THALES
Building a future we can all trust

Government & Healthcare als Wachstumsmärkte für Smartcard

Smartcard Forum Schweiz
Frühlingsevent 2025
14.5.2025

www.thalesgroup.com

Agenda

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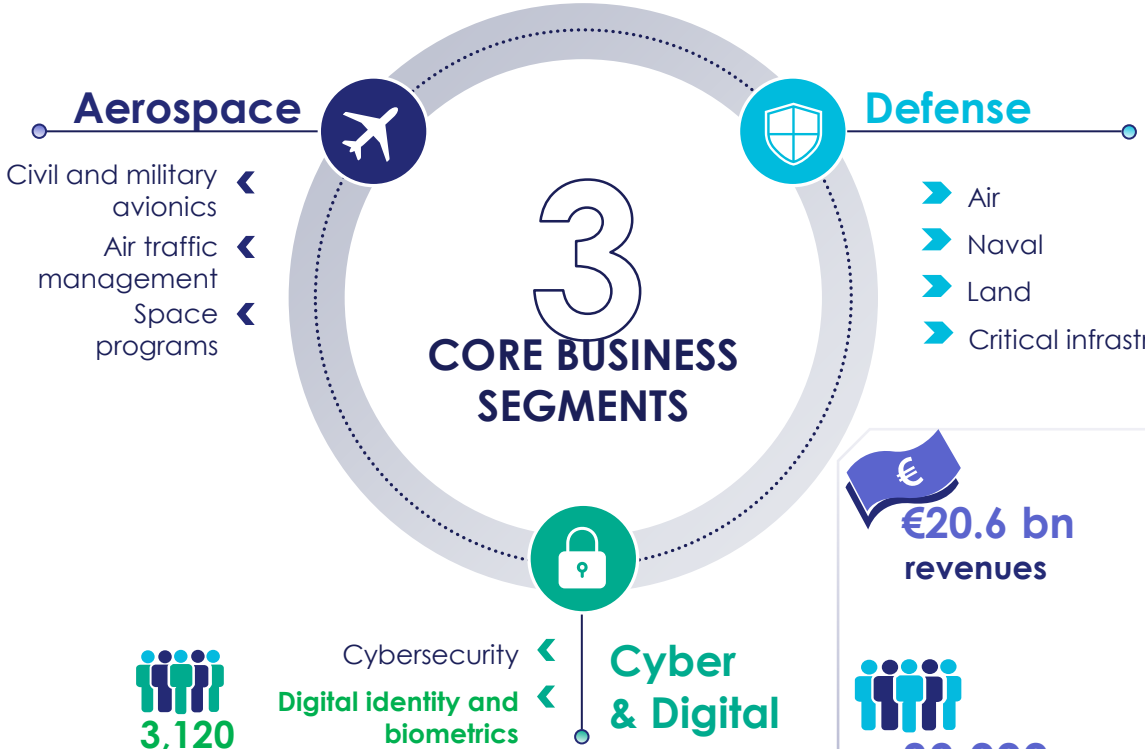
Q&A

Thales group

REF CDI/IBS/IDSS: Smartcard Forum Spring Event - May 2025– Thales CDI / Template: 87211168-COM-GRP-EN-007

