



Coesys Enrolment Solutions for the Public Sector

Trusted Solutions for Identity and Travel Documents

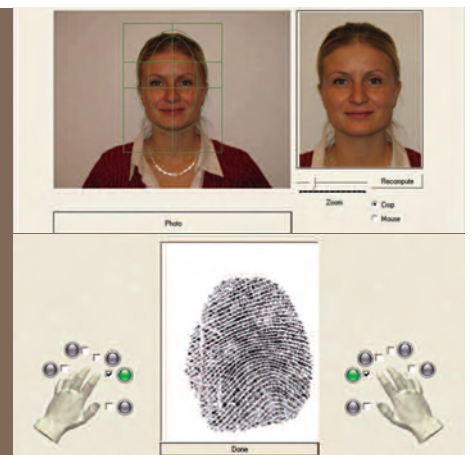
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> Quality, speed and security

Countries around the world are facing the need to rethink their enrolment procedures for issuing e-passports, identity and healthcare cards, driver licenses and e-visas. The demands are clear: quality, speed and security.

Ensuring high quality capture

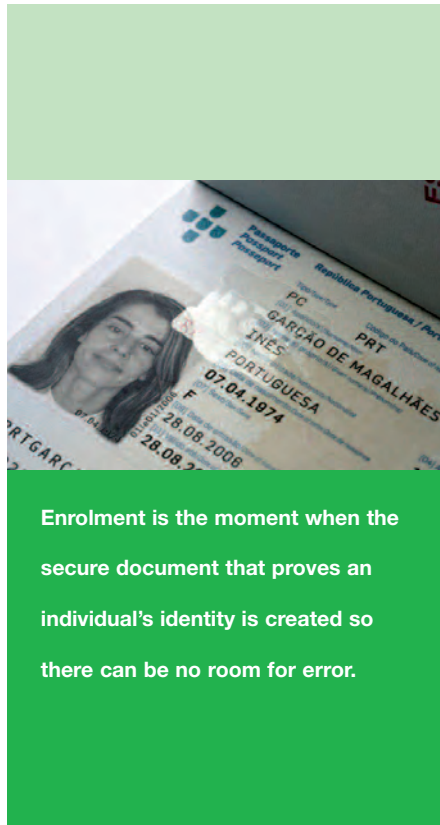
The Face Recognition Vendor Test (FRVT) issued in March 2006 by the National Institute of Standards and Technology (NIST) concluded that there has been a huge improvement in facial recognition technology in recent years, with the main advancement factors being linked to higher quality portraits through better and more consistent lighting and higher image resolution.

Since facial recognition is the primary biometric means used for citizen identity verification, capturing high-quality portraits at the enrolment stage is absolutely essential to ensure the best matching rates.

Moreover, early quality verifications at the enrolment stage ensure fewer rejections further down the line and an ultimately more fluid production of electronic documents.

Reducing enrolment time

Many countries are aiming to take advantage of the deployment of electronic documents to rethink and speed up their citizen data capturing process, and most are launching paperless enrolment systems, requiring live enrolment in public offices. Others are also opting for web registration for citizens, and some have deployed enrolment kiosk systems, which offer an efficient way to ease and speed up data, capture and improve public service.



**Enrolment is the moment when the
secure document that proves an
individual's identity is created so
there can be no room for error.**

Avoiding identity theft

As document security features become increasingly strong and ever more difficult to counterfeit or falsify, document experts agree that most fraud now arises with falsified applicant declarations at the enrolment phase in order to obtain fake IDs.

Enrolment is the moment when the foundation document that proves an individual's identity is created so there can be no room for error. If countries are to win the fight against identity theft and document fraud, they have to strengthen identity verifications at the enrolment stage to be absolutely sure of applicants' identities and to avoid duplicate applications.

> Coesys Enrolment workflow

Coesys Enrolment offers a timesaving generic enrolment engine designed to speed up data capture, to verify an applicant's identity and to ensure the quality of data captured. The workflow can be tailor-made to fit with the customer's environment and requirements.

Personal data entry

The enrolment official collects the applicant's personal data by scanning paper forms (1), or by reading an electronic passport or an identity document (2), or from any available citizens' database (3) or using pre-registered data entered on the web from home by the applicant (4). The enrolment official can then complete the pre-filled data, like the address and telephone number.

De-duplication and identity verifications

The system can also conduct identity verifications to confirm an applicant's identity. This module can authenticate and read an electronic document. Then, it can apply a fingerprint matching against the document or against an AFIS.

It can also check the ID document presented is not registered in a database of lost or stolen documents and can verify the applicant does not figure on a criminal or suspect watch-list. It can also retrieve an applicant's historical data – like a photo for example – so the official can ensure they are talking to the right person. It also offers a de-duplication procedure to check the applicant is not applying twice for a document.

