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Biometrics and Security

- Biometric matching technology is an effective tool for border management to balance security and facilitation at ports of entry.
  - Affords opportunities to automate routine transactions – such as manual verification against a passport photo.

- Biometrics should be viewed as a <u>tool</u> in the border management toolbox; the technology can be employed at various points in the continuum to identify malicious actors.

- A failed match against a reference photo can be the result of many factors – a human in the loop to validate results is necessary.

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What Are Borders Concerned About?

Are you the rightful bearer of the travel document being presented?

Do you present a risk to the country?

Are you entitled to enter the country?

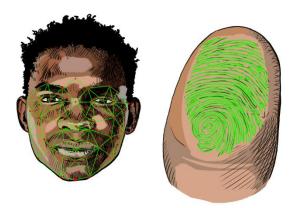Are you attempting to cross the border with anything of concern?

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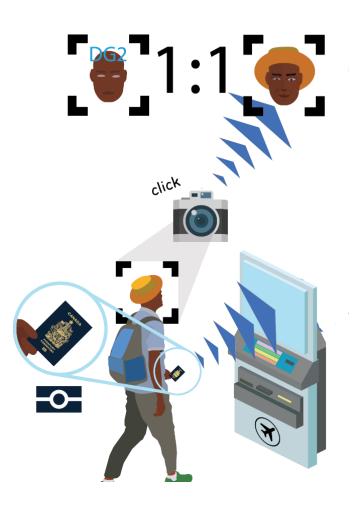
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Rightful Bearer of a Travel Document

Biometrics can be used as a tool to support border management authorities in confirming that a traveller is the rightful bearer of the document being presented upon entry.

Biometrics are also often employed in pre-screening prior to travel to obtain a travel authorization.

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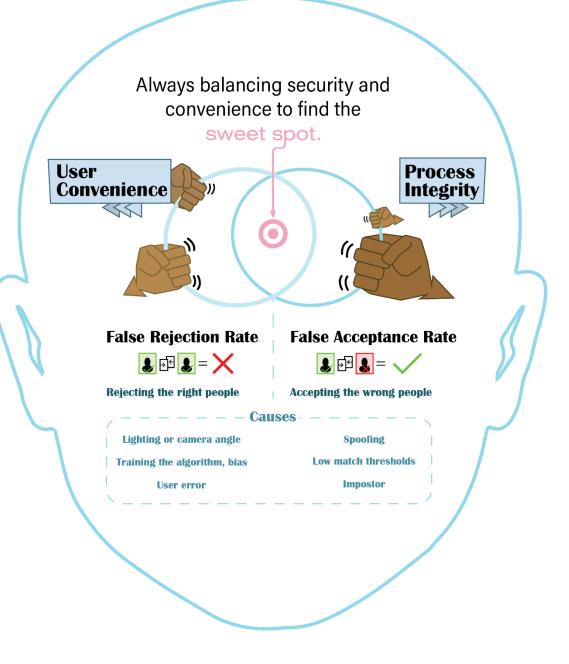
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ePassport: Source of Biometric Information

- ePassports are a key enabling component of biometrics and border management.
  - ePassports contain a verified photo of the *rightful* bearer of the document.

- Leveraging the information stored on the ePassport, borders can assist in confirming the identity of a traveller in an automated and expedient fashion.

- Automating identity verification allows border guards to focus on higher-risk travellers and other elements of the interaction with all travellers.

Harnessing the potential of biometrics at the border

- In order for biometric matching to yield border management with opportunities to automate and redeploy resources, it is important to:

  - Understand how the technology is operating;
  - Collaborate with stakeholders in the continuum that feed into your processes; and
  - Manage the entire biometric system.

- Cannot take a set-it-and-forget-it approach to managing a biometric system.

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Balancing Objectives at the Border

Always balancing security and convenience to find the sweet spot.

User Convenience

Process Integrity

False Rejection Rate
Rejecting the right people

False Acceptance Rate
Accepting the wrong people

Causes

Lighting or camera angle | Spoofing
Training the algorithm, bias | Low match thresholds
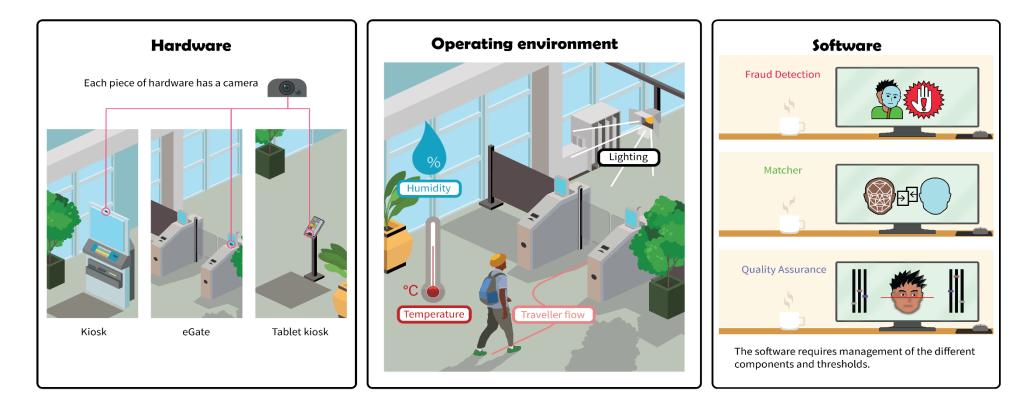User error | Impostor

Critical Questions to Consider

At what point we will begin to trade security (i.e., False Accept Rate) for facilitation?

Have we set our security threshold so high that we are now beginning to impact facilitation (i.e., False Reject Rate)?

Are there other factors impacting the matching process?

Will travellers interact with border officers after interacting with our kiosks or gates? How do we factor that in?

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A Biometric system is more than just algorithms, there are multiple components.

Hardware

Each piece of hardware has a camera

Kiosk   eGate   Tablet kiosk

Operating environment

%
Humidity

°C
Temperature   Traveller flow

Lighting

Software

Fraud Detection

Matcher

Quality Assurance

The software requires management of the different components and thresholds.

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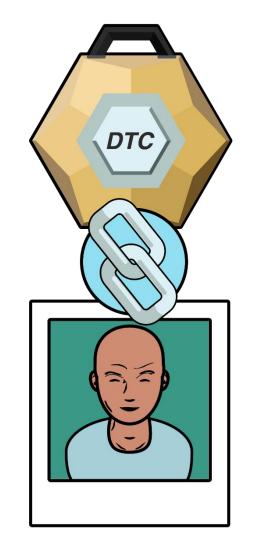ICAO

Critical Questions to Consider

If our system is underperforming, have we looked at all components of the process (i.e., hardware, software and operating environment)?

Can we rely on the quality of biometric data that is collected and shared by partners in the process?

How are relationships governed if partners are involved in the process?

Has the software [and the entire biometric system] been tested in terms of treating travellers from different demographic factors equally?

Are you regularly monitoring the performance of your system?

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Looking to the Future

- The biometric contents of the DTC present new ways to securely facilitate travel:

  - Confirm the identity and bind it to submitted data before arrival;
  - Pre-position data in border/airport systems to enable more facilitated passage; and
  - Ensure that border guards are equipped to interact with selected travellers at ports of entry.

- Pushing the border out allows for the earlier identification of threats.

Thank You