



European Union – Biometric Matching System



Procurement Agency:
Directorate General – Justice
Freedom and Security (EU-
JLS), Brussels, Belgium

Prime Contractor:
Accenture/Sagem

Period of Performance:
November 2006 – Ongoing

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Project Objective

The European Commission is implementing a central Biometric Matching System (BMS) that will serve the Biometric Identity requirements of multiple applications that are essential to European Security. This system is groundbreaking in terms of scale, transactional support and strategic approach offering many valuable lessons in the use and adoption of Biometric Identity capabilities.

Top priority has been given to improving the administration of the common visa policy and the implementation of a Visa Information System (VIS) to facilitate the exchange of information between Member States. The Biometric Matching System (BMS) will link biometric identifiers to individual persons, thereby helping to establish and verify their identity. For example:

- Currently, Member States do not know if a person applying for a Visa has already made a previous application in another Member State. In the BMS-VIS environment, an applicant for a visa will, in addition to having their biographic data stored in VIS, be fingerprinted and the fingerprint record will be searched against all existing fingerprint records in BMS-VIS prior to the issuance of a visa.
- There is no way of checking if the person using a visa is, in fact, the person who applied in the first instance e.g. a visa issued at a German embassy abroad cannot electronically be verified at the Dutch border. In the BMS-VIS environment, a visa holder arriving at an external border will be checked against their existing fingerprint record confirming a direct link to the application and its status.

The EC envisions that the BMS will also act as the central biometric identity assurance tool for all of its pan European applications e.g. SIS II, Eurodac, Registered Traveller and AFIS.

Daon's Solution

The framework contract for the European Union Biometric Matching System (EU-BMS) budgeted at €157 million, a key part of Europe's new centralised Visa Information System (VIS), was awarded in 2006 to the consortium: Accenture, the prime contractor, Sagem Défense Sécurité who provide the biometric matching technology and Daon, a provider of large scale biometric processing solutions. This is the largest biometric project in Europe - all visas for entry to the EU will be enabled with biometrics and processed by this system. The Commission plans to process **70 Million visas over 5 years**. It also plans to process Schengen, Eurodac (asylum) and Criminal biometric data.



The VIS is designed to alert officials in any EU embassy or consulate if an applicant has been refused a visa in the past by another member state. The system will process:

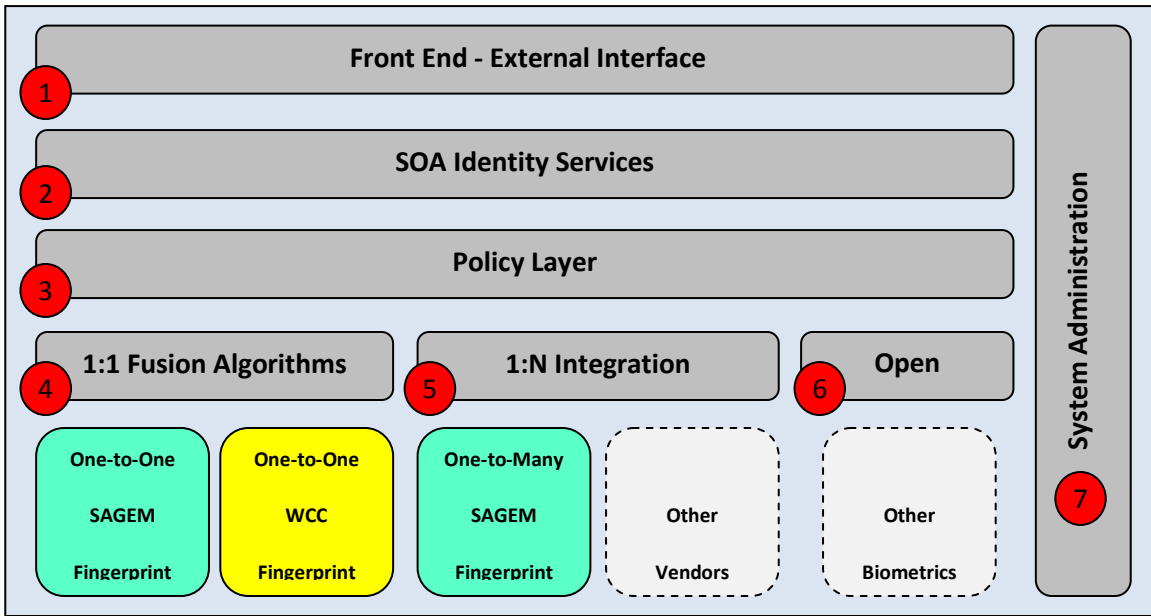
- **20 million visa requests a year** from citizens of 134 countries
- Estimates 25% of visa requests will not be issued
- Expects that 20% of visas will be from repeat applicants
- Receive visa data from 30 states supporting up to 3,500 consular posts and 12,000 end users

