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POLISH SECURITY
PRINTING WORKS

PERCEPTIBLE AND HIDDEN

SECURITY FEATURES

IN MODERN ID DOCUMENTS

STATE-OF-THE-ART PHYSICAL LAYER

—

ID4AFRCA 2018

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I.
FACTORS INFLUENCING THE DESIGN OF SECURE CARDS

agenda (I/VI)

FACTORS INFLUENCING DOCUMENT MANUFACTURER & DESIGNER

- Interoperability
- Credible and easy verification in the field

- Security of the document and issuing entity
- Resistance to forgeries, counterfeits, copying, cloning, etc.

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- Cost effectiveness
- Future-proof solution

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FACTORS INFLUENCING DOCUMENT MANUFACTURER & DESIGNER

SECURITY

- Elaborating unique security features.
- Merging sophisticated document production techniques with advanced IT/chip solution

COMPLIANCE

- Comprehensive customer needs analysis.
- Full adherence to international standards
  – ICAO / ISO / BSI

EFFECTIVENESS

- Creating complete issuance systems from document production and data collection
  to personalization and delivery

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II.
CARD STRUCTURE

agenda (II/VI)

GENERAL CARD STRUCTURE

- The layered card structure allows to apply versatile security measures and image effects.
- One of the layers can be also inlay with a chip and antenna.
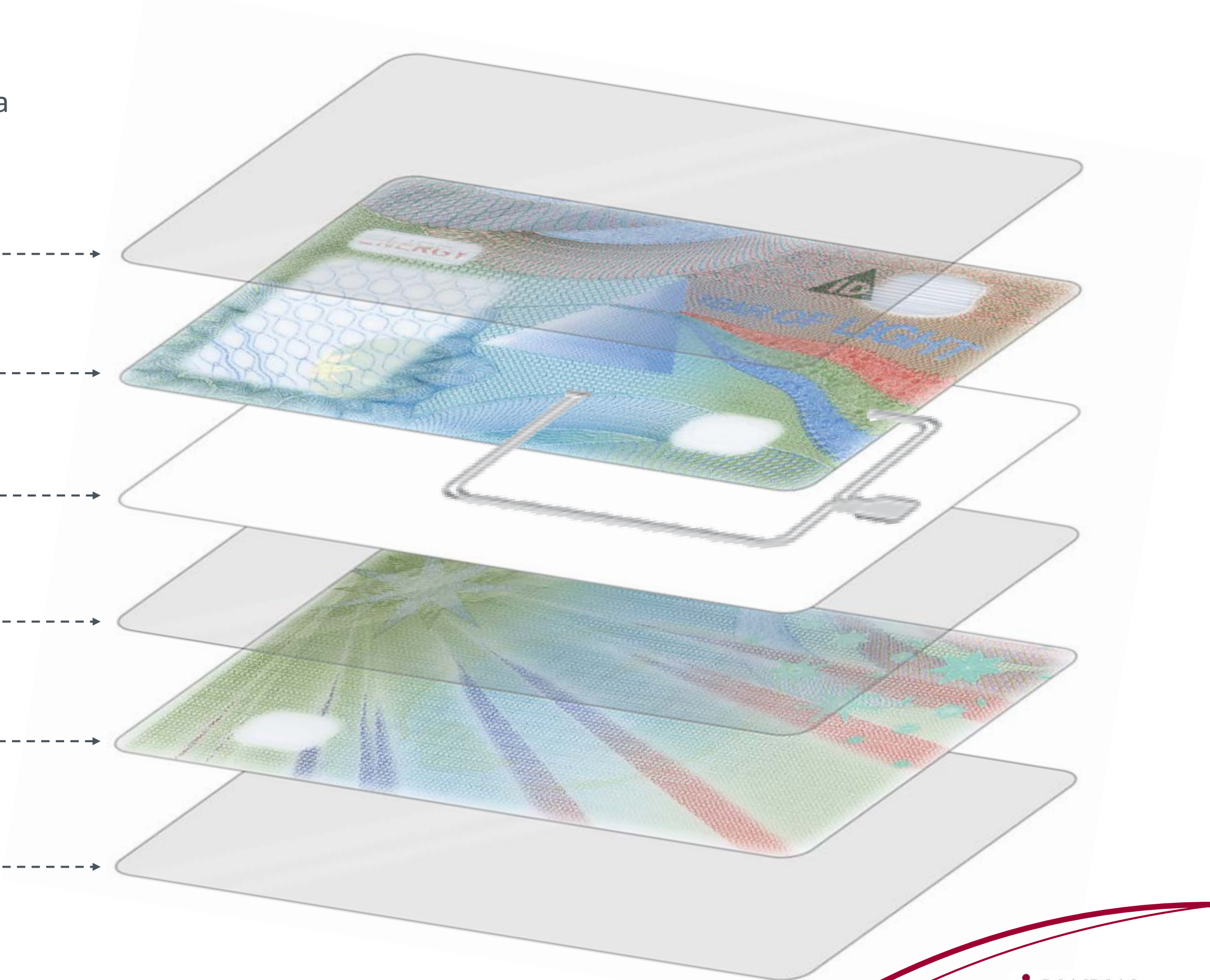
TRANSPARENT LAYER - - - - - - - - - - - - - - - - - →

FRONSIDE OFFSET PRINTING - - - - - - - - - - - - →

WHITE LAYER - →

TRANSPARENT LAYER - - - - - - - - - - - - - - - - →

BACKSIDE OFFSET PRINTING - - - - - - - - - - - - →

TRANSPARENT LAYER - - - - - - - - - - - - - - - - →

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GENERAL CARD STRUCTURE

Particular layers of the card are the basis for different personalized features so the information
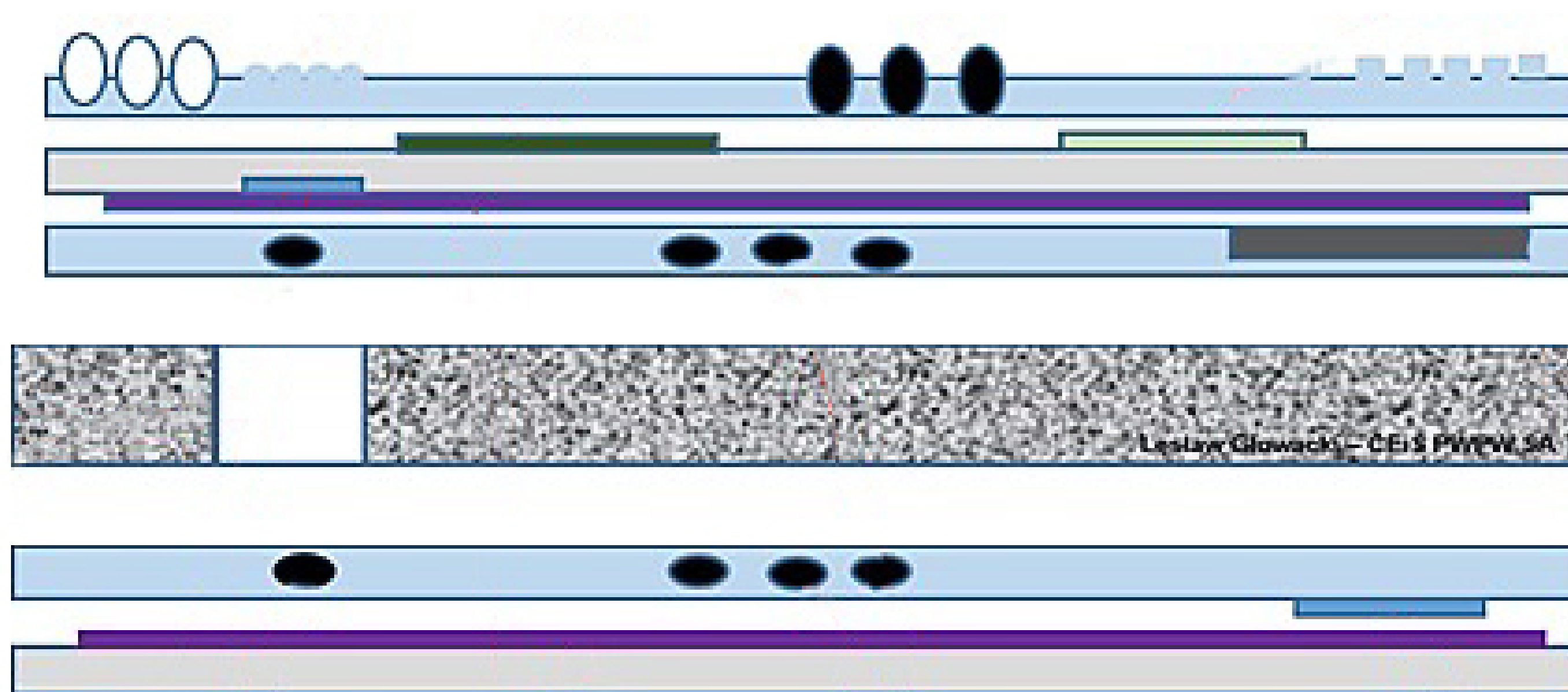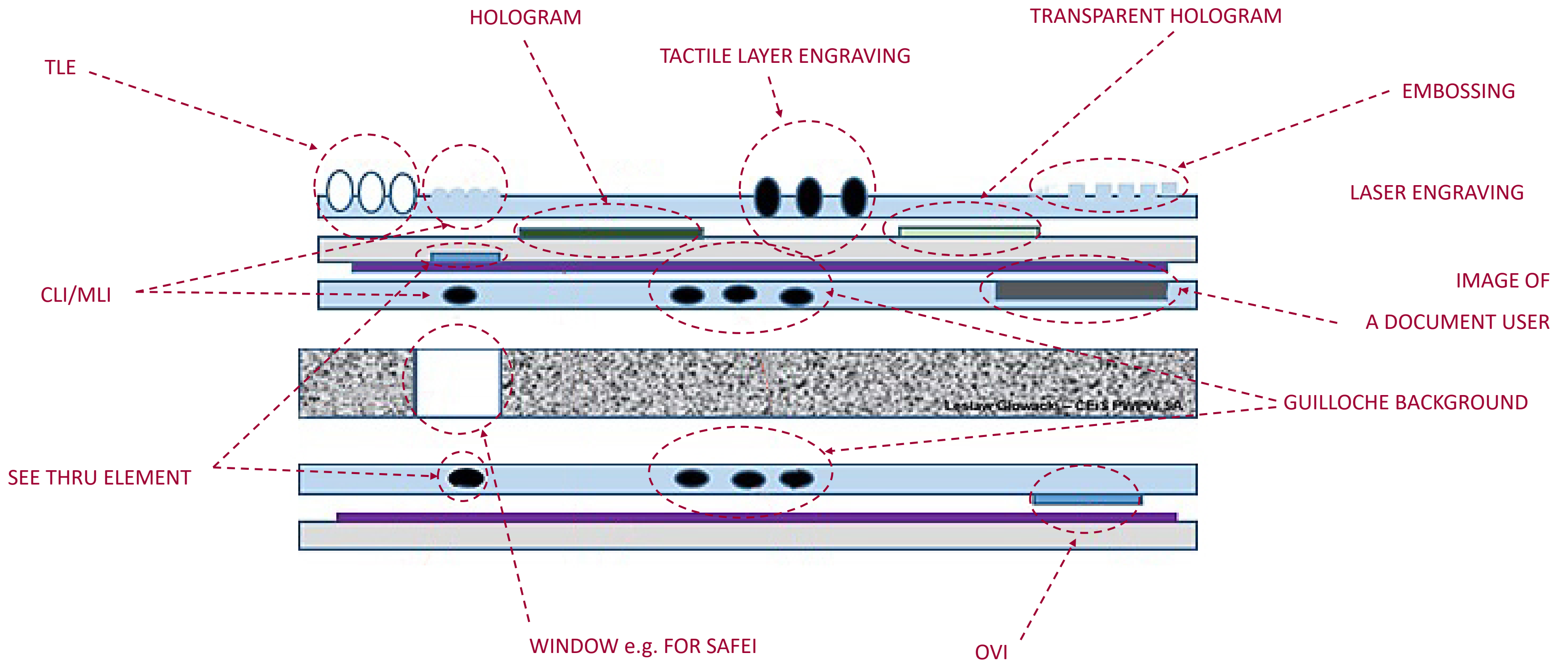
is not only on the surface of the document but it penetrates the document structure.