Thales Group three core business segments



€20.6 bn
revenues

€4 bn
R&D*
Including €1,1 bn in self-funded R&D

83,000
employees

68
countries

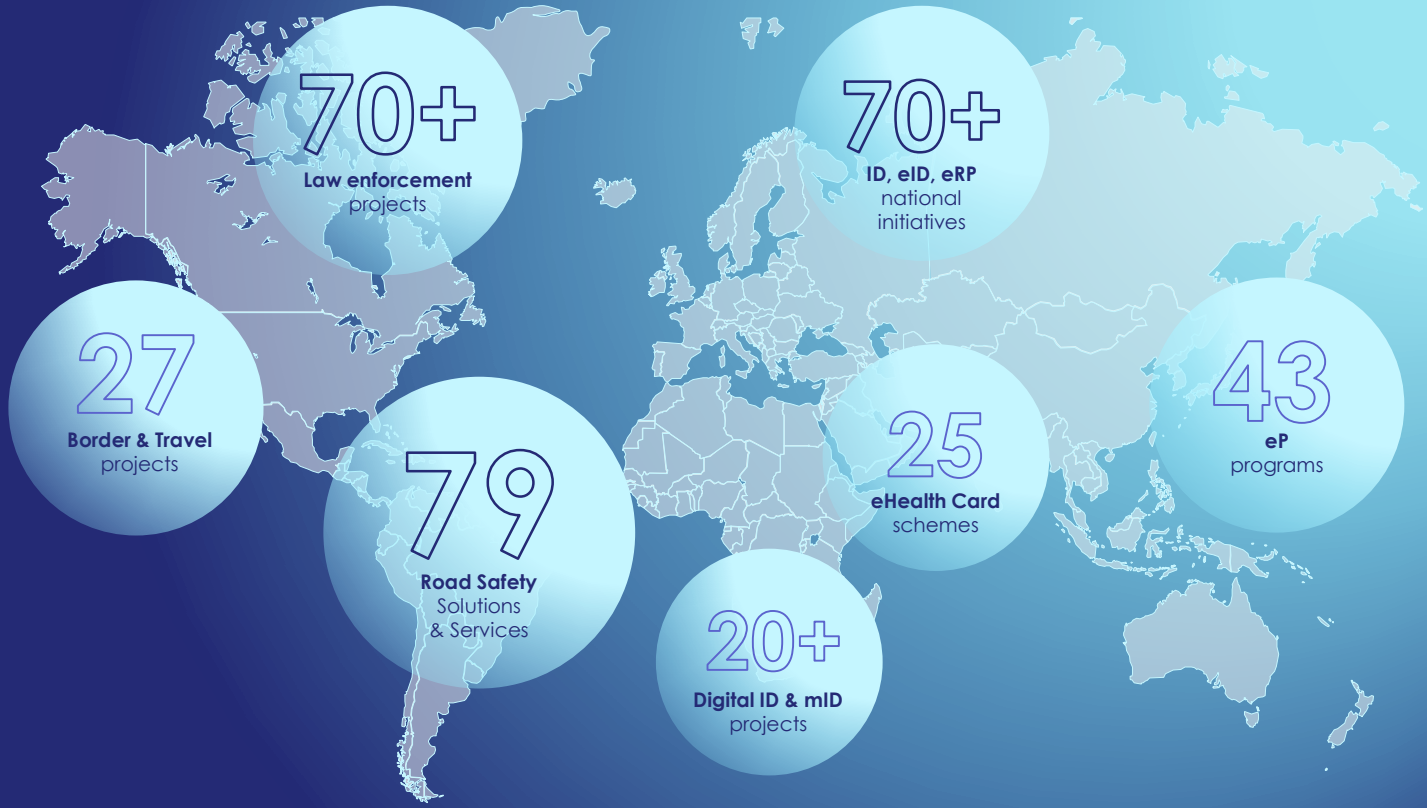
ENTREPRISE CUSTOMERS

GOVERNMENTS

INSTITUTIONS

CITIES

300+ Identity & Biometric Programs Worldwide



Thales in Switzerland – Core business

700 people

10 sites

3 markets

 # 1

- **Payment cards** solutions
- Governmental **identity documents**
- **Data protection** & **encryption** solutions

 # 1

- **Broadband communication** systems
- **Power management system** for military and civil vehicles
- Live and virtual **training & simulation** solutions
- **Drone solutions** for monitoring, alert and rescue

Leader

- For **optical and quantum-based communication** systems for satellites

Worldwide government card market trends

Smartcard share per government document type in 2024

> 11.5 billion government-issued documents on the field

- 42% with a chip

> #1: ID largest segment

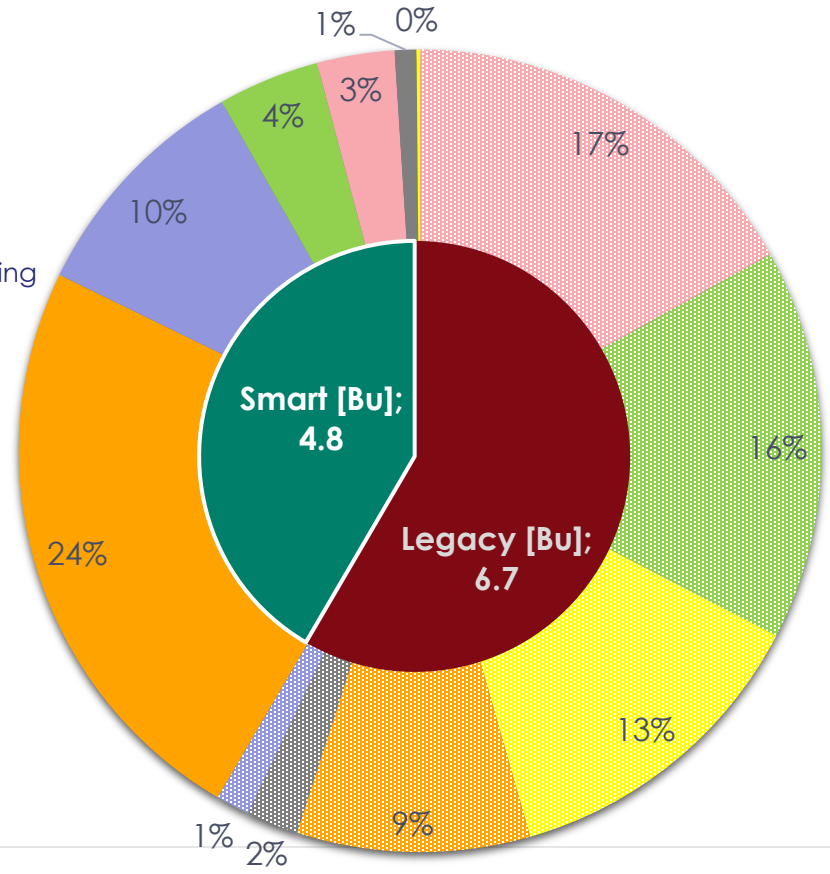
- 72% with a chip (52% when including voter card)
  - 44% in Asia, 28% in MEA, 20% in Europe

