

# Multi-Gallery ABIS for Accurate Civil and Criminal Identification in Brazil

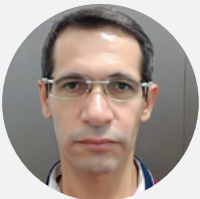
70,000 criminal records

2M children's records

221,000 IDs issued monthly



Brazil's complex and diverse landscape made it legal for individuals to hold multiple identification documents, with each of its 27 states issuing their own IDs and driver's licenses. Moreover, each state had its own database, and often with outdated biometric systems, which could be prone to issues such as ID fraud. Maranhão, Espírito Santo, and Piauí were among the states struggling with these challenges.



**Juarez Carvalho**, Director of the Forensic Biometric Institute of the Scientific Police of State of Piauí, Brazil



Innovatrics' ABIS is a fantastic tool and has shown excellent results. We use the tool for the biometric enrollment in issuing civil ID documents, for criminal identification and for the processing of fingerprint and faces collected at sites related to criminal offences.

The implementation of the tools of Digital Government in the services provided by the State of Piauí is based on data from Civil Identification. Thus, the use of Innovatrics ABIS is essential in this process, accurately detecting operational administrative errors, fraud attempts and guaranteeing the uniqueness of the identity of a person in our database.

## Modernizing State Databases

- Prevent identity fraud and ensure consistency
- Update the biometric systems for more accurate identification

States in Brazil either relied on outdated biometric solutions, or in some cases, still used paper documentation. This slowed down the identification process and made it difficult to prevent the occurrence of fraud. The biometric tools being used before were obsolete and often inaccurate.

Innovatrics, alongside its local partner Valid, was brought in to look for a solution that would replace existing biometric technologies and introduce modern tools for securely collecting and identifying biometric data.

## Deploying Biometric Tools for Civil and Criminal Applications

- Enable deduplication to find and remove duplicate records and fraud attempts
- Use fingerprints, palmprints and facial recognition for criminal investigations

Innovatrics implemented a multi-gallery ABIS for civil and criminal use cases. It has a deduplication feature, which identifies and removes duplicate records, and enables the migration of legacy records. This made it easier to ensure that the same individual could not possess multiple fraudulent IDs. Moreover, Innovatrics developed a custom fingerprint algorithm to tackle the issue of child trafficking.

To improve the accuracy of criminal identification, multiple biometric modalities such as fingerprints, palmprints and facial recognition for both 1:1 and 1:N matching were implemented. ABIS also includes a latent fingerprint editor and case management tools to streamline criminal investigations. A separate gallery was thus created for criminal purposes, enabling officers to group evidence into specific cases and be more organized.

## Beyond Accurate Identification with Multi-Gallery ABIS

- Protect children with a **custom algorithm** for registering their fingerprints
- Simplify **ID issuance** using a unified biometric system

The implementation of Innovatrics ABIS has transformed civil and criminal identification processes across multiple states in Brazil. The states now have a deduplicated biometric system that helps prevent fraud, streamlines the issuance of IDs (more than 180,000 IDs issued monthly), and improves the speed and accuracy of criminal investigations. In doing so, they can synchronize their records on a national level in the future.

The custom solution for registering children’s fingerprints has further strengthened Brazil’s efforts to combat child trafficking. The new algorithm is designed to accurately scale the smaller fingerprints of children, making identification reliable and fast. The criminal investigation tools have enhanced law enforcement’s ability to solve crimes quickly and effectively. Furthermore, officers can import scanned cards and photos, which serve as valuable resources for investigating cases more efficiently.

### Before

Duplicate biometric records in the state systems

Slow and unreliable identification due to paper-based documentation and older ABIS without live captured records

Challenges with child identification

### After

Deduplicated biometric systems in each state

Instant and accurate identification for civil and criminal use cases

Custom fingerprint algorithm for child identification

in Brazilian states of Maranhão, Espírito Santo, Piauí, Ceará, and Distrito Federal (Brasília)

### Security as a Priority

Biometric data ensures the accuracy of identity verification, significantly reducing the risk of fraud. Through deduplication and real-time processing, the system provides a reliable and secure method for issuing IDs and a trustworthy tool for criminal investigations.

### Efficient Civil and Criminal Identification

Innovatrics Civil and Criminal ABIS offers fast, reliable, and scalable biometric identification for civil registrations and analysis for criminal investigations. The introduction of modern biometric tools, including the latent fingerprint editor and case management features, has streamlined crime-solving across states.

### Customizable Case Management Features

Law enforcement officers can customize the case management features based on the local legal framework of their criminal investigation process such as information about evidence upload, metadata, personal characteristics, history of performed biometric identifications for each fingerprint or face, and stored information about a hit for each identified biometric evidence. Innovatrics ABIS can help define and reveal connections between unresolved cases and newly collected evidence.

### Custom Solutions for Specific Needs

Since children’s fingerprints are smaller and their ridges grow apart as they grow, standard fingerprint analysis often leads to errors. Developing a custom fingerprint algorithm for children’s identification highlights the flexibility and innovation of the system. It ensures their accurate registration, which can protect them from child trafficking.

## About Us

We are an independent EU-based provider of multimodal biometric solutions. Our algorithms consistently rank among the fastest and most accurate in fingerprint and face recognition. Since 2004, we have partnered with all types of organizations to build trusted and flexible biometric identification solutions. Our products are being used in more than 80 countries, benefiting more than a billion people worldwide.

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