

ABIS Family

More than just a
powerful biometric
engine



•• INNOVATRICS



2004



2007

Core

Matching Cluster



2009

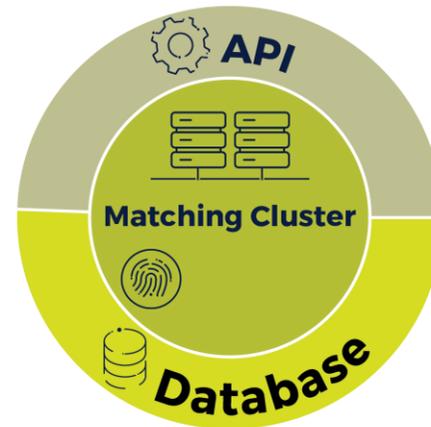
Core

Matching Cluster



Database

API



2012

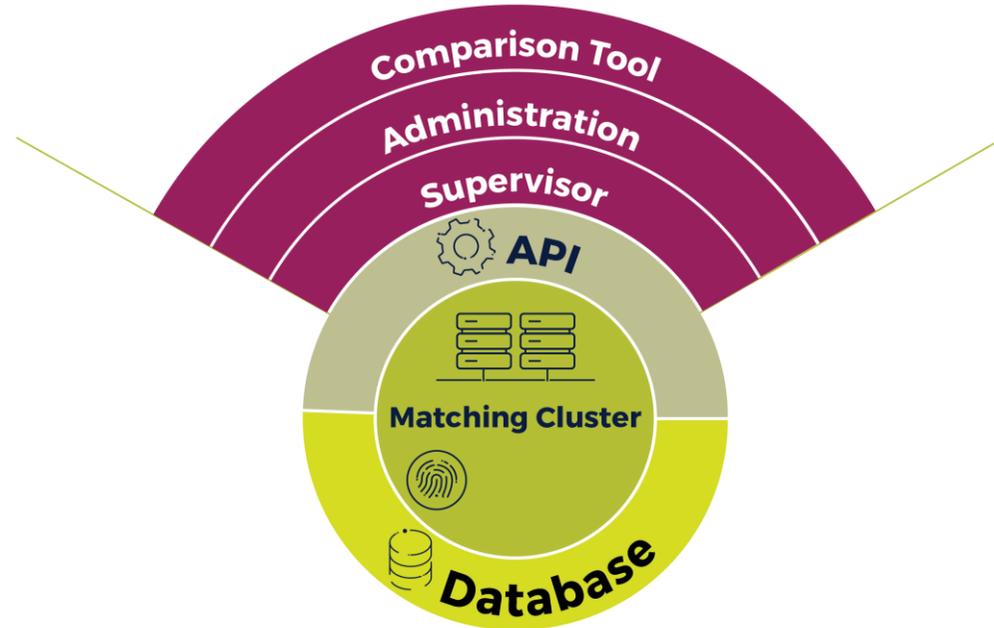
Core

Matching Cluster



Database

API



ABIS Portal

Supervisor

Administration

Comparison tool

2015

Core

Matching Cluster



Database

API

ABIS Portal

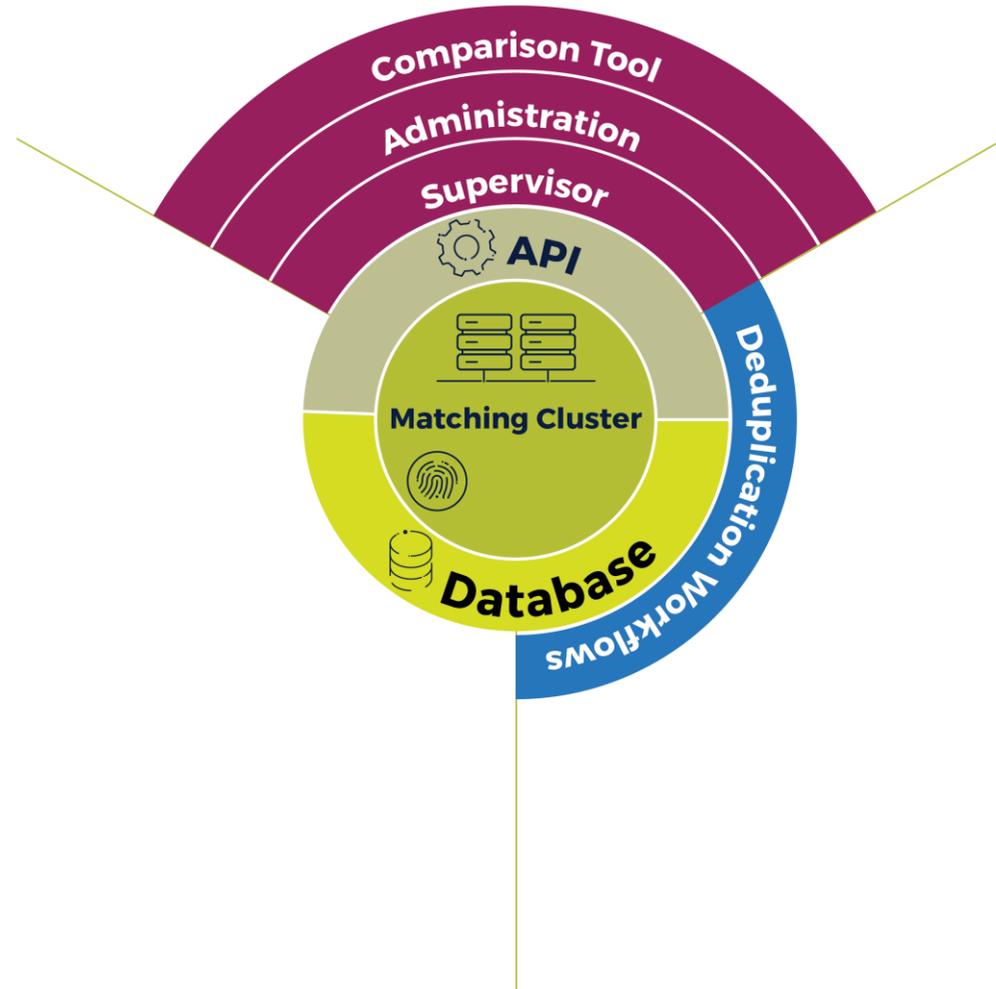
Supervisor

Administration

Comparison tool

Civil Identification

Deduplication Workflows



2017

Core

Matching Cluster



Database

API

Criminal Investigation

Latent Fingerprint Editor

ABIS Portal

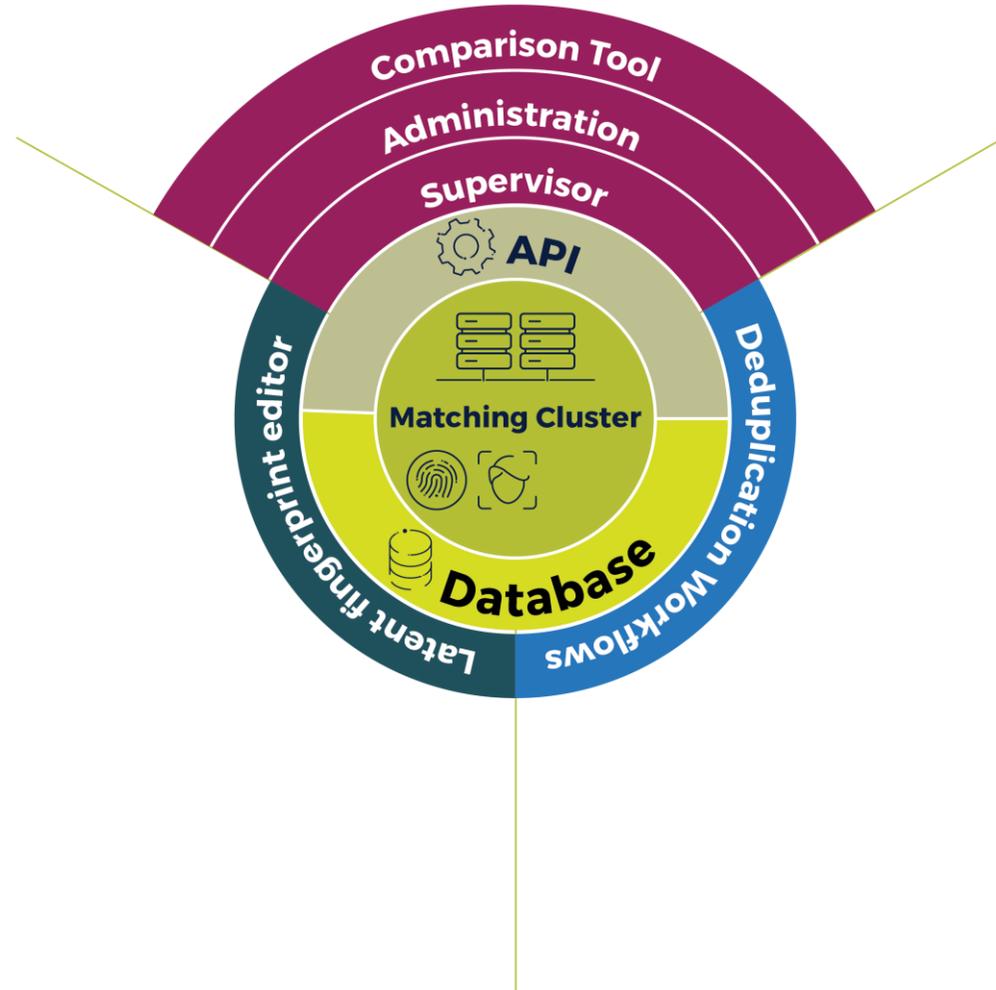
Supervisor

Administration

Comparison tool

Civil Identification

Deduplication Workflows



2018

Core

Matching Cluster



Database

API

Criminal Investigation

Latent Fingerprint Editor

ABIS Portal

Supervisor

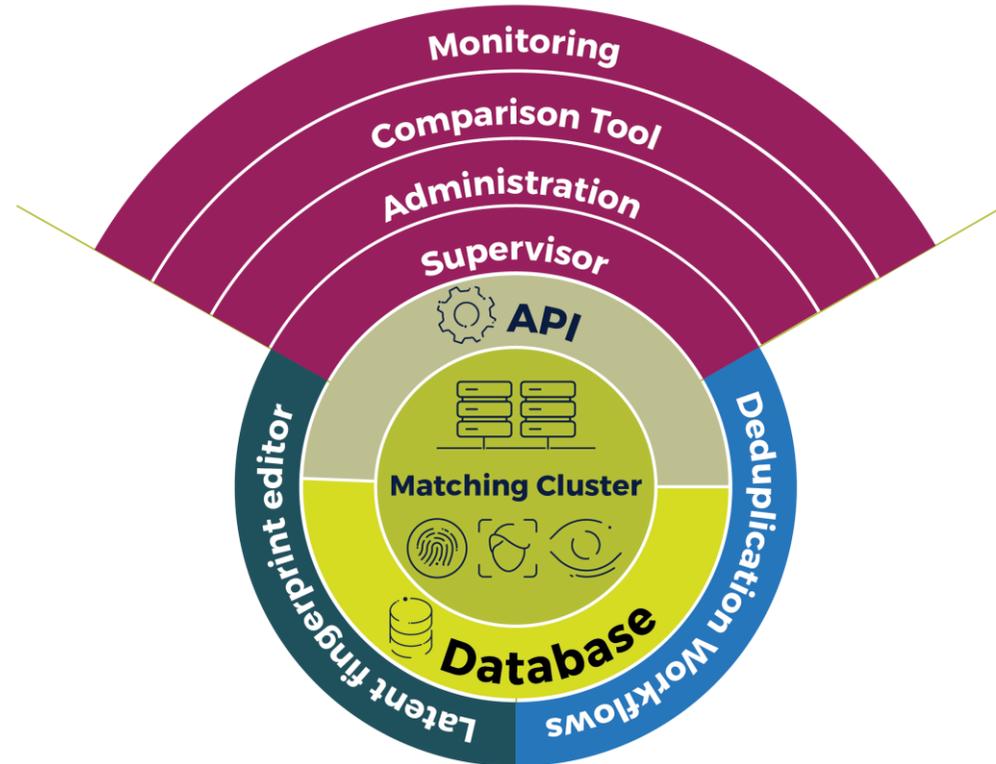
Administration

Comparison tool

Monitoring

Civil Identification

