
# ELISE ID Platform

**for Security and Law Enforcement Agencies**

WCC

**Software that matters**

- **ELISE ID** is an award winner of the **MITRE Multi-Cultural Name Matching Challenge**
- **ELISE ID** provides high-quality **Biographic Fuzzy Matching** to achieve interoperability and solve the Multiple-Identity problem of the biometric systems implemented in silos
- **ELISE ID** is **scalable** and can handle **billions of records in sub-seconds** response time
- **ELISE ID Platform** is the core matching engine for the **European Visa Information System**, the **Guatemala/Mexico border**, and the **Police of Finland**

# Introduction

The Security has always been a fundamental human need, ever since our ancestors first sought the protection of caves to hide them from wild animals. Naturally, the threats have changed over time.

We now live in a global economy with extensive travel opportunities and cross-border trade in goods, services, and information. As a result, today's governments face numerous border control and security challenges, including mass immigration, criminal activities, and terrorism. And since 2020, governments have been faced with the additional challenge of containing the COVID-19 pandemic.

The events of 9/11 resulted in a radical shift in the approach taken to tackle terrorism during the last two decades. Our fight against terrorism became international. Creating a global security framework called for advanced information technology to help combat the threat.

The science of Dactyloscopy – fingerprints – has been used since the 19th century in forensic science for identification purposes. As technology has developed, for example, to include facial recognition, computer-aided systems have in turn become central to solving crimes, achieving security goals, and supporting the fight against terrorism.

However, although identification systems are essential for global security, government agencies often create their systems as silos. Information gaps were the result. Criminal organizations quickly learn to exploit communication and exchange failures, and suspects can fall through the cracks.

## Challenges

Globalization has led to a marked increase in the number of people traveling, so large volumes of data need to be processed. However, challenges are not limited to the quantity of data. They also extend to security-related challenges like preventing, detecting, and investigating terrorism and serious crime. There is a need for identifying Persons Of Interest (POIs) while at the same time preventing the detention of innocent individuals. The federal and state authorities are responsible for solving such challenges. These challenges are made even more difficult.

> Processing time allowed can be 10 seconds in some countries

However, challenges are not limited to the large volume of data and the security aspects, but they are extended to the technical and operational aspects. A secured and efficient border needs different information systems to be implemented, and these systems will satisfy the security needs but will create new challenges.

For example, the data will not be homogenous, and more efforts will be required to integrate the different systems and solve compatibility issues. Also, implementing a lot of systems from different vendors will create issues related to maintenance and support. Moreover, there will be issues on the end-user side because the customer may need to assign more resources to solve the emerging issues.

# Requirements

The security process involves many stakeholders and different information systems to achieve optimum security in borders and urban areas. The stakeholders implement different information systems to identify and verify the wanted persons and flag the suspects representing a high risk. High-quality biographic fuzzy matching and biometric matching technologies are essential to identify people and find persons of interest correctly. The visa information system can provide identification and verification functions by using biographic matching of the identity-related information and different biometric modalities (Fingerprint, Facial Recognition, & Iris).

The security authorities in the border use biographic and biometric watchlists that store the identity-related data of persons of interest. The passport control and the electronic gates should be connected to these watchlists to screen passengers and take actions against the wanted persons. Surveillance Facial Recognition in real-time can be used to track the persons of interest and find the suspects known to authorities by faces only while they don't have any other identity-related information. High accuracy and fast response are key requirements.

