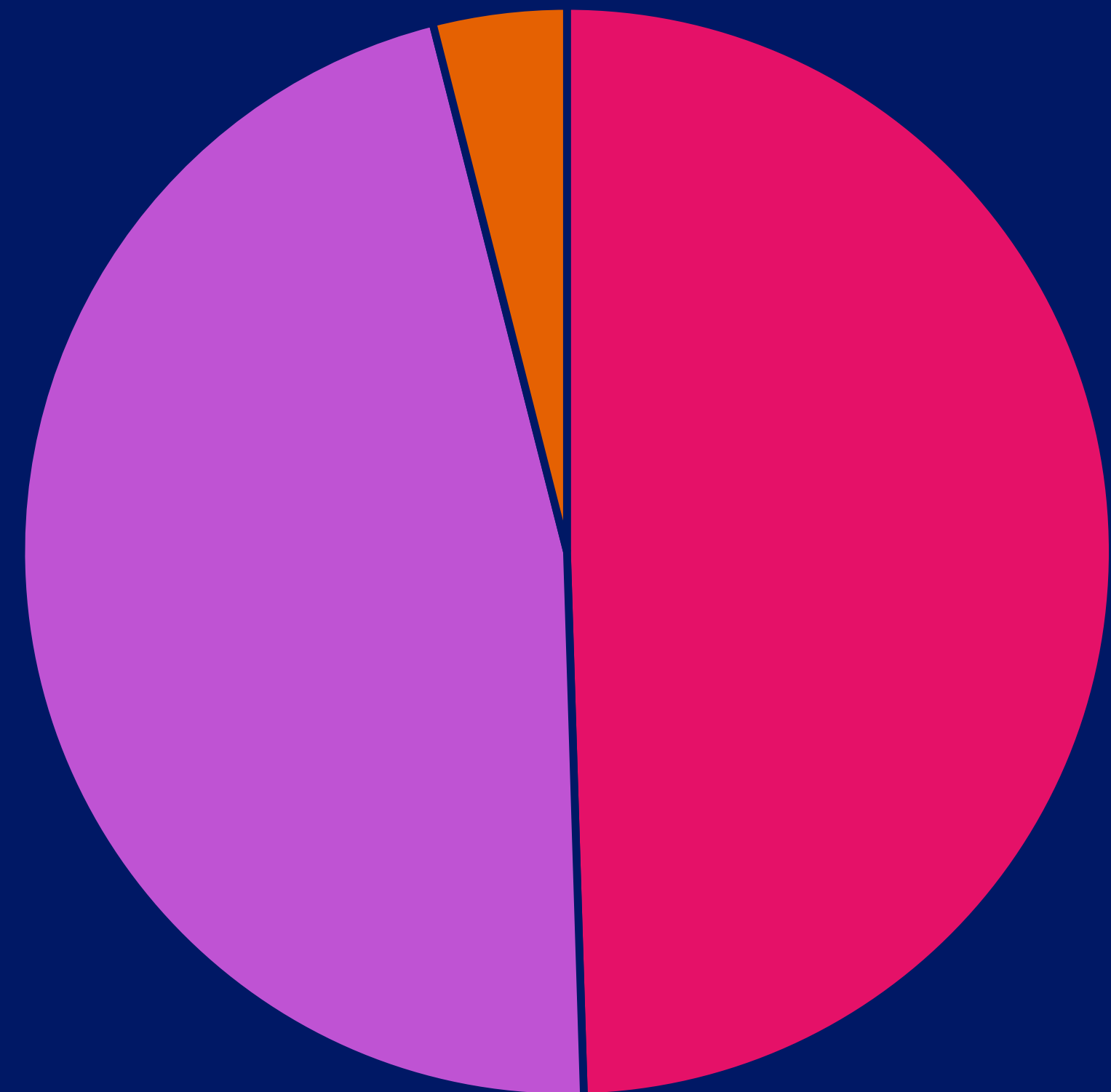
AMOUNT OF TRANSACTIONS 2017–2019
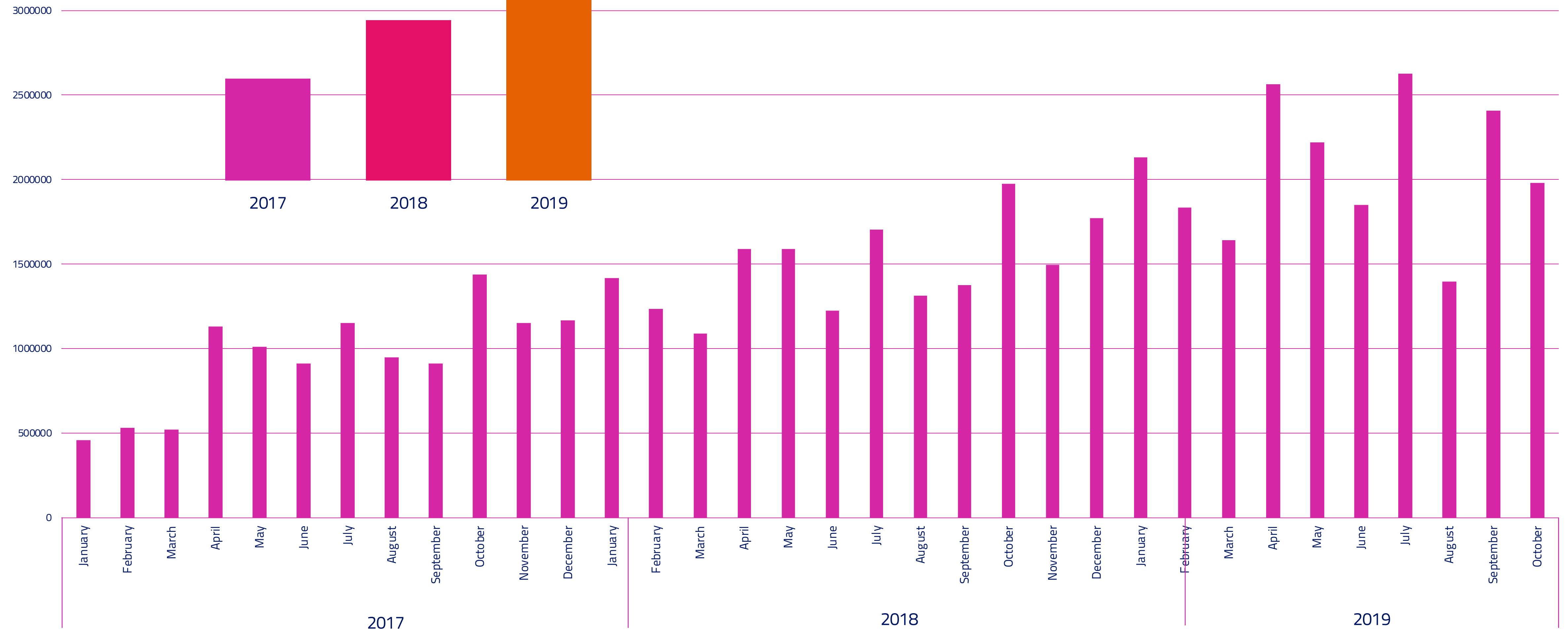
ASAN IMZA IN NUMBERS

- Issued more than 1 700 000 Mobile-ID certificates

- More than 70 million transactions and Mobile ID signatures

- More than 1000 public- and private-sector e-services are available

- All major banks and local mobile network operators issue m-ID

- Over 90% of tax declarations submitted electronically

- 100% of labour contracts are completed online

- 100% of B2B, B2G invoices are issued online

  with every digital signature Azerbaijan will save at least 1 EUR and 5 days in a year for every working person

- 100% of customs declarations are completed online

- It takes 5 minutes to establish a company & bank account online

- All major banks are connected and issue m-ID

- 100% of invoices B2B and B2G done online.

- Zero incidents or security breaches

- The road to saving up to 2% of GDP per year

- Has saved hundreds of millions of working hours

- First in the world m-Residency project

ASAN IMZA

BEST MID

THE MOST POPULAR E-SERVICES USED WITH ASAN İMZA

▪ Tax services

Ministry of Taxes of Azerbaijan holds the premier position among other public service providers. 63 of 457 public e-services are provided by the Ministry. It is one of the few government authorities rendering its services to the users also via a dedicated tax portal (www.e-taxes.gov.az). In general, till March 2017 taxpayers conducted around 10 MLN. tax operations using their Asan İmza via the e-Tax Portal.

▪ Labour and social protection e-services

The second largest figure of using e-services with Asan İmza is related with the e-services of labor contract registration for employers and employees rendered by Ministry of Labor and Social Protection of Population and e-services of State Social Protection Fund. The cumulative number of usage of these e-services with Asan İmza made approximately 1.5 MLN. in 2015.

▪ e-Custom declaration

The newly introduced e-customs declaration service allows citizens and businessmen to electronically declare their imported goods and transport means using mobile ID (Asan Imza) without the need to physically apply to any customs broker/customs department as it earlier used to take place. The whole process is as easy as logging in to the e-Government portal using Asan İmza, filling in the e-declaration and signing the ready declaration with again Asan İmza. Since only April 2016 more than 700 000 signed e-declarations have been sent.