Deduplication Workflows



2019

Core

Matching Cluster



Database

API

Criminal Investigation

Latent Fingerprint Editor

Case Management

ABIS Portal

Supervisor

Administration

Comparison tool

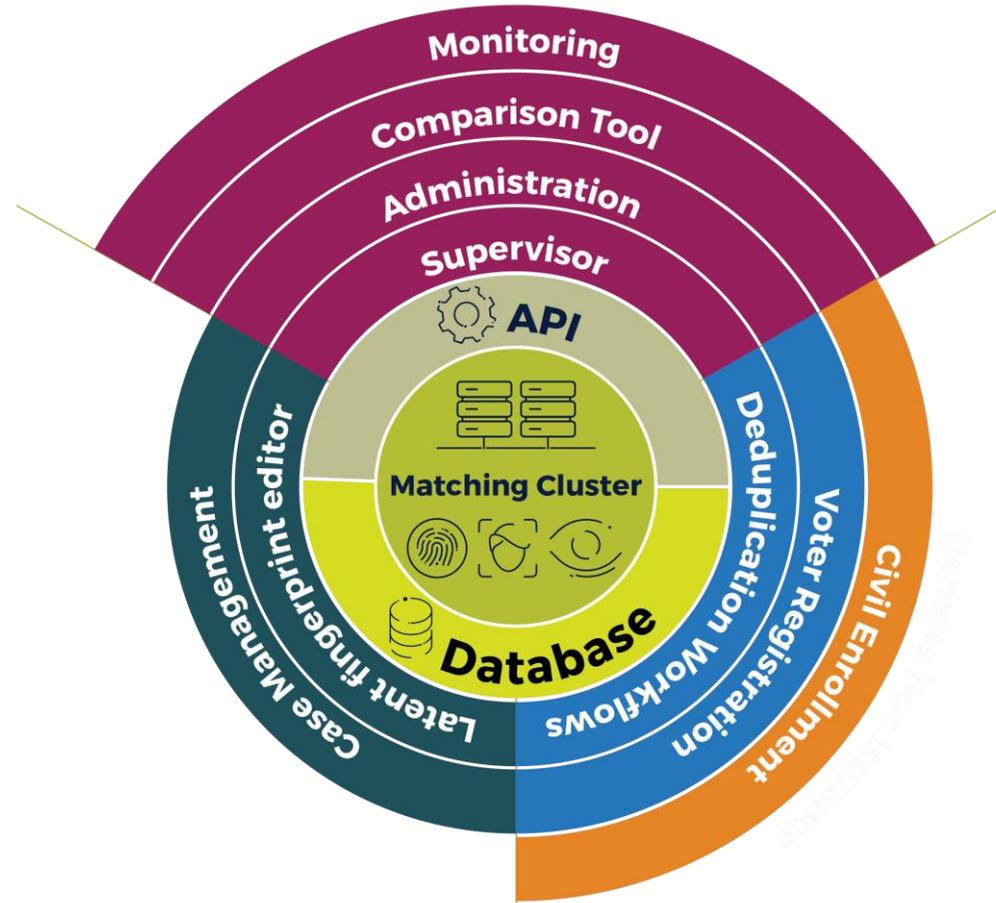
Monitoring

Civil Identification

Deduplication Workflows

Voter Registration

Civil Enrollment



2020

Core

Matching Cluster



Database

API

Criminal Investigation

Latent Fingerprint Editor

Case Management

Criminal Enrollment

ABIS Portal

Supervisor

Administration

Comparison tool

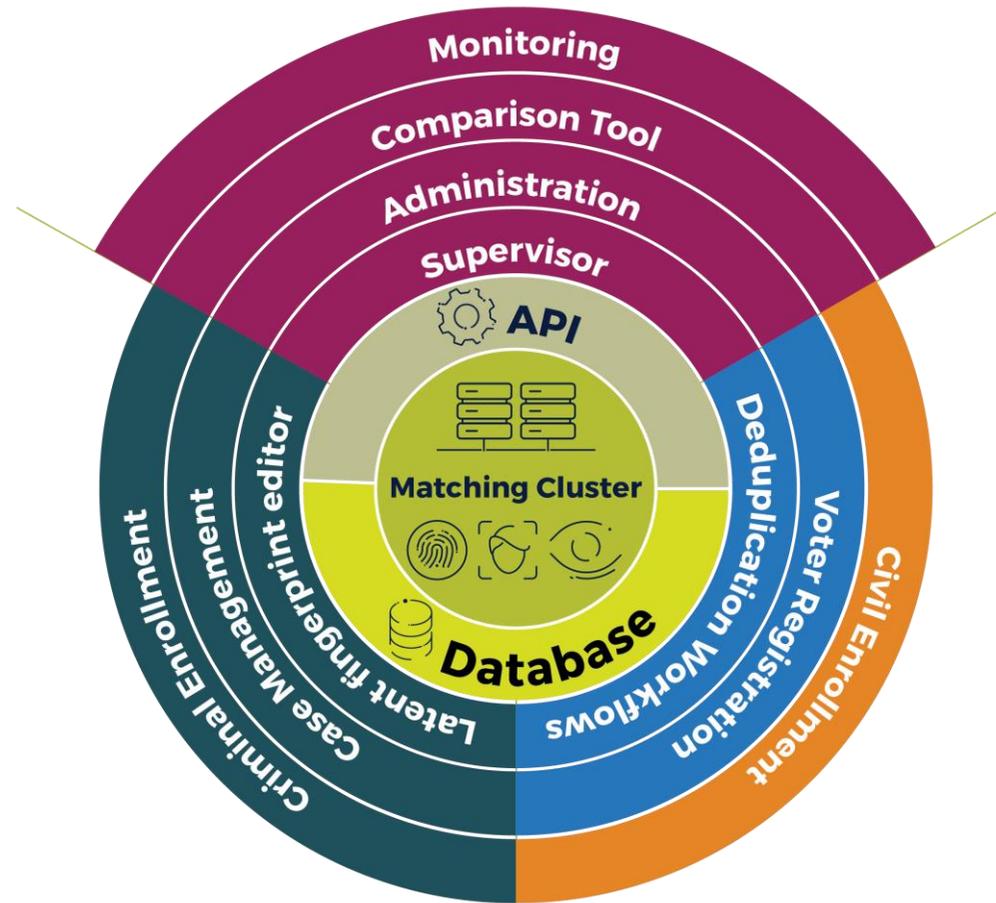
Monitoring

Civil Identification

Deduplication Workflows

Voter Registration

Civil Enrollment



2021

Core

Matching Cluster



Database

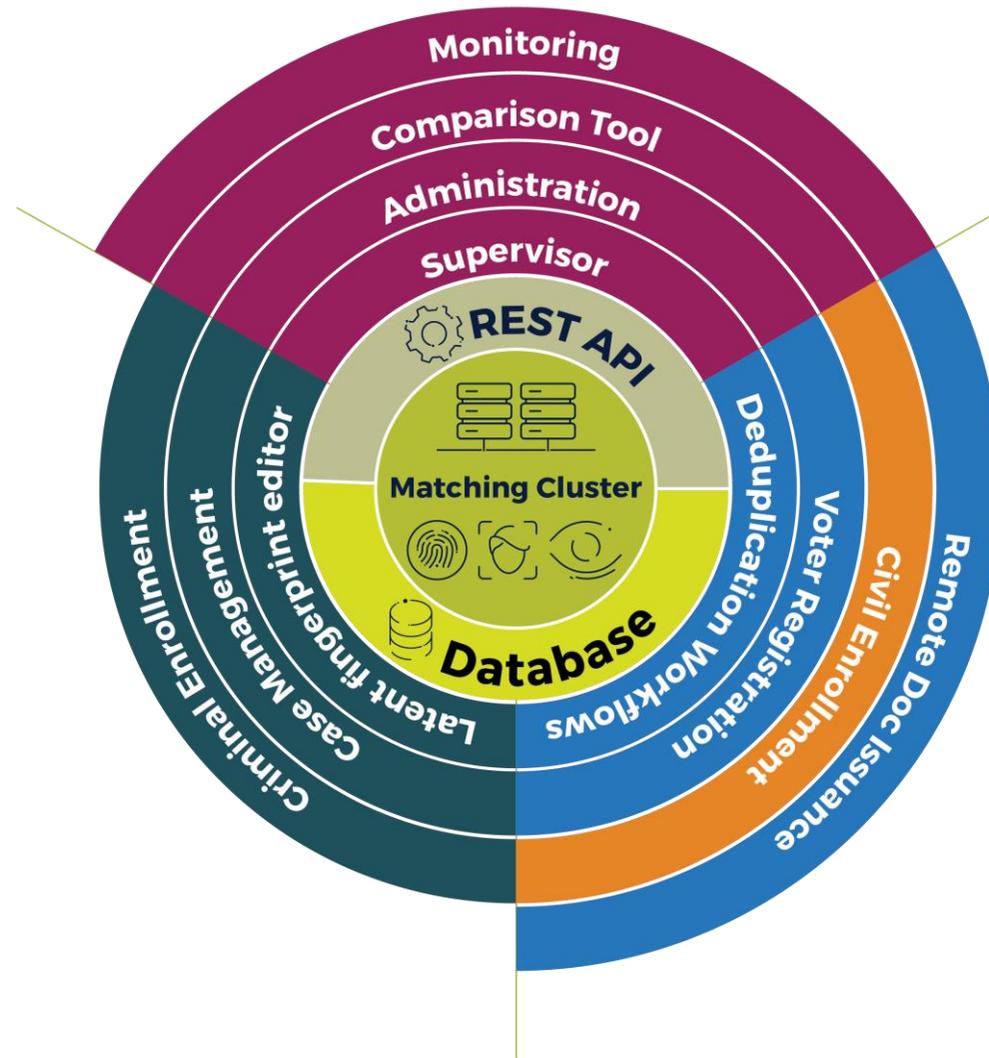
REST API

Criminal Investigation

Latent Fingerprint Editor

Case Management

Criminal Enrollment



ABIS Portal

Supervisor

Administration

Comparison tool

Monitoring

Civil Identification

Deduplication Workflows

Voter Registration

Civil Enrollment

Remote Doc Issuance