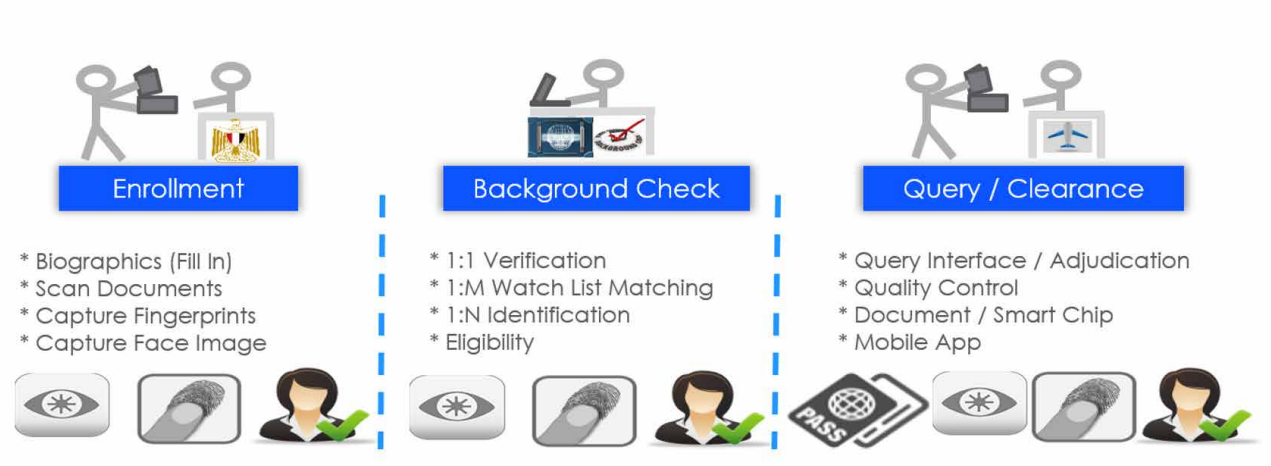



*Figure 1: Security Process*

# Solution

WCC has the technology and know-how to help tackle mentioned challenges and to satisfy the requirements involved. Also, WCC understands the legal, operational, and technical issues associated with implementing information systems for borders and law enforcement and international standards and security needs. The ELISE ID Platform is a one-stop-shop software that acts as a central plug & play system for identity management & security, so it is easy to integrate & maintain. Different locations don't need different instants of the ELISE ID platform; one central platform can cover all the locations in the country when possible.

ELISE is multibiometric and supports the fusion of biometrics & biographics, and it supports international standards like NIST, ISO, & ICAO, so it is standard and with high accuracy. The ELISE ID Platform was designed to support the POLE (Persons, Objects, Locations, & Events) landscape. It follows a Person-Centric Approach and provides a 360 Degree View of travelers' identity. The ELISE ID Platform searches intelligently, using built-in fuzzy logic algorithms and weighted criteria in structured and unstructured data and from disparate databases and diverse sources. For pandemics, the ELISE ID platform can provide innovative solutions like recognizing the persons of interest while covering their faces with masks.