GENERAL CARD STRUCTURE

Particular layers of the card are the basis for different personalized features so the information

is not only on the surface of the document but it penetrates the document structure.
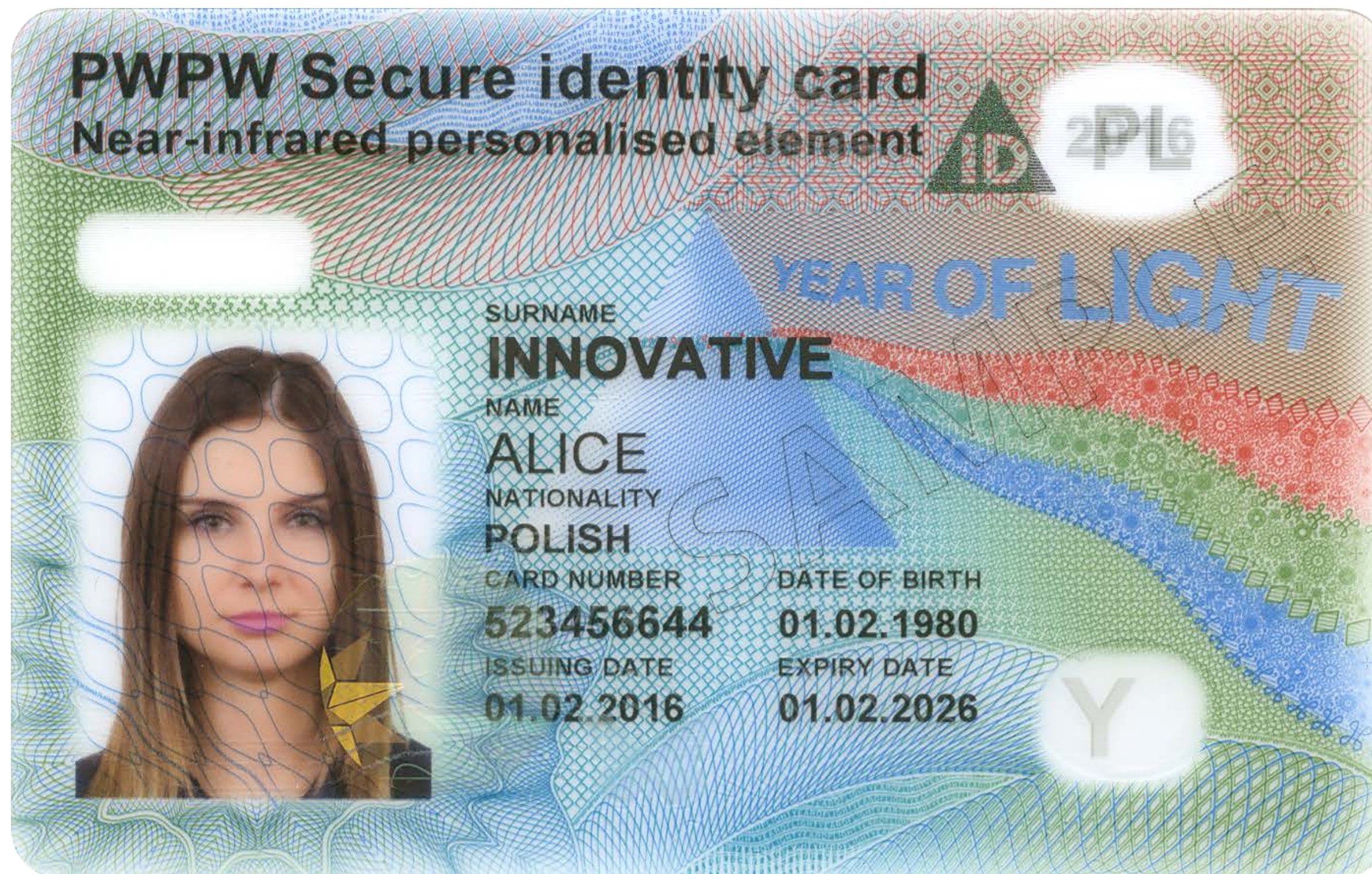

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III.
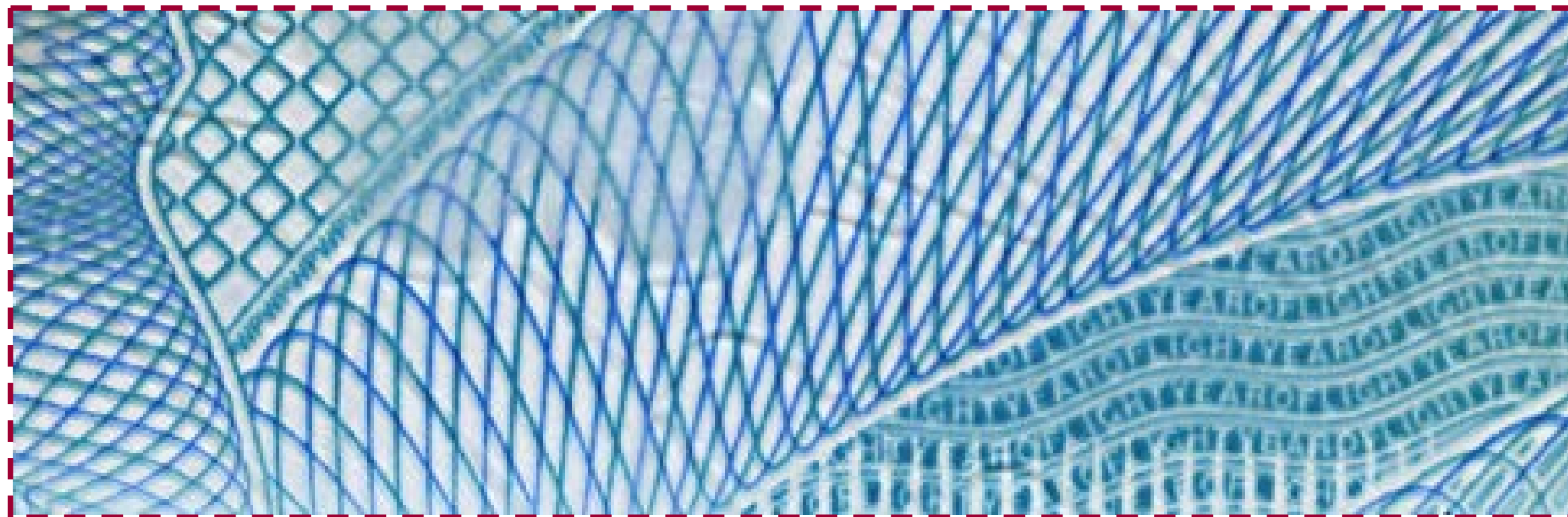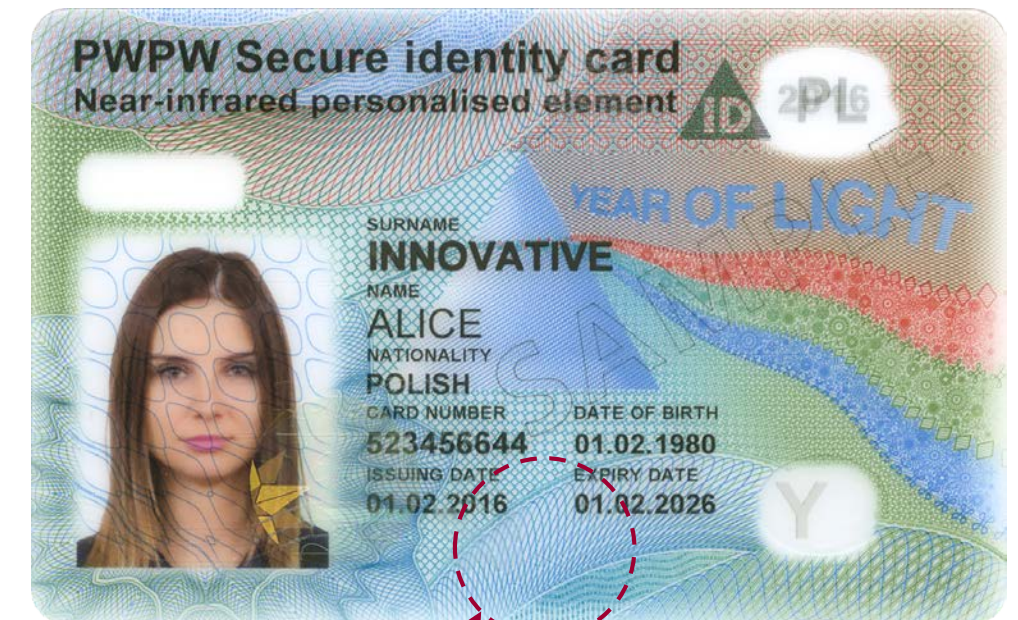BASIC PRINTING TECHNIQUES

agenda (III/VI)