2022

Core

Matching Cluster



Database

REST API

Criminal Investigation

Latent Fingerprint Editor

Case Management

Criminal Enrollment

Video Investigation

ABIS Portal

Supervisor

Administration

Comparison tool

Monitoring

Civil Identification

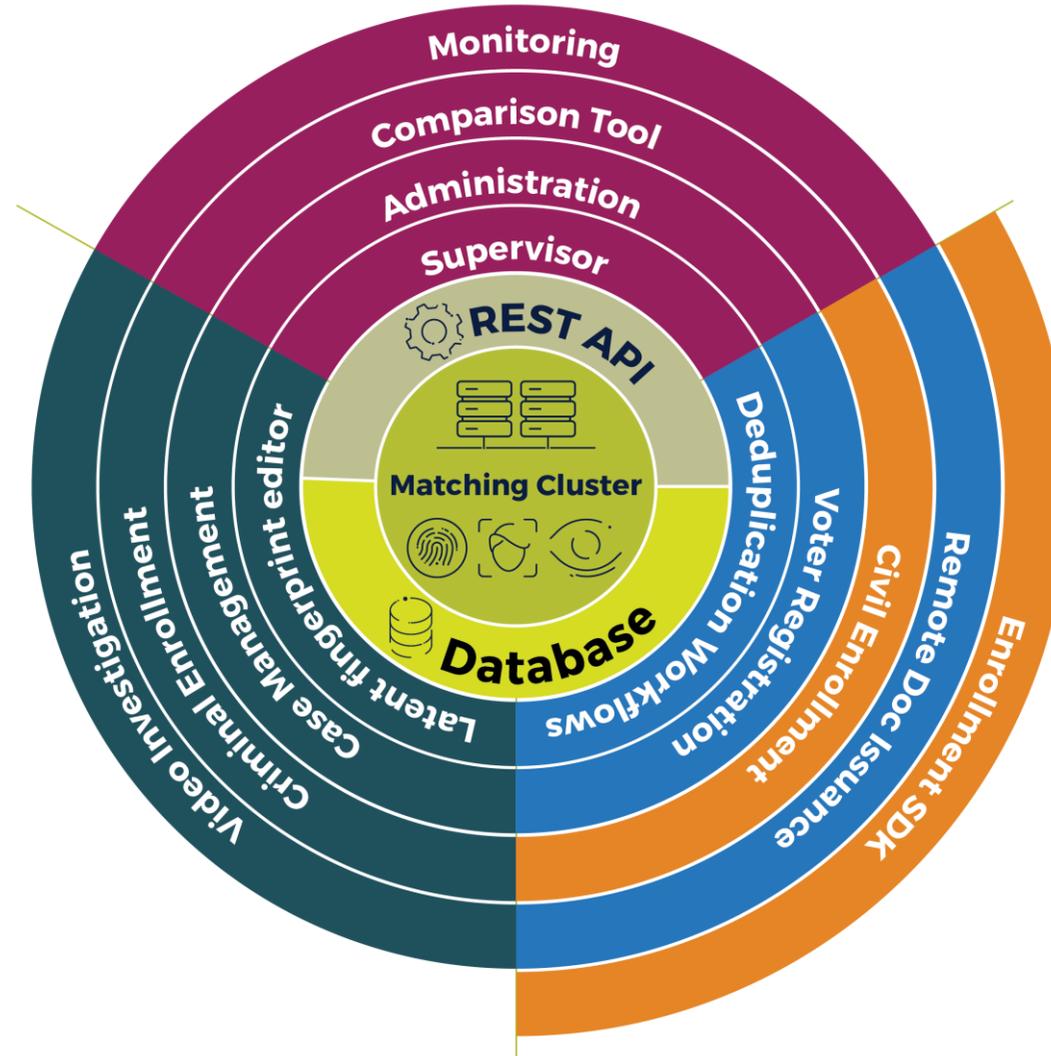
Deduplication Workflows

Voter Registration

Civil Enrollment

Remote Doc Issuance

Enrollment SDK



ABIS Family

Core

Matching Cluster

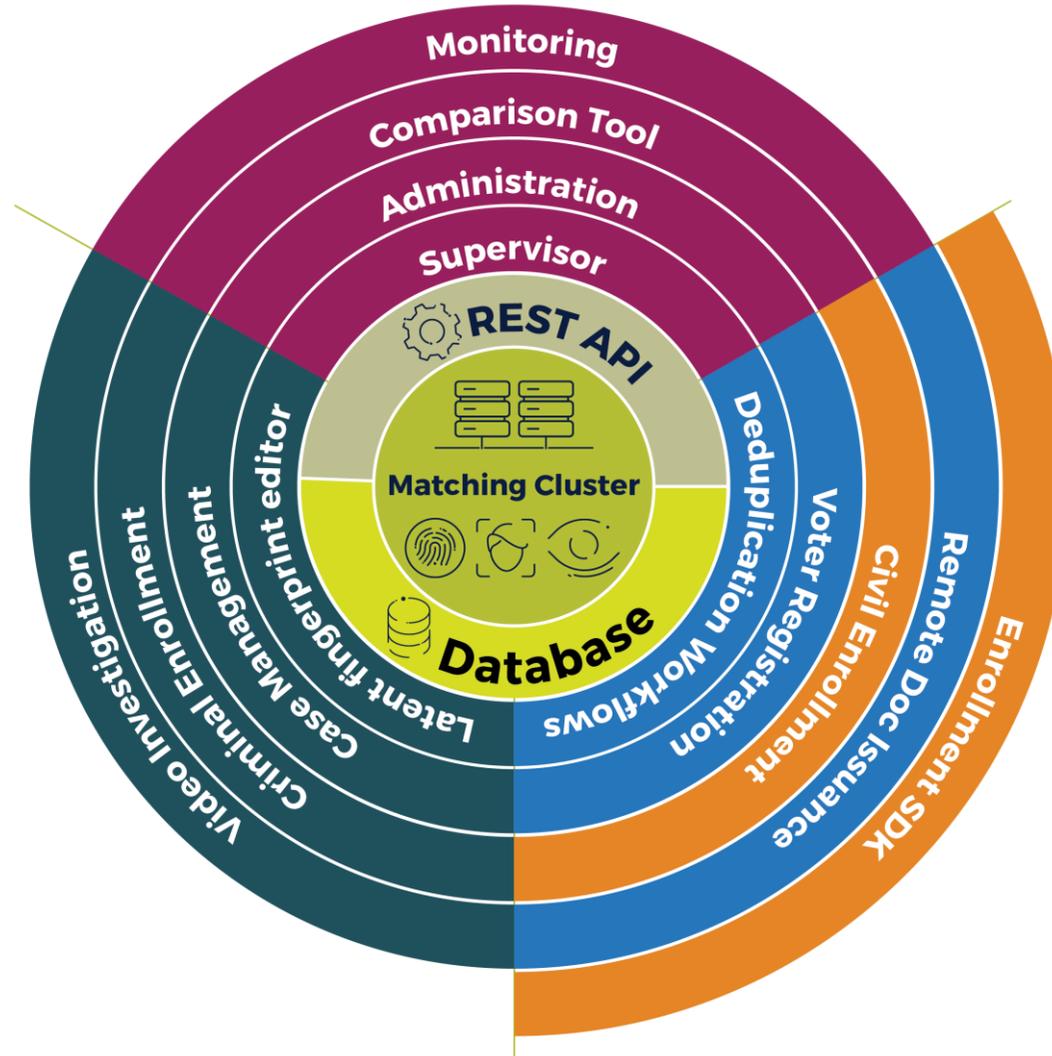


Database

REST API

Criminal Investigation

- Latent Fingerprint Editor
- Case Management
- Criminal Enrollment
- Video Investigation



ABIS Portal

- Supervisor
- Administration
- Comparison tool
- Monitoring

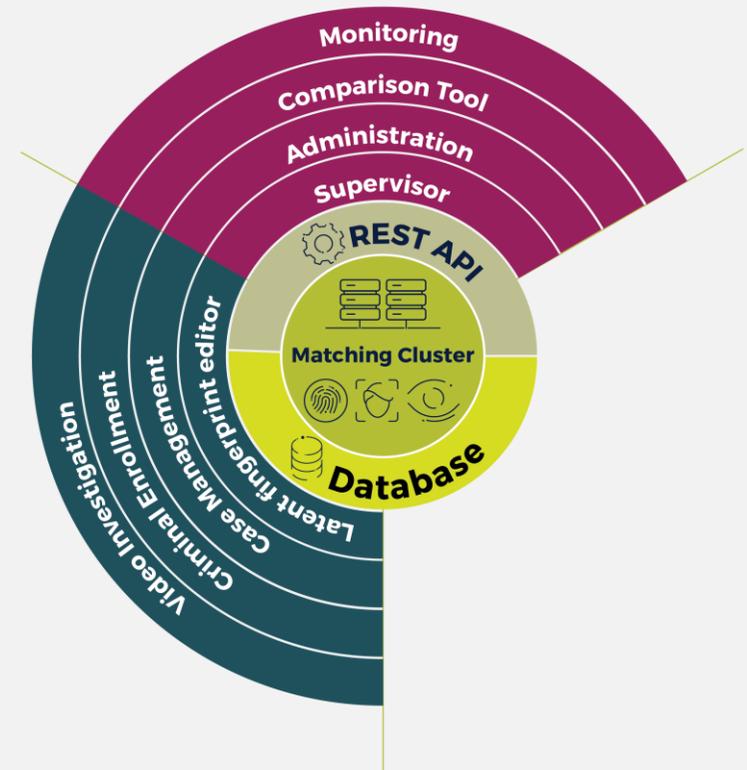
Civil Identification

- Deduplication Workflows
- Voter Registration
- Civil Enrollment
- Remote Doc Issuance
- Enrollment SDK



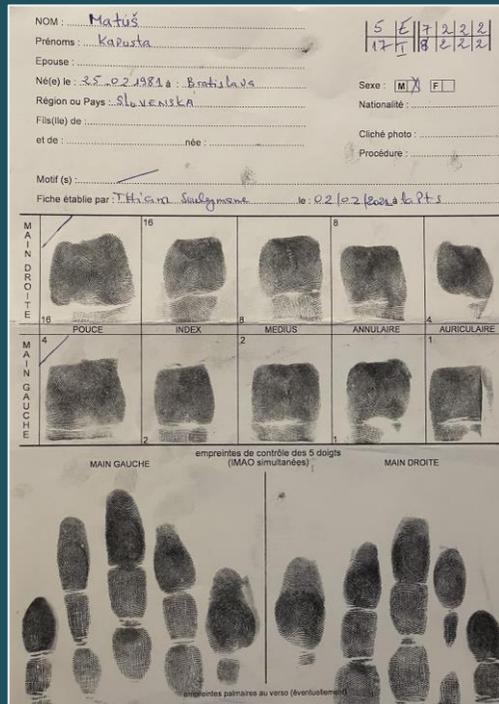
ABIS for Criminal Investigation

- Latent Fingerprint Editor
- Case Management
- Criminal Enrollment
- Video Investigation