> #2: DL & HC with similar size

- Only 20% of HC with chip
  - Half in Europe
- Only 16% of DL with chip
  - 62% in Asia

> #4: Passport

- Only 12% still without chip
  - Almost all in Asia and rest in MEA



- Driver License
- Healthcare Card
- Voter Card
- ID Card
- Other
- Passport
- Smart ID Card
- Smart Passport
- Smart Healthcare Card
- Smart Driver License
- Smart Other
- Smart Voter Card

ABI Q3 2024: Government and Healthcare ID Cards

Yearly newly issued smartcards per application type

> **641M smart ID, HC and passports issued in 2024**

> **371M eID in 2024**

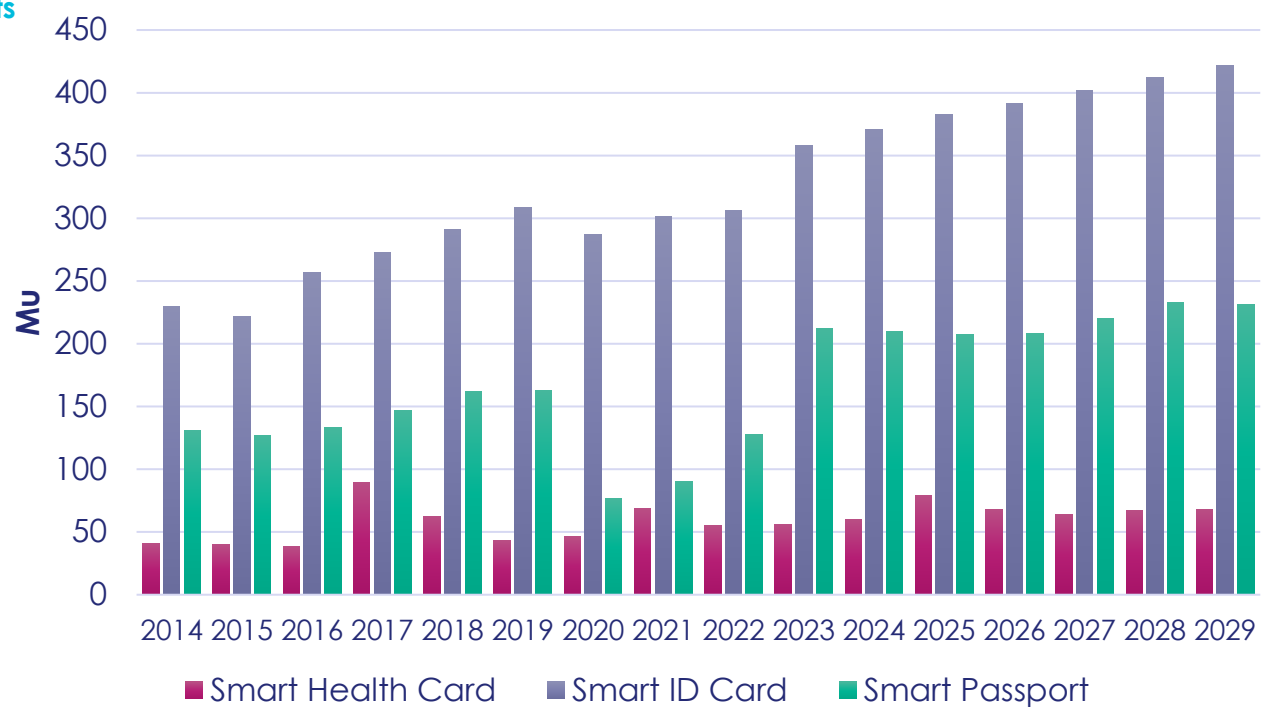
- 13% growth till 2029
  - Ongoing roll-outs
  - Population growth
  - Countries migrating to chip or issuing first ID cards

> **210M ePP in 2024**

- 10% growth till 2029
  - Remaining countries migrating to chip
  - Increase in travel

