"Exceptional" Biometrics

Solving local peculiarities of
biometric identity projects
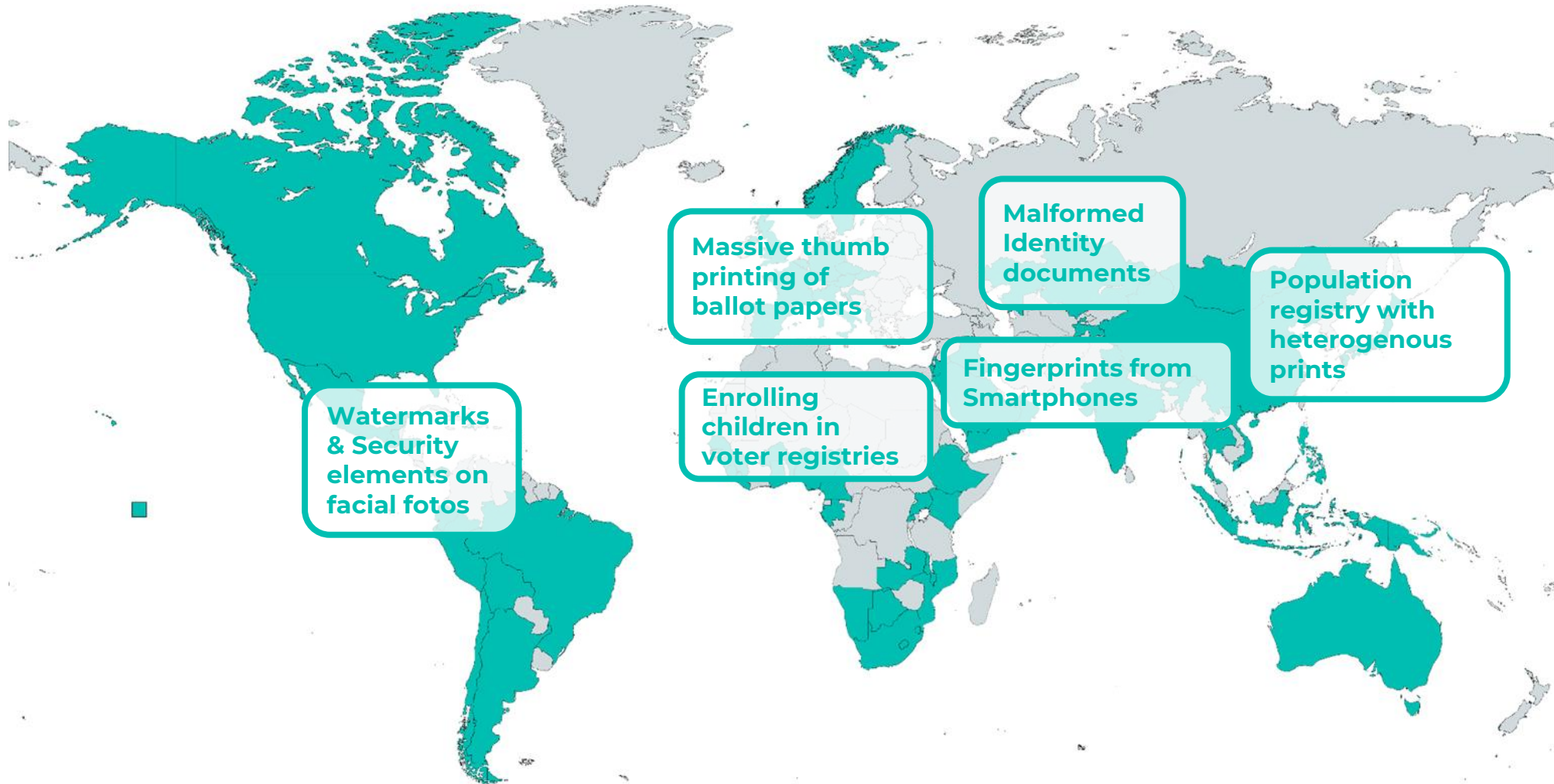
INNOVATRICS
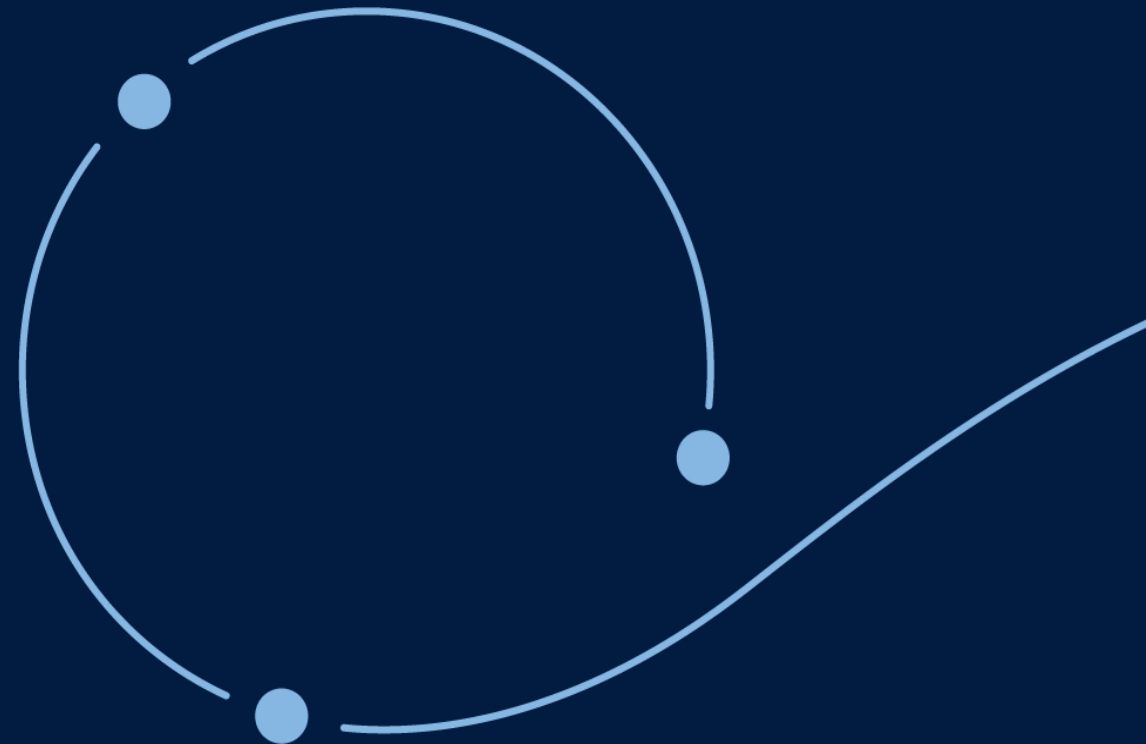
Biometrics is universal.