Enrollment of Criminal Suspects

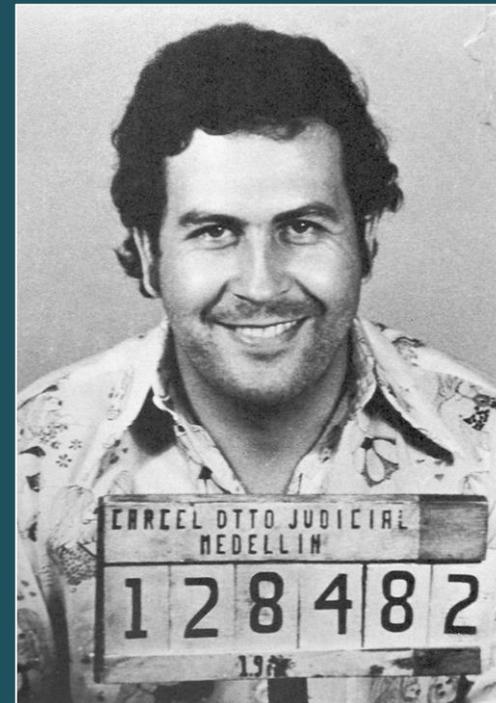
Fingerprint card scanning



Live palm & rolled print enrollment



Mugshots and profile photos



Scars, marks and tattoos



Criminal Case Management

Editor: From paper.png - Capitol siege

↶ ↷ HISTORY 📷 CREATE CAPTURE 229% VIEW 📄 DOWNLOAD ✕ SAVE AND CLOSE

HISTORY

ALL CAPTURED 1

- Crop
- Grayscale
- Color filter
- Create minutiae point
- Create minutiae point

TOOLS

- 🔍
- 🗨
- ☀
- 🔳
- 🔄
- ↔
- ↕
- 🔪
- 🖋
- 📅
- 📺
- 🔍
- 🗨
- ☀
- 🔳
- 🔄
- ↔
- ↕
- 🔪
- 🖋
- 📅
- 📺

HISTORY

ALL CAPTURED 2

📷 Captured 09/21/22, 09:11 AM by admin

📷 Captured 09/21/22, 09:14 AM by admin

Criminal Case Management

← Capitol siege HITS

A grid of eight video thumbnails. The first row contains four thumbnails: a woman's face, a group of people, a group of people, and a group of people. The second row contains four thumbnails: a document with a fingerprint, a group of people, a group of people, and a person with face paint. Each thumbnail has a small play button icon in the top right corner.

Baez_SmartPhone.mp4
Doors_SmartPhone.mp4
Entrance_BWC.mp4
Entrance_SmartPhone.mp4
From table.jpg
Outside_BWC.mp4
Outside_Reporter.mp4
OutSide_Sidewalk.mp4

HISTORY **CREATE CAPTURE** 73% VIEW DOWNLOAD SAVE AND CLOSE

A video player showing a close-up of a man's face. The video is dimly lit with a purple tint. On the right side, there is a 'COLOR FILTERS' panel with four sliders: BRIGHTNESS, CONTRAST, GAMMA, and TEMPERATURE. Each slider has a double-headed arrow in the center. At the bottom of the panel are 'RESET' and 'APPLY' buttons.

COLOR FILTERS

BRIGHTNESS

CONTRAST

GAMMA

TEMPERATURE

RESET APPLY

Video Investigation Module

← Outside_Reporter.mp4 SETTINGS Search attribute or keyword



18 persons 1 objects 0 events DESELECT ALL

-  **Nathan Wayne Entrekin**
235 86 DETAIL 👁️
Male, 49 (est. Male, 46)
-  **Unidentified**
224 - 👁️
est. Male, 42
-  **Unidentified**
204 - 👁️
est. Female, 32
-  **Unidentified**
218 - 👁️
est. Male, 44
-  **Unidentified**
206 - 👁️
est. Male, 33

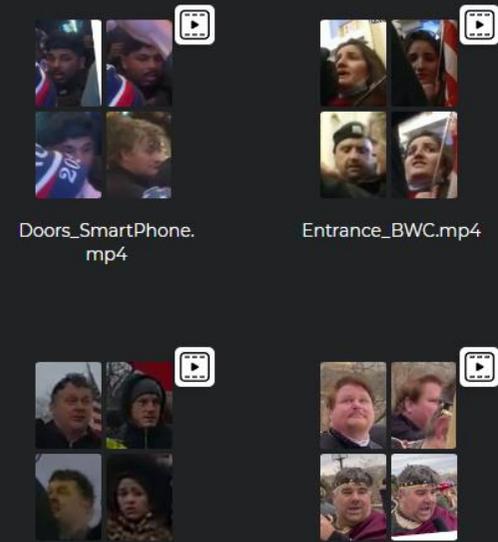
ADD 100% 00:37 -15 01:24 SPEED 1X

00:34 00:35 00:36 00:37 00:38 00:39 00:40 00:41

Unidentified



Nathan Wayne Entrekin
✓ Identified



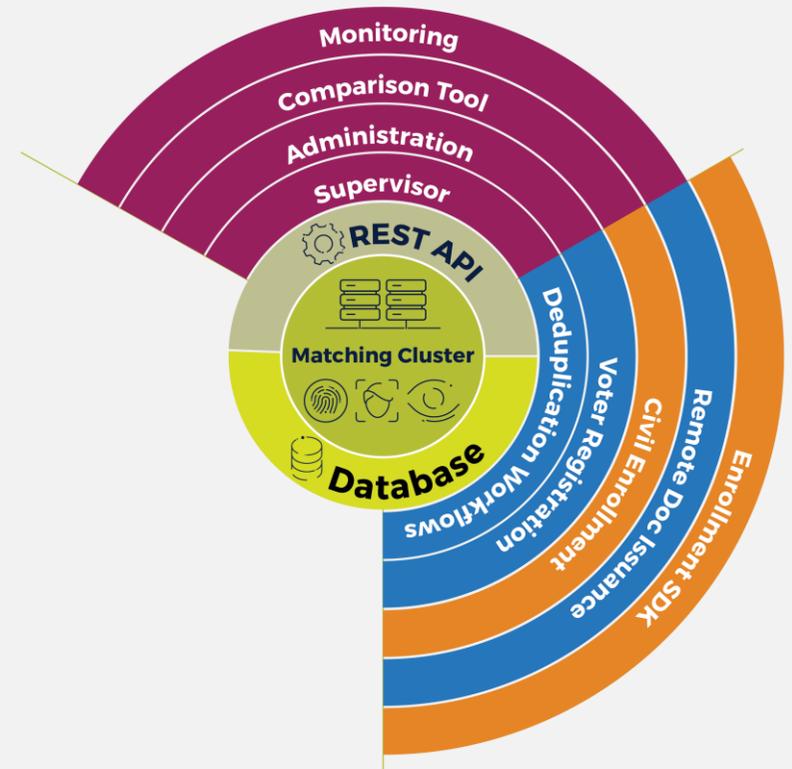
Doors_SmartPhone.mp4 Entrance_BWC.mp4

Outside_BWC.mp4 Outside_Reporter.mp4

4

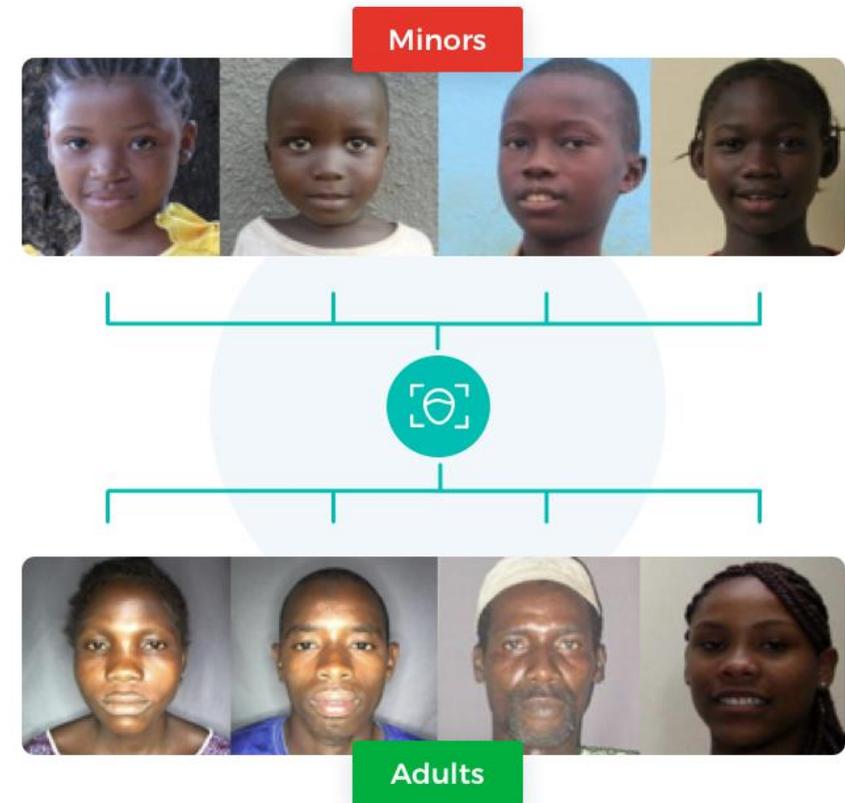
ABIS for Civil Identification

- Deduplication Workflows
- Voter Registration
- Civil Enrollment
- Remote Doc Issuance
- Enrollment SDK