Face finder and portrait enhancement

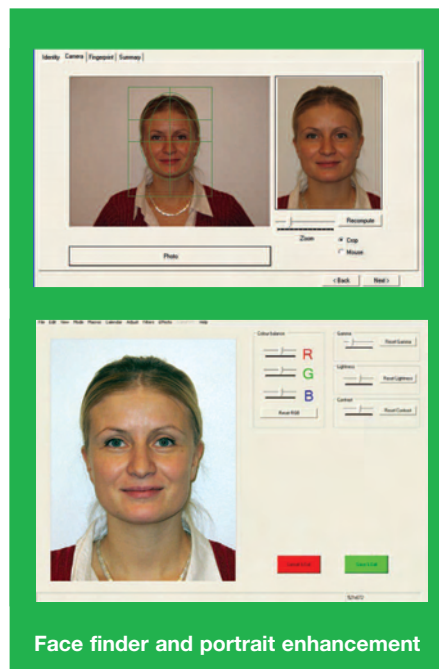
Once these checks are completed, biometric data capture can start. Firstly, Coesys Enrolment captures the applicant's portrait. The software then automatically handles the necessary eye position detection, portrait rotation (eyes on a line),



reframing to right size (eye distance) and position. It also enhances other characteristics like contrast, brightness, color balance and sharpness and then generates a token or full-frontal image according to the ICAO's ISO19194-5 standard.

The system can also verify face properties to ensure compliance with ICAO requirements, and checks a range of other elements such as background consistency, the presence of just one person in the photo and facial shadows, as well as verifying the eyes are open and the portrait is not blurred.

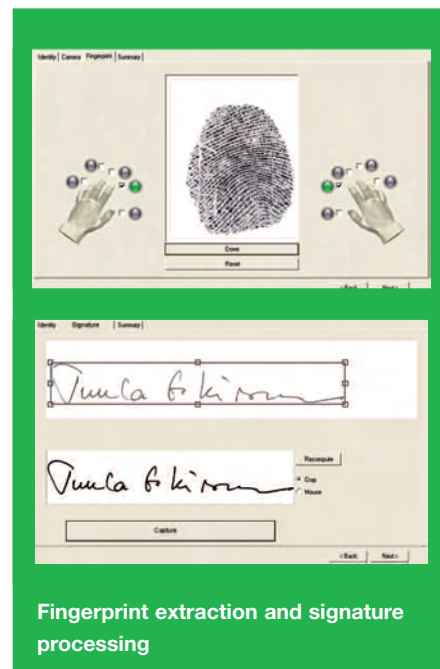
During this process it is also possible to carry out certain manual corrections to define the position of the eyes (very useful to enroll babies for instance) or manual modifications of certain image characteristics such as contrast, brightness, and color balance.



Fingerprint extraction and signature processing

Coesys Enrolment can capture one to ten fingerprints using single or slap fingerprint scanners, and verifies the quality of the prints taken. All Coesys stations use optical sensors with a minimum 500 dpi resolution that are all NIST certified (Certification FBI IQS Appendix F). Template extraction algorithm and scanners handle too dry or too wet fingers as well as cuts and wounds, and are able to work under ambient light. Several fingerprint compression formats are supported including WSQ.

Coesys Enrolment can also capture the applicant's signature using a digitalizing signature pad. The signature is reframed to the right size and position and the system automatically enhances the contrast to get the best quality for printing.



Secure data collection

The official can then approve the application, and the data are temporarily stored, encrypted and signed. Data are then securely uploaded to the relevant back-end server, either on request for an emergency passport, or automatically. Data can also be split: on one side the biometric information, on the other side the personal information. For security reasons, all data are destroyed after leaving the enrolment station.

Identity verification before document delivery

The Coesys Enrolment Solution can include a document delivery module. When the applicant comes to collect their electronic document, the system is able to read the MRZ and the document chip to check the document is working properly. Then, the system can scan the fingerprint and match it against the chip. The system also displays all data read, including portrait and the personal information. Finally the officer decides whether or not to deliver the document, and the system registers the delivery and the ID of the officer who carried out the procedure. This process ensures the document is delivered to the right person.



> Coesys Enrolment Solutions

Coesys Enrolment Solutions can be adapted to many different enrolment situations:

- **The Coesys Enrolment Station** is a desktop enrolment station which allows for the capture of portraits, single or ten fingerprints and signatures. It can also include a flatbed scanner and/or a document reader to retrieve information from a paper form or from an existing ID document.

The Coesys Enrolment Station offers good biometrics data capture at a competitive price for documents such as ID or health cards.

