

ToBe



EPASSPORT SOLUTIONS

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TOPPAN Security is a global leader in systems integration and solutions, specializing in mission-critical identity and payment technologies. Being a subsidiary of TOPPAN Next, TOPPAN Security is serving as the international development arm of the TOPPAN Group in the security domain. Founded in 1900, TOPPAN (7911:TYO) is a respected Japanese brand known for exceptional quality. With heart, bold ideas, and a deep understanding of government and banking customers, TOPPAN's mission is to create a meaningful, technology-facing future together.

We harness collaborative intelligence to deliver solutions that meet the highest standards of security, quality, and effectiveness. Focused on delivering advanced solutions for the identity and payment sectors, we provide everything from secure document and card manufacturing to advanced encryption and biometric systems. By partnering with governments and businesses, TOPPAN Security consistently pushes boundaries, exceeds expectations, and sets global standards, delivering cutting-edge solutions that transform citizen experiences and drive innovation worldwide.



PASSPORT SOLUTIONS

The landscape of global travel has changed dramatically in recent years. Thanks to an expanding population and higher incomes, more people are traveling than ever before.

Conversely, factors such as rising geopolitical instability, terrorist activity, and cybercrimes are increasing the threats to personal identity, impacting citizens' willingness to trust one another and affecting critical identity documents like passports.

At the same time, global social platforms, which make it possible to buy or exchange information and goods from anywhere in real time, have changed expectations for user experience. Citizens and businesses want greater access, speed, convenience, flexibility, and transparency than ever before, and this includes their journey through the passport application process and customs at the point of travel.

In this rapidly changing landscape, governments are under increasing pressure to deliver more secure borders and protect citizens' identities against global counterfeit threats.



THE RIGHT FOUNDATION

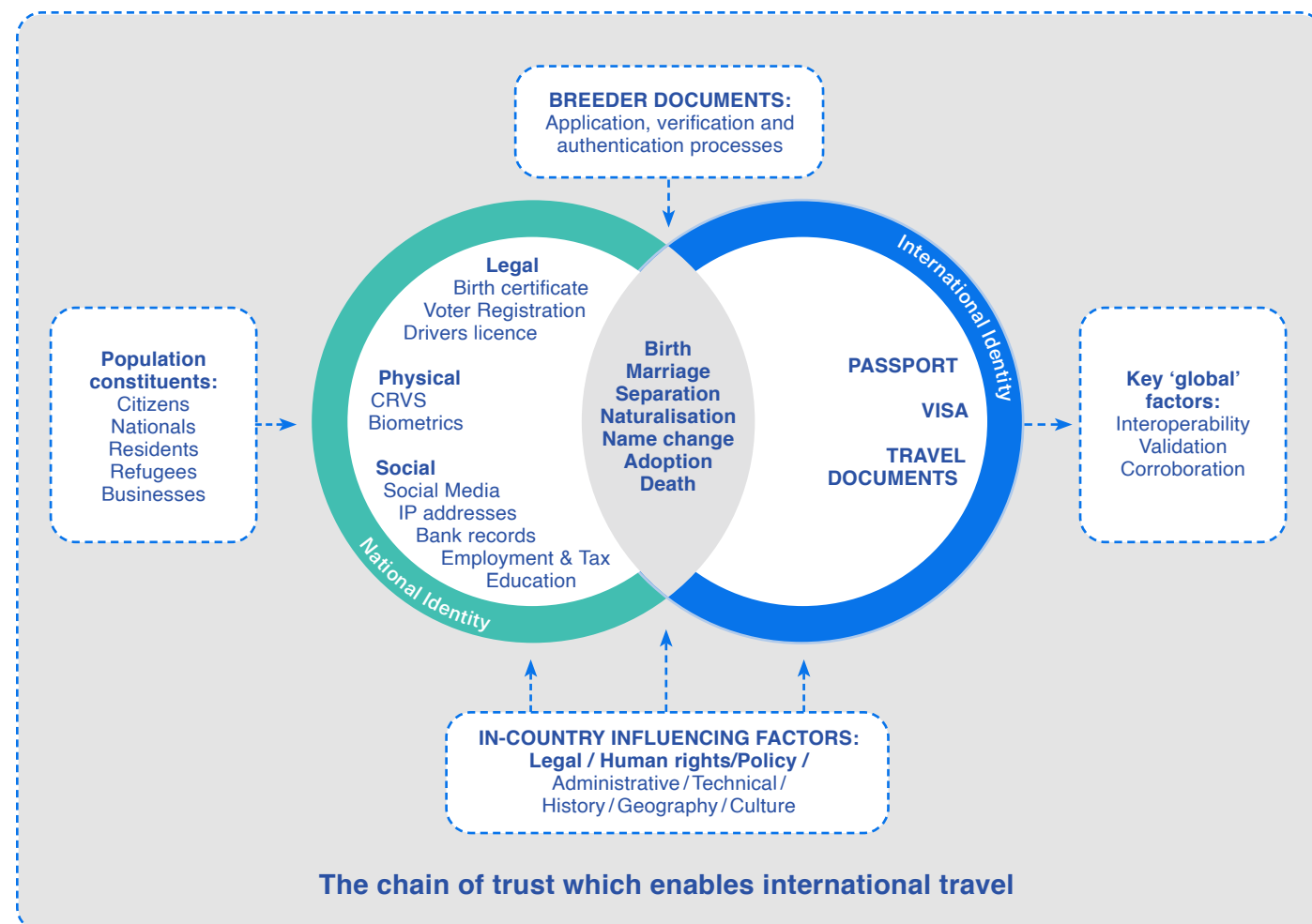
The journey to a globally interoperable, secure passport solution starts with each country understanding its identity ecosystem.