BEST MID

ASAN İMZA – REAL SOLUTION FOR RURAL AREAS, FOR PEOPLE WITH LOW COMPUTER & FINANCIAL LITERACY AND LIMITED ACCESS TO THE INTERNET IDENTITY

◼ Declaring taxes by phone : 195 Call Centre

Taxpayers can fill in and submit their simplified tax declarations by calling 195 Call Centre. There is even no need to use PC or Internet for this purpose; the operator of Call Centre will guide the taxpayer throughout the overall process only asking to confirm the ready declaration with his/her PIN2 to submit it.

◼ Expanding the list of services at 195 Call Centre and integrate other popular services via other call centers with Asan İmza including financial services

◼ Client identification during call to bank or public service call center

◼ Mobile-ID allows service provider to positively identify caller

BEST MID
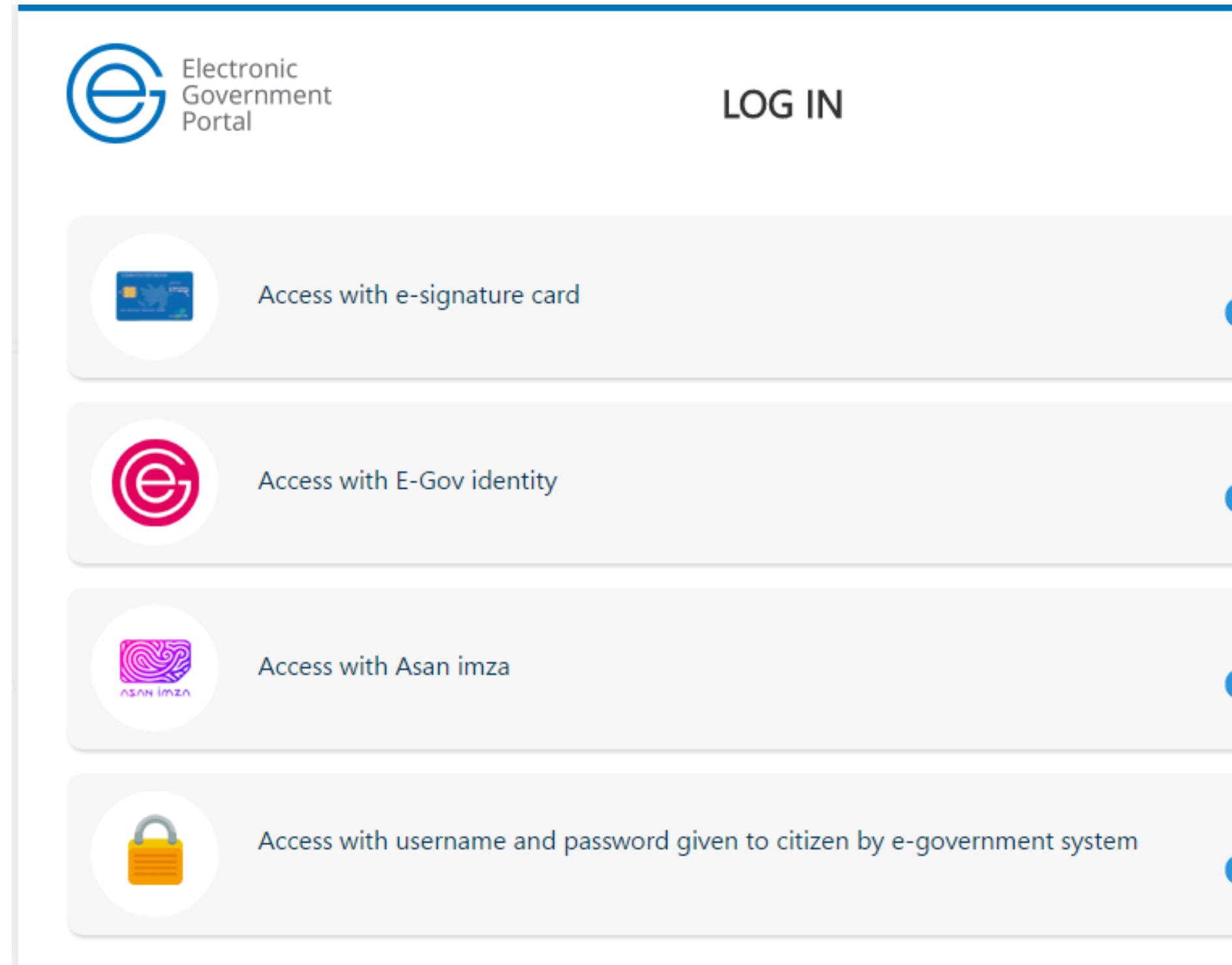
DECLARING TAXES VIA 195 CALL CENTRE USING ASAN IMZA

OPERATOR

3 Fills in declaration →

TAX

4 Declaration sent for preview via SMS →

1 Calls Call Centre

2 Authenticates user

ASAN IMZA

TAX

Submits declaration signed with Asan Imza

5

ASAN IMZA

TAXPAYER

PARTNER SIGNING

TAXPAYER

BEST MID
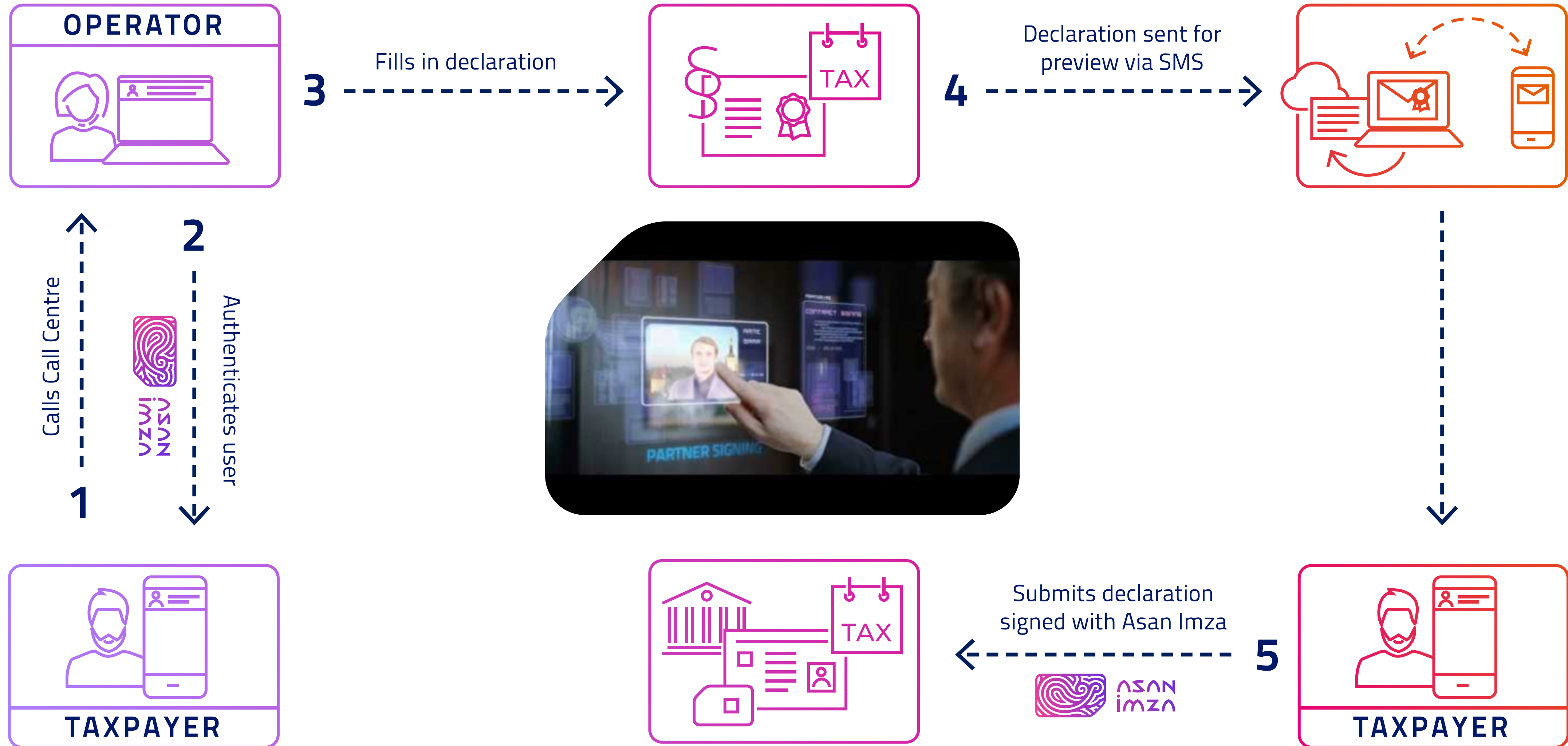
ASAN İMZA HAS BEEN INTEGRATED INTO E-GOVERNMENT PORTAL
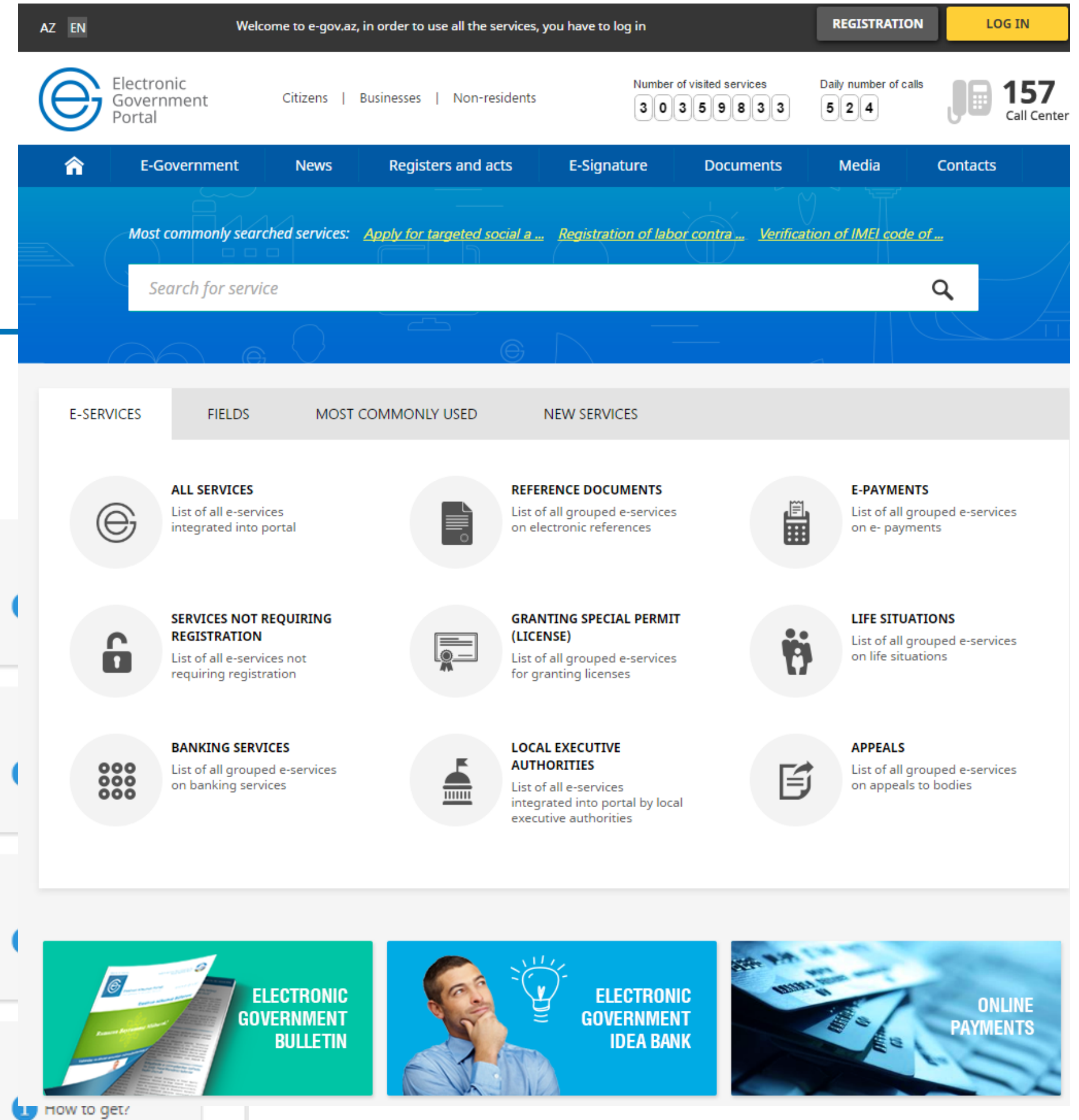
Asan Imza allows to use all e-services

ISESCO BESTDOC PORTAL – A CROSS-BORDER CORPORATE PLATFORM FOR DIGITAL SIGNATURE

- **ISESCO BESTDOC PORTAL,** claiming to be the first ever m-signing and authentication service in the ISESCO countries and globally as the best practice of innovative document management system for international organisations, aims to export the paperless society experience and enables sharing and m-signing of documents in any format underpinned by strong user authentication.

- **Islamic Educational, Scientific and Cultural Organization (ISESCO) BESTDOC PORTAL** uses e- & m-signature and authentication technology that aims to be at the forefront in the mobile signature world.

- Introduction to the project was in November 2015 at ISESCO annual meeting in Baku. Agreement signed in November 2016.

Digital Trade Hub of Azerbaijan – PPP based consortium