Daon's Role in Integration

Daon integrated the DaonEngine to the Sagem Meta Morpho Automated Fingerprint Identification System which manage all biometric transactions. The DaonEngine sends biometric data for new visa applicants for searching to the Sagem large scale one-to-many matching system. The DaonEngine also incorporates Sagem finger matching technology to manage all one-to-one matching of visas. The principal features and benefits that Daon brings to the architecture are as follows:

- Proven high availability and site failover: The BMS Architecture achieves the high availability, reliability and robustness requirements of BMS (99.99% over a 28-day rolling period) over two sites that are more than 750 km apart.
- Open architecture: The Daon solution integrates and fuses the results of two complementary algorithms to deliver superior accuracy for one-to-one authentication / verification. The benefit of this on BMS is that it provides a proven ability to integrate alternate biometric technologies in order to future proof the solution. This means that if a technology vendor develops important technology that might satisfy future business needs, the system is open from the beginning to such integration.
- Multi-Biometric integration: the Daon solution provides off-the-shelf integration with other biometric modes (e.g. face or iris). Equally important, these technologies are fully integrated into the solution with respect to availability, scalability, security, changeability and extensibility.
- Security and data integrity: Daon delivers the highest standards in terms of data integrity and security, ensuring the most stringent procedures regarding access to the system as well for protection of the data.
- Flexibility: The Daon solution provides the flexibility required in the future, including our policy-based approach to identification and authentication/ verification, as well as the internal consistency and modularity of the framework.
- Scalability: The solution addresses the one-to-many large AFIS matching requirements for BMS as it scales to a population of 70 million individuals and over **100,000 transactions per day**. Our solution uses a fully proven off-the-shelf Sagem MetaMorpho product to do this, and we have operational data that demonstrates this is a low risk solution. However, fast one-to-many biometric matching is only one aspect of our approach to scalability. The second key component is assuring that the infrastructure that controls the matchers is equally scalable. This is an entirely different problem from the one-to many matching component, and involves resource contention from many areas, including database demands, security processing, and administrative functions.
- Future Proofing: The use of the Daon multi-biometric, technology-neutral middleware framework, an open architecture, and a software-based approach to matching, ensures the system is protected from premature obsolescence. Unlike many existing biometric systems deployed today, the BMS Solution is not based on a single biometric component, to which we will have to append new biometrics, as an afterthought. The solution uses biometric products designed for multifactor / multimodal identity solutions from the beginning. To manage the interactions between different identity factors, including multiple biometrics, the solution includes a policy layer that simplifies creating and adapting the solution.





Daon provides the core middleware in the solution, including:

- 1) Front-End External Interfaces,
- 2) SOA Identity Services
- 3) Policy Layer
- 4) 1:1 Fusion of Fingerprint Identity (Algorithms of Multiple Vendors)
- 5) Integration of fingerprint 1:N products
- 6) Open interface to other biometrics
- 7) System Administration Interface

About Daon

Daon is a leading provider of identity assurance software products focused on meeting the needs of governments and commercial organizations worldwide. Daon supports customers and system integrators in building enterprise solutions requiring the highest level of security, performance, scalability, reliability and privacy. For more information, including detailed product and solution information, contact us at:

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