It is ideally suited to small or medium-sized enrolment centers. It is highly flexible and can be adapted to a range of different equipment.



- **The Coesys Enrolment Kiosk** is a fully automated enrolment station, which captures portraits, single or ten fingerprints and signatures. Throughout the process, the applicant is guided by a help screen, which tells the applicant what to do, and can make specific requests such as to remove glasses or dry the finger, and presents a view of the document at the end of the enrolment process for approval. The camera system is automatically adjusted to the applicant's height. Kiosks have been proven to slash human intervention and enrolment time by up to 60%.

The enrolment Kiosk also creates a stable environment for photography, with no disturbing illuminations and a uniform background thanks to a roof construction and backdrop screen. It is the best solution for taking full advantage of the latest improvements in face recognition technology, as it ensures high-resolution portraits and consistent lighting. It is ideal for compliance with ICAO recommendations for ePassport enrolment for example.

In addition, the enrolment Kiosk is designed to be mechanically robust and suitable for a public environment with daily use (CE-marked).



courtesy of vision-box



courtesy of Speed Identity

The Coesys Enrolment Kiosk is very convenient for large enrolment centers, and can be completely self-service.

- **Coesys Enrolment Mobile** is a portable enrolment station that packs everything you need to capture portraits, single or ten-fingerprints and signatures into one single suitcase.

The station is very convenient for mobile use. It is self-contained, can be trolley-mounted, has a rugged design, and is very quick to set up.

Coesys Enrolment Mobile is perfect for situations where the applicant cannot come to a public enrolment office and when a much more decentralized enrolment service is required. It functions both on and offline.

It is also perfect as a stationary desktop enrolment station for small to medium enrolment centers, such as consulates or embassies.



courtesy of Speed Identity



courtesy of vision-box

- **Coesys Enrolment Form Scanning** is a centralized enrolment system installed in document issuance centers. The system includes a scanner to retrieve photos, signatures or text from a paper form using OCR.

The system finds the face using automatic eye location, and the signature. The operator can manually adjust eye positions if needed. The system crops and enhances portrait and signature to optimize sample quality for best output performance.

Simple to deploy, Coesys Enrolment Form Scanning does not change current processes for ID or travel document enrolment based on paper forms.

> Why Coesys Enrolment Solutions?

For Trust

High quality portraits

- State-of-the-art face finder, portrait enhancement and ICAO portrait quality control software ensure compliance with ISO 19194-5.
- A full range of checks is available including verification for open eyes, no blurring, shadow detection and background consistency.
- Enrolment Kiosk works with several natural light sources, a backdrop screen and roof to avoid external lighting disturbance.

De-duplication and identity verifications

- Identity is verified to prevent identity theft and issuance of fraudulent documents, through a range of checks including ID document authentication and reading and fingerprint matching 1:1 against the document or 1:N against an AFIS.
- ID Document reading and identity verifications (fingerprint matching 1:1) are carried out before document delivery.

Secure Data Collection to protect citizens' privacy

- Enrolment transactions can be audited on the enrolment station itself.
- Personal & biometric data can be encrypted and/or signed prior to any transfer. Gemalto also offers a unique end-to-end encryption scheme: the fingerprint is always encrypted and only decrypted at the last personalization stage inside the chip.
- All data are destroyed after leaving the enrolment station.

For efficiency

The **Coesys Enrolment** is fast, simple and stress-free for the applicant.

Facilities to ease and speed-up personal data capture

- Portrait, signature, text scanned from paper forms.
- Data retrieval from existing identity documents through MRZ scanning and/or reading the contact-less chip of an ICAO document.

Reduced application time

- The design and ergonomics of the Coesys Enrolment Solutions reduce time for application through a seamless process.
- Using the Enrolment Kiosk, enrolment time has been slashed by up to 60% in countries already using the system. Average enrolment time is four minutes, compared to ten minutes with paper enrolment.

Designed with user-friendliness in mind

- The official supervises data capture without any manipulation and can easily monitor progress on-screen.
- The Enrolment Kiosk applicants receive full instructions on-screen with precise commands like "dry your finger" or "move your finger on the left". The screen provides information about the data capture and displays the resulting ID document for approval.
- The Enrolment Kiosk is carefully constructed with a camera system that automatically fits to a person's height, for even more efficiency and simplicity.

For flexibility

Because our experience has taught us that each enrolment case is unique, Coesys Enrolment Solutions are totally flexible and can be tailor-made to fit customer needs.