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BASIC PRINTING TECHNIQUES

- Micro texts – positive / negative
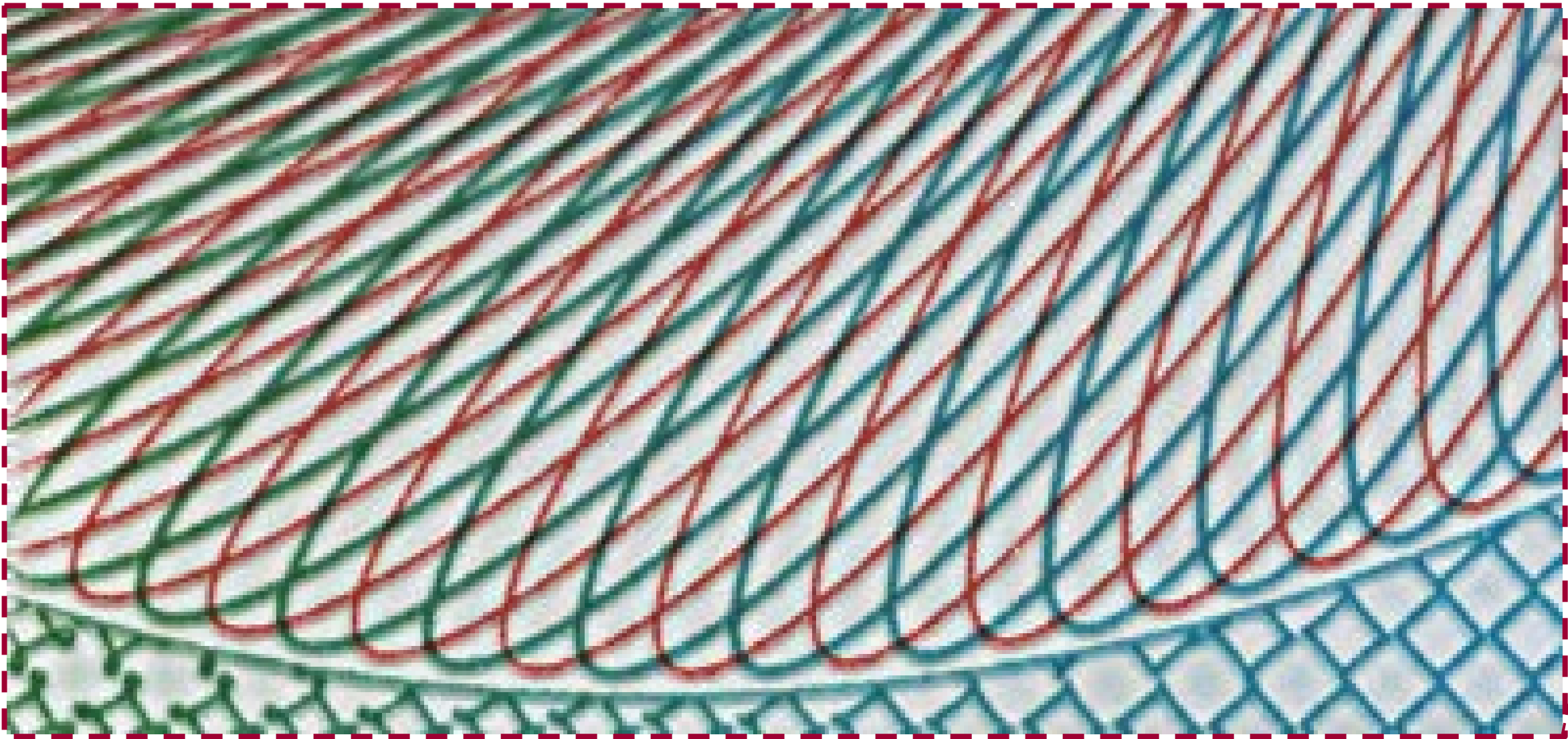- Guilloche lines

BASIC PRINTING TECHNIQUES

- Micro texts – positive / negative
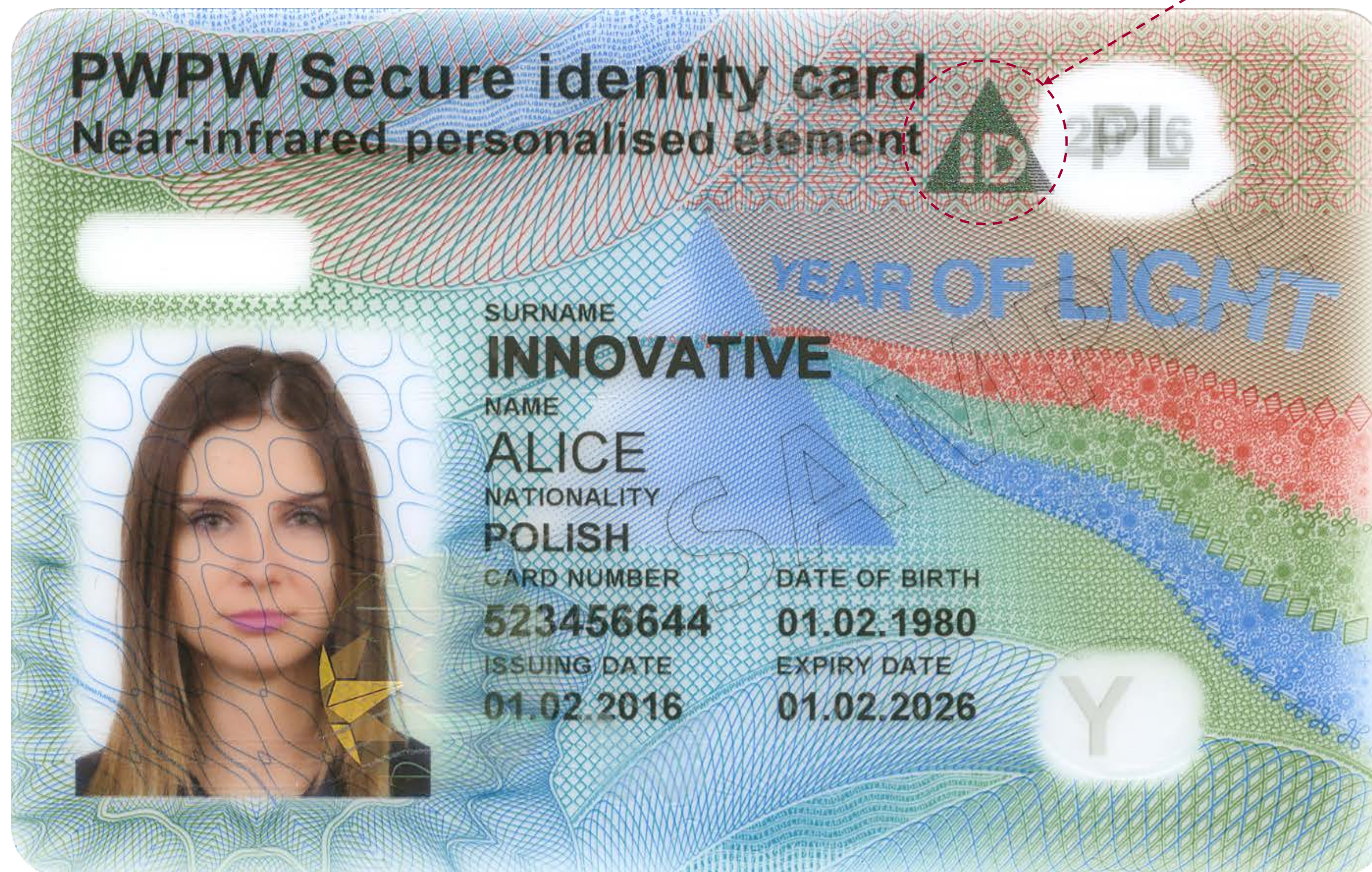
- Guilloche lines

BASIC PRINTING TECHNIQUES

Rainbow - printing

BASIC PRINTING TECHNIQUES

OVI – Optically Variable Image, screen printing element which changes colour depending on viewing angle.

Iridescent image

ADDRESS OF RESIDENCE

SANGUSZKI 1 STREET
00-222 WARSAW
POLAND

ISSUING AUTHORITY

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A MARKETING SAMPLE, NOT FOR TESTING

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MULTICOLOUR IRIDESCENT IMAGE