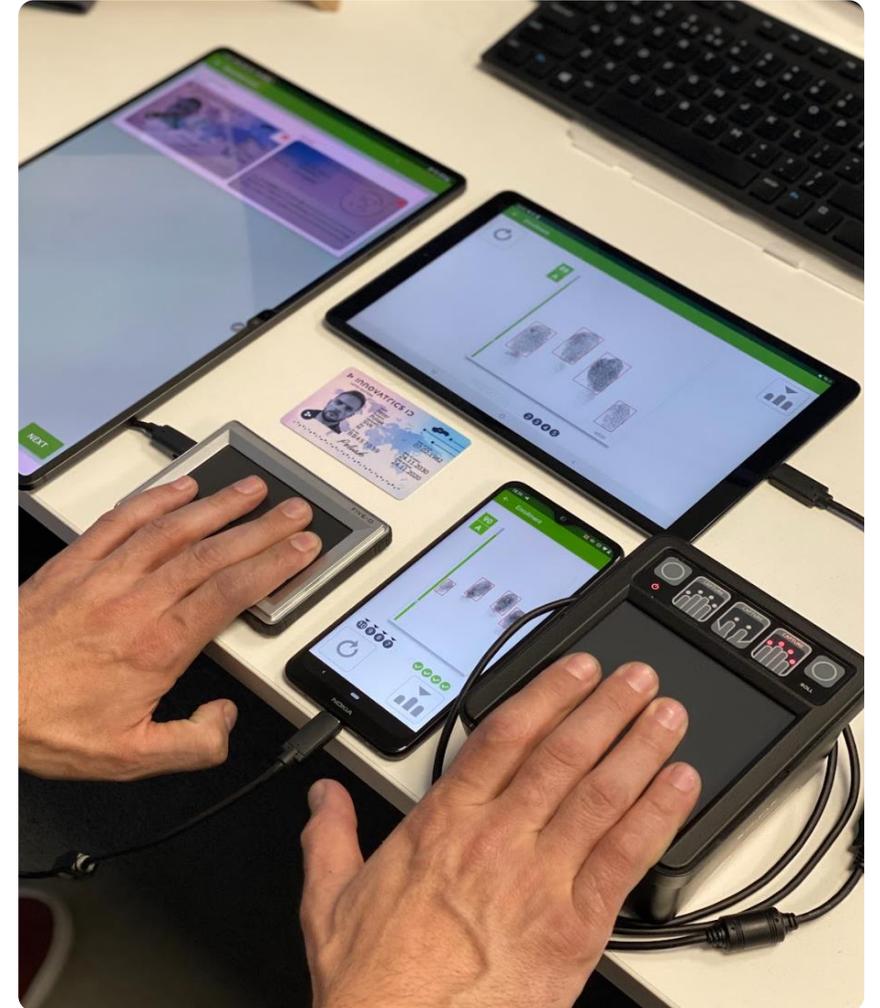


Minor Identification for Elections

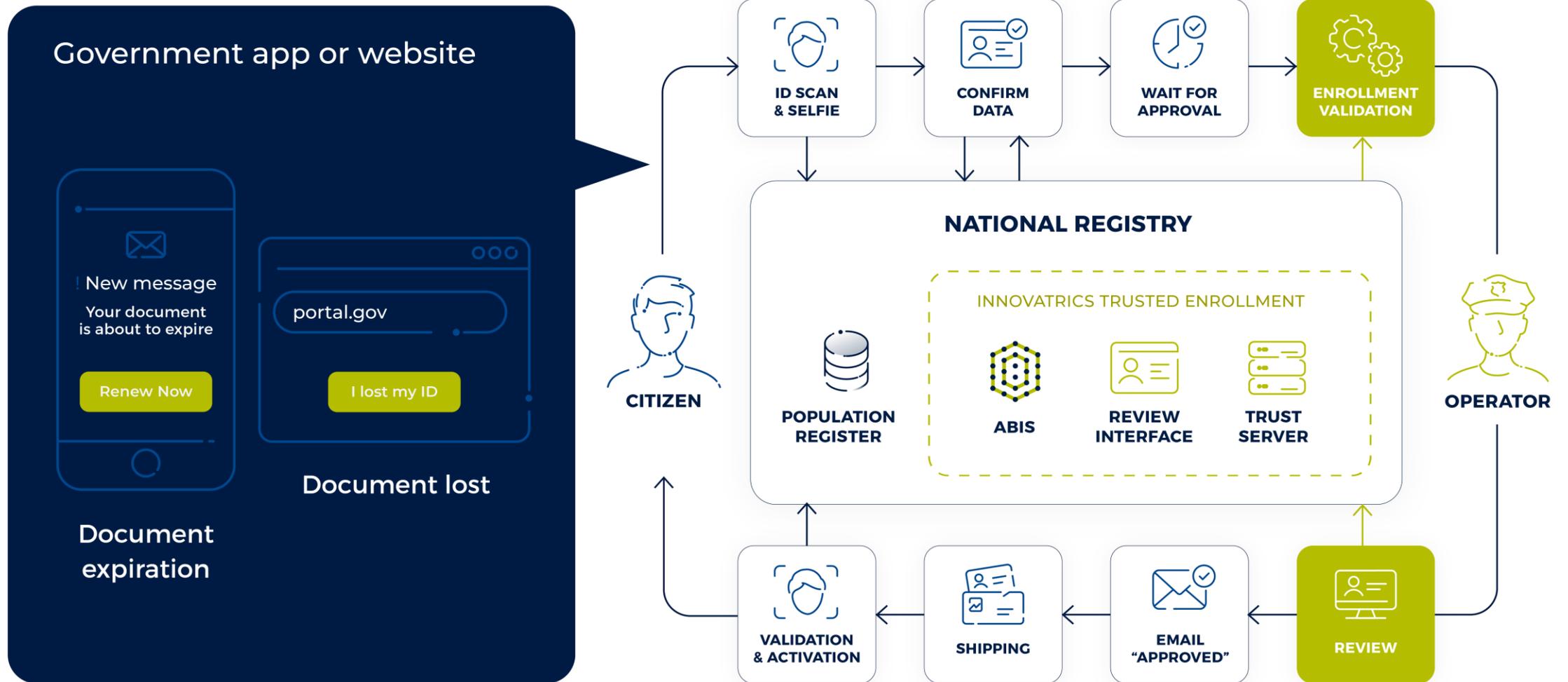
- Labeled photos of minors and adults
- Tailored model for classification based on AI
- Every voter gets minor score
- Removal from register by operator based on threshold

