



Royal Netherlands Marechaussee

SSPC



J.J.M. (Hans) de Moel, B.Sc.
ICAO, Montreal, 7-9 OCT 2014

Introduction



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Border Control at Schiphol Airport:

Basis: the identity triangle (theory)

Processes: man versus machine (theory and practice)

Self Service Passport Control (practice)

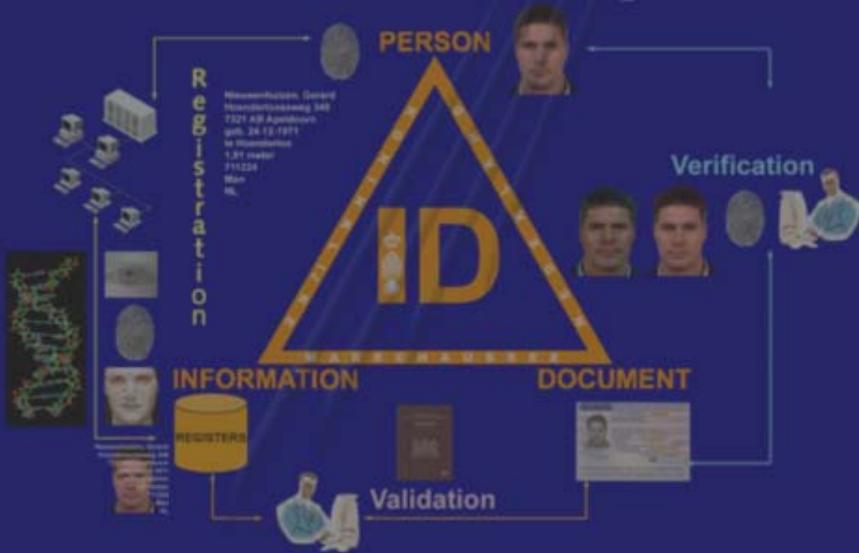
Biographical identity



Biometrical identity



Enrolment cycle



Checking cycle

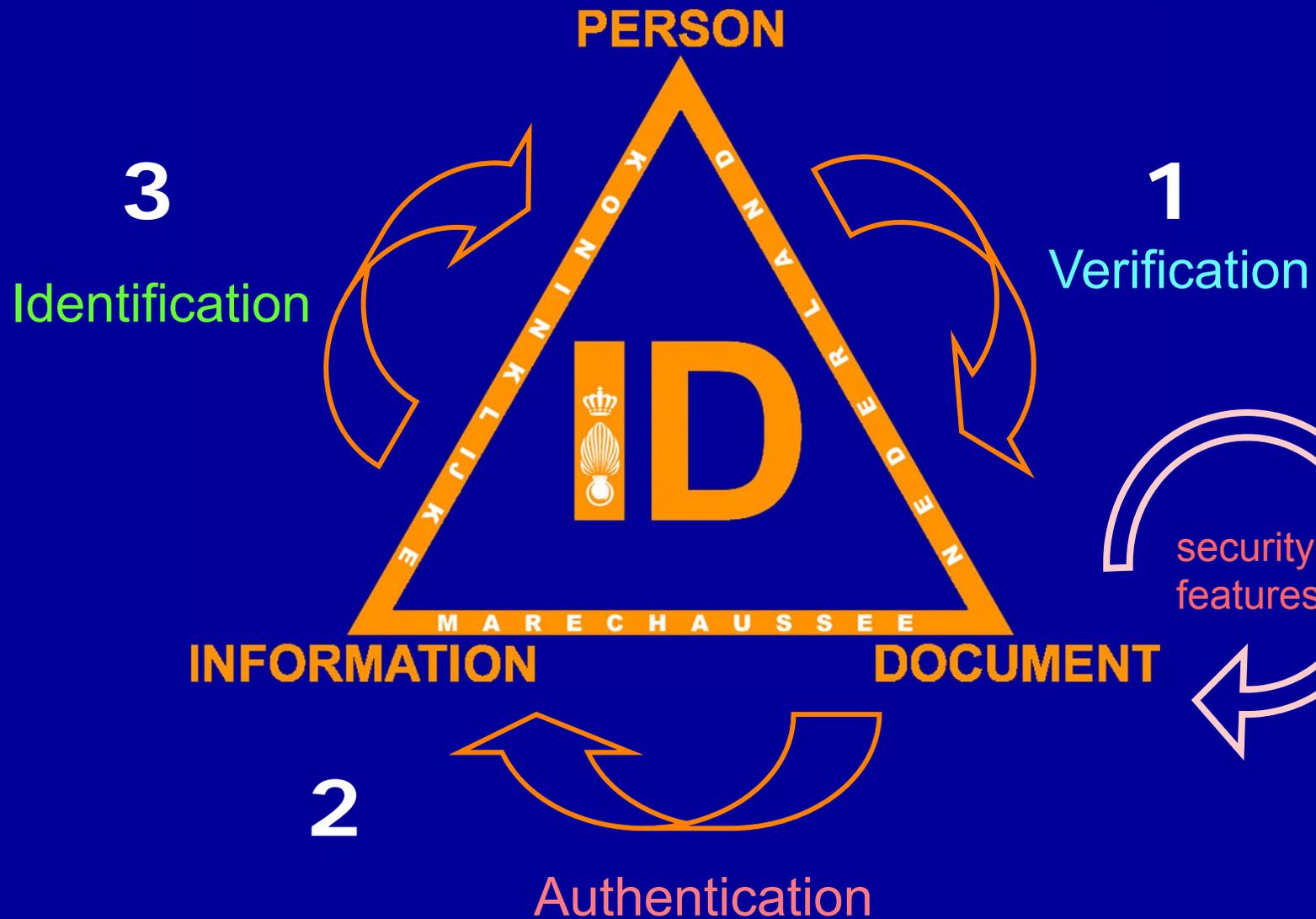


Identity triangle



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Checks at manual in NL