Iridescent image

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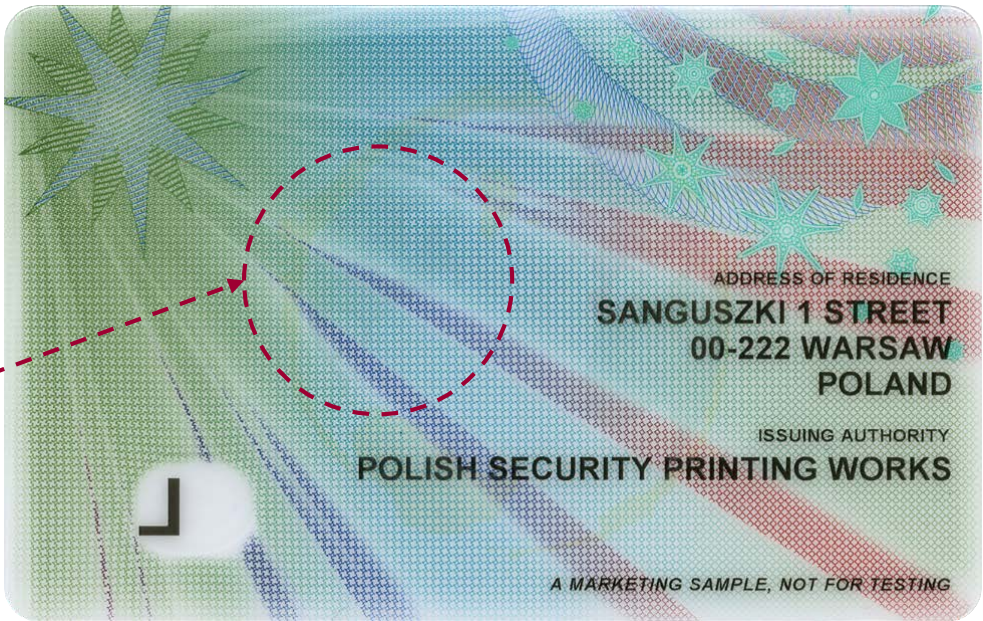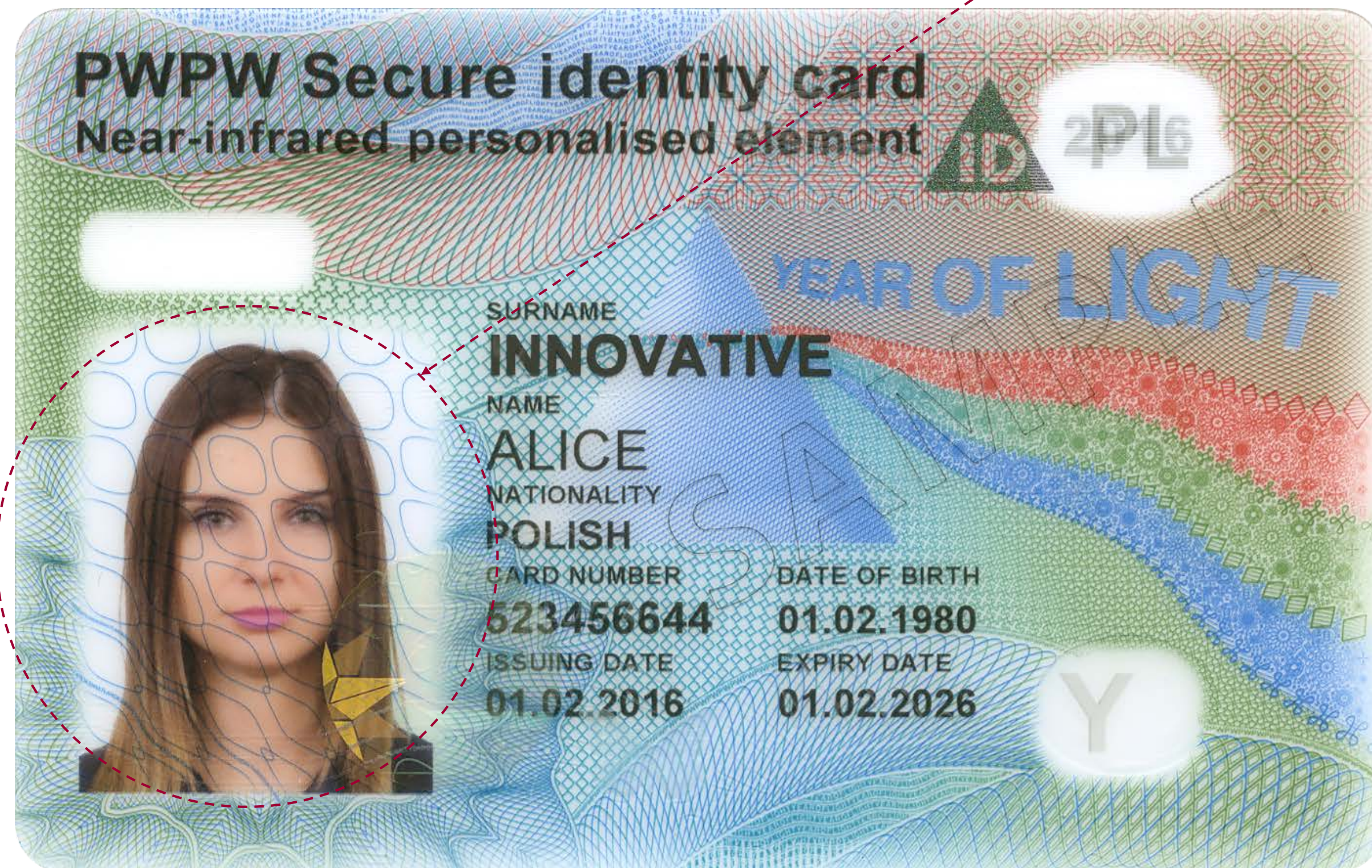
IV.
SECURITY FEATURES

agenda (IV/VI)

PROTECTION OF THE PHOTO

- Transparent Hologram
- Guilloche lines in the photo zone

PWPW Secure identity card
Near-infrared personalised element

YEAR OF LIGHT

SURNAME
INNOVATIVE
NAME
ALICE
NATIONALITY
POLISH
CARD NUMBER
523456644
ISSUING DATE
01.02.2016

DATE OF BIRTH
01.02.1980
EXPIRY DATE
01.02.2026

Y

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PERSONALIZACJA:
PCP i GRAWEROWANIE LASEROWE

2015

YEAR OF LIGHT

SURNAME
KOWALSKA

NAME
ANNA

NATIONALITY
POLISH

CARD NUMBER
123456855

DATE OF BIRTH
01.02.1964

ISSUING DATE
01.02.2015

EXPIRY DATE
01.02.2025

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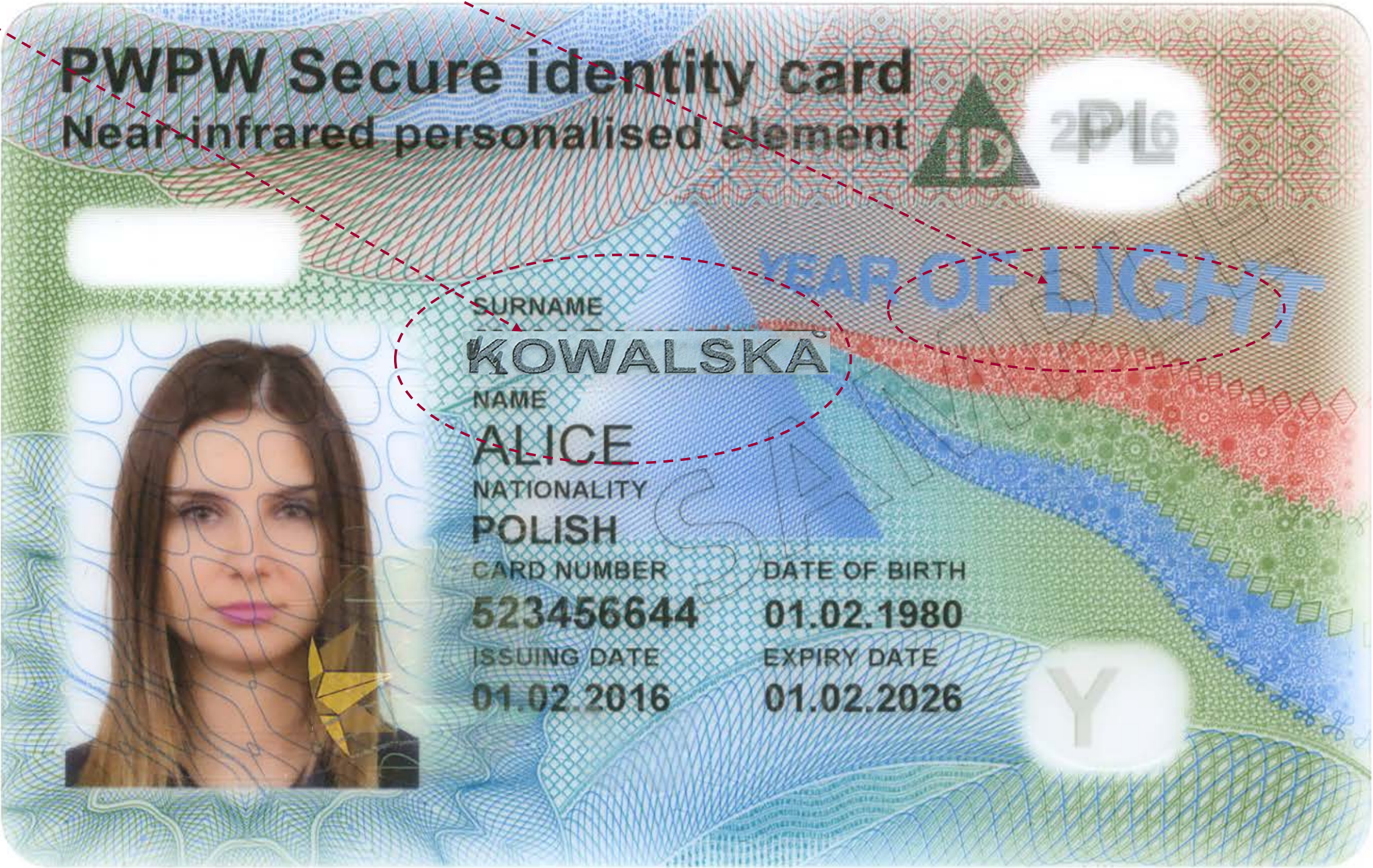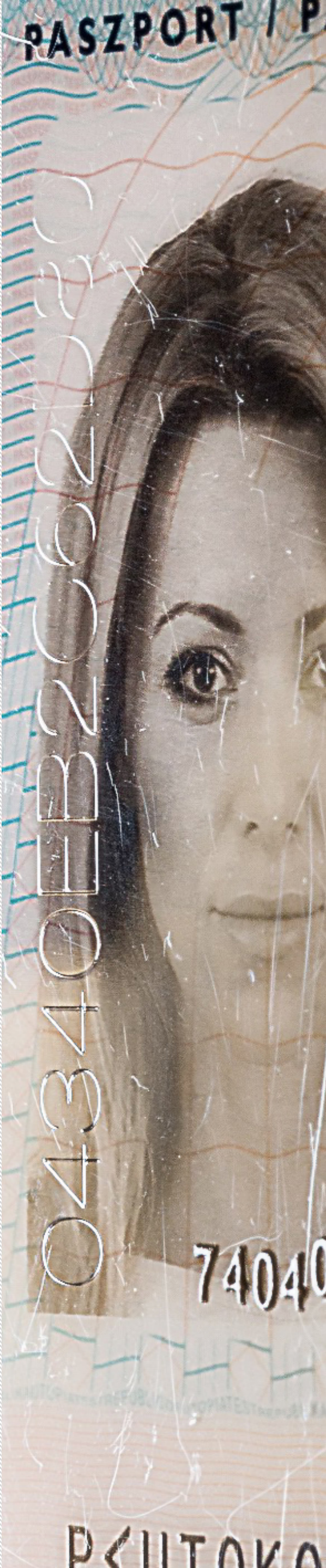
TACTILE FEAURES

Laser Engraved tactile element that protract above the surface of the card

Tactalie elements created with special lamination plates

Tactile features can also contain information for visually impaired written in Braille. Below the example from Polish ID.