> **143M eHC in 2024**

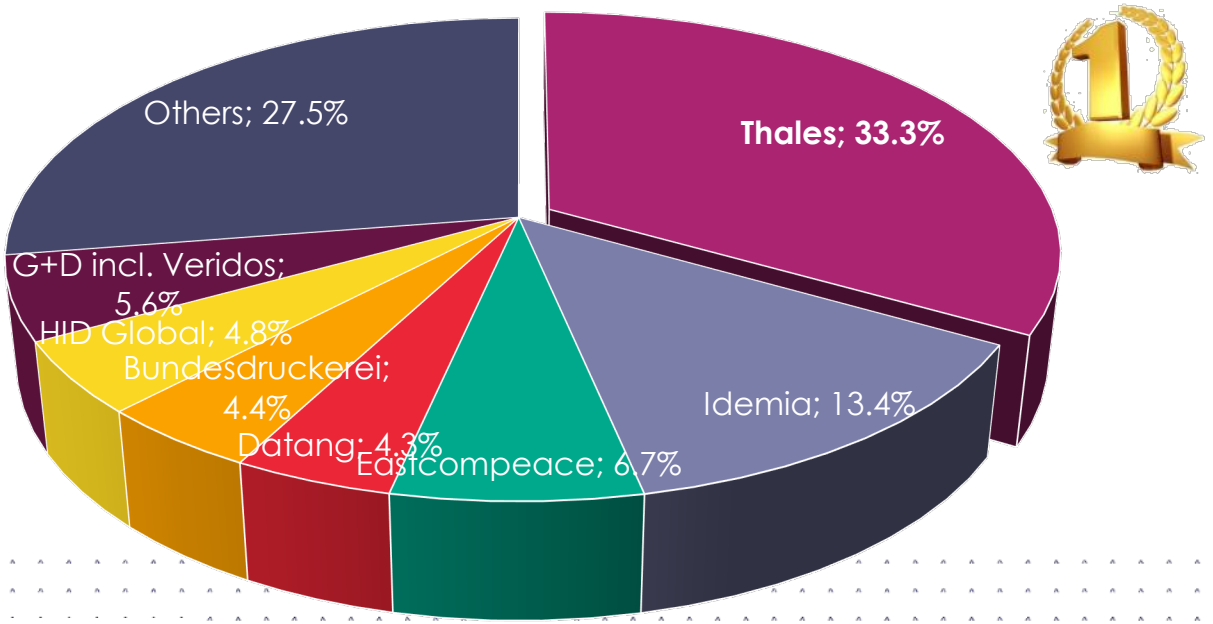
- 13% growth till 2029
  - Population growth
  - Fluctuating demand



ABI Q3 2024: Government and Healthcare ID Cards

Strong position of Thales in government smartcard market

> **ABI market research ranked Thales again as clear market leader in their assessment of smart documents shipments in 2023 for the Government & Healthcare ID market**



*Market Share based on total smart document shipments of **727.4** million units in 2023*

Smart electronic Identity Cards

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Electronic ID: the smart evolution of ID cards

> Proven and future-proof

- Over 20 years since launch of first eID cards
- Cryptographic secured security to prevent fraud
- Adopting to new standards and regulations

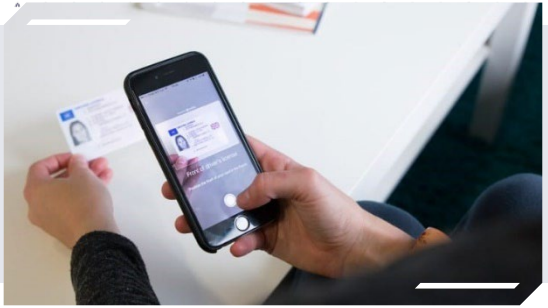
> Increasing adoption

- >2/3 of all cards in circulation with chip
- More than 90 countries with national electronic ID card projects
- Dozen of countries expected to move to smart cards in next 10 years

> Becoming best-practice

- eID enabler for dematerialization and secure eService usage
- More than 170 million Europeans can already use their ID card online
- Many ICAO-compliant eID cards facilitating cross-border travel

Why do countries introduce eID cards with chip?



> Supports eGovernment initiatives and eServices

- Protects the access to online services
- Enables dematerialization
- Conformance to standards & regulations

> Increases citizen adoption and trust

- Adds support to many services
- Assure trusted and convenient usage
- Reinforce image of modernity

> Strengthens security of identity card

- Reduces ID fraud
- Simplifies physical ID verification
- Facilitates and secures travel
- Complies to latest regulations

eID trends: new EU regulation in 2019 mandating chip

A context calling for harmonization

- Increased people movement: over a billion people travel every year within EU or cross its external borders
- Disparities in the security levels of ID and residence documents issued
- Increased risk of falsification and document fraud
- Practical difficulties for citizens to exercise their right of free movement

Two key objectives

- Enhance European security by closing security gaps resulting from insecure documents;
- Facilitate the exercise of EU free movement rights by increasing the reliability and acceptance of documents in cross-border situations.