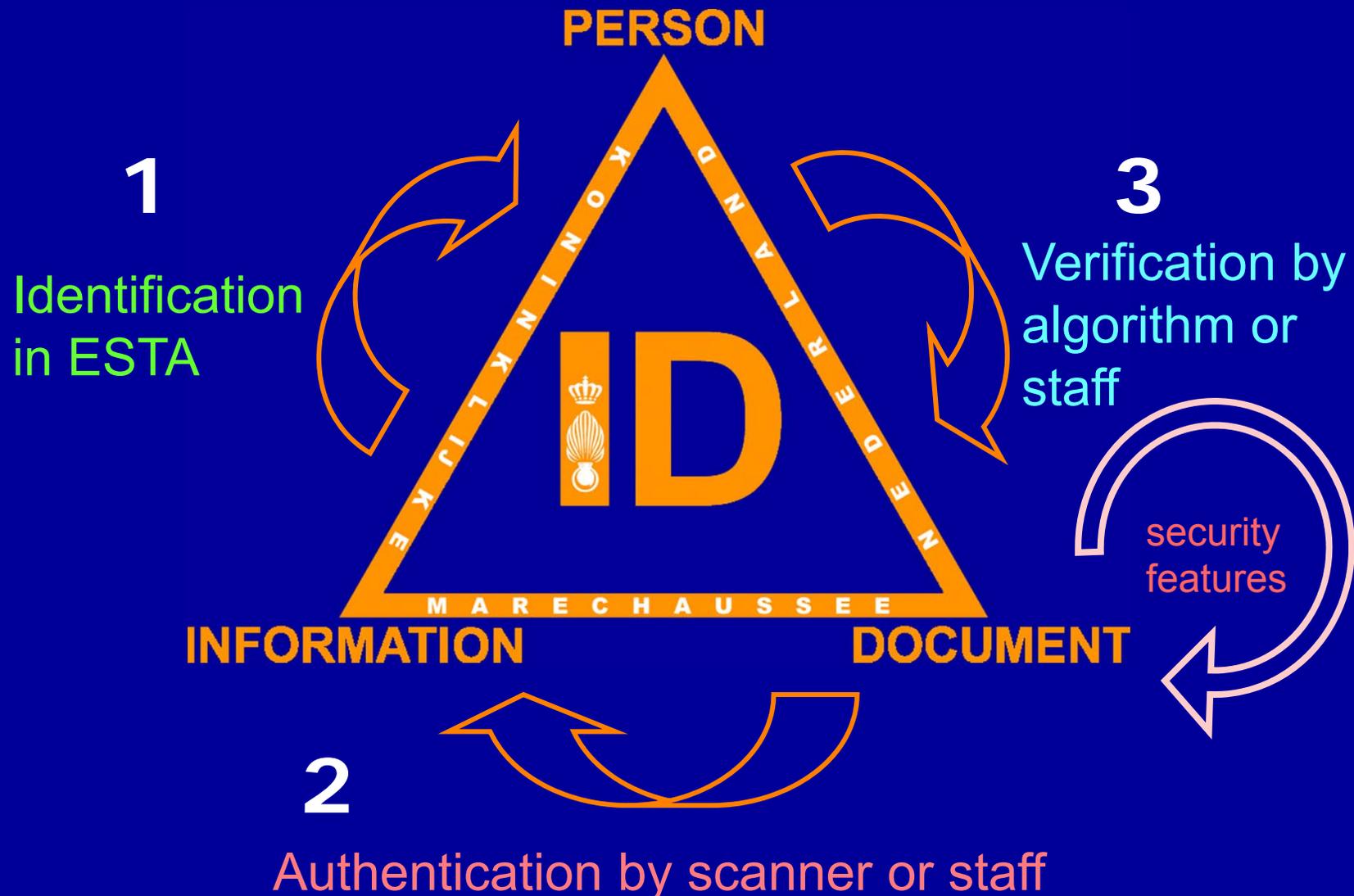


Identity triangle



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Checks in Australia



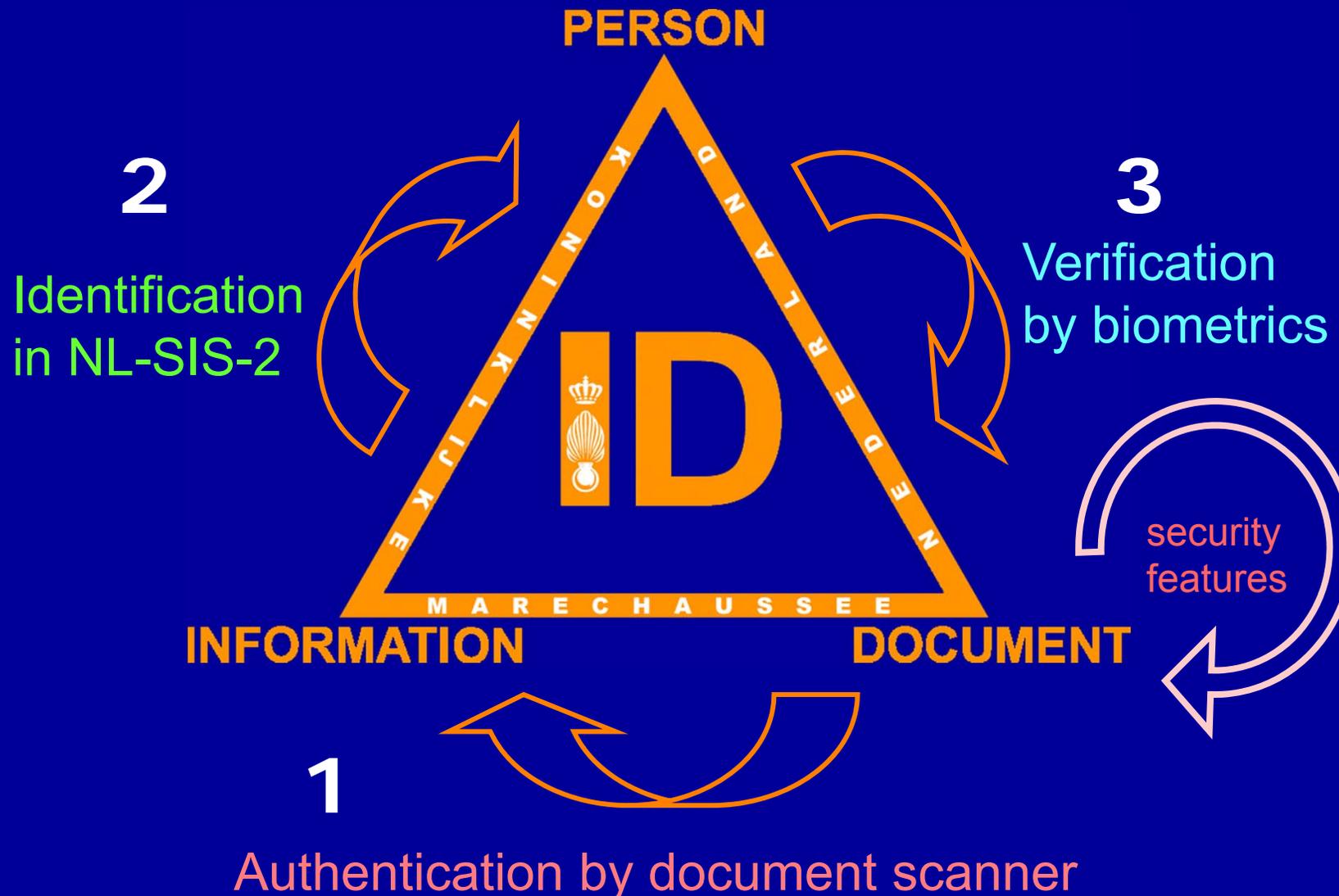
security features

Identity triangle



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Checks in SSPC



Identity triangle



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Fraud



**False
Registration**



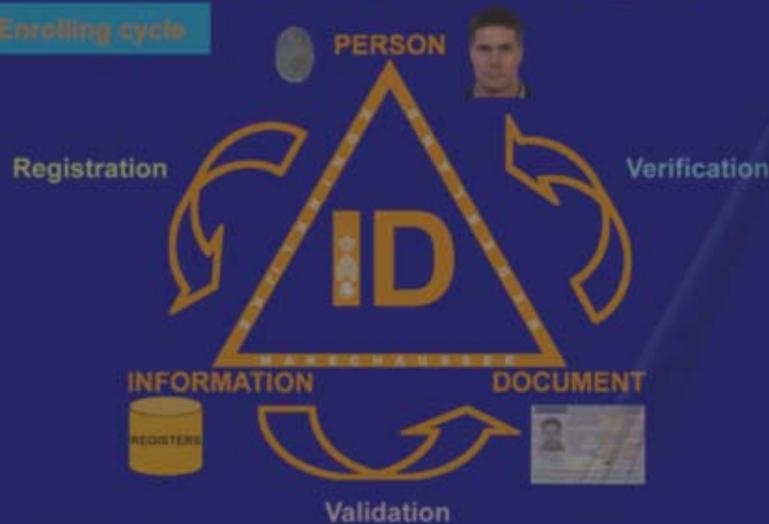
Imposters



Identity triangle

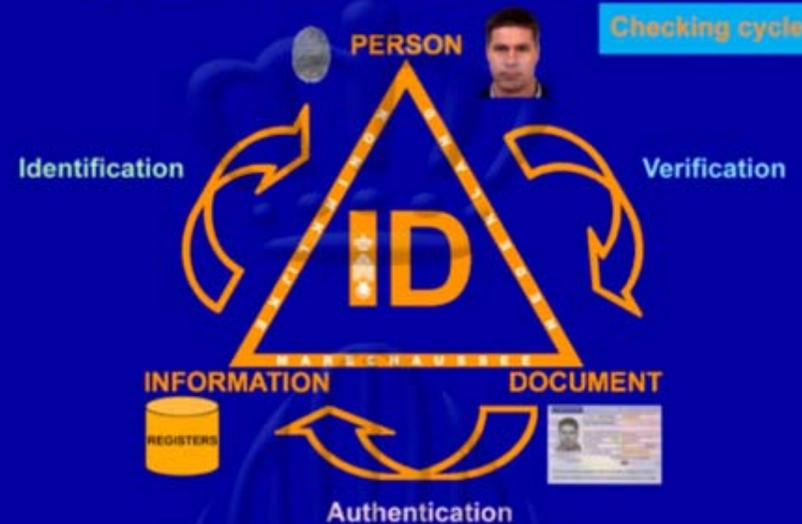


Enrolling cycle



in Border Control

Checking cycle



Identity Fraud



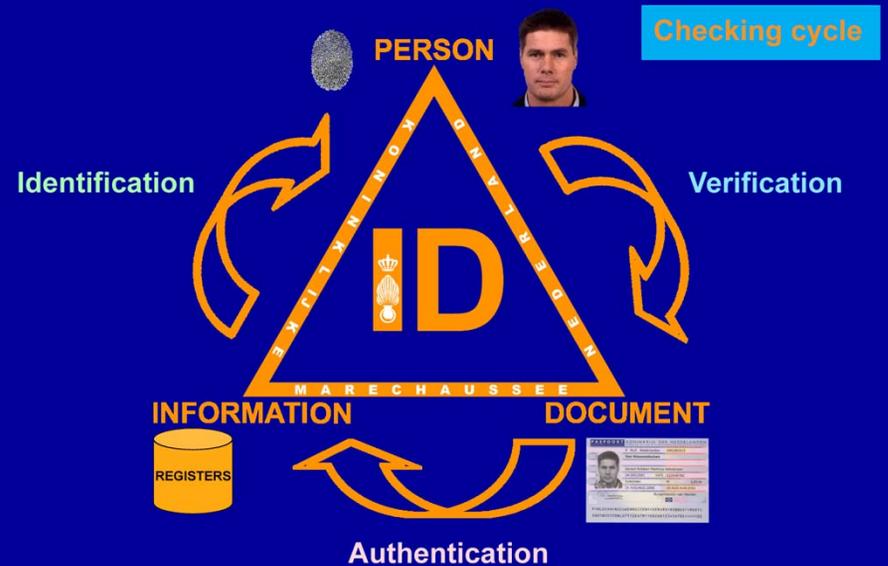
Authorisation