Validated, authorized, and corroborated identity documentation is a critical prerequisite from both a national and global standpoint.

The International Civil Aviation Organization (ICAO) — a specialized agency of the UN responsible for international aviation standards — details what it refers to as “evidence of identity,” which includes an individual’s legal, physical, and social footprint. A country’s ability to prevent terrorists from traveling illegally under a false name is not simply the responsibility of the passport office but also implicates the application, verification, and authentication processes for its breeder documents.

These documents ultimately form the first link in a chain of trust that concludes with the Country Signing Certificate Authority’s (CSCA) authentication of an ePassport.

Where requested, TOPPAN Security specialists can provide an assessment of a country’s existing ecosystem and make recommendations that will help deliver improved security.



KEY CONSIDERATIONS

An integral part of the identity ecosystem, passport solutions can be delivered as either machine readable (MRP) or with an electronic chip (ePassport).

Machine-Readable Passport (MRP)

Holder’s details are displayed both on the bio-data page and encoded in an optical character recognition format known as a machine-readable zone (MRZ).

ePassport

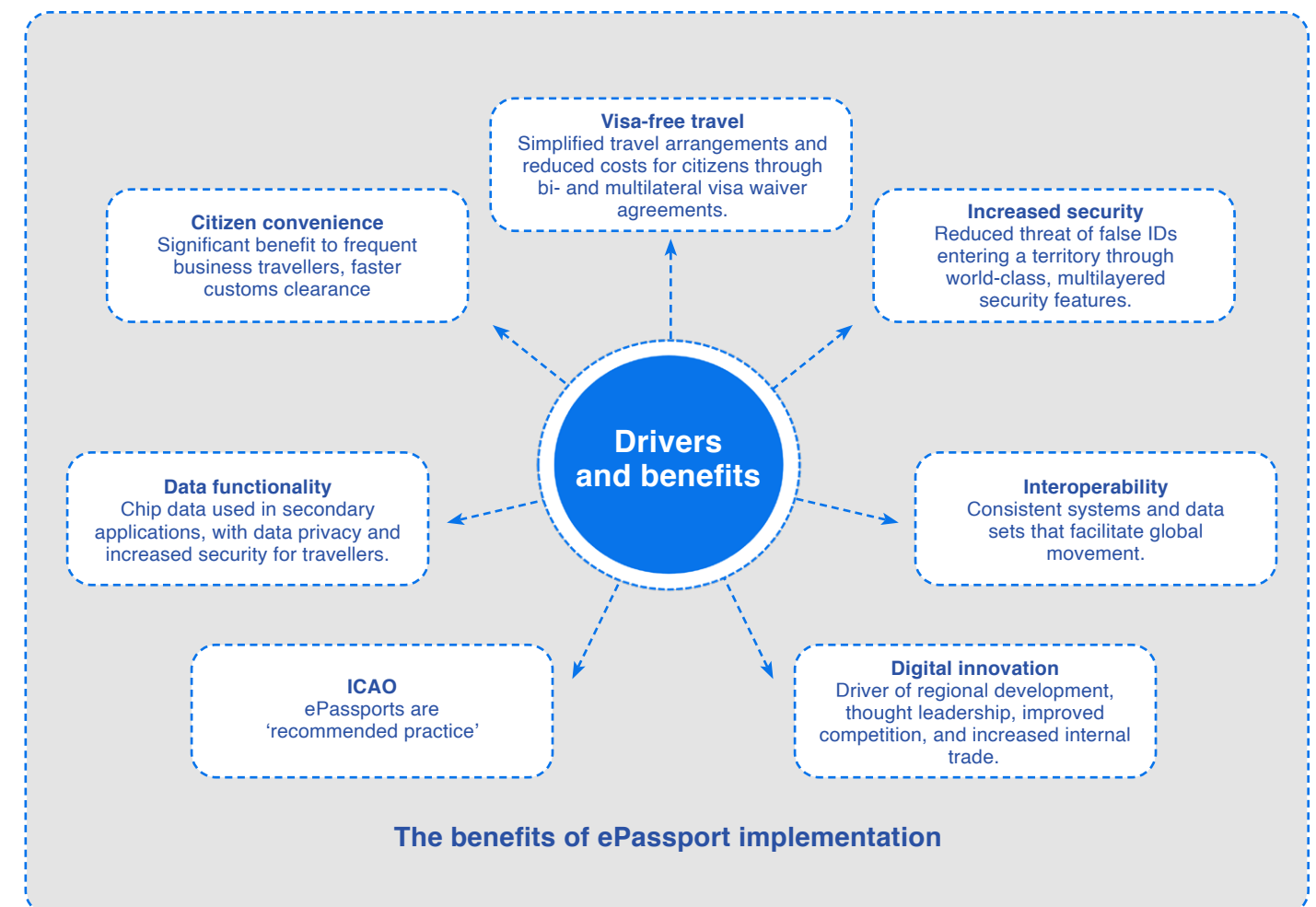
Encrypted biographical and biometric data is also stored securely on a chip, embedded somewhere in the document itself.

ICAO guidelines state that all countries should be MRP-compliant as a minimum standard, ensuring global document interoperability.

However, an ePassport enables additional levels of data security and verification by:

- Giving increased certainty about the bearer’s identity, helping to combat ID theft and the creation of fraudulent documents
- Facilitating a more efficient border-crossing process
- Using cryptographic data protection to safeguard data integrity and confidentiality

Now stated as “recommended practice” by ICAO, over 130 countries have already transitioned to an ePassport solution.



TOPPAN SECURITY'S APPROACH TO CREATING A SECURE PASSPORT SOLUTION

Resilience against counterfeit threats is the primary consideration for creating any passport — for both the physical document and the complete data and digital solution — but more human drivers are increasingly important, particularly to meet the needs of individuals and businesses by facilitating greater access, speed, convenience, flexibility, and transparency.