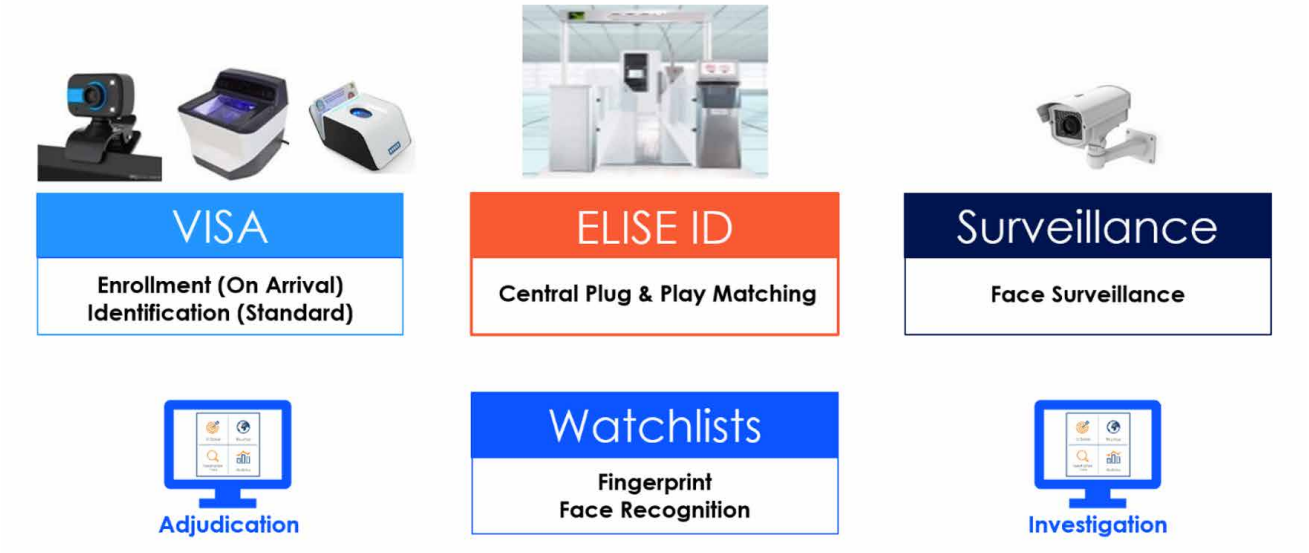



*Figure 2: ELISE ID as a Central Plug & Play Matching System*

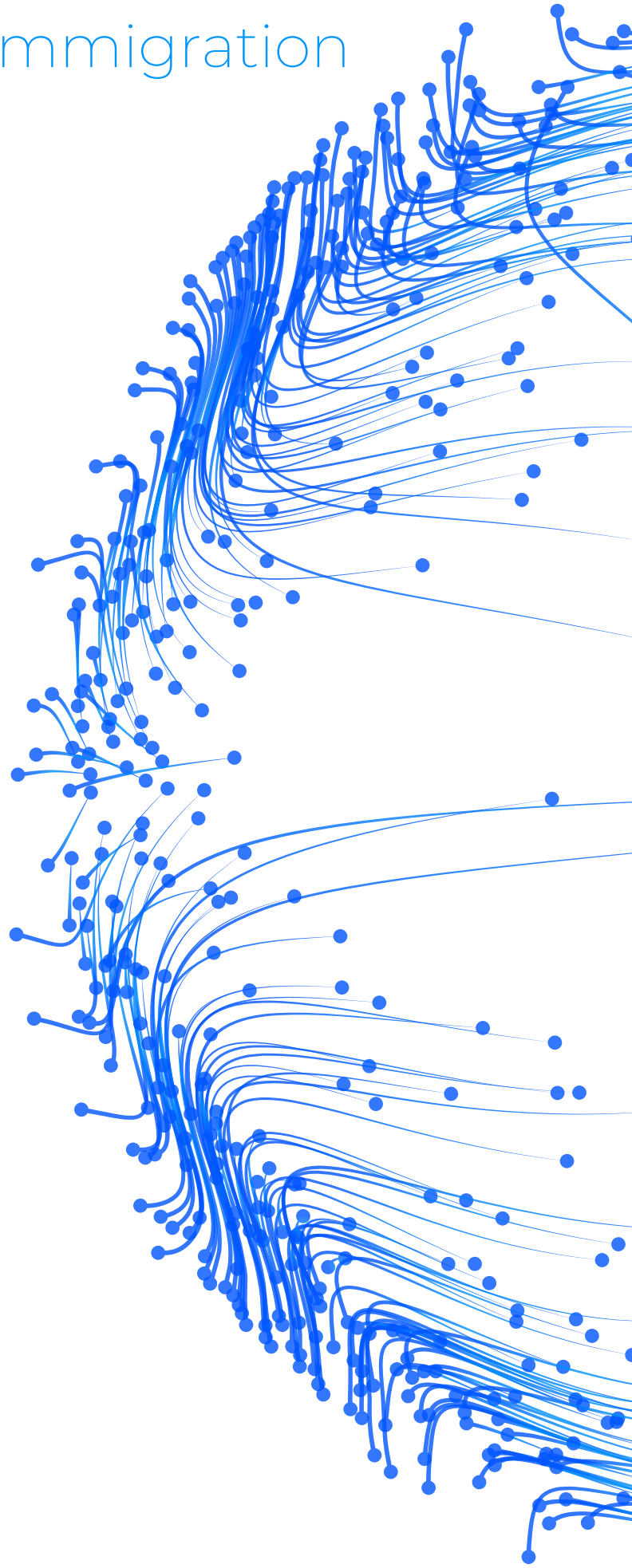
# Mexico Border & Immigration

The Guatemala/Mexico border is an avenue for drug trafficking, human trafficking, and possible terrorist movement. The Mexican Immigration Service (INM) wanted to facilitate the flow of bona fide migrant workers from Guatemala while ensuring the detection of illegal immigrants at the border. The adopted solution is a comprehensive border control process that includes the monitoring of migrant workers' entry and exit, and the screening of individuals against watchlists. WCC's ELISE ID Platform provides the biometric and biographic identification back-end to the implemented solution. Its flexibility has allowed our partner to build multiple applications to manage the full breadth of border ID needs.

The process starts when the suspected illegal immigrants, after their arrest, are enrolled into the INM identification system. Upon enrolment, the ELISE ID Platform performs a quality check based on NFIQ2 to establish whether the quality of the fingerprint is sufficient for matching.

There have been some instances in the past where the fingerprint reader was smudged causing poor quality fingerprints. A unique feature checks whether a person has been encountered before and verifies if the same name or a different one was used during these encounters. The data is then stored in the ELISE ID Platform. Once enrolled, the identification feature is used to identify people through their fingerprints in different locations and allow them certain amenities (e.g. food).

Additional identity data from different sources has been added to the ELISE ID Platform to check whether the identities in these sources were previously encountered as suspected illegal immigrants. These multiple encounter reports were provided by WCC to the customer.