ABC Systems



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Automating the processes
from man to machine

ABC Systems



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Change in documents:

- Non-MRTD: Handwritten
- MRTD: Machine readable
- e-MRTD: machine readable with chip

Change in security features:

- Physical security features
- Electronic security features

Change in border control

- Manual check
- Automated check

See KEESING Journal of Documents & Identity, issue 43, 2014, pages 30-33

ABC Systems



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SSPC is a one step process

ABC variations:

One step process

- all actions within mantrap

Two step process

integrated:

- eligibility before and verification in mantrap

segregated:

- eligibility at kiosk and verification at gate

Eligibility: EU citizens with e-passport and >18 years only

ABC Systems



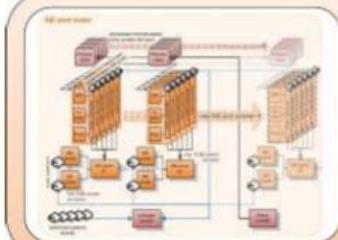
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ABC Systems



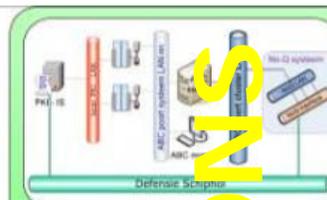
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ABC poort cluster

- ABC poort systeem (aan de ABC poorten met server en monitor)
- ABC poort (1 single border passage: ENR, Camera, Jocks, etc.)