PWPW Secure identity card
Near-infrared personalised element ID 2PL6

YEAR OF LIGHT

SURNAME
KOWALSKA
NAME
ALICE
NATIONALITY
POLISH
CARD NUMBER   DATE OF BIRTH
523456644   01.02.1980
ISSUING DATE   EXPIRY DATE
01.02.2016   01.02.2026

Republic of Poland
card

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TLE® - TRANSPARENT LASER ENGRAVING

—

Tactile element obtained with carbon dioxide laser
on the card surface

Highlights

- Possibility of printing variable data & images
- May be perceived as personalized embossing
- Easy to verify
- No readability reduced
- No additional space needed

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VERSO ID®

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Security feature comprises of two partial images generated by function having value dependent on personalised data, applied on opposite side of a semi-transparent substrate, which form a complete image when viewed in transmitted light.


View in transmitted light

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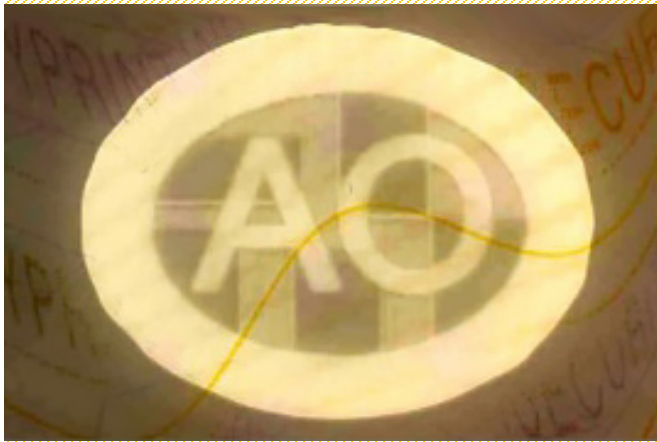
VERSO ID® IMAGE CREATING

One part of initials is engraved in front of the card and the second part on the back.

In the passing light complete pattern is visible. The final pattern is not created randomly,

but, it results from unique card number and mathematical representation of the photo. As

this combination is unique, there is no the same image on two different cards.

Algorithm
that generates
partical images
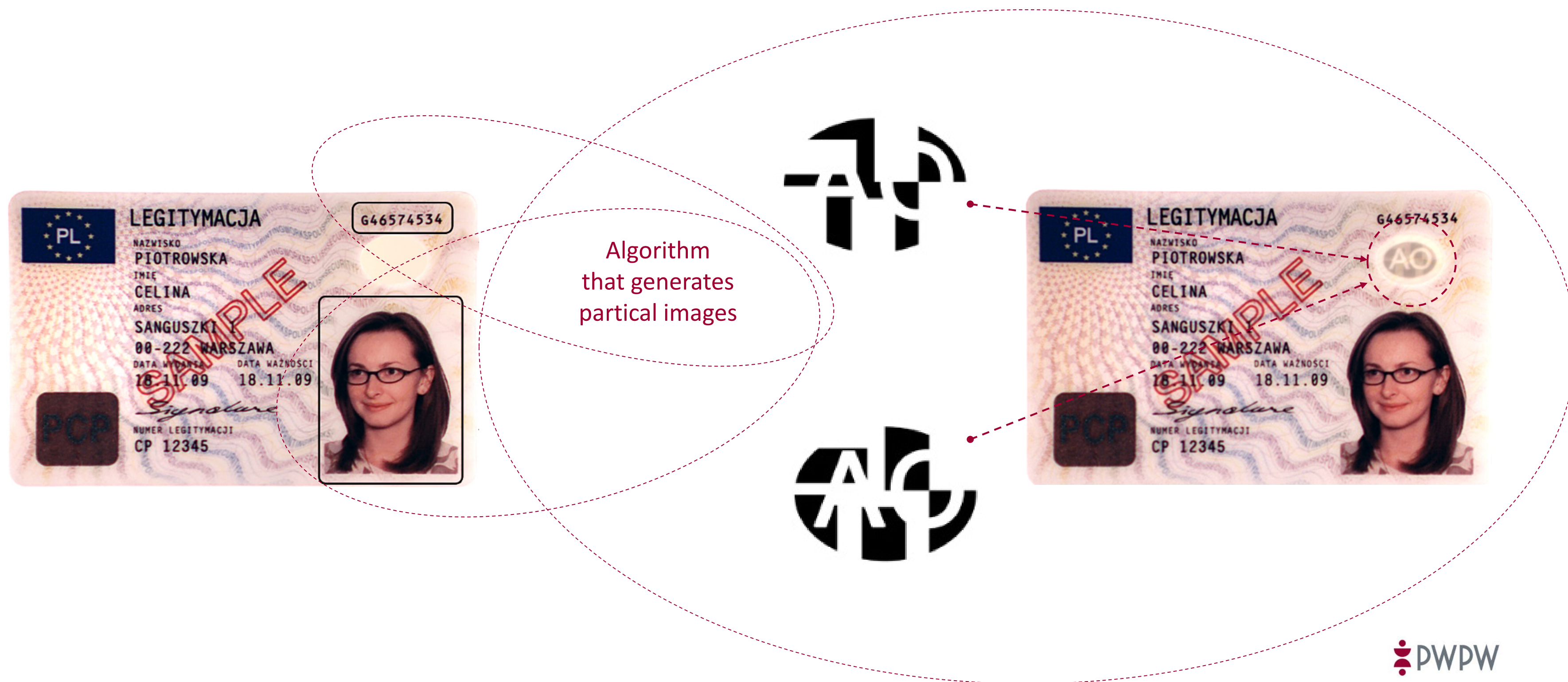
VERIFICATION OF VERSO ID®
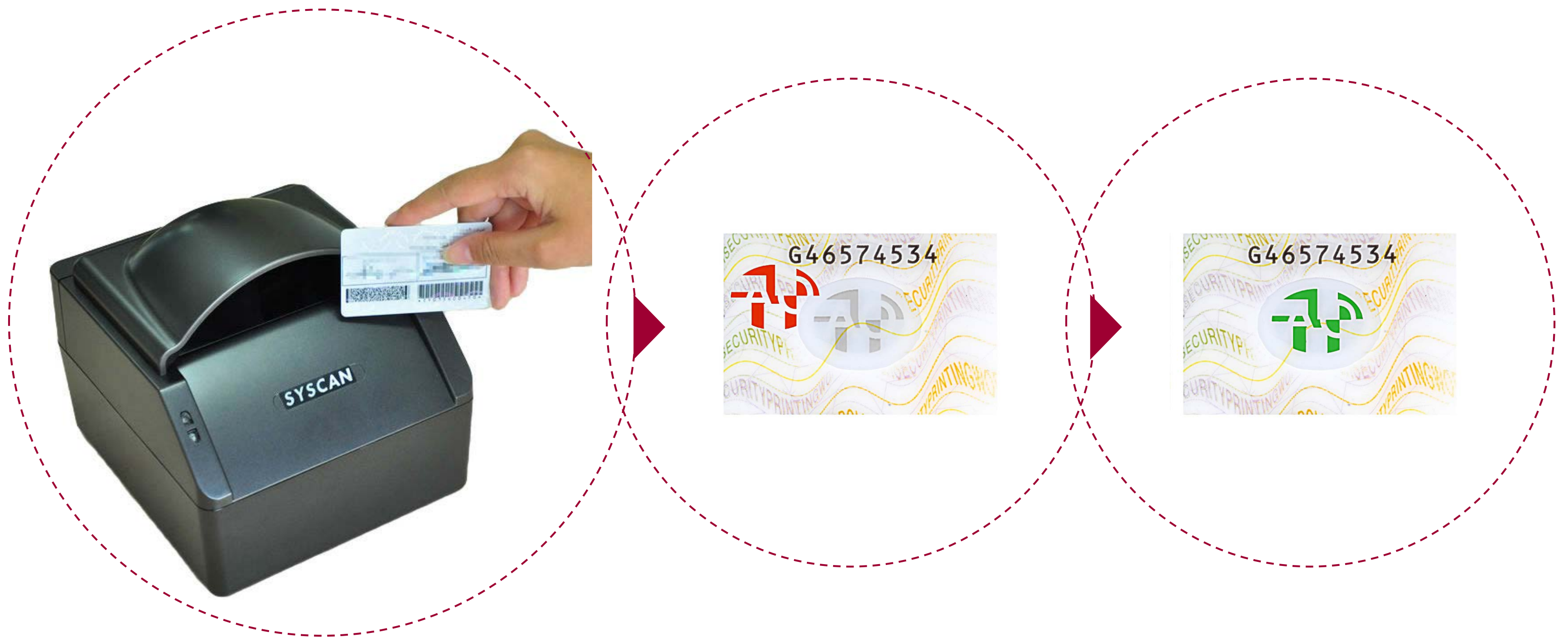
During the process of verification document is scanned, security feature is located, card unique number is read and photo is transformed into mathematical representation. Based on these data algorithm the mask is generated and overlayed on scanned image for comparison.