Each country has unique passport solution requirements based on many factors, including, but not limited to, threat level, existing data availability, infrastructure, and volume needs.

TOPPAN Security specialists work with countries on a one-to-one basis to understand specific requirements in detail, including conducting a country threat analysis. Custom solutions are the result of a number of discovery meetings shaped by expertise gained from the successful completion of implementations worldwide.

SOLUTION OVERVIEW

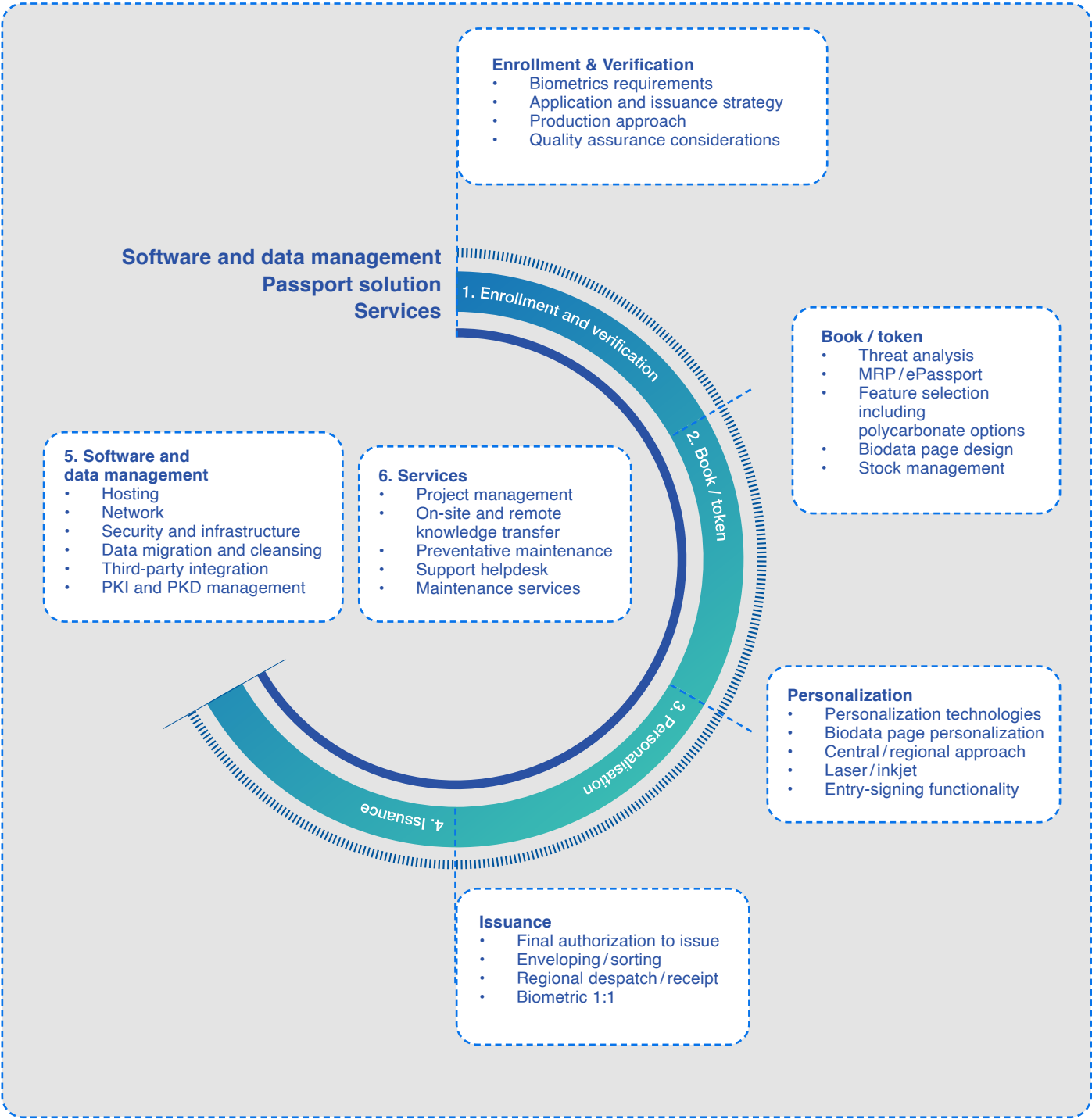
Digital Solution
TOPPAN Security's comprehensive digital identity management solution simplifies what was previously a series of highly complex workstreams. This highly configurable data management tool facilitates the recording, validation, retrieval, updating, certifying, and issuance of documents to citizens.