A Public-Private Partnership initiative established to develop the digital infrastructure of e-Trade in Azerbaijan and strengthen the position of the country as the Digital Trade Hub in the Regional and Globally. At the 3rd Digital Trade Forum named "Digitalization of the Silk Road" held on October 9, 2019 in Baku, the Agreement on formation a Public-Private Partnership Consortium between the Center for Analysis of Economic Reforms and Communications, PASHA Bank, B.EST Solutions and AzerTelecom, was electronically signed.

Center for Analysis of Economic Reforms and Communication of the Republic of Azerbaijan

AzerTelecom

PASHA Bank

B.EST Solutions

B.EST Solutions

AZERBAIJAN – RIGHT PLACE, RIGHT TIME AND CAPABILITY

✈ 4h   🧍 3x10^9

Within reach to 50 countries with almost 50% of world consumers within 4-hour flight range

Azerbaijan has free trade access to the 270 million consumers of the CIS, with GDP worth 1.6 trillion.

70% of the time is saved between China and Europe. It is considered to be the shortest linkage both in distance and time.

Logistics hub for the Caspian region with the biggest airport, seaport, railway network and free-trade zones
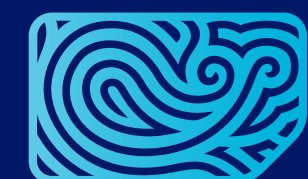
BEST MID

SCALING A DIGITAL TRADE & CROSS-BORDER DATA FLOWS GLOBALLY, REQUIRES INTERNATIONAL LEADERS AND INNOVATORS JOINING IN

Azerbaijan is just big enough

We can be flexible, we can easily manage, we can change the wrong direction quickly, we can test anything and try something modern and innovative, we can become more mobile and more international

The invitation is open to the world

Azerbaijan is able and willing to make big strategic decisions inspired by the advances in technology for e-trade and share them with the world. The international community engagement is well welcomed and needed to facilitate right conditions and create a seamless environment. The list includes governments, policy-makers, experts and academics, international organizations, youth, civil society and innovators, in addition to the prominent involvement of business.

Azerbaijan's Digital and physical infrastructure is available

Azerbaijan offers leading organizations such as the WEF, World Bank, United Nations, EBRD, Asian Development Bank and other. Governments and private companies to use its digital infrastructure including its DTH, its well-built physical transportation and logistics infrastructure as a "sandbox" to test ideas, capabilities and move closer to connecting the world.