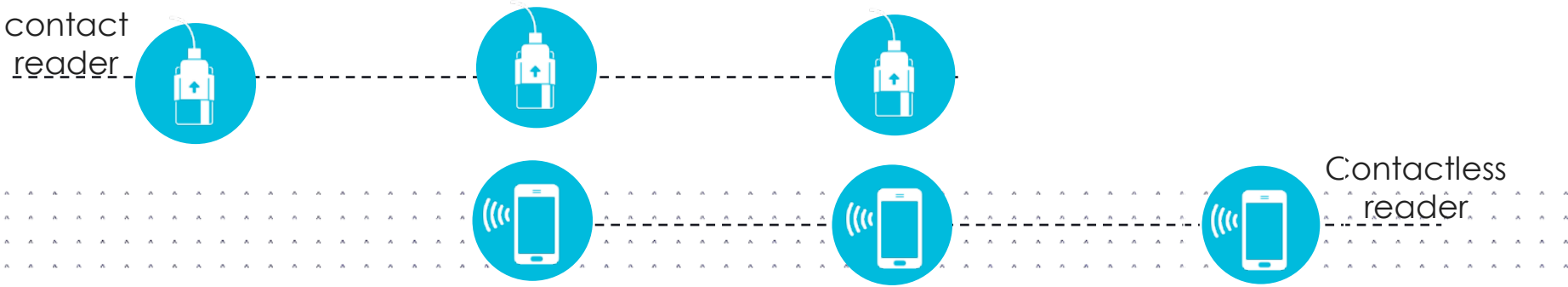
eID trends: moving from contact-only to dual-interface to contactless

Contact
1 chip

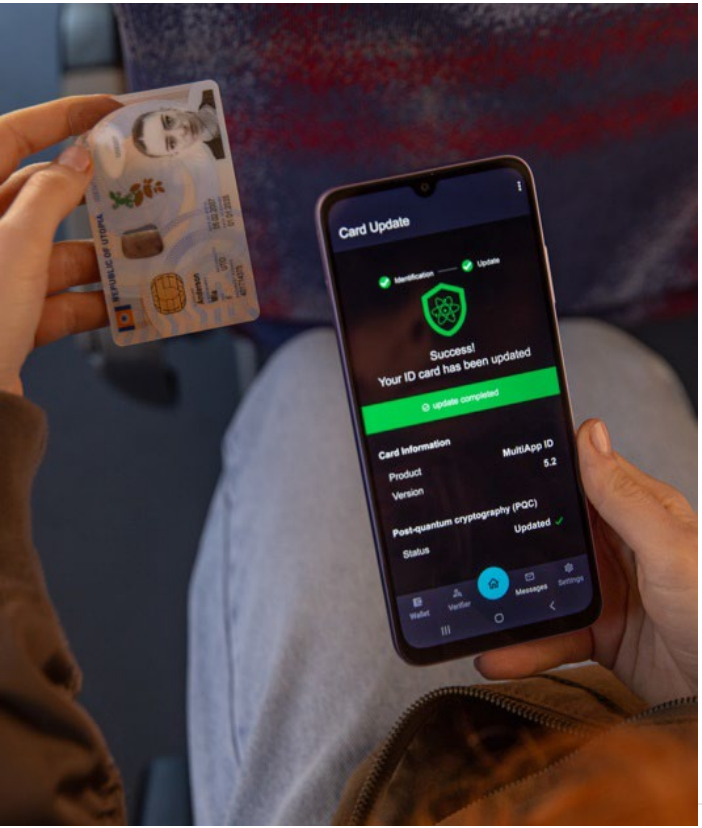
Dual
1 chip

Hybrid
2 chips

Contactless
1 chip



eID trends: Physical and mobile credential will coexist



2023 survey*: Expectations from Digitalization

- Improved citizens experience **84%**
- Fight against fraud **74%**
- Ease ID Verification **63%**
- Comply with regulations **37%**
- Generate new revenues **21%**

Digital and physical are complementary

- Digital for **convenience**
- Physical as a **root of trust**
- The best combination for inclusivity

Market is structuring

- Standards : eIDAS2, DTC, …

* 19 government organizations & 15 countries

Security is a moving target

> Revised EU Cybersecurity Act & Common Criteria Recognition Arrangement (CCRA)

- To meet customer expectations with lifetime security assessment
- 5 year administrative validity for CC period

> A (re-)assessment before 5 years to extend the validity of the certificate

- **Surveillance** – Evaluating the product in its original configuration versus latest cybersecurity threats.
- **Re-certification** – CC evaluation of the updated product

> Strong recommendation – Post Issuance security upgrade capability

Today's cryptography threated by Quantum Computing

> Emerging technology offering exponential computing capability

- Shor's algorithm on quantum computer capable to break asymmetric crypto and Diffie-Hellman key exchange based on discrete logarithm or integer factorization problem

> All existing PKI-based solutions will become insecure

- Authenticity of identity, data and documents can no longer be trusted since RSA or ECC based eSignatures can be spoofed
- Symmetric cryptography also impacted as key size needs to be doubled to resist quantum computers (Grover's algorithm)
- Data encrypted with symmetric keys using RSA or ECC based key exchange could lose their confidentiality

> New quantum-save cryptography ready to replace RSA/ECC

- PQC algorithms selected by NIST and new standards published
- Capable to run on traditional computers and micro-processors