Any document, any biometric

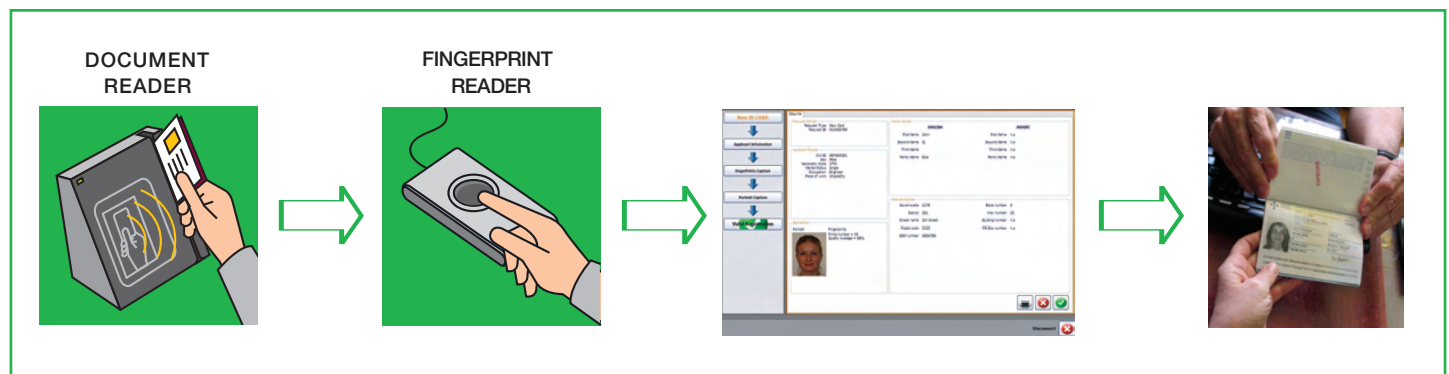
- Identity documents, health cards, driving licenses and passports can be enrolled with the current solution.
- Fully flexible in terms of biometric features, including face and/or one to ten fingerprints.

Identity verifications and data upload adapted to customer environment

- Identity and de-duplication checks against AFIS, CMS, watch-lists, civil registries and other data sources.
- Data upload can be done periodically in separate flows to any type of system, with specific management of emergency requests.

A unique project and dedicated implementations

- Customized enrolment workflow.
- Fully customizable screens for both enrolment official and applicant.
- Full flexibility for each enrolment solution: large choice of COTS (Commercial off-the-shelf) hardware - such as cameras, single or slap fingerprint scanners, signature pads, document readers - tested and selected by Gemalto.



Document delivery workflow

> Why Gemalto?

Gemalto is a reliable and trusted partner for all your public sector ID initiatives. Together with the 14 countries using our e-Passport technology and those using our e-ID cards, e-Driving licenses and e-Health cards. Gemalto is currently providing secure products and solutions to more than 30 nations. This unique expertise means we provide trusted solutions you can count on.



"In oman we helped the Royal Oman Police realize its vision that citizens would walk out with their electronic ID cards in 1 hour"

Sealys secure documents offer physical, visual & electronic security for travel documents, ID and Health cards. In the hands of millions around the world for years, Sealys secure documents have proven their durability. With over 50 Common Criteria and 10 FIPS certificates awarded, security is at the heart of their design. Sealys innovation (world's first polycarbonate ID, first electronic National ID card, first ICAO and EU compliant ePassport, first IAS eID card...) benefits governments and citizens.

Coesys secure solutions for issuance, enrolment, border control and eGovernment applications are dedicated solutions offering performance and security. Coesys secure solutions are built from robust off-the-shelf modules. These solutions are designed and delivered by local Professional Services teams, expert in the identity business.

And because we know the success of your project does not rely on products and solutions alone, we offer Allynis secure services, a complete and futureproof range of operated services, including outsourced personalization and delivery. Our operational excellence is supported by strong industrial and financial engineering capabilities.

> Gemalto in brief

Gemalto is the leader in digital security with pro forma 2006 annual revenues of €1.7 billion, operations in about 85 countries and over 10,000 employees including 1,300 R&D engineers. In a world where the digital revolution is increasingly transforming our lives, Gemalto's solutions are designed to make personal digital interactions more convenient, secure and enjoyable. Gemalto provides end-to-end digital security solutions, from the development of software applications through design and production of secure personal devices such as smart cards, SIMs, e-passports, and tokens to the deployment of managed services for its customers.

Within the public sector, Gemalto provides trustworthy secure documents, robust identity solutions and services for governments, national printers and integrators in the service of citizens. We have the strongest reference sheet in the industry and considerable practical experience in major e-Passport and e-ID projects. We are also present in some of the world's biggest e-Health programs and numerous driving license, vehicle registration and tachograph projects.



Coesys Enrolment Solutions are also being used in Norway, Denmark, Finland, Estonia, Algeria.

Gemalto, a world leader in digital security

www.gemalto.com

gemalto
security to be free