Recognized know-how for implementing DTH pre-requisites

Partner countries understanding the importance of digital SME trade, but not having the capabilities to create the needed technological pre-requisites can count on Azerbaijan to help. Azerbaijan is one of the most digitally advanced countries in the world surpassing the US and most EU countries regarding the level of digital identity and e-signature ecosystems. Mobile Identity - Asan Imza gives access to more than 1000 public and private e-services, providing accountability and governance with the highest level of assurance.
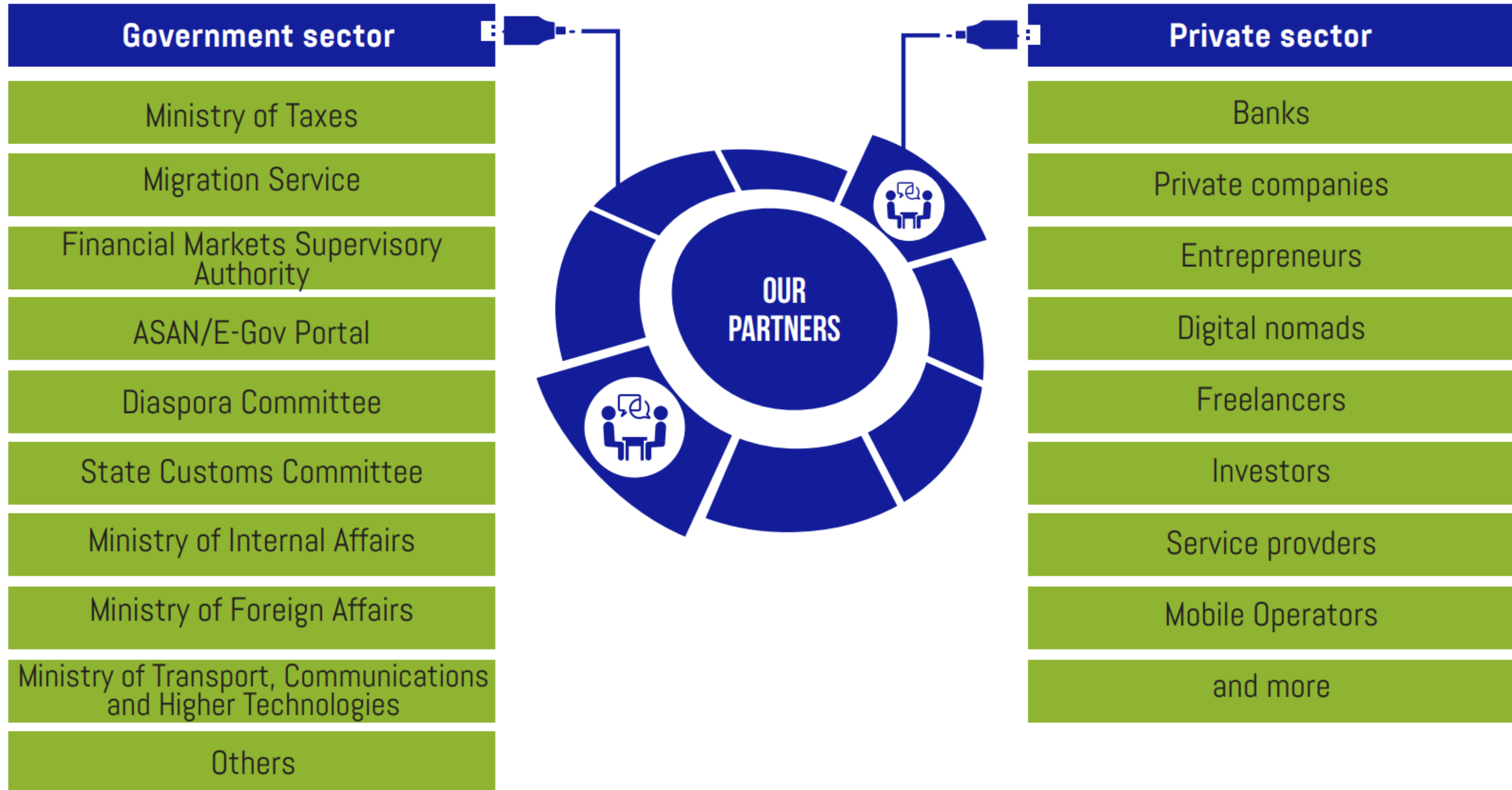
BEST MID

We are a digital hub where both the public and private sectors meet to create a favorable business environment for digital nomads, freelancers and entrepreneurs. Our project was established by the President of Azerbaijan.

Government sector	Private sector
Ministry of Taxes	Banks
Migration Service	Private companies
Financial Markets Supervisory Authority	Entrepreneurs
ASAN/E-Gov Portal	Digital nomads
Diaspora Committee	Freelancers
State Customs Committee	Investors
Ministry of Internal Affairs	Service provders
Ministry of Foreign Affairs	Mobile Operators
Ministry of Transport, Communications and Higher Technologies	and more
Others	

OUR PARTNERS

E&M RESIDENCY
Become an electronic or
a mobile resident of Azerbaijan
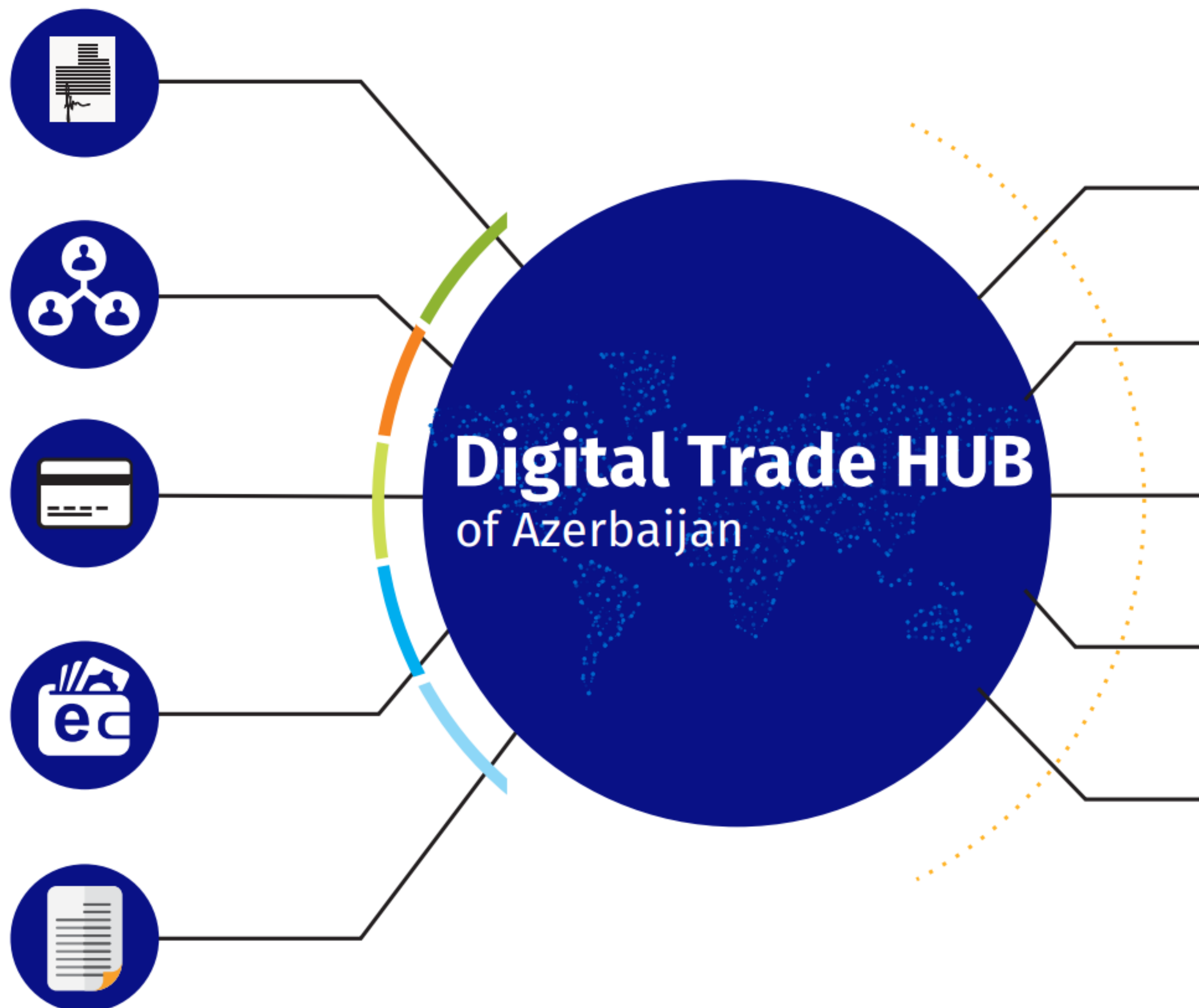
E-COMPANY
Establish your company online

E-BANK
Open an online bank account

E-WALLET
Make payments with
your electronic wallet

E-DOCUMENT
Electronically sign and
verify your documents

Digital Trade HUB
of Azerbaijan

MOBILE-ID ENABLED TO OFFER FIRST IN THE WORLD M-RESIDENCY

M-RESIDENCY WITH ASAN IMZA

- **Azerbaijan is the world's first country to offer m-Residency.**

  It empowers entrepreneurs around the globe to set up and run a location-independent business in the country and use all the cross-border e-services of the Digital Trade & Cross-Border Data Flows of Azerbaijan.

- The aim of the project is to issue an Asan Imza Mobile ID to everybody who is interested, allowing them to start a business in Azerbaijan, invest in the country and use all online services from abroad.