> PQC-ready cards to be updated post-issuance

H

Smartcard Post-Issuance to keep eID secure and versatile

Usage

- PIN Management
- Activation
- Certificate Management

Evolve

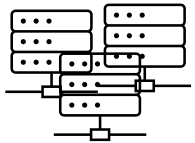
- Application Management
- Citizen Data Management
- Load Certificates

Secure

- OS Update
- Crypto Agility
- PQC

Multi Channel

Post Issuance Solution



OS Agility SaaS

Modern IDs allow for a rich array of Use Cases

LAW ENFORCEMENT

TRUSTED ACCESS TO eSERVICES

CIVIL REGISTRY

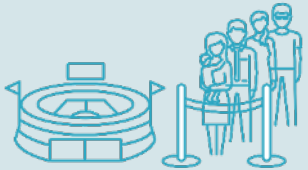
TRAVEL

AGE RESTRICTED SERVICES

PROOF OF AGE

PEER TO PEER

EVENTS / VENUES



HOTEL CHECK IN

ONLINE ATTRIBUTE SHARING

KYC / BANKING

CAR RENTAL CAR INSURANCE

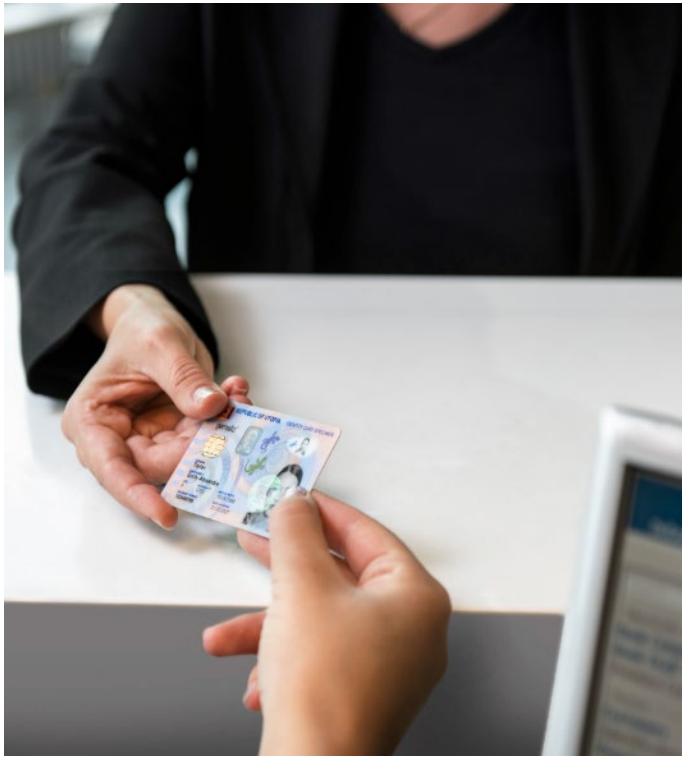
Identity verification as obvious use cases

Identity verification by police

Identity prove for public services and private businesses (telecom, bank, etc.)

Additional trust and convenience

- Data securely stored in the chip allow to check coherence with data graphically personalised on/in the document
- Biometric data confidentially stored in the chip can be used for machine-assisted automated authentication without online connectivity



Kuwait eID : secure and authorised access, money transfer, facilitate & secure administrative tasks

What for ?

- Banks, civil registry: eServices
- MoJ: digital access and e-signature for lawyers.
- Kuwait Oil Company: HR certificates
- Bobyan Bank: money transfer
- DUC employees: logical access

How?