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DUPLICATED BIOMETRIC DATA – MLI/CLI
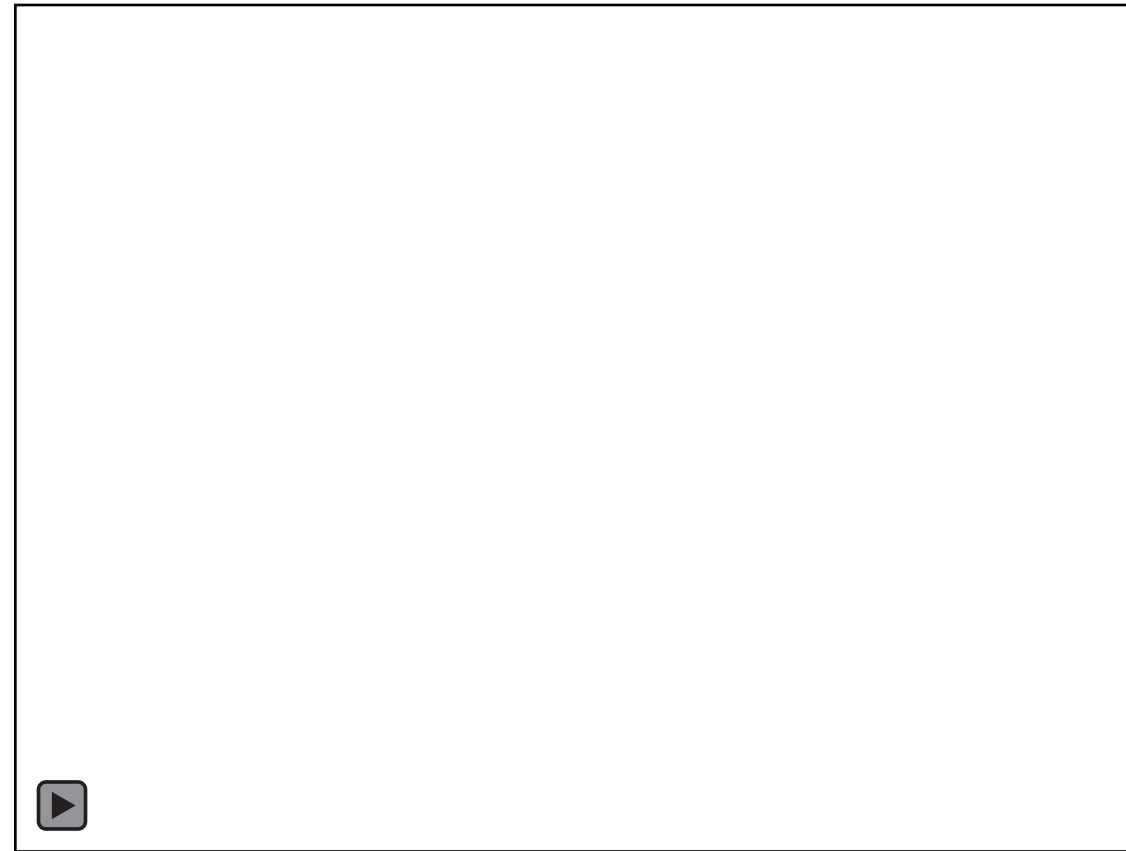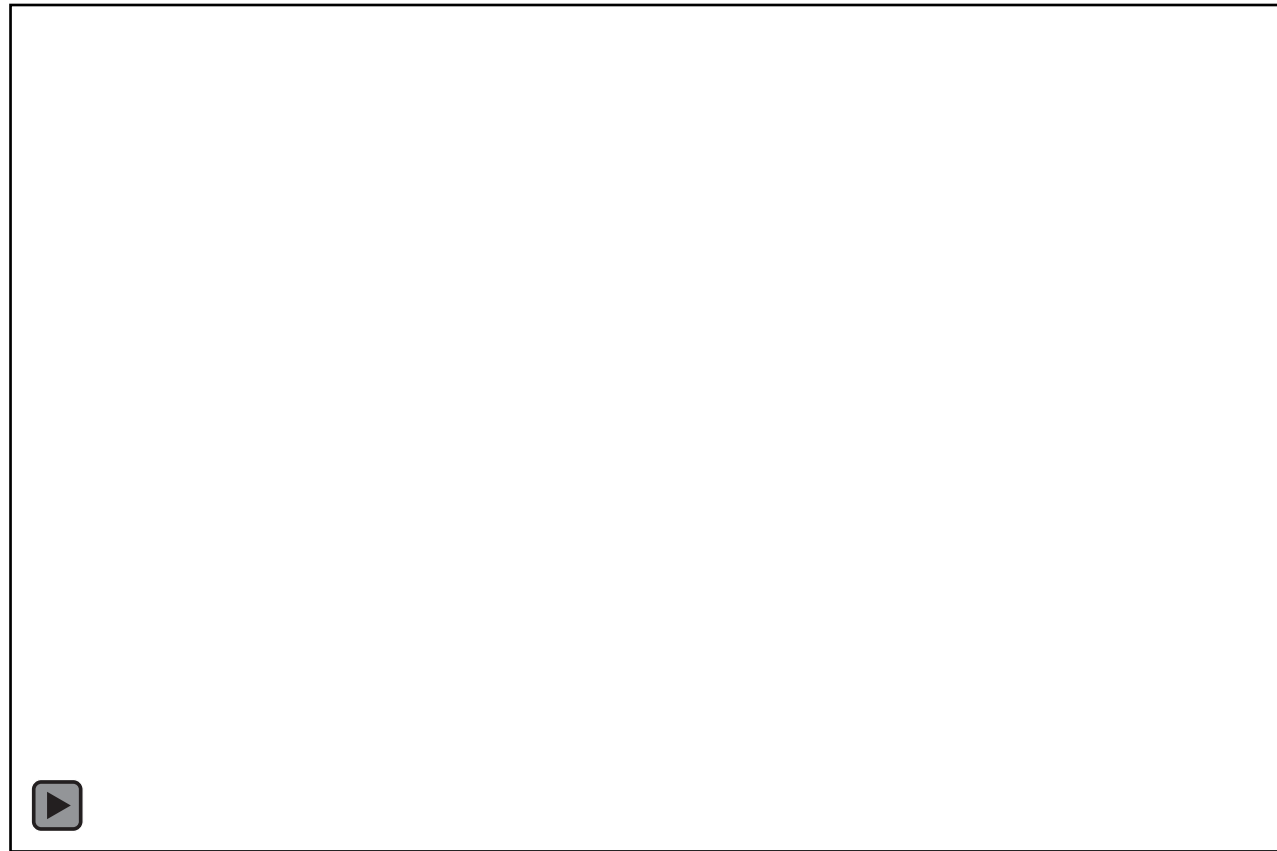
- A special feature that allows to personalize ghost images

- Depending on viewing angle the image is slightly changing

- Can be also located in transparent window

- Protection against changing main photography of document holder.

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DUPLICATED BIOMETRIC DATA – MLI/CLI

The possibility of using a range of securities e.g. holograms, UV active prints, iridescent ink, microtexts, MLI/CLI connected with personal data within the transparent area and its filling.

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DUPLICATED BIOMETRIC DATA – MLI/CLI

CLI/MLI

Angle depent image

UV ACTIVE ELEMENTS

Diffrent color variations of UV inks when viewing face
and back thanks to using the special blocking layers

IRIDESCENT INK

Transparent ink with metallic or pearl luster and changeable brightness
depending on angle of viewing or illumination;
visible on the both sides of cards

MICROTEXT

The personalized data presented in the microtext form
with a characteristic shape of the transparent area's card
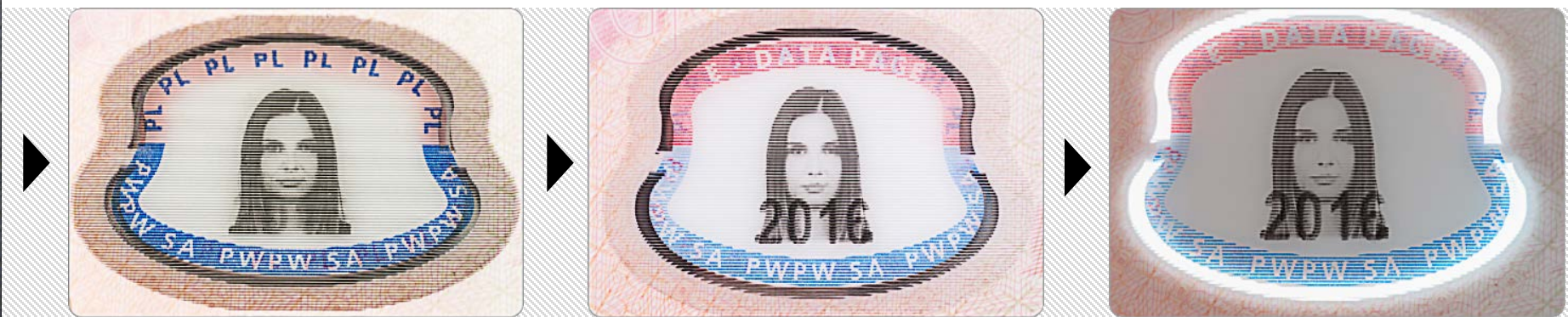
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SAFE I ®

Security feature representing 1st level of security enabling effortless verification – here

example form passport polycarbonate page
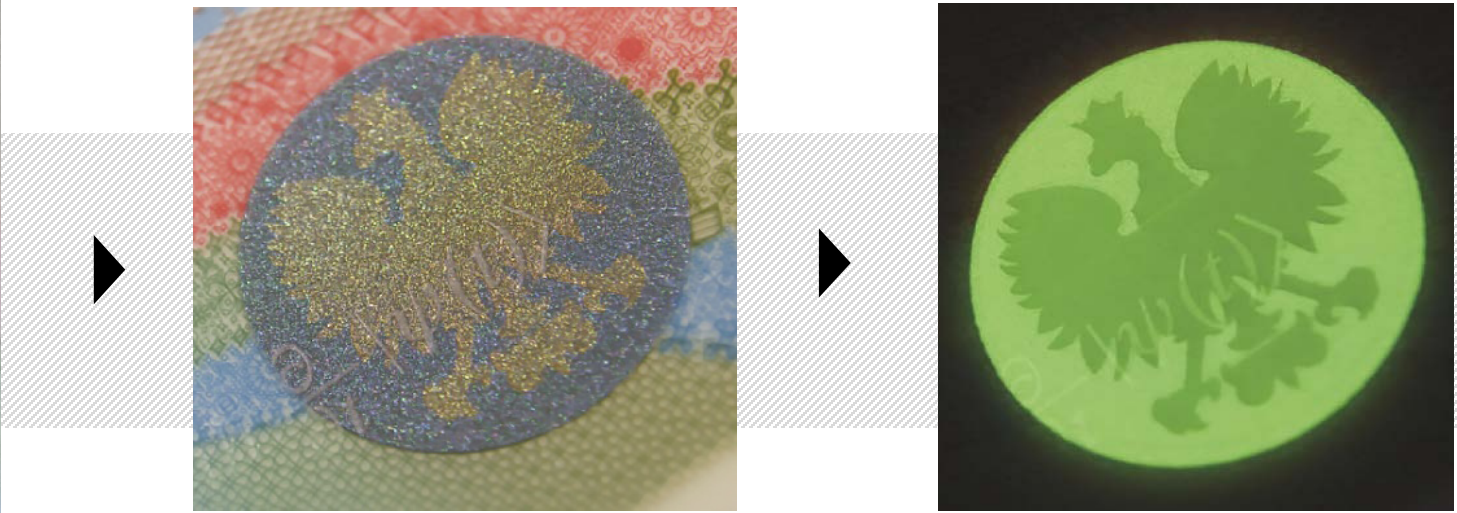
SecuLAIV®

Repetition of the personal data in background made of OVI®
and fluorescent inks with usage of UV laser beam

SecuLAIV®

Repetition of the personal data in background made of OVI®

and fluorescent inks with usage of UV laser beam

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PCP® TECHNOLOGY

- High colorful printing quality enclosed within polycarbonate card body - forgery proof
- Colorful photo enabling faster and more reliable card's holder recognition
- Secure process of personalisation integrated with card production
- Elimination of blank cards

CARD PRODUCTION PROCESS IN PCP® TECHNOLOGY

1. color personalization - - - - - - - - - - - - - - - - - → 2. collecting

ADG123654

3. lamination

SAMPLE ID-ONE CARD

ADG123654

4. Laser engraving - - - - - - - - - - - - - - - - - →

SAMPLE ID-ONE CARD

NAZWISKO/SURNAME
KOWALSKI
IMIONA/GIVEN NAMES
JAN
NAZWISKO RODOWE/FAMILY NAME
KOWALSKI
SERIA I NUMER DOKUMENTU/IDENTITY CARD NUMBER   PŁEĆ/SEX
ADG123654   **M/M**
DATA I MIEJSCE URODZENIA/DATE AND PLACE OF BIRTH
05.12.1978, WARSZAWA
OBYWATELSTWO/NATIONALITY   DATA WAŻNOŚCI/DATE OF EXPIRY
POLSKIE   **24.12.2015**

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IREVIDENT® - INFRARED ABSORBING INK

View in VIS

View in IR

Invisible to naked eye infrared absorbing ink for variable data printing

and machine readability in order to provide unique protection of personal

data at 3rd level of security.