Document Solution
Secure, standards-driven identity documents (from passports to driving licenses and ID cards to residence permits) are tailored to each nation's requirements. They are designed to counter specifically identified threats using a sophisticated, seamless layering of protective features.

Service Solution
Fully-customizable support packages provide each country with ongoing support and advice. This ensures that a country's specific needs and circumstances are addressed during the implementation phase and throughout the full operational life of an identity management solution.



The creation of a custom passport solution typically involves six key areas of consideration. TOPPAN Security's dedicated experts take countries through this entire process step by step, working closely with officials to create a solution suited to their specific needs.



The passport book itself represents a nation and how it's perceived on an international level. TOPPAN Security's award-winning, in-house design team is among the best in the world, with a long history of innovation and excellence recognized across the industry.

Designers can go into any territory and deliver a custom service where required. This collaborative approach will ensure not only an aesthetically excellent design but also that the most appropriate features are incorporated to counter the specific threats posed to the document and the identity of its holder.

1. Substrates

TOPPAN Security documents can be constructed using a variety of substrates, including cylinder mould-made paper, polycarbonate pages, and polymer options.

2. In-House Design

Advanced personalization features use the holder's personal details and apply encryption techniques, specialist codes, and variable print features to ensure each document is totally unique.

3. Book Construction

Customers have the option of standard book assembly or polycarbonate bio-data pages.

4. Hidden Security

Further security can be added by using hidden features and state-of-the-art techniques such as deliberate errors, specialist stitching, and shaped laser perforations.

5. Print

The most appropriate features and techniques are selected to meet the specific needs of the customer. These include: litho, intaglio, iridescent, UV, Mirage™, latent images, microtext, see-through features, rainbows, guilloches, medallion fine-line workings, duplex and triplex patterns, user-definable screen, and metameric inks.

6. Personalization

Advanced personalization features use the holder's personal details and apply encryption techniques, specialist codes, and variable print features to ensure each document is totally unique.

7. Bio-Data Page Protection

The bio-data page is the most important in a passport, so it is protected by additional security features. The use of a polycarbonate bio-data page solution or paper page with a thin film laminate patch such as MLIST™ further safeguards the holder's personal details.



When designing a strong, resilient, and trusted identity document, it is critical to understand the threats that must be countered. The security features selected need to protect against the threats of counterfeit and fraud.

TOPPAN Security applies deep knowledge and expertise in identity document design, laying out innovative security features and techniques to combat the increasingly sophisticated threats faced today.

TOPPAN Security's approach is structured and thorough, yet allows for creativity and inspiration throughout.

This design approach includes:

- Creative collaboration
- Designs for use
- Inspirational iconic design
- Insight and evidence
- Layered security
- Reduced risk

Design solutions always commence with a thorough analysis and understanding of the potential threats:

- Counterfeit pages
- Data alteration
- Dismantle and reassembly
- Access to the chip
- Use of blank stolen passport

Next, all options, requirements and design rules are examined, particularly those relating to:

- Substrate security
- Security print
- Construction
- Personalization
- Tamper evidence
- Lifetime durability

TOPPAN Security then layers and integrates a complex and sophisticated solution of security features (overt, covert, and forensic features), technical specifications, design themes, and aesthetics. Detailed illustrations and original artworks are created, and the most effective quality, proofing, and manufacturing techniques are applied.