- Identification & signature with eID

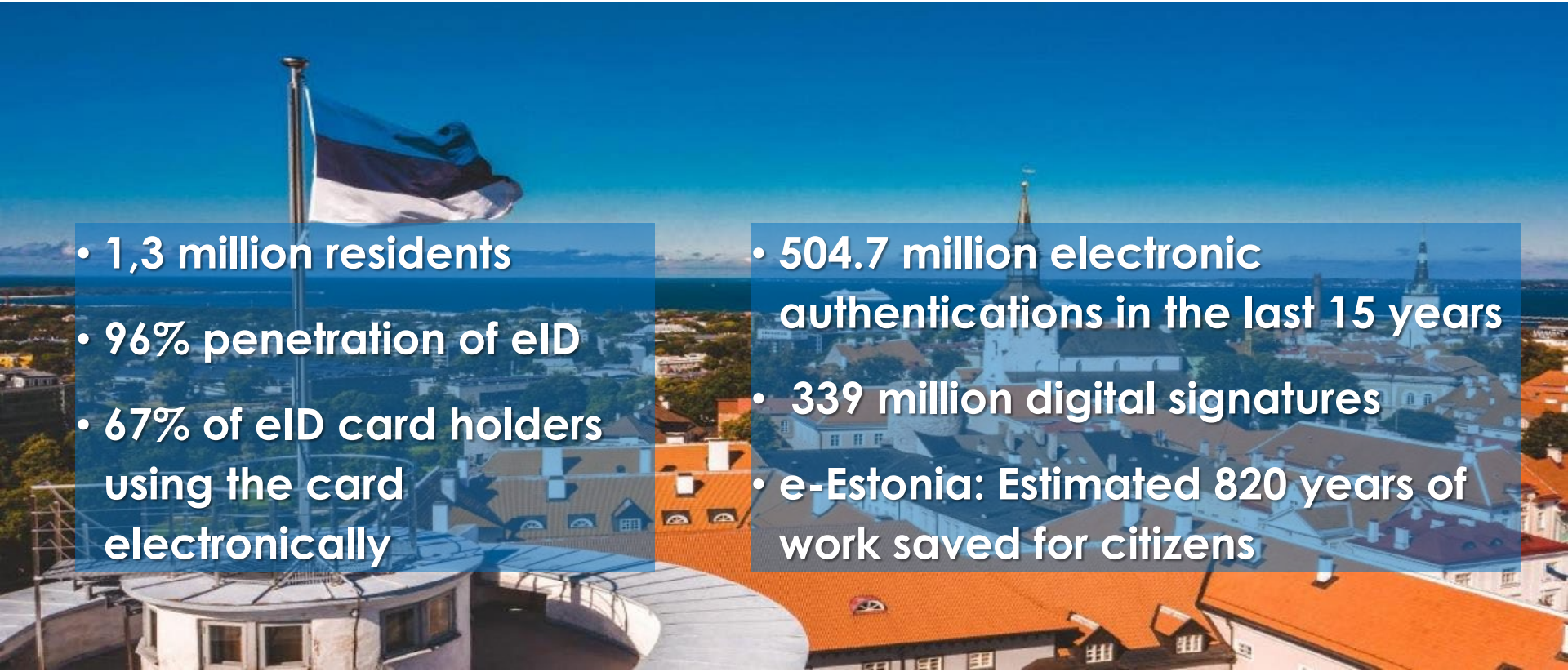
Slash identity fraud

Boost digital transformation

Increase citizen convenience

Link to Kuwait video

Some facts about Estonia eID card project

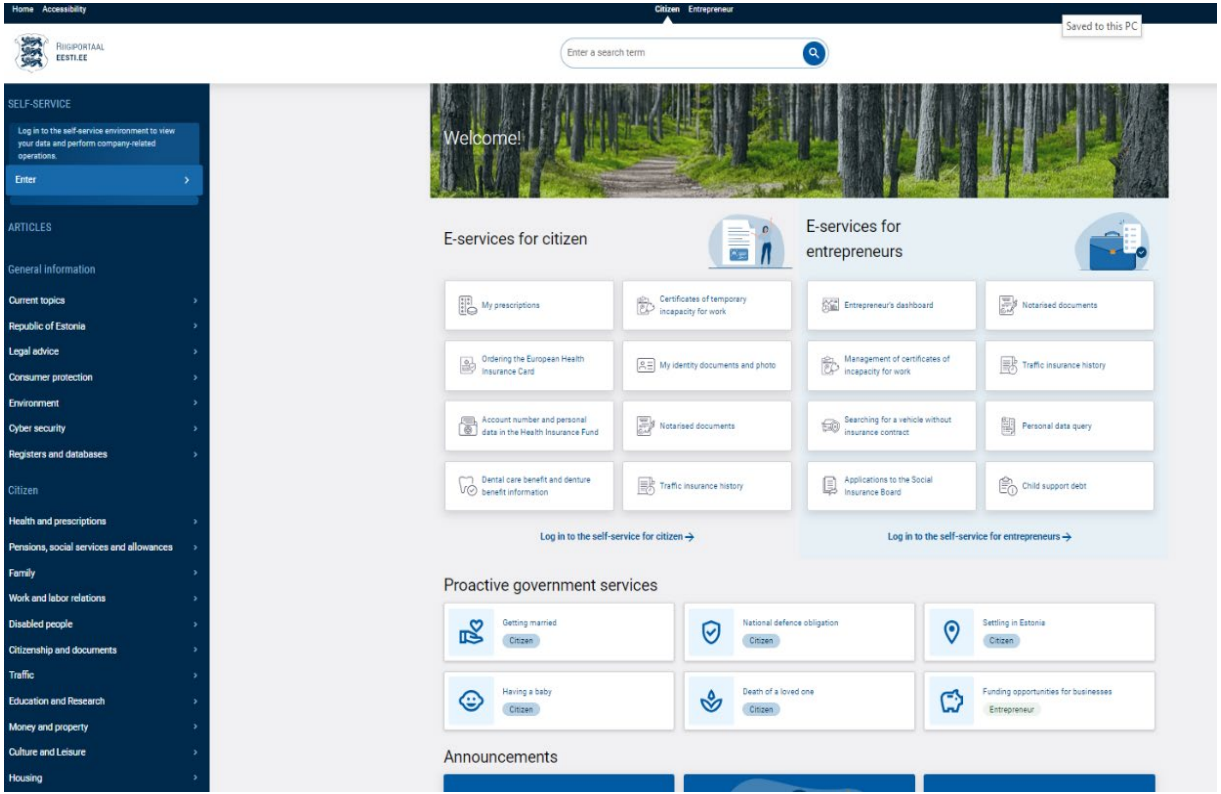


- 1,3 million residents
- 96% penetration of eID
- 67% of eID card holders using the card electronically
- 504.7 million electronic authentications in the last 15 years
- 339 million digital signatures
- e-Estonia: Estimated 820 years of work saved for citizens

e-Services for citizens: www.eesti.ee

> 100+ e-Government and many more private e-Services available

- State Portal with central access to e-Government
- log-in with e-ID to a multitude of distributed services
- high usage: 7M visitors/year