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IREVIDENT ® – CARD STRUCTURE

TRANSPARENT LAYER

FRONSIDE OFFSET PRINTING

LAYER WITH iRevident

WHITE LAYER

TRANSPARENT LAYER

BACKSIDE OFFSET PRINTING

TRANSPARENT LAYER

123456789

123456789

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During personalisation the time-marker is assigned to the person by machine readable device and stored in database. During authentication process these two numbers are checked and compared. In result the binary answer is received: compliant or non-compliant.

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V.
BIO ID

agenda (V/VI)

# BioID system – PWPW solution for biometric documents

Main system features:

- **High security product for biometric travel documents issuance**

- **Most advanced technology**

- **Flexible and modular architecture**

- **Three biometric features (face, fingerprints, iris)**

- **Biometric matching: verification and identification**

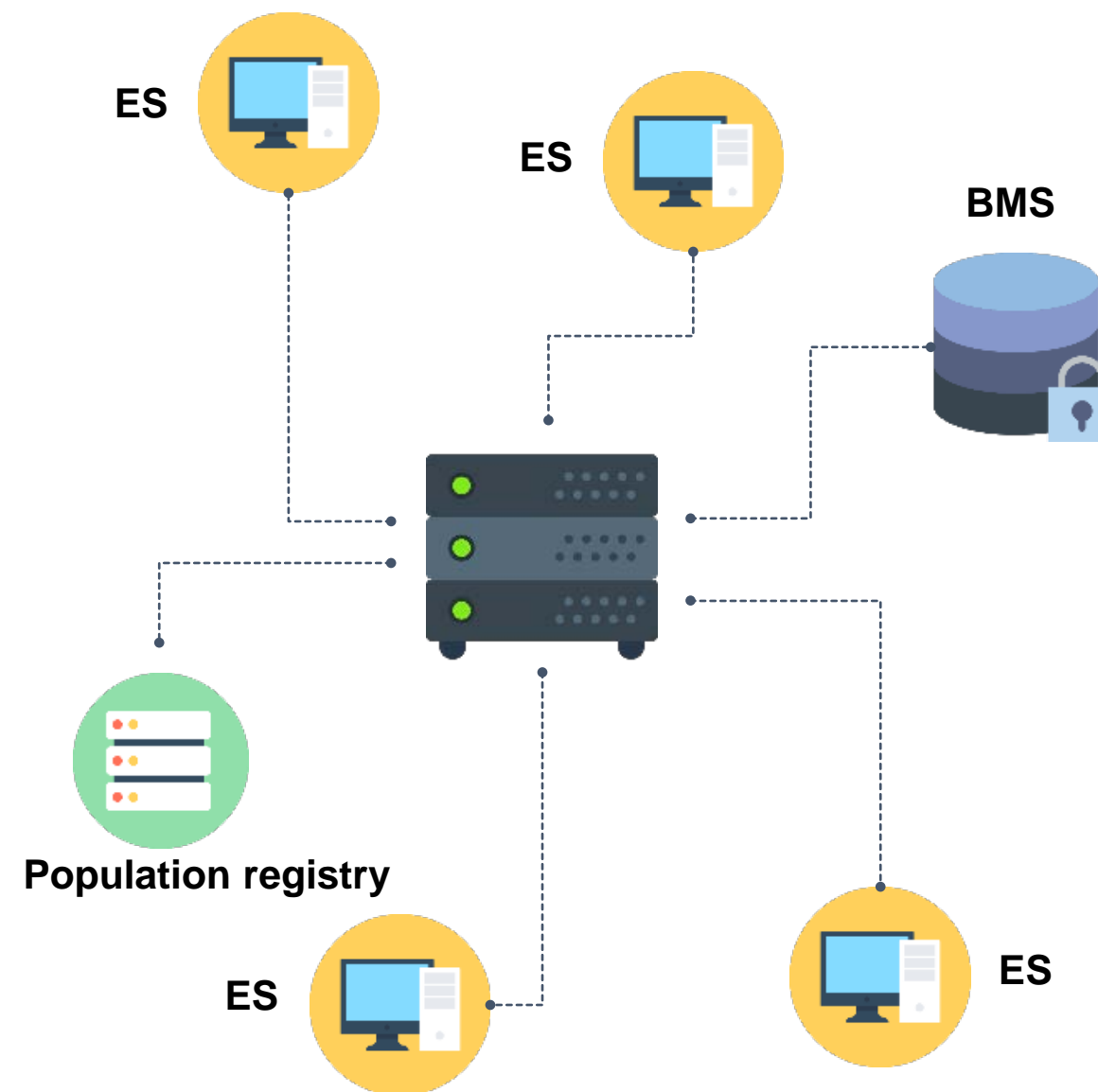- **According to ICAO and ISO/IEC requirements**
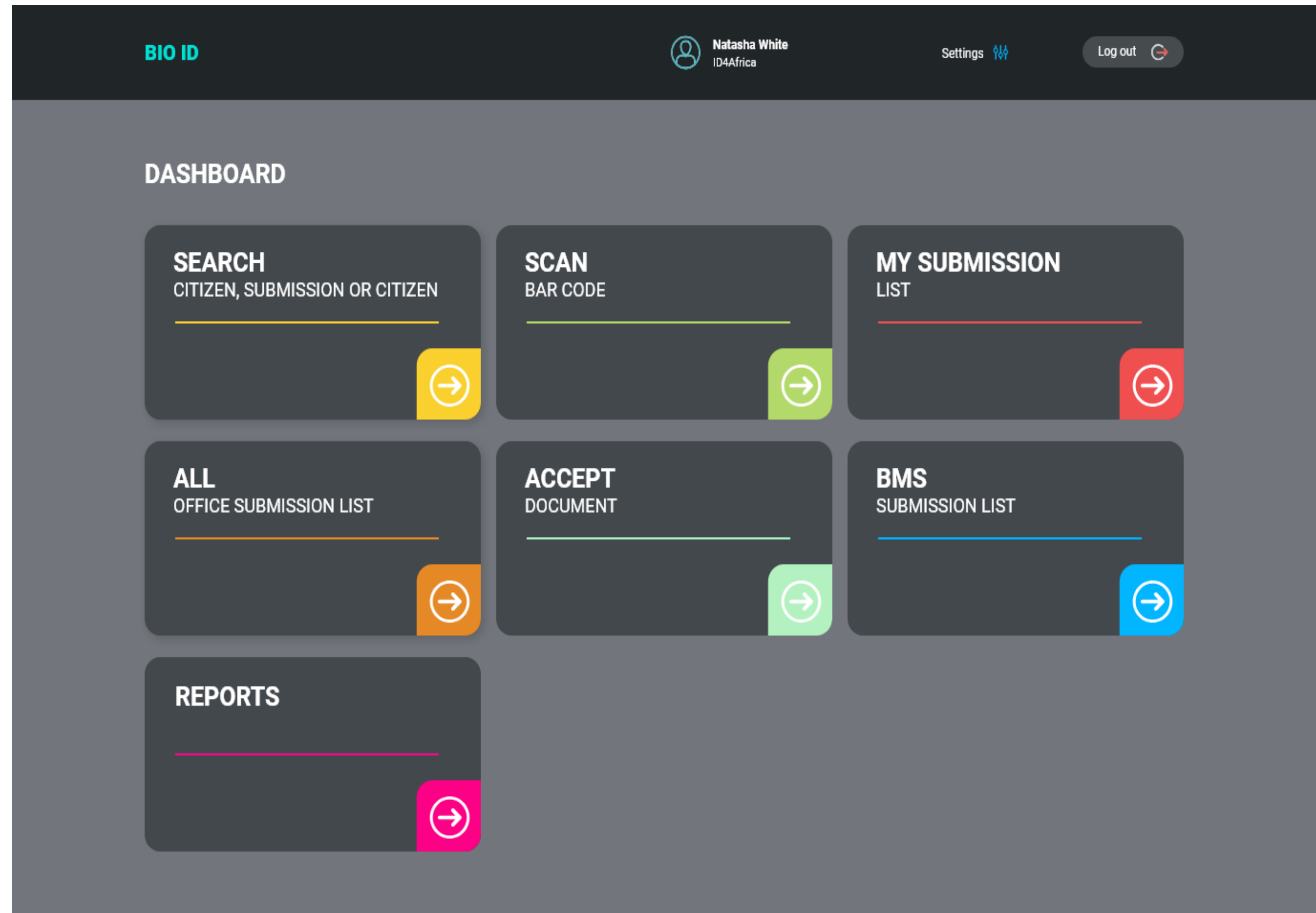
BioID system architecture 1/2