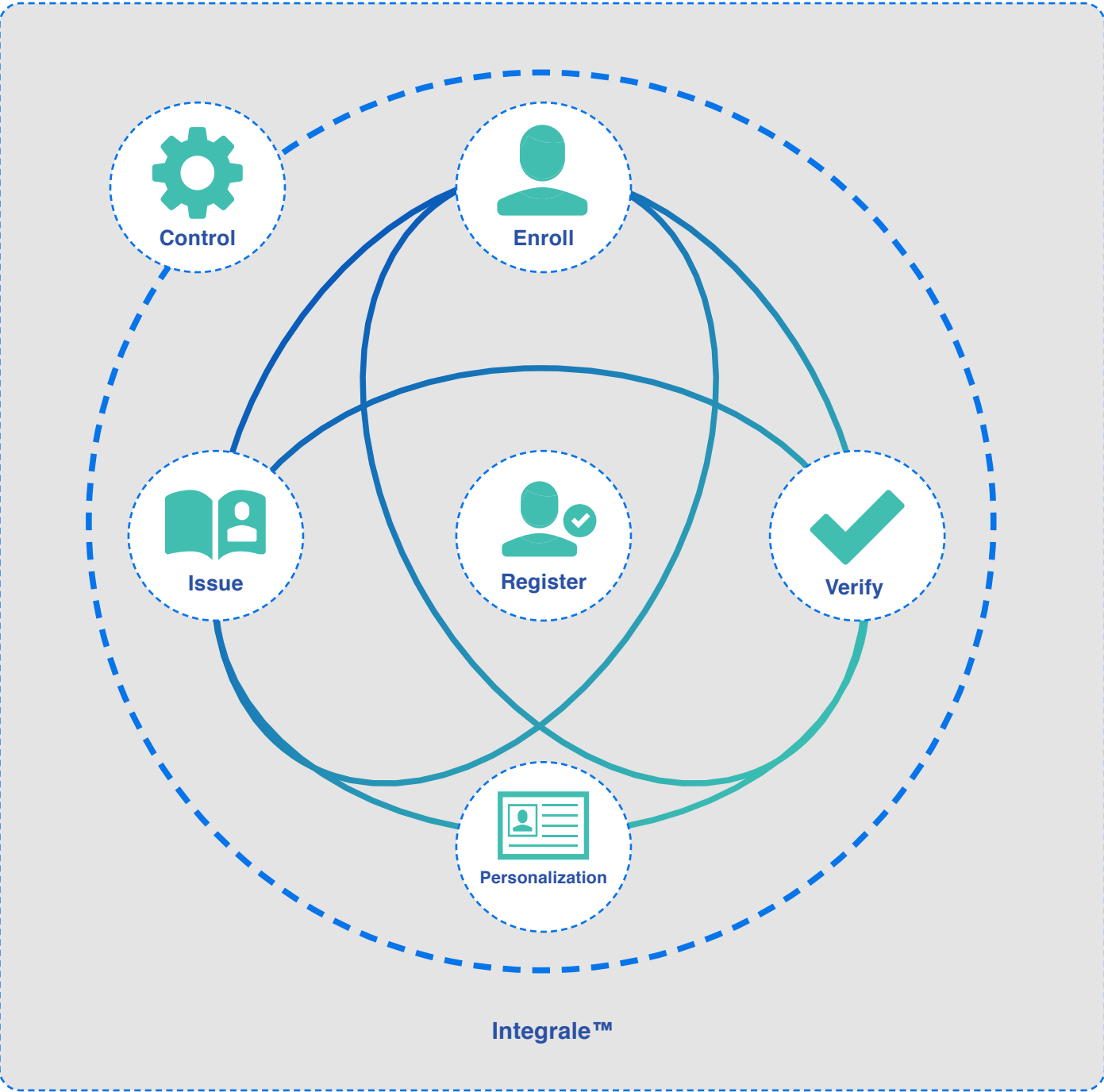


DIGITAL MANAGEMENT

The effective and secure management of citizens' identities for passport solutions requires a series of highly complex workstreams to ensure trusted validation of breeder documents and security of personal data. TOPPAN Security has simplified these into a single, complete, next-generation identity management solution, providing the functionality needed to underpin passport, eGovernment, and eCitizen applications.