Smart Biometric Passports

ePassports: the smart evolution of Travel documents

> Trust & Privacy

- Guaranteed integrity of citizen data
- International recognition
- Protect sensitive information against unauthorized access

> Convenience

- Faster Border Control through eGates
- Freedom of movement (visa waiver)

> Security

- Identity confirmation using biometric matching
- Reliable verification at Border Control

Trends in the Passport Market

> Over 20 years since first ePassport

- Over 175 countries with an ePassport program
- Over 2,5 billion ePassport issued worldwide
- ePassports to foster national security and better travel management

> ICAO requirements for eMRTD

- Mandatory common format, MRZ (Machine Readable Zone)
- Chip is not mandatory, but highly recommended
- When chip: mandatory ICAO protocols
  (incl. SAC by 2025/27; in EU since 2014, along with EAC)

> Digital Travel Credential adoption is on the rise

- Companions of physical documents for specific use cases aimed at facilitation and convenience

Smart electronic Health Cards

Health cards market trends

~1/10 of GDP in developed countries spent on healthcare

10% of all healthcare spending lost to fraud and processing errors

>200 millions health cards issued every year

2.1 milliard health cards in circulation, and 100 millions more every year

> 1/3 of all newly issued health cards with electronic uses – and increasing

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Benefits of electronic Health Cards

> Trustworthy access to medical and social service

- Assured identity and legitimacy through digital security to prevent fraud
- protect citizens' biometrics and confidential data
- Increase convenience for both health professionals and patients

> Improved patient care & social inclusion

- Efficient and safe service delivery (e.g. automated data entry saves time and reduces errors)
- Secured EHR access assuring confidentiality of patient data
- Improved overall quality of health services provided

> Administrative efficiency

- Better information exchange between different parties in the health eco system
- Cost reduction, reduced paperwork with lean processes
- Facilitated medical access, registration and accounting

> Effectiveness of treatment and fund distribution

- Personalized digital healthcare services
- Target distribution of social services
- Online and offline use, compatibility with modern consumer devices

EHR = Electronic Health Records

Smart Healthcare Card market trends

> Worldwide growth figures fluctuating due to roll-out or renewal in some major countries

- Germany, Italy, France

> Growth in government eHC issuance reaching peak in coming years

- Market in Europe starting to decrease, migration to eID or purely digital
- Still strong growth mainly in Asia

> New smartcard projects mainly in emergent markets

- universal healthcare, social benefit schemes

> New smart identity card or digital mobile solutions

- starting to replace eHC usage in more advanced economies

> Ongoing demand for chipless cards

- No secure credential, mainly branding and with key information to connect to online system

4 main use cases for a smart health care card

> Patient and professionals secure & easy identification

- Biographic, biometric data, professional data
- Quick registration at the medical cabinet, at the hospital

> Secure & rightful access to health & social services

- Rights management / duration
- Efficient and safe service delivery

> Secure claim management & prescription

- Slash “ghost” patient and medicine fraud

> Electronic health care record management

- Mini emergency medical profile
- Secured EHR access assuring confidentiality of patient data

Slovenian health card system and use cases

eHIC:
Patient identification and demographic data
Health insurance information
Personal data (organ donor status, maternity procedures, personal physicians, emergency data)
Prescribed medication and medical devices
2 authentication certificates and corresponding keys • access online-system without PIN, • access personal data with PIN
Keys to authenticate card and to encrypt communication

- **eHIC+eHPC to access** patient data
- **eHPC** to **sign** updated data
- **Encryption** of data Communication

eHPC:
Health professional identification
Administrative data
Authorization keys
Authentication certificate (and keys, PIN) • Access to online system and to access card patient data with PIN, one to create qualified signatures
Qualified signature certificates (and keys, PIN) • to digital sign data (ePrescriptions, eClaim, ….) • Keys to authenticate card and to encrypt communication

Social welfare
- Claim submission
- Eligibility verification

Hospital Clinic
- Self-service terminals
- Online record retrieval
- Eligibility verification

HIIS
- Card management
- financial benefits and claim settlement

National HIIS health network

Insurance companies
- Claim submission
- Eligibility verification

Pharmacy
- Claim submission
- Eligibility verification
- Prescription delivery

Employer
- Employment verification

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Thank you

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