The same principles of biometrics apply on every human being regardless of race, gender, age, or other factors.

Universal means it works all the time for everyone, and it never fails.

Precision

False hit

Miss-classification

Accuracy

Failure to enroll

Error rate

Failure to identify

Bias

False reject

False duplicates

False positives
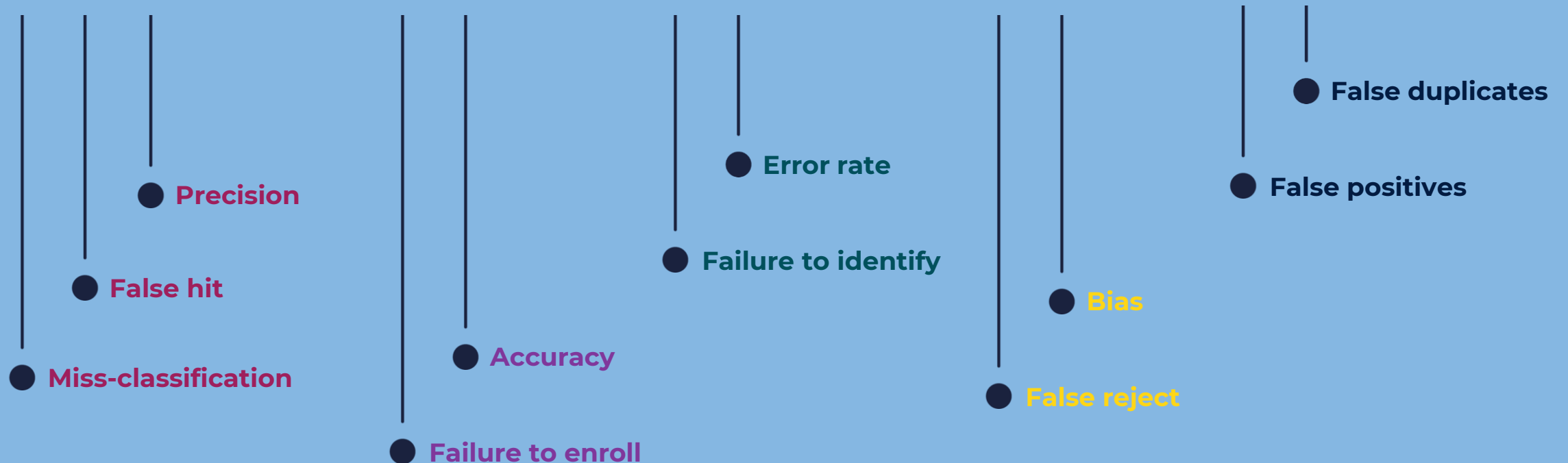
Local challenges that can make biometrics fail