The SOMA™ family of chip operating systems covers the needs for secure ICAO® ePassports, national eIDs, resident permits, digital signatures, and multi-application cards. These Common Criteria-compliant systems are available in native implementations and open platform applets.

Integrale™, a web-based software solution for the secure management, personalization, and storage of citizen identity data, enables secure passport solutions by allowing governments to record, validate, retrieve, update, certify, and issue documents to citizens.



ENROLLMENT AND VERIFICATION

TOPPAN Security enrollment solutions work online or offline, in mobile, regional, or centralized configurations, or any combination of the above.

The requirements for verification are inevitably unique for each issuing authority. TOPPAN Security solutions are designed to be flexible, accommodating the range of workflows and interactions that may be needed, including biometric checks and third-party interfacing.

Having delivered solutions across the world, TOPPAN Security understands what works in tried and tested environments and can provide custom options where needed.

- ICAO-compliant biometric data capture of personal details, facial image, fingerprint, signature (attributes unique to an individual)

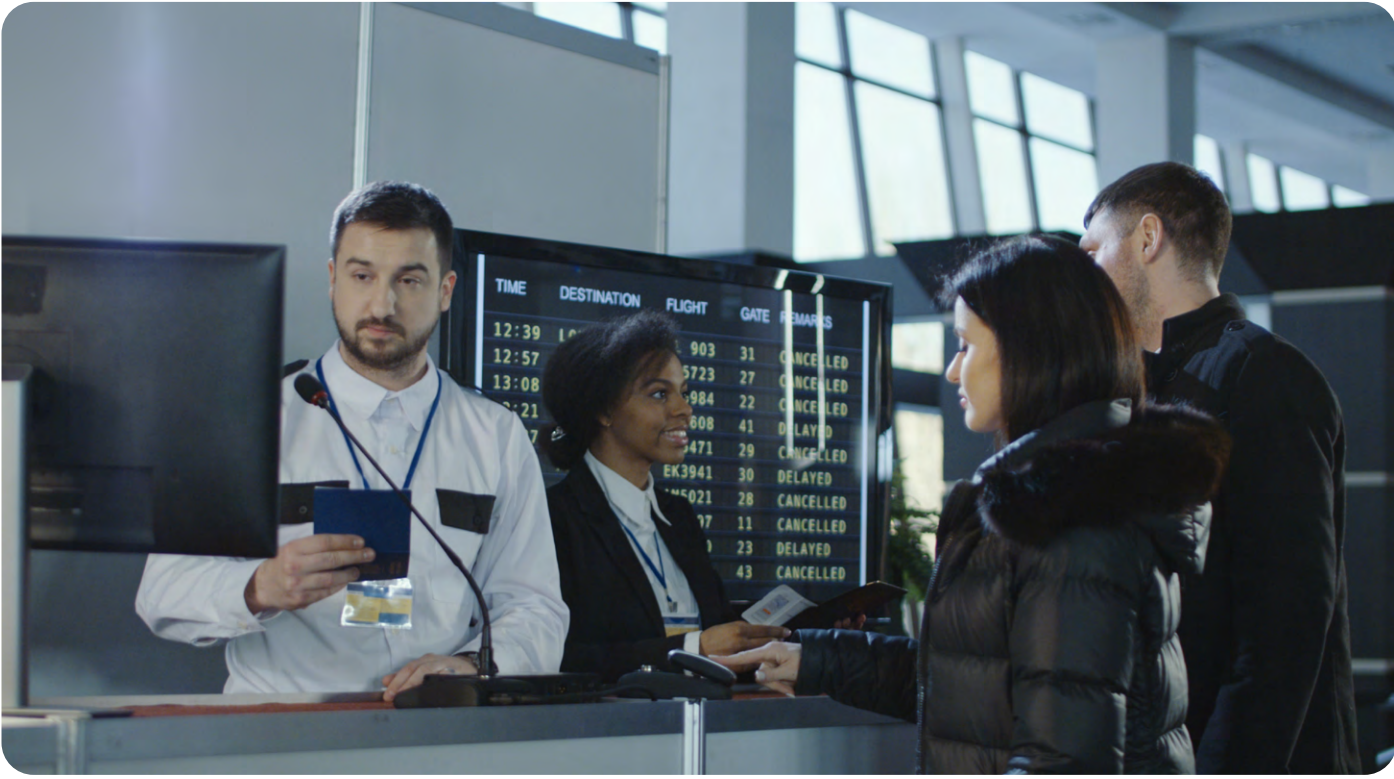
and biographic data capture, including name, date of birth, place of birth, sex, parents' names.