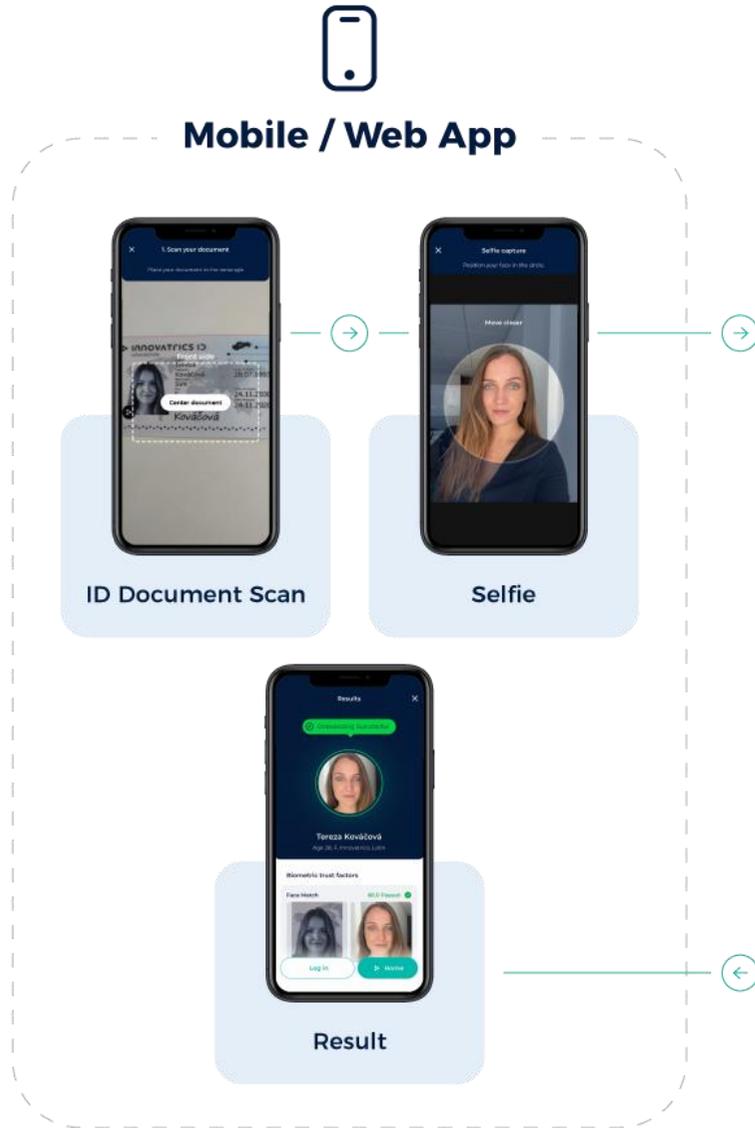


Mobile Enrollment



Remote Document Issuance





KOVACOVA TEREZA A 78
Declined
DELETE

Personal data

NAME
KOVACOVA TEREZA

DATE OF BIRTH
1993-07-28

ADDRESS LINE 1
٦ - حي جع الجامعة الإسكندرية

DATE OF EXPIRY
2029-01-31

DATE OF ISSUE
2019-01-31

DOCUMENT NUMBER
392192542

DOCUMENT TYPE
identity-card

NATIONALITY
SVK

PLACE OF BIRTH
برافيسكا

SEX
Female

Document data

DOCUMENT NUMBER
392192542

DATE OF EXPIRY
2029-01-31

ISSUING COUNTRY
INO

DATE OF ISSUE
2019-01-31

EDITION
2021-01-01

ISSUING AUTHORITY
SVK

TRAVEL DOCUMENT TYPE
TD1

DOCUMENT TYPE
identity-card

FACE MATCH
73

UNIQUENESS
25

PASSIVE LIVENESS
25

DOCUMENT PORTRAIT NOT REPLICATED
100

AGE VALIDATION
100

GENDER VALIDATION
100

Document trust evaluation

DOCUMENT RECOGNIZED
100

DOCUMENT NOT EXPIRED
100

MRZ CHECKSUM VALID
100

COLOR CHECK
100

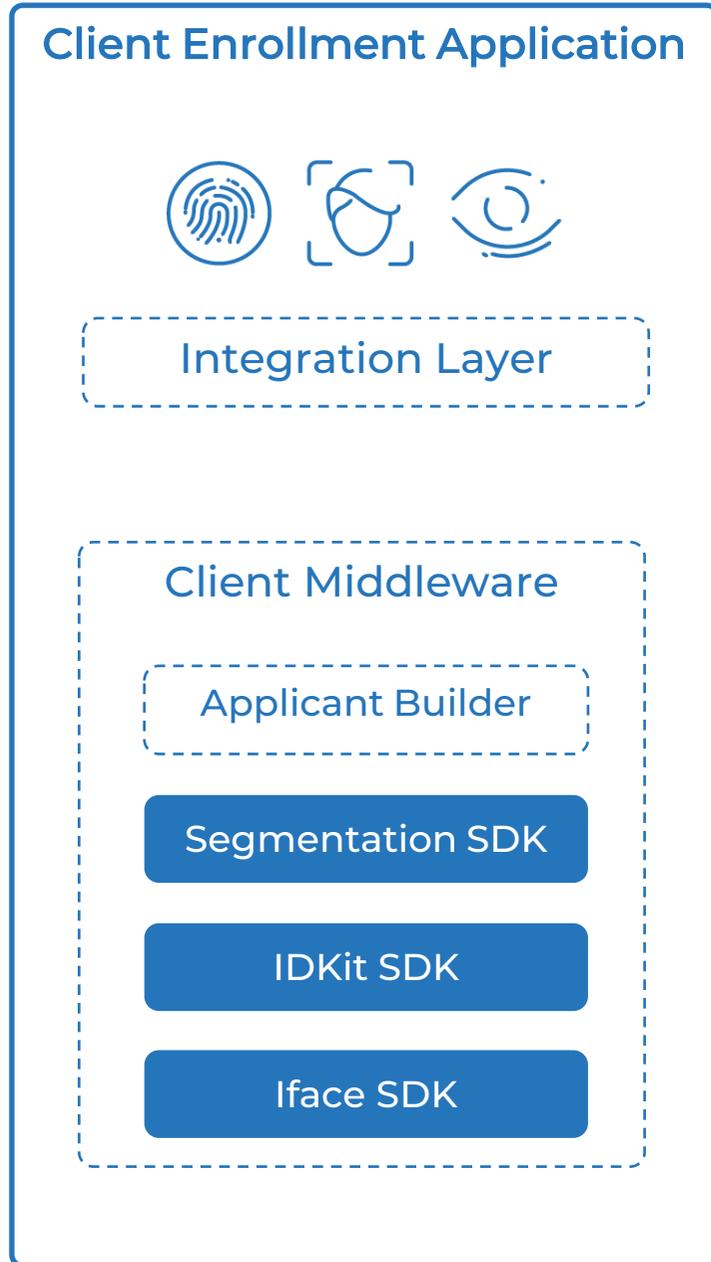
SCREENSHOT PHOTO
100

Face match

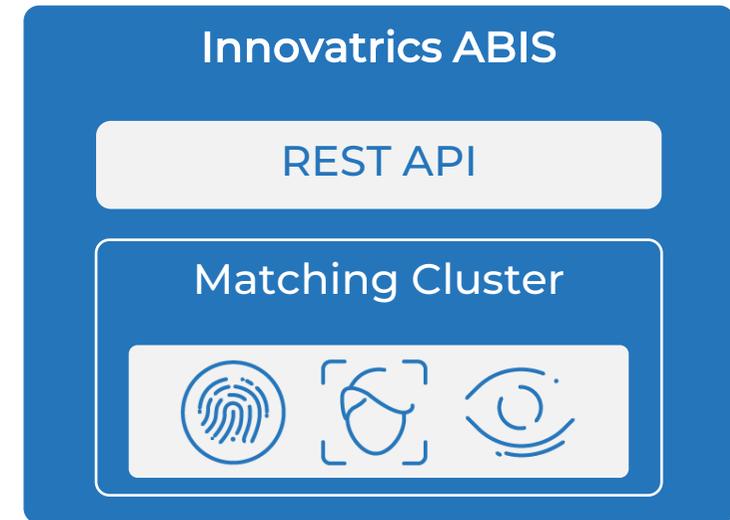
LIVENESS	SELFIE	DOCUMENT PORTRAIT
100 (minimum score)	73	

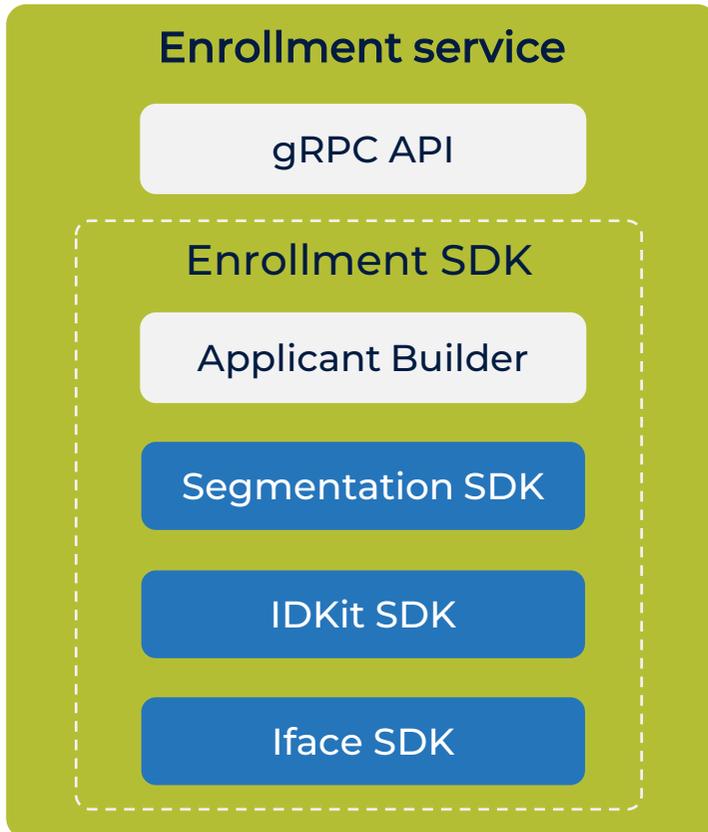
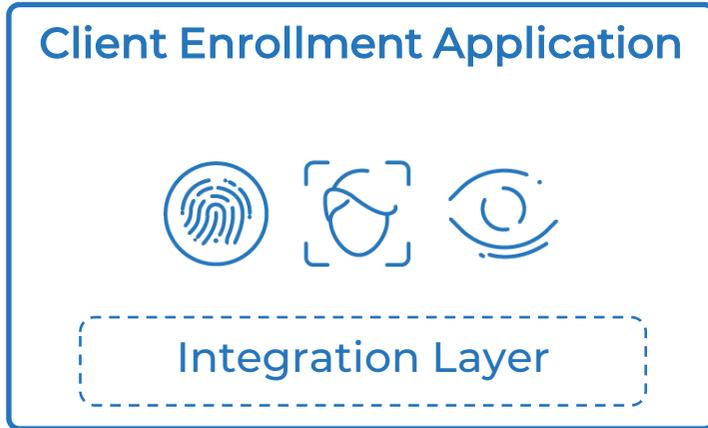
Compare with duplicates

SELFIE	SELECTED DUPLICATE	ALL DUPLICATES
		<div style="display: flex; flex-direction: column; gap: 5px;"> <div style="display: flex; align-items: center;"> <div style="font-size: x-small;"> TEREZA KOVACOVA A 78 </div> 25 DETAIL </div> <div style="display: flex; align-items: center;"> <div style="font-size: x-small;"> TEREZA KOVACOVA A 77 </div> 25 DETAIL </div> </div>
75		