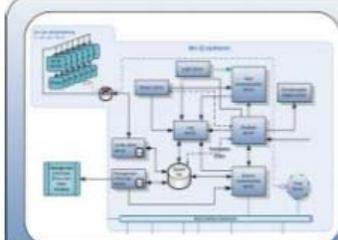
GATE OPERATIONS



Network Infrastructuur cluster

- Wide Area Netwerken
- Locale Netwerken
- Actieve componenten
- Passieve componenten

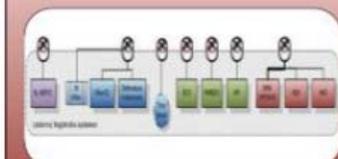
CONNECTIONS



No-Q System cluster

- Beslissen en besturen
- Logging (tijdelijke opslag van gegevens)
- Communicatie met ABC en extern register cluster

DECISIONS



Externe Registratie systemen

- Passagier informatie (OPS/NSIS, HKS, API, Pardex, DCS)
- Document informatie (TempoDB, NDS, PKI/NL-NSPOC)
- Management informatie
- Authenticatie (DBS)

QUERIES

ABC Systems



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Currently installed at Amsterdam Airport Schiphol:

6 clusters of 6 e-gates = 36 e-gates

1 cluster of 6 e-gates is operated by 2 border guards:

- 1 mobile border guard (assistance / false rejections)
- 1 supervisor (monitoring / false acceptance)
- current transaction time: 30 sec/pax
- about 50.000 pax/week

In 2015 to be expanded to 72 e-gates

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ONE STEP PROCESS

District Schiphol

ABC Systems



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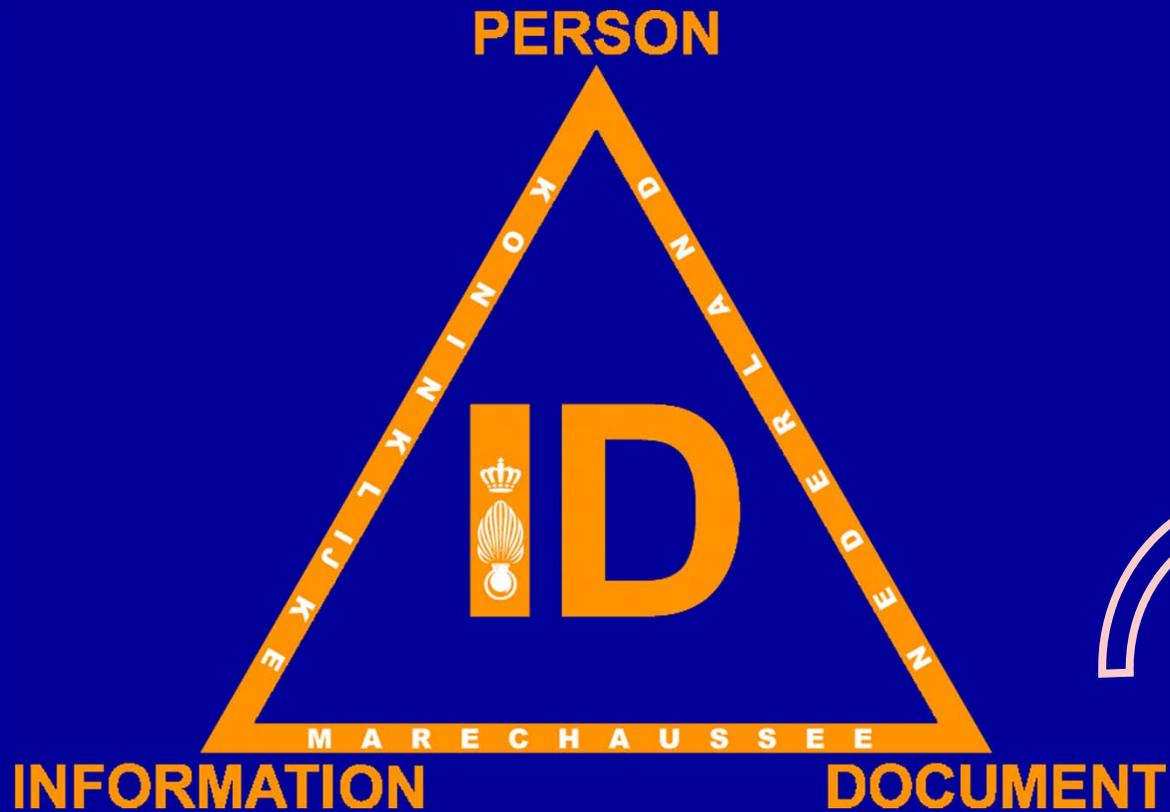
Developing the system:

- System as a service: higher price, more flexibility
- System errors versus user errors:
 - time-outs, loops, lighting
 - following instructions
- Practical adjustments:
 - document feeder
 - user interface

Identity triangle



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Authentication by document scanner

Automated Border Control Challenges

District Schiphol

Examination



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Current types of passports:

Non e-passports:

- check model
- check physical security features

E-passports:

- check model (generation 1 / generation 2)
- check physical security features
- check electronic security features
 - Passive Authentication
 - Chip Authentication
 - Active Authentication