ADVANTAGES:

- **Establish a company online within a day**

- **Administer the company online from anywhere, any time**

- **Conduct e-banking and money transfers**

- **Have access to international online payment service providers**

- **Sign documents and contracts digitally**

- **Manage accounting records and declare taxes online**

- **Fill and confirm customs declarations online**

m-Residency
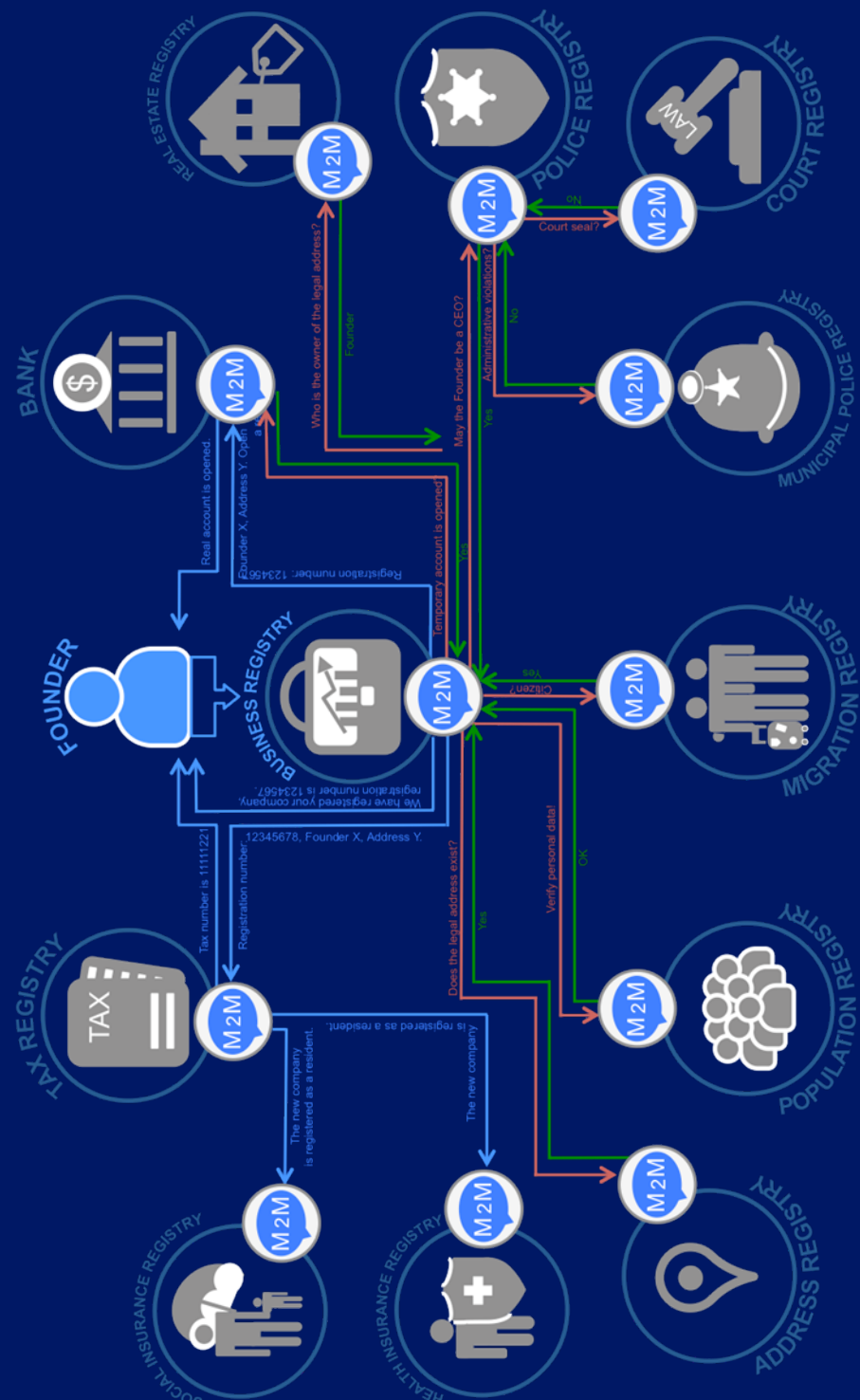
WELCOME TO THE DIGITAL
WORLD OF AZERBAIJAN!

79 diplomatic Azerbaijani embassies around the world issue m-Residency

BEST MID

HOW TO ESTABLISH A COMPANY

Become an e- or m-resident (Apply: button)

Submit your application to register your company using the secure online form

Sign the documents electronically

Pay the state fee and receive confirmation

e&m-Residency ensures the followings

- Filing Tax Declarations Online
- Starting a company in Azerbaijan within a day
- Administrating the company from anywhere in the World
- Conducting e-banking and funds transfer transactions
- Managing accounting records
- Online recruitment
- Verifying validity and legacy of digitally signed documents
- Digitally signing documents and contracts

50 SHADES OF BANKING SECURITY

■ **Why strong Mobile Identity?** Almost all interactions with financial institutions have one common point: **authentication.** You have prove your identity and as long as these credentials remain safe and intact, your money on your account is secure.

■ **Money laundering,** the illegal transfer of funds from or to illegal enterprises. The spread of worldwide terrorism and subsequent fear of lone wolf attacks in Europe and North America. Cutting their financial access to one of the world's most respected financial capitals is vital.
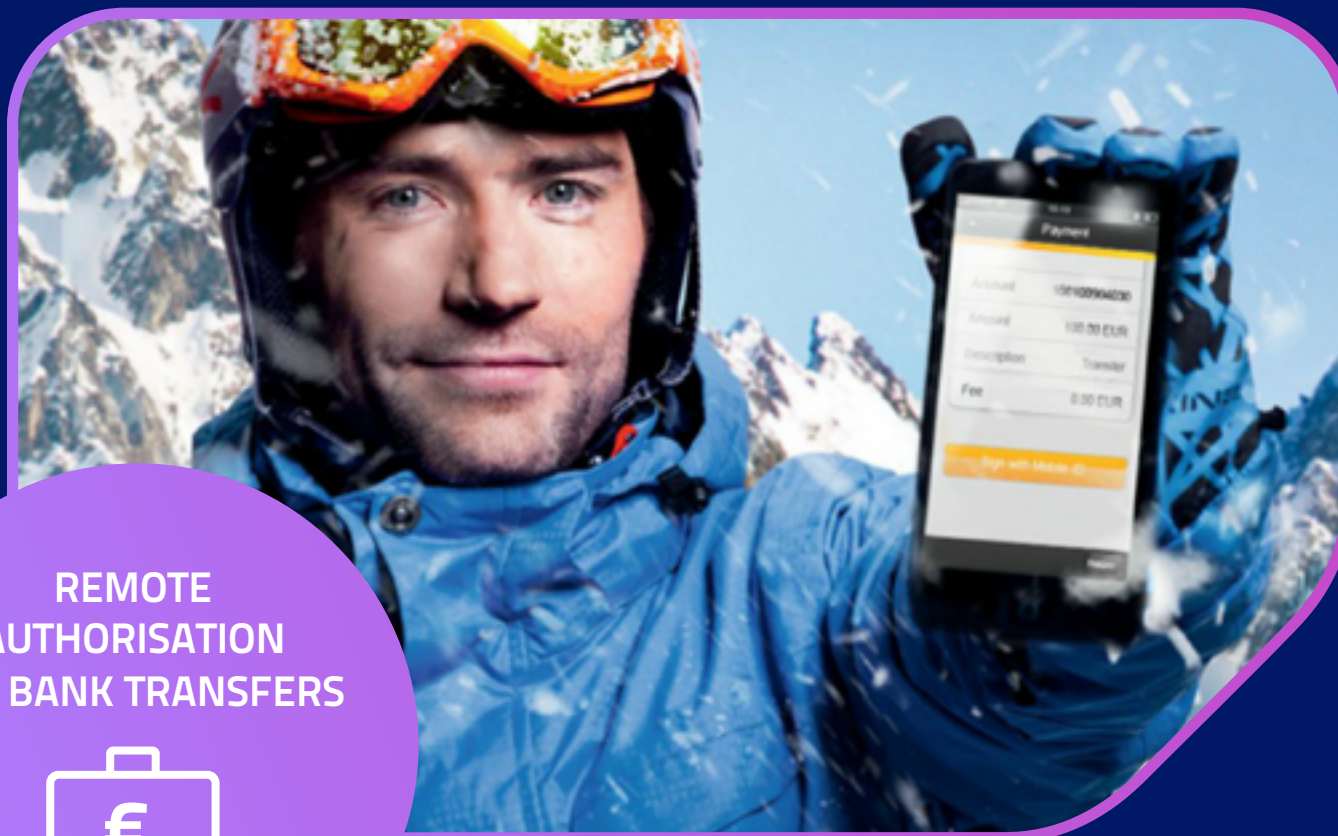
■ **Customer identification** is a worldwide practice in online banking that simply asks the question: are you who you say you are? It is commonly known as **Know Your Customer (KYC)** and today additionally **KYB (Know Your Business)**.
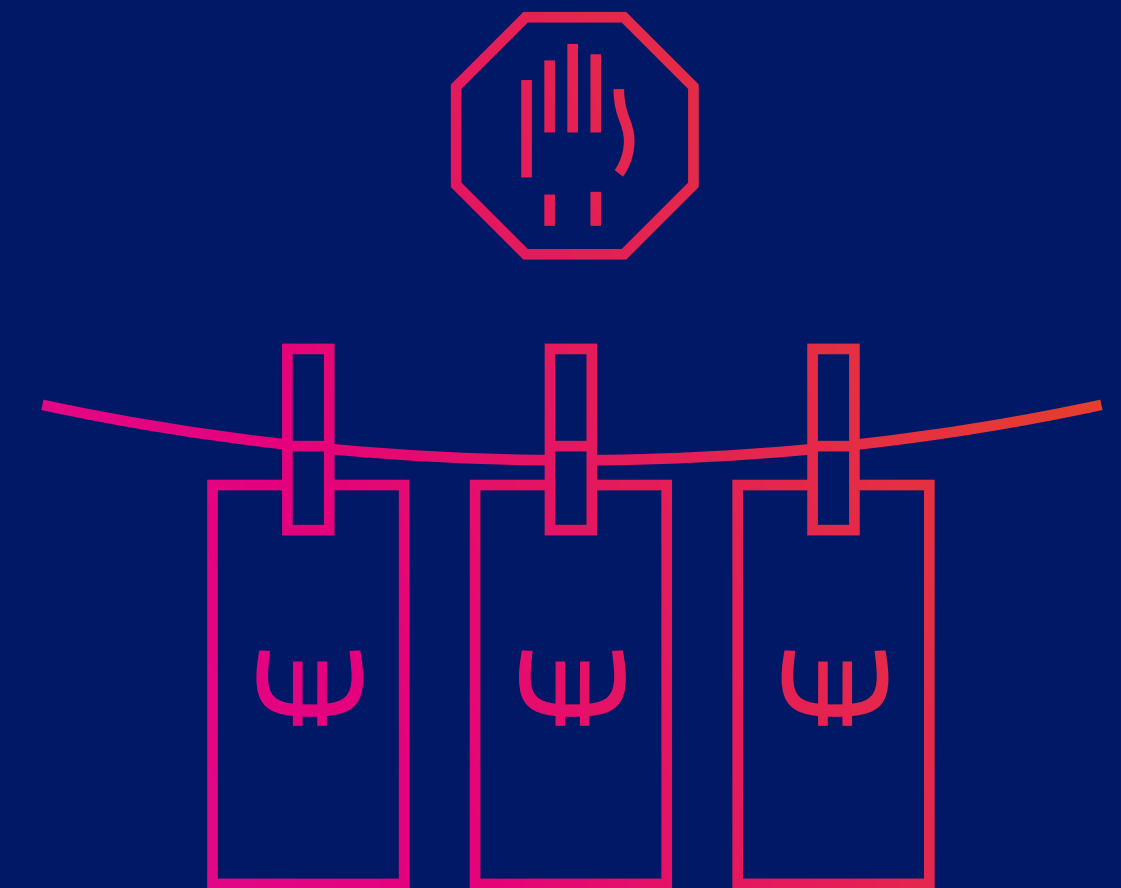
REMOTE
AUTHORISATION
FOR BANK TRANSFERS