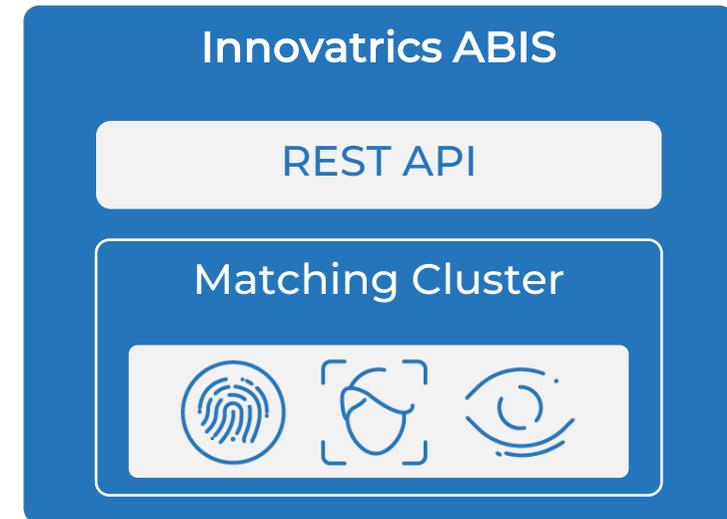


Current Enrollment SDKs



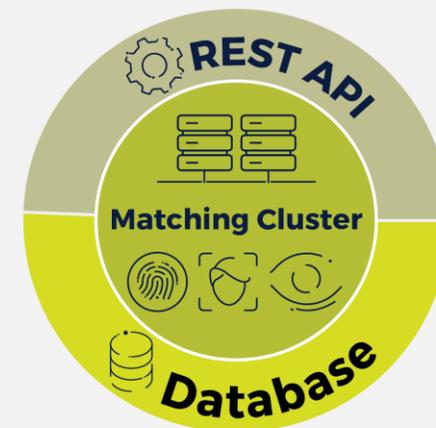


New Enrollment SDK



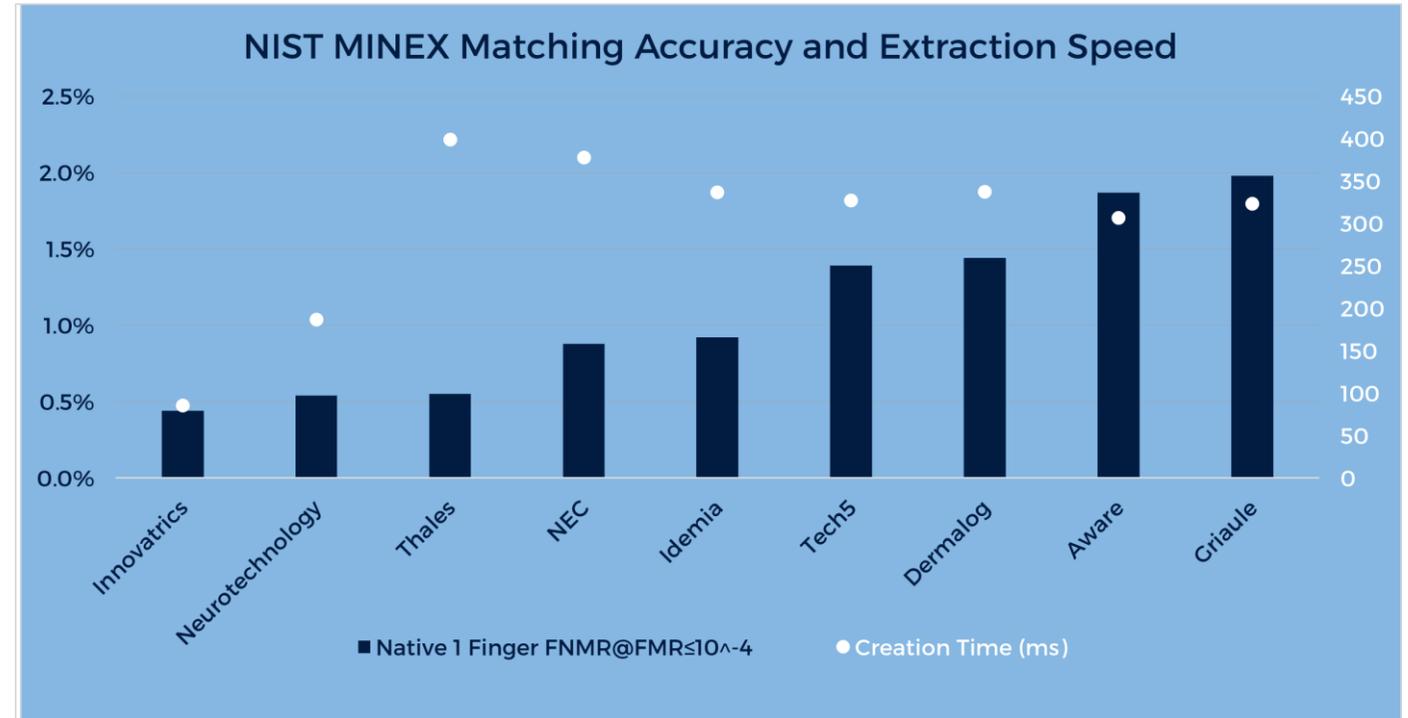
What is New Inside ABIS

- Engine
- Integration
- Architecture



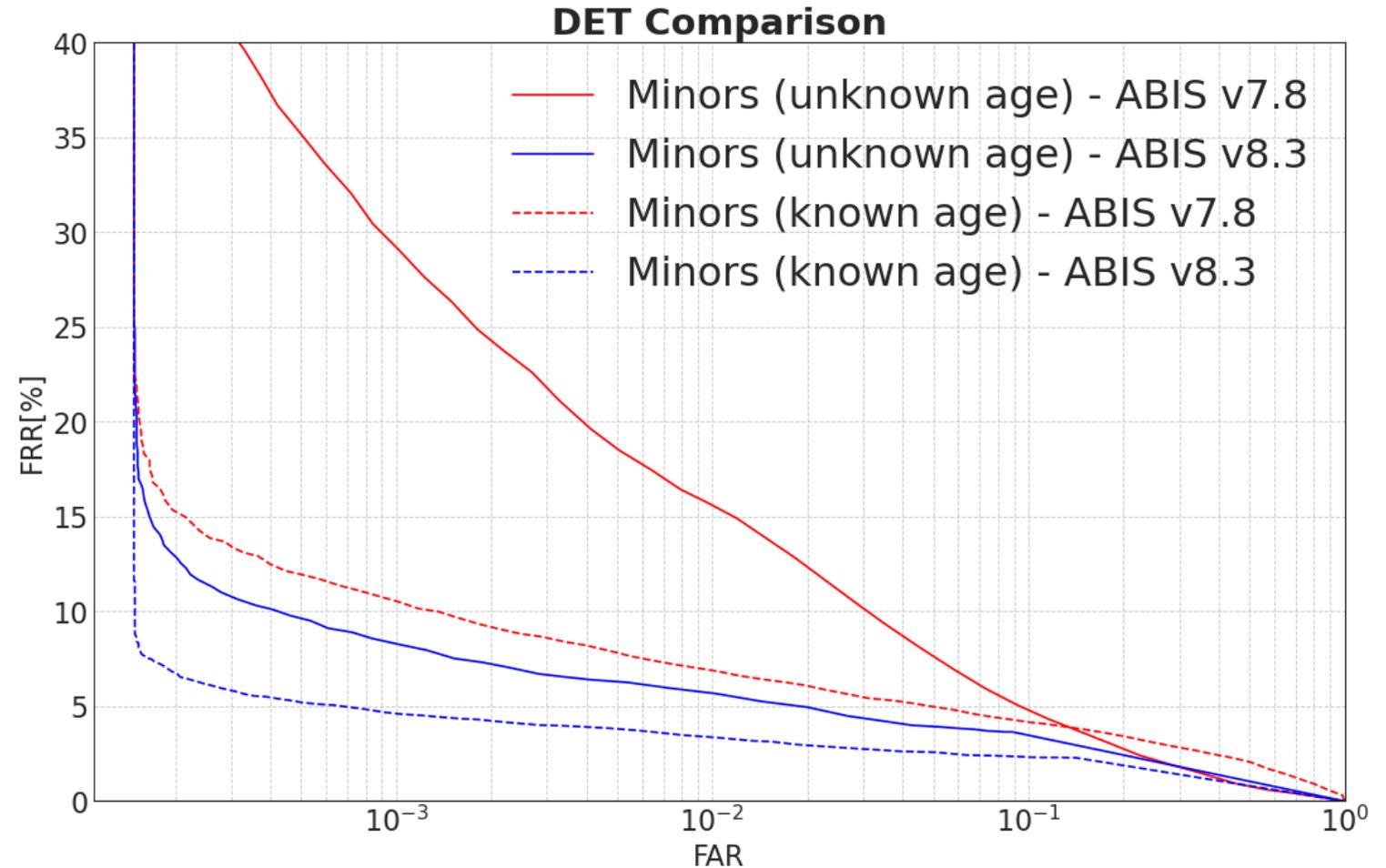
Next Generation Fingerprint Engine

- Faster and more accurate
- NIST evaluation
 - MINEX
 - PFT III – top ranked
 - ELFT is planned
- Available from ABIS 8.3



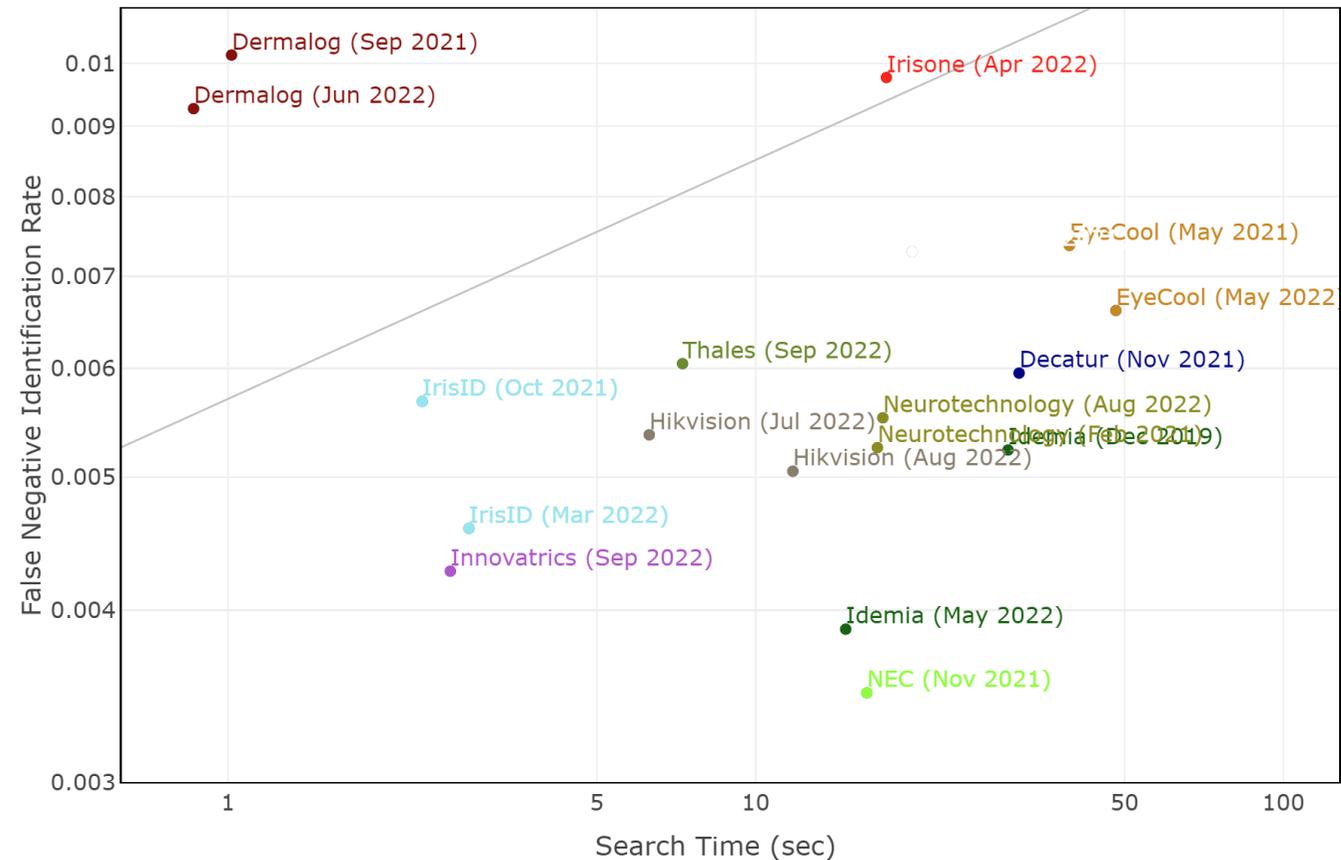
Next Generation Fingerprint Engine

- Scale invariant verification
- Real-life Application
 - Aging of children
 - Mobile vs live prints
 - Live prints vs scanned cards



New Iris Engine

- Top 3 most accurate in IREX
- 1kB template size
- <500ms extraction time
- Fastest among accurate in IREX
- 10M/s per core matching speed on real-life servers
- Next submission is planned soon



Dataset: [Operational Dataset 4th pull](#)
 Samples used: Both eyes
 Enrolled Population: 500K people
 Enrollment Method: One enrollment session per person

REST API

- Compact and efficient using JSON format
- Real-time application
- Robust implementation
- OpenAPI Standard
- Short learning curve

POST Identify

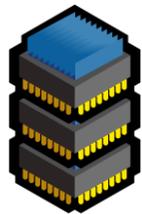
```
{
  "probe": {
    "format": "ICS",
    "dataBytes":
    "n+KTop6GQWb95FxvqWQiDh3..."
  },
  "identificationParameters": {
    "applicantSets": [
      "civil"
    ],
    "candidatesCount": 10,
    "threshold": 50,
    "speed": 6,
    "maxRotation": 180
  }
}
```

ABIS Galleries and Scalability

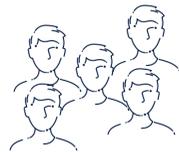
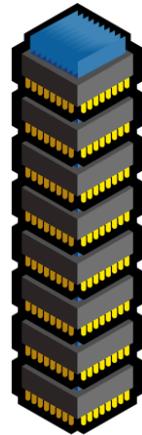
Resources by **gallery type**