RFID chip



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Passive Authentication – extended version

- Trusted certificate store (**ICAO PKD** or similar)
- Verification of Security Object (EF.SOD) (on chip)
- Verification Document Signer certificate (chip or store)
- Validity check DS and CSCA certificates (store)
- Revocation check DS certificate (CRL's in store)
- Verification of integrity datagroups (hash checks)

CONSISTENCY:

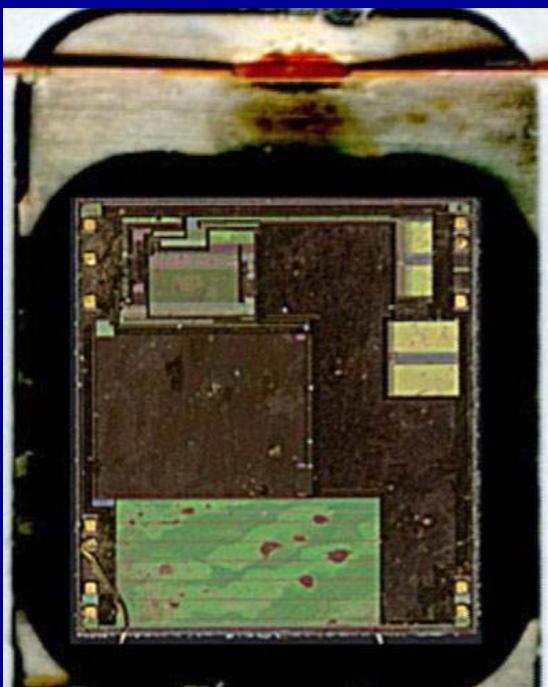
- Comparison of DG's in EF.COM and EF.SOD
- Comparison of 'ISSUER' in EF.SOD and EF.DG1
- Comparison of data in EF.DG1 and MRZ

Examination



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Electronic versus physical security features



PASPOORT KONINKRIJK DER NEDERLANDEN
PASSPORT / PASSEPORT KINGDOM OF THE NETHERLANDS / ROYAUME DES PAYS-BAS

TYPE / CODE: P NLD Nationaliteit / NATIONALITY: Nederlandse Documentnummer / DOCUMENT NO. / NO. DU DOCUMENT: XN01BC015

NAAM / SURNAME / NOM: **Van Nieuwenhuizen**

VOORNAMEN / GIVEN NAMES / PRENOMS: Gerard Robbert Martinus Sebastiaan

GEBORTE DATUM / DATE OF BIRTH / DATE DE NAISSANCE: 24 DEC/DEC 1971 Persoonsnummer / PERSONAL NO. / NO. PERSONNEL: 123456782

GEBORTE PLAATS / PLACE OF BIRTH / LIEU DE NAISSANCE: Specimen Geslacht / SEX / SEXE: M Lengte / HEIGHT / TAILLE: 1,92 m

AFGIFTE DATUM / DATE OF ISSUE / DATE DE DELIVRANCE: 26 AUG/AUG 2006 Geldig tot / DATE OF EXPIRY / DATE D'EXPIRATION: 26 AUG/AUG 2011

HANDTEKENING / SIGNATURE: *R. Nieuwenhuizen* Instantie / AUTHORITY / AUTORITEIT: Burgemeester van Heerlen

MEDEL 007
LOOF / SERIE 001

P<NLDVAN<NIEUWENHUIZEN<<GERARD<ROBBERT<MARTI
XN01BC0150NLD7112247M1108268123456782<<<<<02

Challenges



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Is biopage photo compared to chip photo (DG2) ?