€

BEST MID

REASONS FOR BANKS TO USE STRONG MOBILE IDENTITY

■ **New concept of customer service**

Nowadays banks are globally moving from the traditional "face-to-face" model of customer service to an innovative concept of "e-branches". Using Strong Mobile Identity solutions definitely contributes to this process allowing banks to cut traditional costs on maintenance of physical branches and be online **24/7 for customers**.
No legally proved e-identity no 24/7 digital banking

Planned integration of Mobile Identity into innovative **video-banking** channels and ATMs – the best way to fight with skimmers and malware...

■ **Maximum security of operations**

Thanks to Mobile ID technology, there is no need to use such vulnerable and old-fashioned authentication methods as usernames and passwords or OTP. Mobile Identity can no way be hacked or compromised by any third party, thus providing top level of security for all online operations and personal data of customers.

■ **Enhanced customer satisfaction**

Bank customers can get all required services online with their innovative identities just in two clicks not spending their time and resources to visit physical branches of a bank. Additionally, they can use their Mobile-ID a single authentication tool across multiple online banking platforms of various banks.

Asan Imza
■ **cannot be forged**
■ **reduces paper usage considerably**
■ **makes possible to rearrange human resources**
■ **raises cost-efficiency**

BEST MID

OPEN ACCOUNT ONLINE WITH M-RESIDENCY

The Financial Markets Supervisory Authority of the Republic of Azerbaijan (FIMSA) passed the Rules on Opening, Maintaining, and Closing Bank Accounts.
The Rules are registered with the state registry of legal acts 24 June 2019 and are effective as of 25 June 2019. The Rules set out the procedures for opening bank accounts remotely by legal entities as well as individuals including non-residents.

24/7 əməkhaqqı ödənişi!

PAŞA Bank

How to open account online?

1. Go to "Open account online" in Pasha Bank official site
2. Fill registration form and sign it via ASAN İmza
3. Receive your account requisites/details
4. Visit the bank whenever is suitable to activate your account

Open account

Advantages

- Open account 7/24 from anywhere in the world
- Paying fee for account opening online
- Signing for customized tariff packages
- Automatically joining Online bank

BEST MID

ASAN İMZA – SECURE KEY TO FINANCIAL SERVICES (KYC) Transactions in banks for 2018

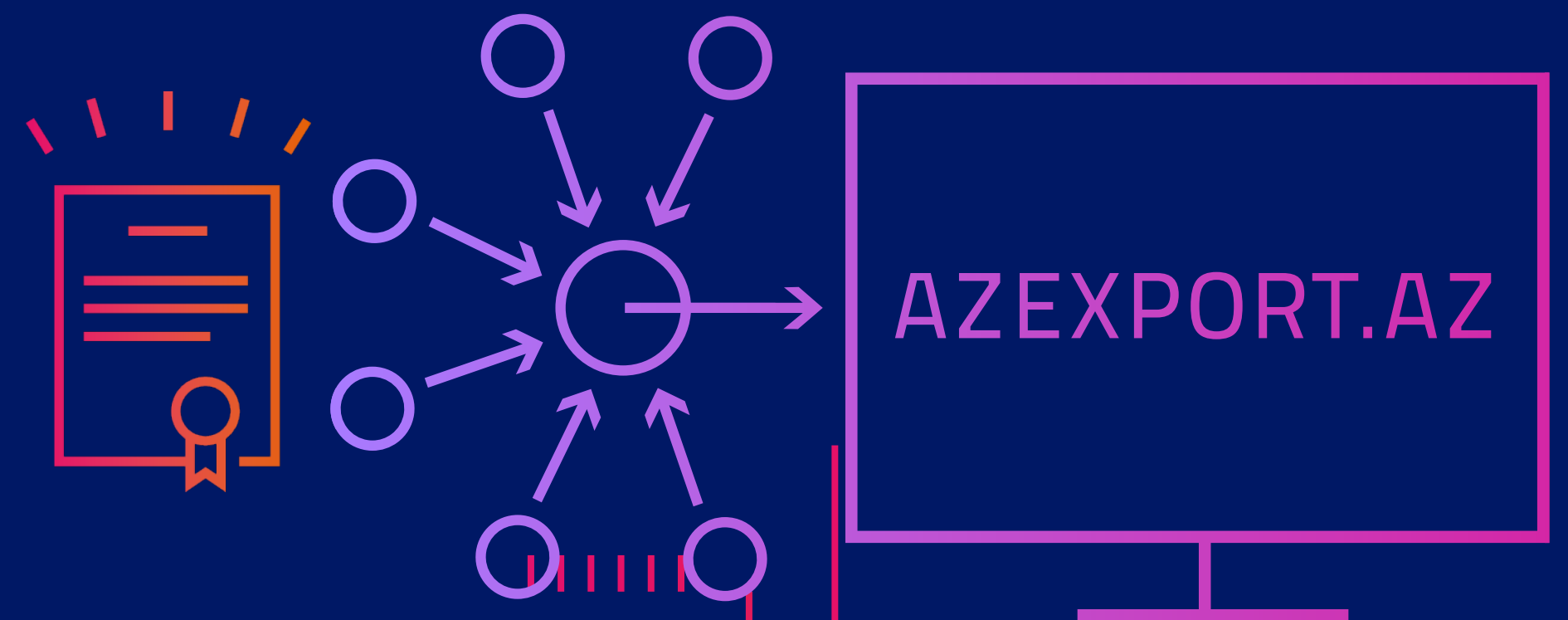Legend: January, February, March, April, May, June, July
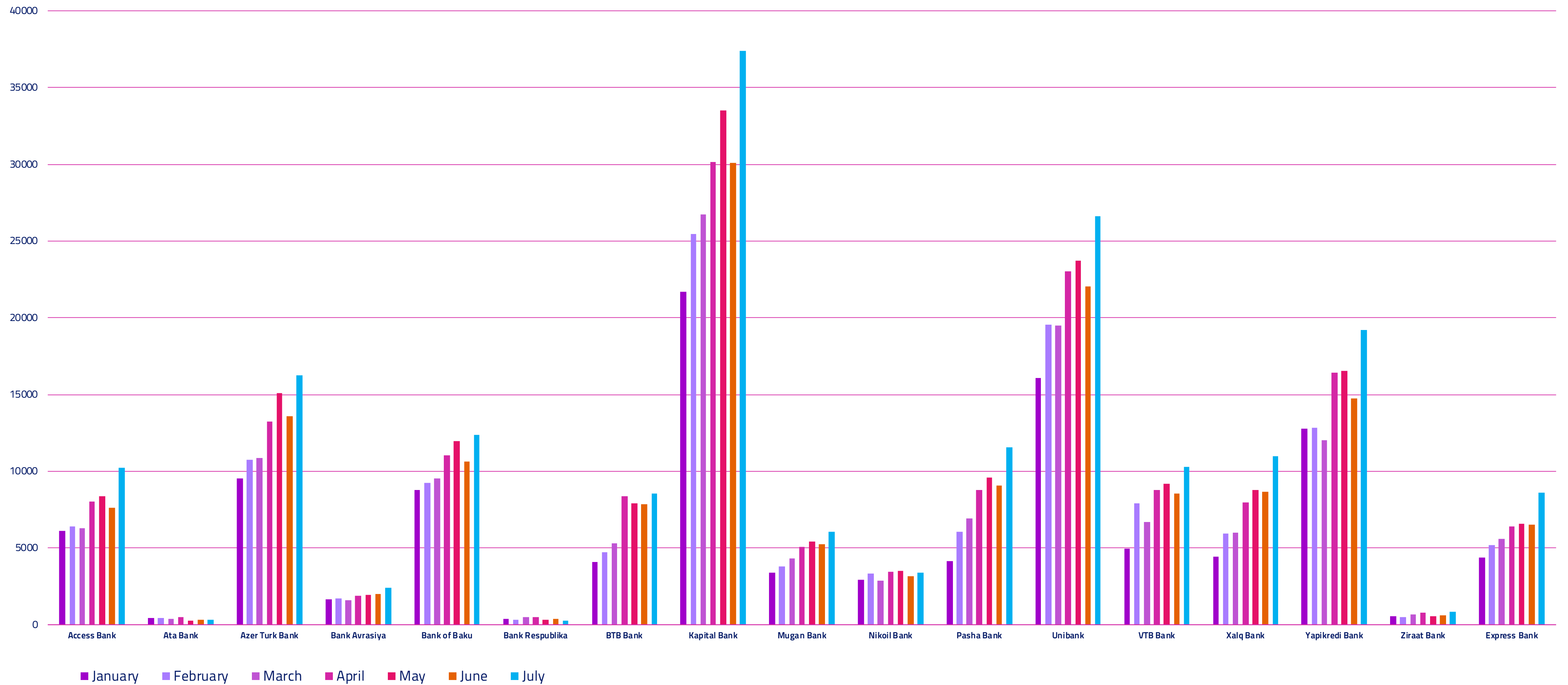
SINGLE EXPORT APPLICATION