# ELISE ID Platform Features

The ELISE ID Platform differentiates itself from other Automated Biometric Identification Systems because it:

- Is **Vendor Agnostic**: it allows customers to become vendor-independent and avoid vendor lock-in as biometric algorithms can be exchanged while the system is running in production.
- Is **Data Agnostic**: it can process different types of data like biometrics, biographics, and metadata. All these data elements are combined in one data model and can be searched/matched using a single query operation.
- Protects **Data Ownership**: the data is the customer's data. Customers can easily access all identity data, both biographics and biometrics.
- Uses **Multiple Modalities**: it combines any type of biometric modality (Fingerprint, Face, Iris, palm vain, etc.). Multi-modal systems are more accurate than or as accurate as the most accurate sub-system.
- Can apply **Multi-Vendor Cascading**: it can cascade match results of different biometric algorithms. Cascading can be a good choice to increase performance. One could consider using a fast matcher as a prefilter of the data set and then use an accurate matcher on the smaller result set.
- Allows **fusion with Biographics**: biographic matching can be fused with biometric modalities with low accuracy, like face, to optimize the accuracy.
- Supports **Multi-Cultural Name Matching**: it can match different scripts and name variations against each other, like matching Arabic ألكسندر or Cyrillic Александр to Alexander.
- **Extensible**: it provides the ability to integrate extra biometric modalities in the future. There are no limitations to the number of biometric algorithms used.
- Allows **result optimization**: it allows runtime FAR/FRR configuration of the biometric algorithms.
- Provides **Score Level Fusion**: the system provides a single, fused score for all modalities.
- Follows **International Standards**: the identity-centric data model and all communication services are based on ANSI/NIST-ITL and NIEM standards.
- Provides **ETL services**: the platform comes with a data replication service that can connect and replicate data from any type of data source.
- Uses **COTS hardware**: no proprietary hardware is required.
- **Scalable and High Available**: system sizing is linear. Doubling the available hardware will double the performance. The system provides native support for High Availability and Disaster Recovery. The license capacity of 10.000.000 profiles is therefore not a challenge for Elise ID Platform. As a comparison, our client EU VIS makes use of a capacity of more than 100.000.000 data objects.
- Provides fast and relevant **Customer Support**: WCC does not use multiple layers of customer support. After the first call, you will immediately be assigned the correct technical resource that will help you solve the challenge.

# ELISE ID Platform Differentiators

**ELISE ID Platform vs. Biometric Vendors**

| Capability | ELISE ID Platform | Biometric Vendors |
|---|---|---|
| Access to Data | Out-of-the-box capability: Search by Biographic Information (e.g. Name, DOB, POB) | Requires development and customization |
| GUI | Yes | Yes |
| Vendor-agnostic Biometric Algorithm plug and play | Yes | No |
| Use of multiple algorithms for each modality as needed, to improve costs and performance, and to provide FUSION response | Yes | No<br>Vendors encounter difficulties when integrating with other vendors' algorithms |
| Multi-vendor algorithm cascading 2<br>Methodology to use fast matcher as a prefilter and to use a Minutia matcher on the smaller result set, improving performance | Yes | No<br>This functionality is carried out by biometric integrators, no direct configuration capability in the product suite |
| Ability to match on biometrics, biographic data and added metadata to improve matching | Yes | No |
| Fuzzy Biographic Matching | Yes | No |
| Multi-cultural Name Matching | Yes | No |
| Person-Centric (360 Degrees) approach & POLE (Persons, Objects, Locations, & Events) model | Yes | Partially |
| International Standards NIEM/NIST-ITL | Yes | Yes |
| Out of the box ETL, data services to ingest identity data | Yes<br>ELISE Data Replicator is an out-of-the-box ETL tool replicating biometric data from any relational database, extracts the biometric features, and stores the biometric templates into ELISE | Partially<br>It needs additional configuration based on requirements |

| Capability | ELISE ID Platform | Biometric Vendors |
|---|---|---|
| **Hardware-agnostic** | Yes | No<br>Some vendors have proprietary HW |
| **Scalable and High-availability** | Yes | Yes |
| **Support cloud** | Yes | No<br>Some vendors don't offer cloud support |
| **Low or reduced risk and cost of support & maintenance** | Yes<br>ELISE integrates with multiple vendor algorithms; a third-party software integration company is not needed as the product can be configured to work with multiple vendor algorithms | No<br>Not plug-and-play, it requires a SW integration co. to integrate/ mimic what the WCC product does out-of-the-box.<br>Users should not be locked into one vendor solution; they should be able to use best-of-breed |

# About WCC

A leading advanced solutions provider for Public & Private Employment Services and ID/Security government agencies, and Enterprises. Built on its unique search & match platform, WCC software solutions see 1/3 billion people every day, enabling organizations to seamlessly capture, generate, and analyze big data from multiple sources gaining valuable insights paramount to effective decision-making.

Our team of professional services experts provides exceptional support and consulting, allowing our customers to maximize their investment.

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