Challenges



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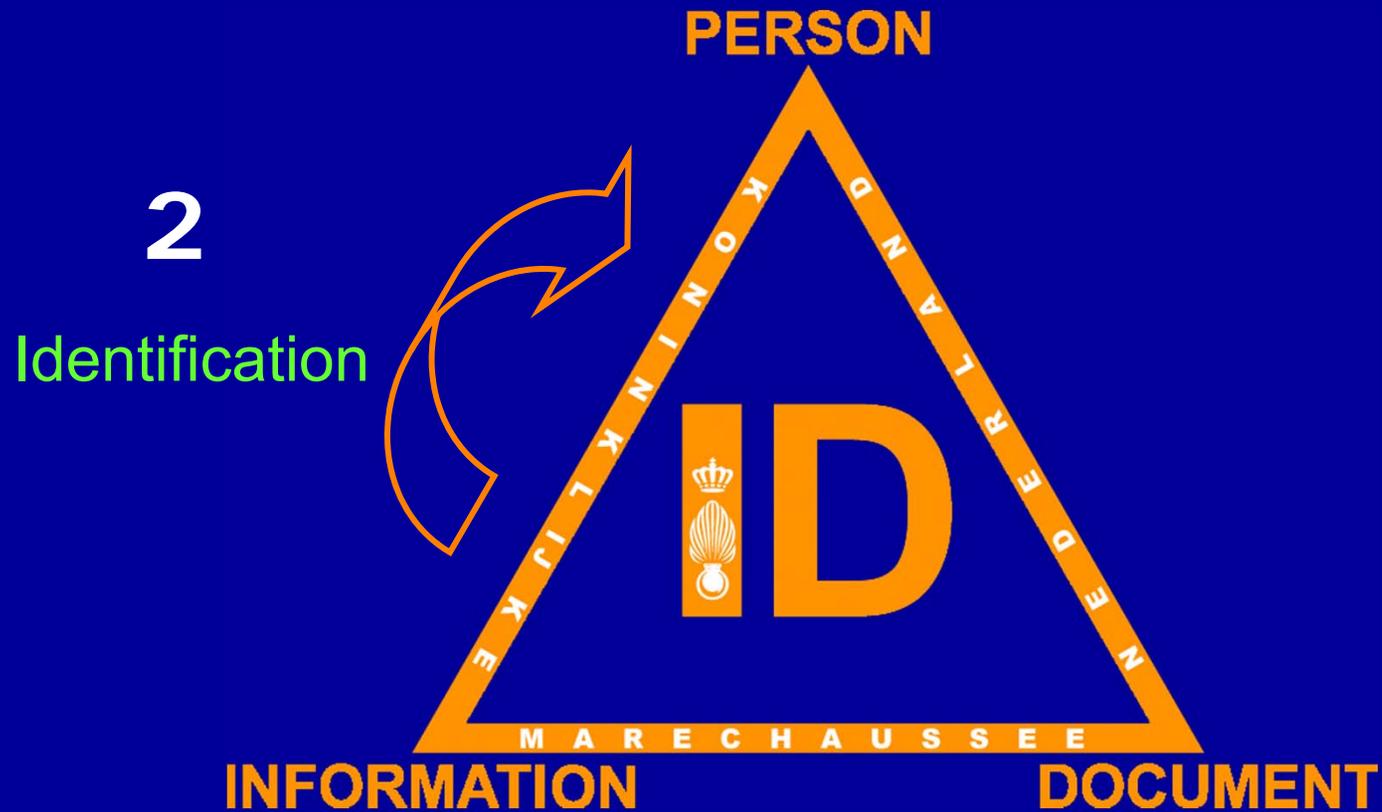
A close-up photograph of a textured surface, likely a piece of fabric or paper, showing a repeating pattern of colorful, abstract shapes. The pattern consists of vertical bands of blue, red, and yellow, with a central band of white. The texture is fibrous and uneven, with some fraying visible at the edges. The text is overlaid on the bottom half of the image.

Distinguishing print techniques
easy for humans,
difficult for machines

Identity triangle



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Automated Border Control Challenges

District Schiphol

Challenges



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محمد

Mahmed
Mechmet
Mohamad
Mohammed
Muhamad

Ali Ben Mohamed
or
Mohamed Ben Ali

Typo (by ear)

Joke van der Steen (NLD)

Transcription

Joke Vandersteen (BEL)

Yoka Fonda Stayne (USA)

Order

Conversions.

VIZ -> MRZ

Hößl = HOESSL

Hößl = HOEBL

Hößl = HOBL

Ping Li

or

Li Ping

Li = 李 = LEE

力 历 枋 立 苙 沴

礼 淚 俚 叟 曆 梨

Challenges



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Does the MRZ contain all the appropriate data?