Single Export Application provides access to several permits and licenses through a single application for individuals seeking to export their products. Entering information once, an exporter may obtain origin, phytosanitary and free-of-sale certificates and can delegate filling out customs declaration and export promotion application to "dth.az".

It shortens the time to obtain export documents. On average filling out each application takes 5 minutes.

The service is free of charge. The cost of creating the export package is minimized.

The system automatically produces a list of required documents for export;

The exporter chooses the necessary documents from the list;

The applicant fills in all required information in the "Single Export Application";

SINGLE EXPORT APPLICATION

The applicant presses the forward button to continue with the application;

An exporter enters the "Digital Trade HUB" for a "Single Export Application";

The candidate enters into the personal cabinet and completes the export package, in accordance with the logical sequence of acquisition of documents.

AZEXPORT.AZ

DIGITAL SIGNATURES' VALIDATION PROCESS BETWEEN AZERBAIJAN AND EU, GUAM, SILK ROAD – BASE FOR CROSS-BORDER E-SERVICES
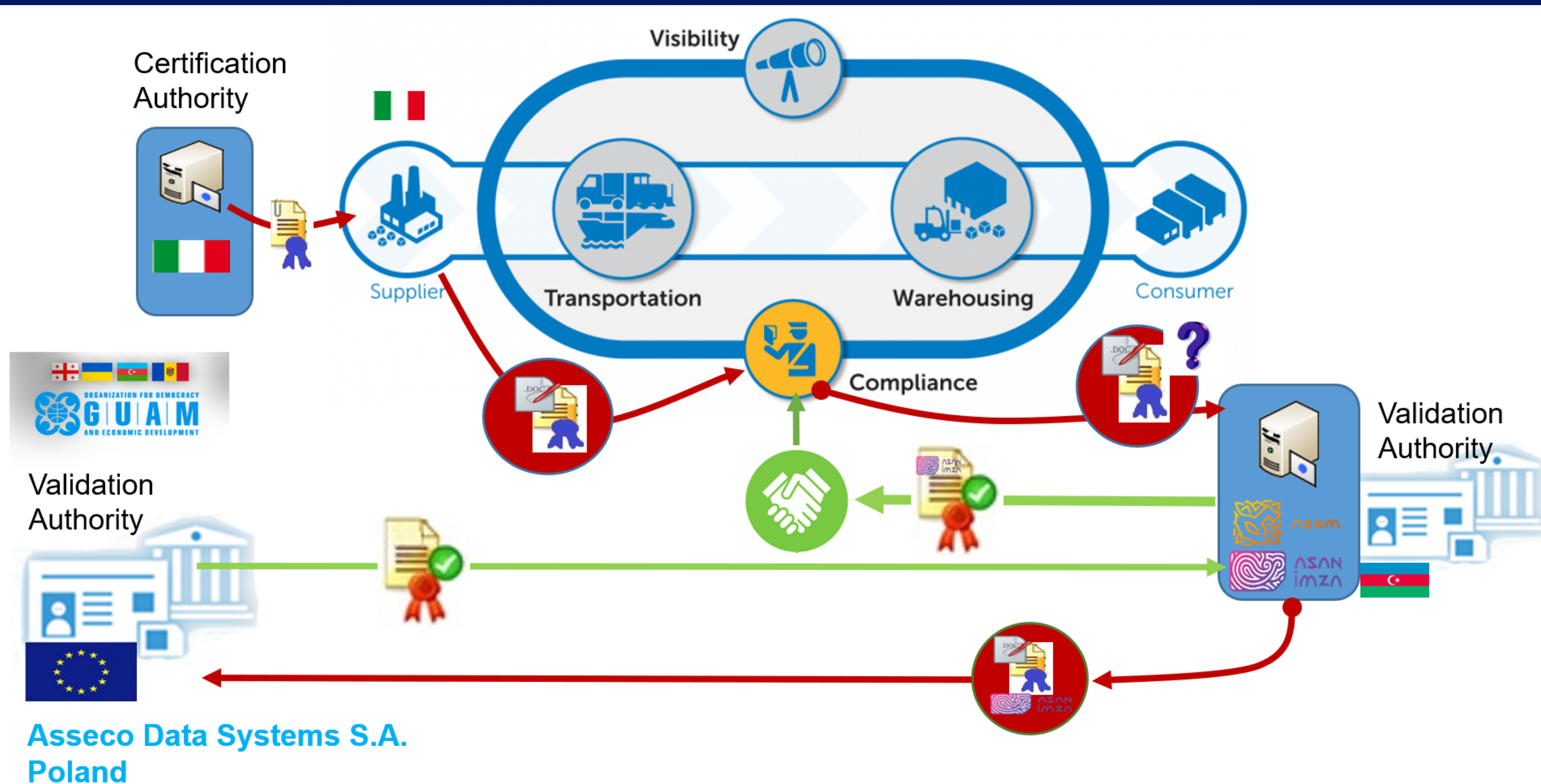
DIGITAL TRADE HUB – BASE FOR CROSS-BORDER E-SERVICES BETWEEN AZERBAIJAN AND EU, GUAM, SILK ROAD, RUSSIA AND MORE THAN 2000 TRUSTED SERVICE PROVIDERS AROUND THE WORLD