Enrollment Station
ES

Face

Fingerprints

Iris
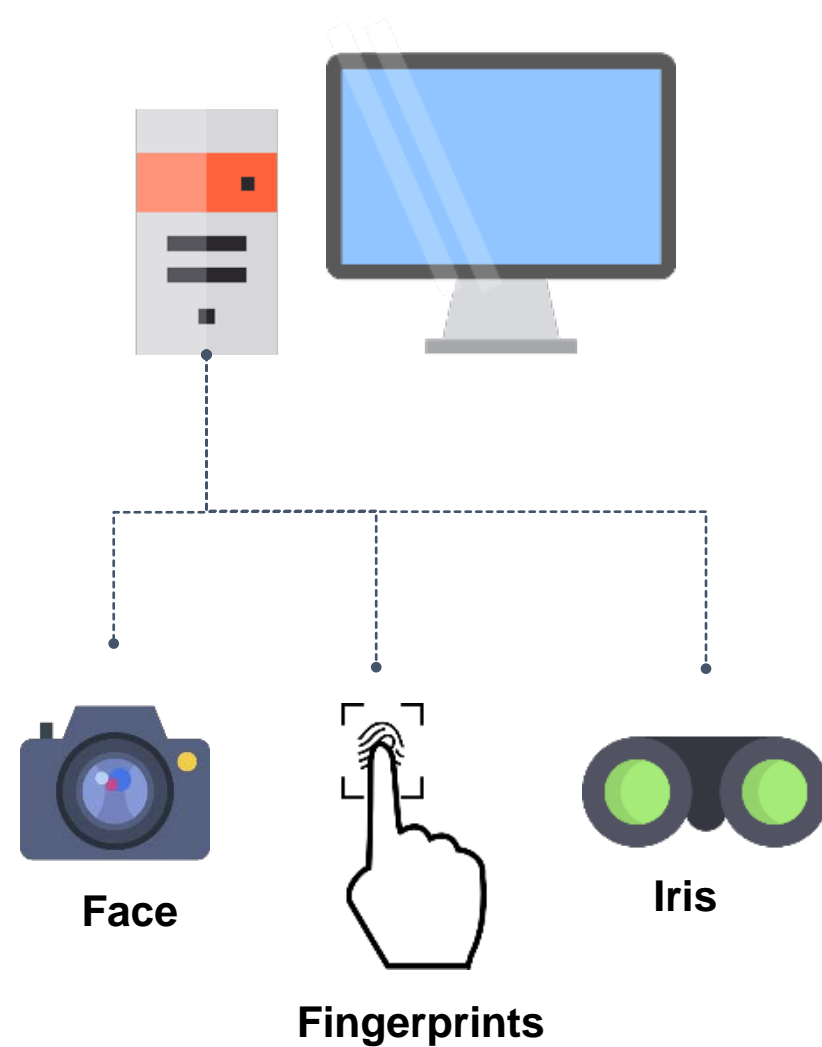
Application registration
Biometric data enrollment
Biometric ducument issuance
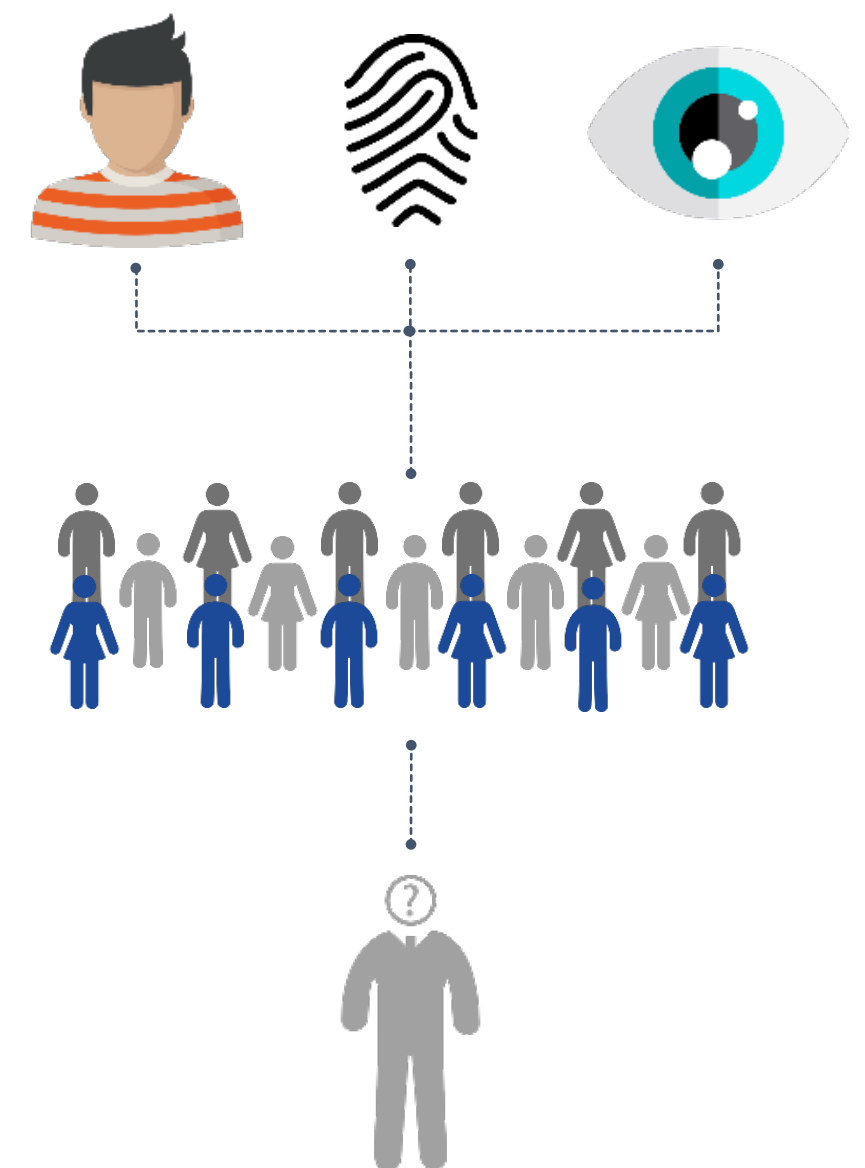
Scalable

Central Management System
CMS

ES

ES

BMS

Population registry

ES

ES

Central database
Citizen data verification and identification
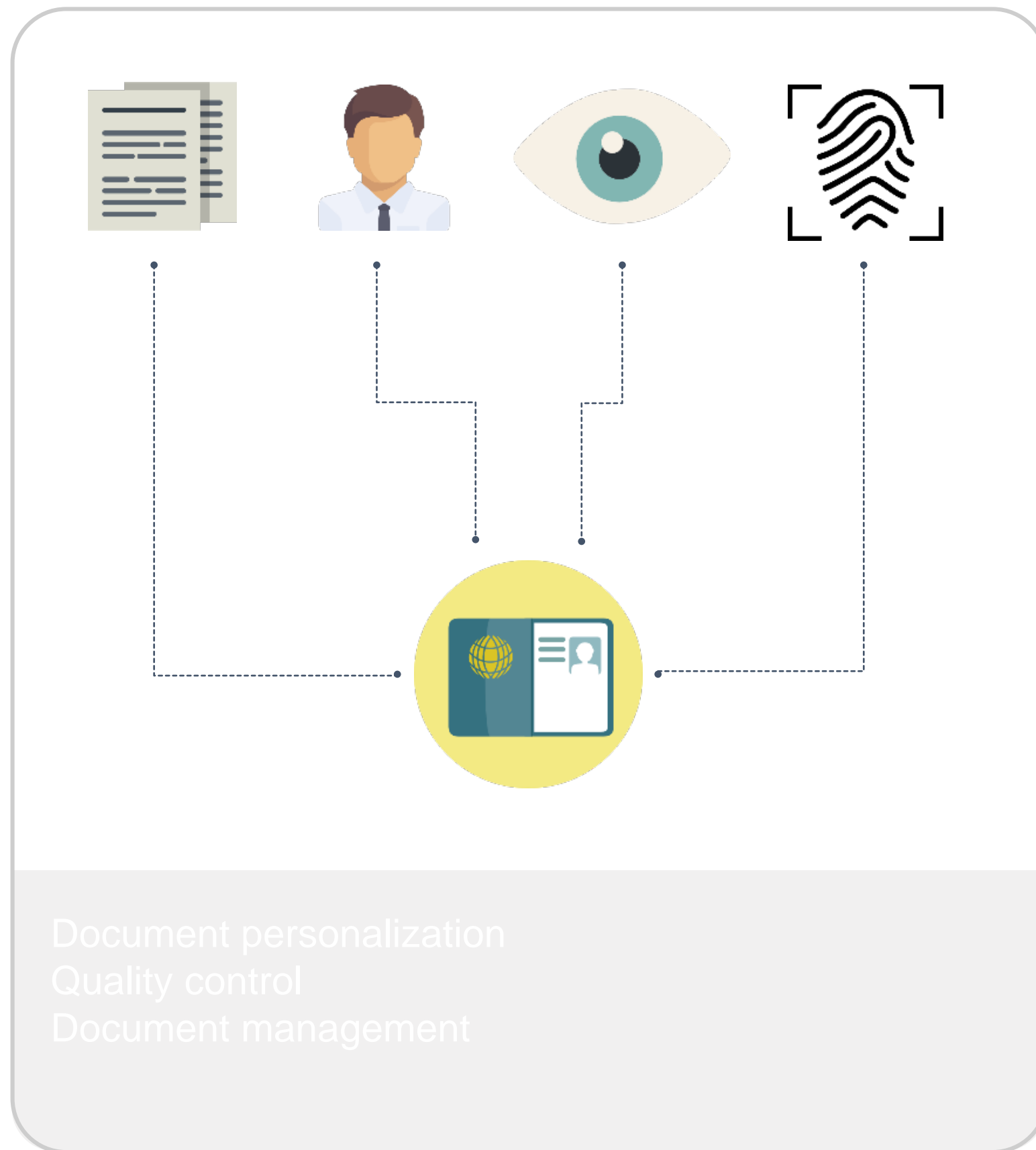Data distribution with external systems

Biometric Matching System
BMS

Biometric data matching:
1 : 1 – Identification
1 : N – verification

3 biometric features

Personalization Center
CP

Public Key Infrastructure
PKI

Document personalization
Quality control
Document management

Data encryption
Certificates and keys management

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VI.
SUMMARY

agenda (V/VI)

SUMMARY

1. The combination of different printing and personalization techniques allows to implement constant and variable data in a permanent and irreversible way within the document body
2. Integration of repeated personalized data with well-known security features
3. Applied measures enable effortless verification
4. Possible comparison of various document features with central database – cross-checking
5. Effective combination with chip solutions e.g. our ePassport applet Smart App ID.
6. Each type of document „made to measure" with adequate security features
7. All applicable ICAO recommendations and ISO standards taken into consideration and effectively addressed

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Thank you for your attention!

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