Massive thumb printing of ballot papers

Malformed Identity documents

Population registry with heterogenous prints

Fingerprints from Smartphones

Watermarks & Security elements on facial fotos

Enrolling children in voter registries

Created with mapchart.net

Peculiar challenges of local identity projects

Massive thumb printing of ballot papers

Challenge

Detect "ballot stuffing"

Solution

Workflows adjusted; Group resolution developed to efficiently eliminate "serial voters"

Enrolling children in voter registries

Challenge

Clean tens of thousands of children enrolled in voters list

Solution

Minor detection algorithm

Population registry with heterogeneous prints

Challenge

Accurately identify both adult and children fingerprints in one database.

Solution

Close cooperation on data analysis & algorithm fine-tuning

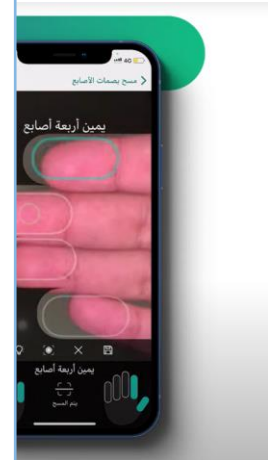# Identity verification evolution.
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New

**Finger image
from camera**

**Touchless enhanced
fingerprint**

**Touch-based
fingerprint**

Finger image
from camera

Touchless enhanced
fingerprint

Touch-based
fingerprint

Watermarks & Security elements on facial fotos

Challenge

Recognize face photo covered with security elements

Solution

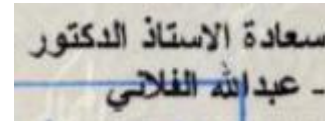Automated watermarks removal

Challenging scripts, spilled texts, stamps...

Challenge

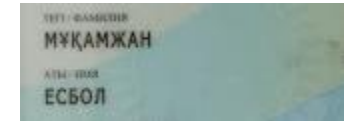Read complicated scripts, boxes & spilled texts, stamps, custom symbols and signs

Solution

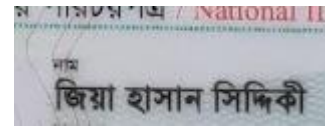New script recognition training
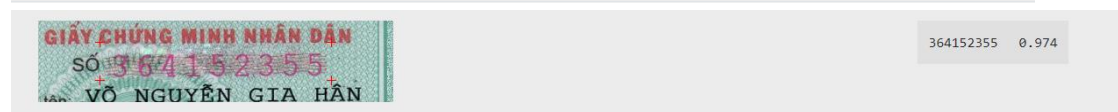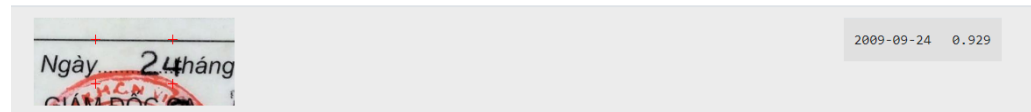
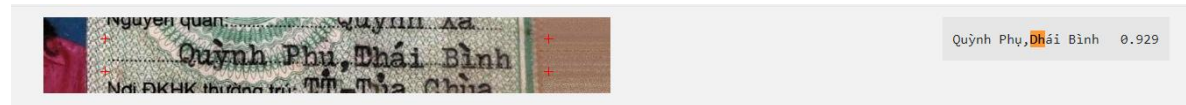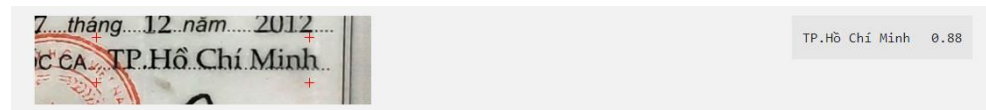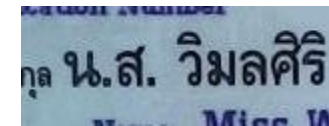Arabic script   Chinese script   Cyrilic script

Bengali script   Thai script

Impossible infrastructure

Challenge

Reduce the data stream from 1700 CCTV cameras to acceptable level

Solution

On-device face detection

Future

Synthetic data to master any peculiarity

Children under 15

Head cover

Earphones

Scarf

Anything

?

Thank you

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