VIZ in NLD: Erika Musterfrau,
spouse of Van der Steen

MRZ: P<NLDMUSTERFRAU<<ERIKA<<<

VIZ in DEU: Erika van der Steen,
born as Musterfrau

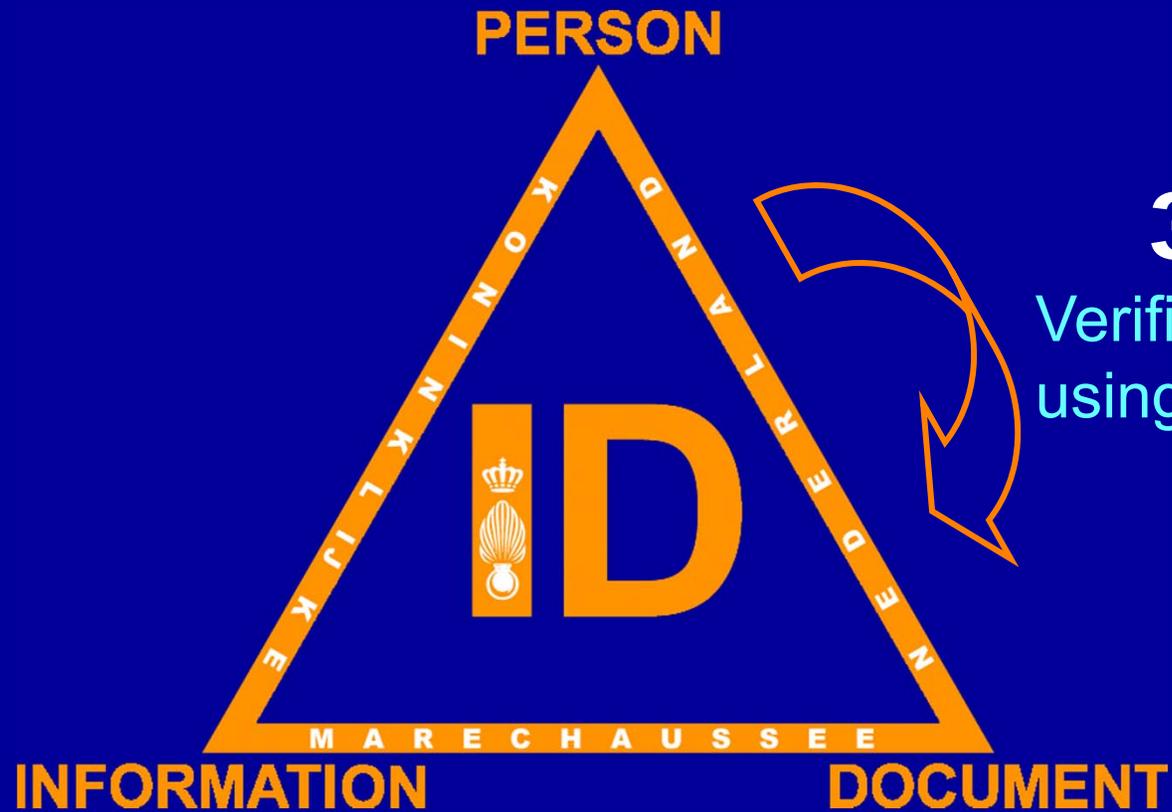
MRZ: P<D<<VAN<DER<STEEN<<ERIKA

Should personal data be more uniform in passports?

Identity triangle



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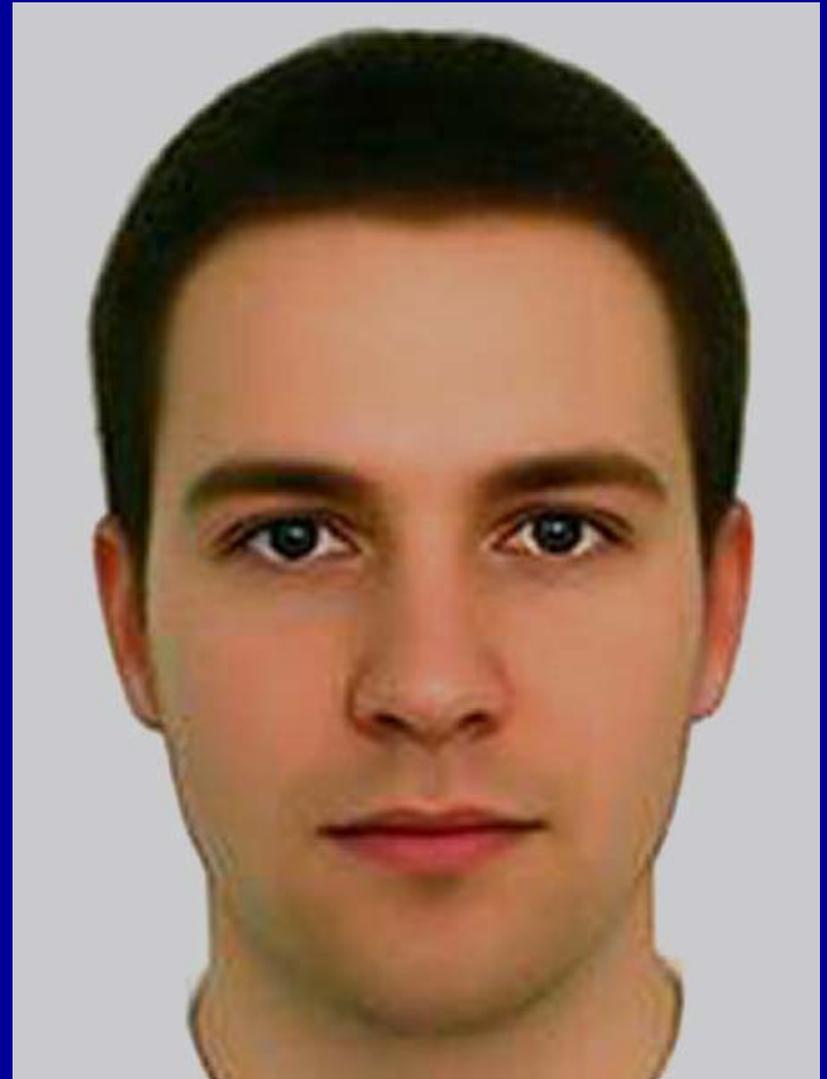
Verification
using biometrics

Challenges



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> 90%



Facial comparison

Challenges



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> 50%



Facial comparison

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< 10%



Facial comparison

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< 10%



Facial comparison

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QUESTIONS?



Contact



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District Schiphol

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