Operators



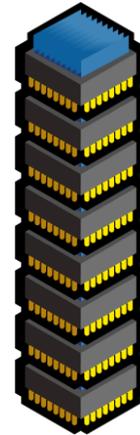
Criminal



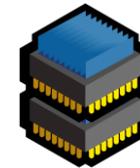
Civil

and/or

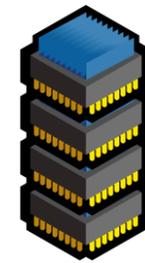
Resources by **modality type**



Fingerprint



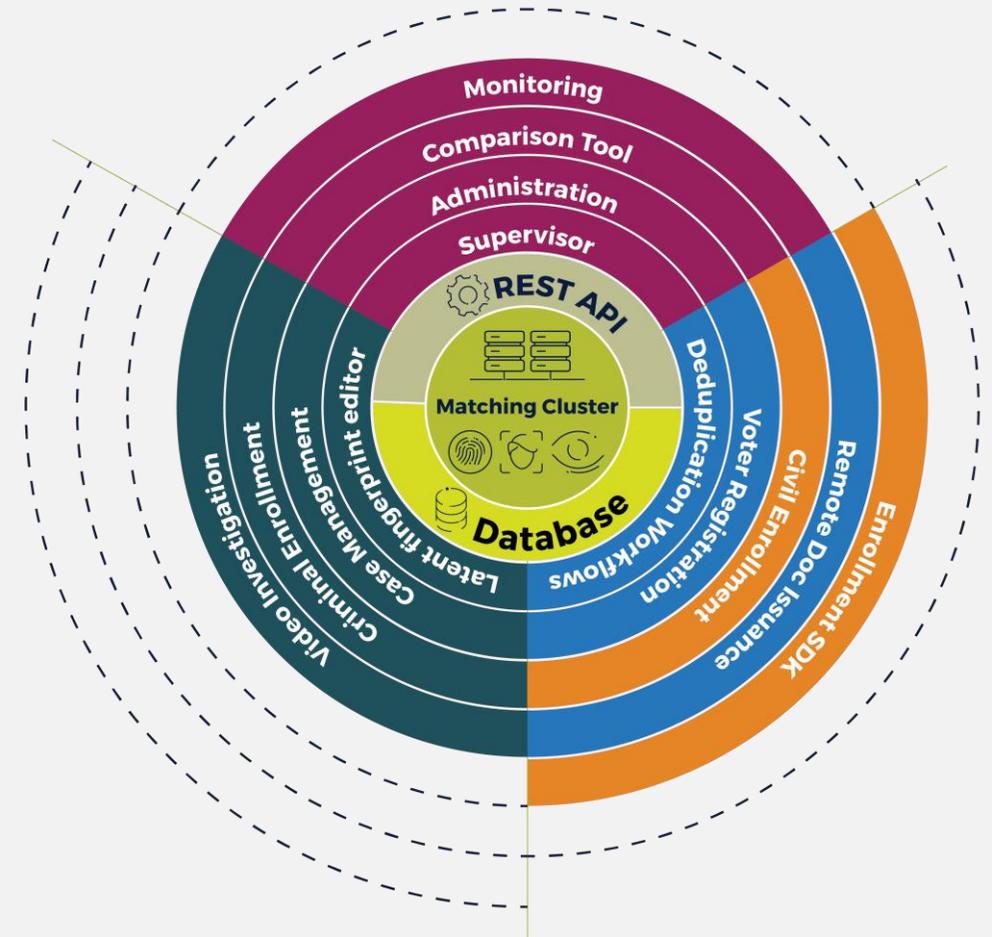
Facial



Iris

ABIS Future

What to expect in ABIS family for 2023



UX

← 1/14 → **Kathryn Murphy** A 1 567 364 Master I 2 316 980 Unique +25 RESOLVE MATCH END OF LIFE

APPLICANT DETAIL ACTIONS & HITS 1

ENROLLED AT: 14/02/2022, 09:02:45 EXTERNAL ID: 123456789 GALLERY: Civil ENROLLED BY: Pena

Personal data

NATIONALITY: Slovakia	SEX: Male	DATE OF BIRTH: 31/12/1954	PLACE OF BIRTH: Bojnice
-----------------------	-----------	---------------------------	-------------------------

Document data

PLACE OF ISSUE: Salem	DATE OF ISSUE: 25/11/2026	DATE OF EXPIRE: 25/11/2026	ISSUING COUNTRY: United States
SPECIAL REMARKS: Mgr.	ADDRESS LINE 1: Main street 4	ADDRESS LINE 2: Chester	COUNTRY OF RESIDENCE: USA

Right Finger prints Plain Left Finger prints Plain

THUMB	INDEX	MIDDLE	RING	LITTLE	THUMB	INDEX	MIDDLE	RING	LITTLE

Right Iris Left Iris Signature

SMT annotations

TATTOO	LOCATION: UTAT RKNEE x UTAT RKNEE x UTAT RKNEE x
Right profile (90 degree)	DESCRIPTION: CHEMICAL-ABSTRACT-FIGURE x CHEMICAL-ABSTRACT-FIGURE x

Documents

Face_front_filled_Photos: os-01, os-02; Dactylo; Palms; ID

← 1/14 → Duplicates H 1 567 364 NO MATCH UPDATE ARCHIVE SUSPECT REJECT Matching Different

SCORE: 52 MATCHING FINGERPRINT: 3/10 FINGERPRINT: 34 PALMPRINT: 15 FACE: 34 IRIS: 81 TEXT DATA: 1/17

Kathryn Murphy Theresa Webb

Personal data

Slovakia	NATIONALITY: Slovakia	Slovakia
Female	SEX: Female	Female
31/12/1954	DATE OF BIRTH: 31/12/1964	31/12/1964
Bojnice	PLACE OF BIRTH: Trebišov	Trebišov

Right Finger prints Left Finger prints

THUMB	INDEX	MIDDLE	RING	LITTLE	THUMB	INDEX	MIDDLE	RING	LITTLE

Right Finger prints Plain Left Finger prints Plain

Enrollment Summary

1 FACE CAPTURE

Front Profile Left half Profile

FRONT PROFILE LEFT 3/4 PROFILE

RETAKE PREVIEW

RESTART ROLLED FINGERS

INNOVATRICS INVESTIGATION APPLICANTS QUEUES ADJUDICATOR LATENT CASES ENROLLMENT FACE SEARCH ADMINISTRATION MONITORING Administrator

Enrollment Summary

2 SLAP FINGERS

RIGHT LEFT

2. Index 7. Index

3. Middle 8. Middle

4. Ring 9. Ring

5. Little 10. Little

THUMBS

1. Thumb 6. Thumb

RETAKE

RESTART ROLLED FINGERS

SUMMARY

INNOVATRICS INVESTIGATION APPLICANTS QUEUES ADJUDICATOR LATENT CASES ENROLLMENT FACE SEARCH ADMINISTRATION MONITORING Administrator

Enrollment

FACE CAPTURE SLAP FINGERS ROLLED FINGERS IRISES

Right Left

SUMMARY

6 PALM 7 BASIC INFO 8 SUMMARY

Right Iris Left Iris

OVERALL QUALITY

Right eye not detected Successful scan

SKIP

MANUAL CAPTURE

INNOVATRICS INVESTIGATION APPLICANTS QUEUES ADJUDICATOR LATENT CASES ENROLLMENT FACE SEARCH ADMINISTRATION MONITORING Administrator

Enrollment

2 SLAP FINGERS

RIGHT LEFT

2. Index 7. Index

3. Middle 8. Middle

4. Ring 9. Ring

5. Little 10. Little

THUMBS

1. Thumb 6. Thumb

Summary

Right Slap

OVERALL QUALITY

Success, remove your hand

SLAP PREVIEW SINGLE MODE

DNA

/abis/v2/identify/dna:

```
post:
  description: Performs one-to-many identification with DNA data.
  operationId: identifyProbeDna
  parameters:
    - description: defines how detailed data will be returned
      in: query
      name: fullResponse
      required: false
      schema:
        type: boolean
    - description: X-Request-ID
      in: header
      name: X-Request-ID
      required: false
      schema:
        type: string
  requestBody:
    content:
      application/json:
        examples:
          Identify probe DNA:
            description: Identify probe by DNA data
            value:
              gallery: default
              identificationParameters:
                galleries: ["default"]
                candidatesCount: 2
                threshold: 85
                speed: 7
                maxRotation: 180
                anonymizeFingerCount: 2
                lowQualityFingerprintMode: true
              BiometricDataDnaInput:
                fullApplicantDnaModality:
                  dnas:
                    - dna:
                        dataBytes: ===base64 encoded CODIS file===
          schema:
            $ref: '#/components/schemas/IdentifyProbeDnaRequest'
  responses:
    "200":
      content:
        '*/*':
          schema:
            type: array
            items:
              $ref: '#/components/schemas/IdentificationCandidate'
      description: OK
    "400":
      content:
        '*/*':
```

← Jenny Wilson ← →

APPLICANT DETAIL ACTIONS & HITS 21

RESOLVE END OF LIFE MATCH



DATA
DNA
PRINTS
PRINTS
SIGNATURE
DOCUMENTS

1 567 364 Master +5
12 316 980 Unique

EXTERNAL ID: 123456789
ENROLLED AT: 14/02/2022, 09:02:45

Personal data

NATIONALITY	SEX	DATE OF BIRTH:	PLACE OF BIRTH:
Slovakia	Male	31/12/1954	Bojnice

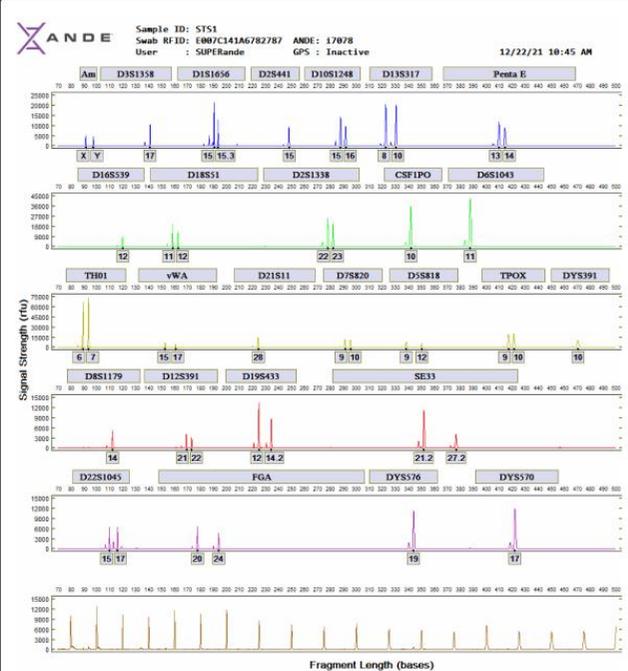
Document data

PLACE OF ISSUE	DATE OF ISSUE	DATE OF EXPIRY	ISSUING COUNTRY
Salem	25/11/2026	25/11/2026	United States
ADDRESS LINE 2	COUNTRY OF RESIDENCE	SPECIAL REMARKS:	ADDRESS LINE 1
Chester	USA	—	Main street 4

DNA

LOCUS	ALLELE VALUE
AMEL	X Y
D3S1358	17 17
D1S1656	15 15.3
D2S441	15 15
D10S1248	15 16
D13S317	8 9
Penta E	13 14
D16S539	12 12
D18S51	11 12
D2S1338	22 23
CSF1PO	10 10
D6S1043	11 11
TH01	6 7
vWA	15 15
D21S11	28 28
D7S820	9 10
D5S818	9 12
TPOX	9 10
DYS391	10 10
D8S1179	14 14
D12S391	21 22
D19S433	12 14.2
SE33	21.2 27.2
D22S1045	15 17
FGA	20 24
DYS576	19 19
DYS570	17 17

ELECTROPHERGRAM ATTACHMENT



Sample ID: STS1
Swab RFID: E867C141A6782787
User: SUPERAnde
ANDE: 17078
GPS: Inactive
12/22/21 10:45 AM

Fragment Length (bases)

Thank you!

Questions?

Contact

Matus.kapusta@innovatrics.com

www.innovatrics.com

Slovakia (HQ)

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