CROSS-BORDER DATA FLOW USING HIGH-SECURITY X-ROAD DATA EXCHANGE PLATFORM
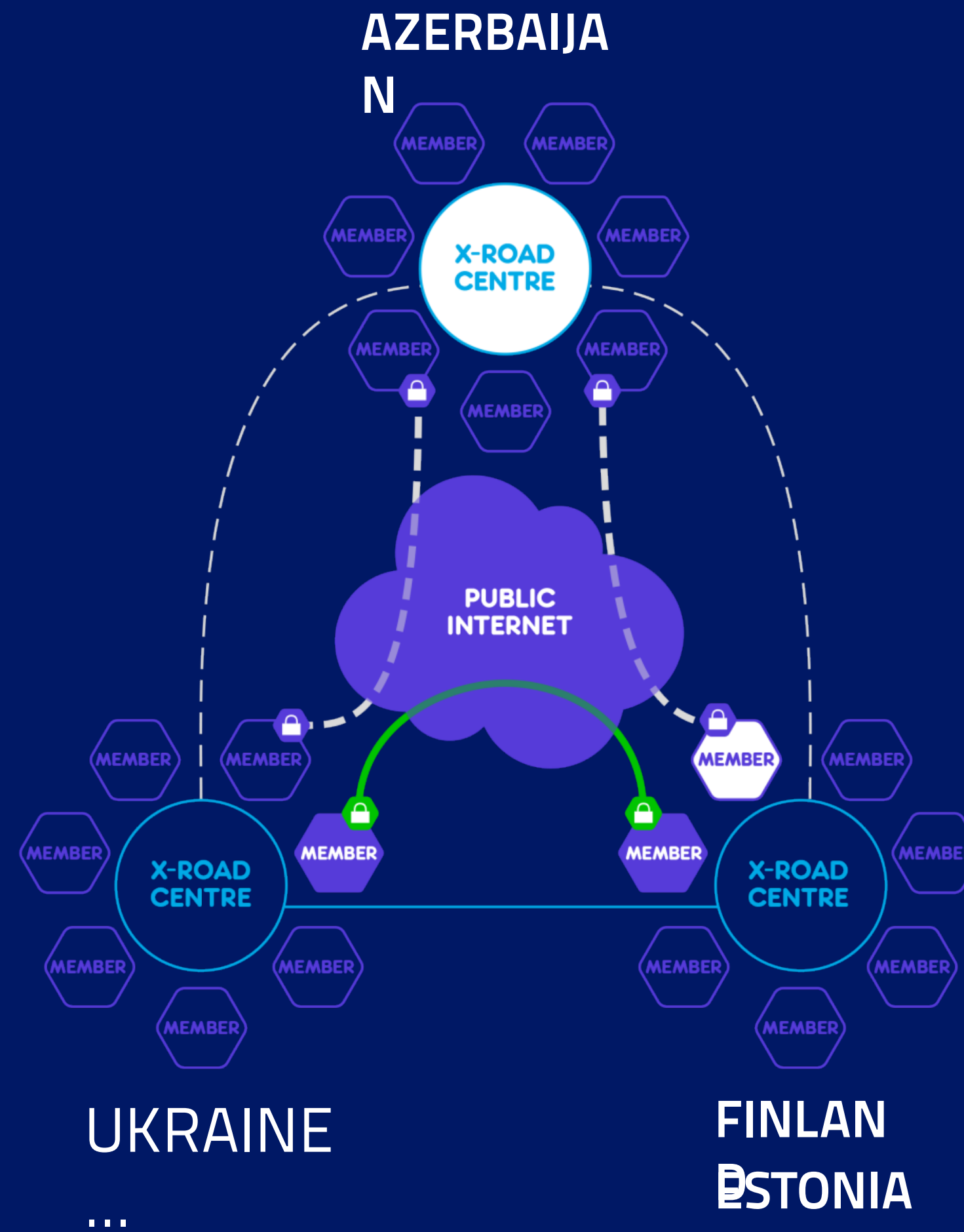
DIGITAL TRADE & CROSS-BORDER DATA FLOWS – POSSIBILITY OF MOBILE-ID

- Connecting the world, going from the ancient Silk Road to modern cross-border e-trade
- A smart TRUSTED platform for GLOBAL B2B e-Commerce & B2G e-Services

Features and a:

Easy movement of goods and regulations

Connects different stakeholders and policy areas within a holistic, cross-sectoral, cross-border and cross-institutional approach, to facilitate regulatory related requirements for the movement of goods across countries.

Paperless and seamless

Provides electronically the creation, submitting, issuing, sharing and managing all import, export, custom and transit-related e-documents that are validated and guaranteed by national governments.

Easy and convenient e-services

Facilitates cross-border e-services such as e-customs, e-apostils, e-invoicing, certificates of origin, phytosanitary documents, shipping documents, opening a company online, e-banking, accounting, e-document management, tax returns and many more.

Open source technology

Technology is vendor-neutral, provides unlimited speed and traffic volume. Not a cloud solution. Each country as a system owner may download it and install into own environment. Governments have full control of own data and data usage. After that, they can easily make a secure data exchange with any other DTH country.
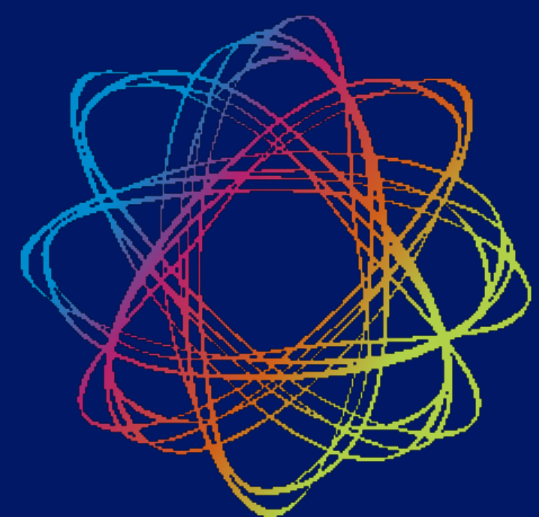
Trusted, legally binding, backed by governments

Establishes Trust, Security and Interoperability between all players by providing validation services and confidence in authenticity to all transactions as all documents are legally binding.
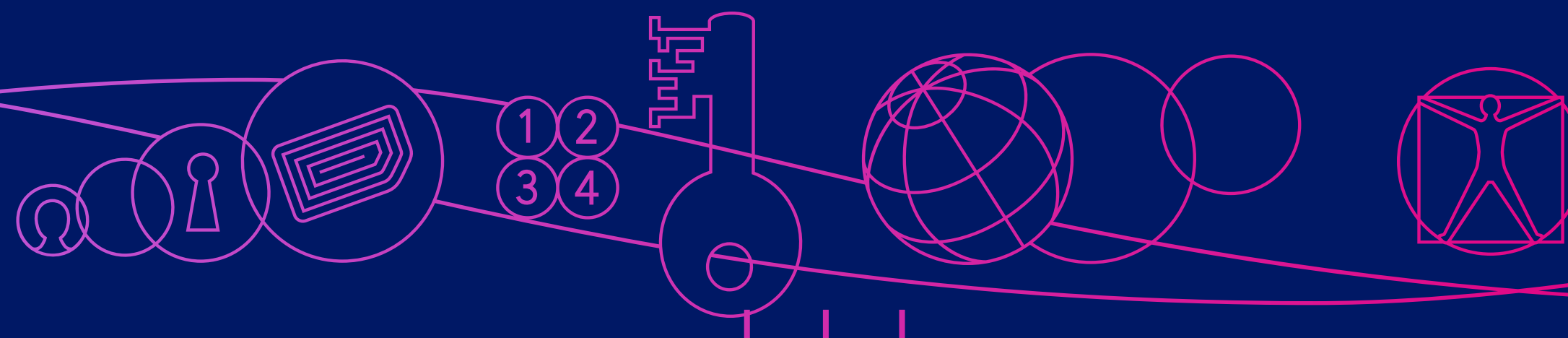
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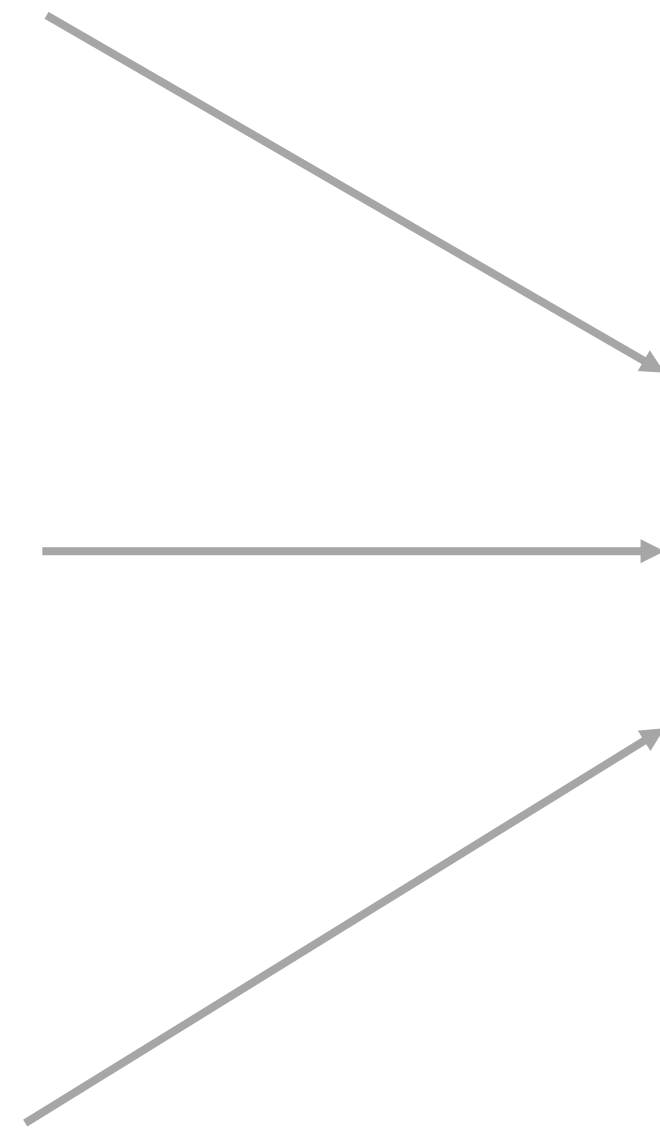IS ALWAYS WITH ME

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