- Validation of applicant's eligibility and customer- defined business rules to determine entitlement.

Integrale™ modules:

Enroll
Application module which captures, records and stores citizens' biographic and biometric enrollment details and image data.

Verify
Verification system for authentication of identity and validation of entitlement (1-to-1 matching authentication, and 1-to-many matching identification).



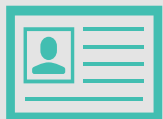


PERSONALIZATION

As a system integrator and solution provider, TOPPAN Security is able to offer personalization technologies from a wide range of manufacturers, thereby providing the best solution for all customers and their unique requirements.

Solutions can be automated or manual, incorporating chip encoding, inkjet or laser visible personalization and various levels of quality assurance.

Integrale™ module:



Personalization

Production solution for personalization and quality assurance, encoding and Public Key Infrastructure (PKI).

Verified applicant data is sent to hardware equipment which personalizes blank identity documents including MRPs and ePassports:

- Personalization solutions including paper, laminate and polycarbonate, as well as chip encoding and access control
- Scale and technology tailored to customer requirements
- ICAO-compliant process

Integrale™ module:



Issue

Centralized and decentralized production of documents with biometric authentication prior to document handover (in person and by post):

- The completion of the application process via a handover of the finished, secure identity document to the original applicant
- Centralized or distributed sites with collection and/or delivery options accommodated

SOFTWARE AND DATA

When issuing electronic documents, a Public Key Infrastructure (PKI) is always required. This need can be met using standard Integrale™ components, which offer flexible options such as providing a Country Signer Certificate Authority as a service or deploying a solution managed within the country's territory.

Software systems can import or export data either online or offline, supporting both one-time operations and ongoing day-to-day processes.

Integrale is the result of many years of product development, incorporating best practices and advanced features. Beyond core functionalities, the solutions include electronic inventory control (covering everything from the factory to all sites in a distributed network), appointment scheduling, payment processing, self-enrollment, and more.

Integrale™ modules:

- **Register**
Person-centric database, which functions as a central reference point for storage and management of citizen identity data.
- **Control**
Dashboard audit reporting system which monitors, maintains and controls business operations.



SERVICES

TOPPAN Security offers on-the-ground resources to implement the solution locally. Every TOPPAN Security customer benefits from a dedicated project management team to help conceptualize, plan, deliver and manage the ePassport system. Further levels of support – from engineers to project managers and trainers – are also available.

Once in situ, knowledge transfer is absolutely critical to success. TOPPAN Security ensures solutions are internationally interoperable and future-proofed, and that the necessary knowledge is transferred to local people and partners so that they are self-supporting in the long term.



INSTALLATION, PROJECT MANAGEMENT, TRAINING AND SKILL TRANSFER, MAINTENANCE AND SERVICE

Delivering Quality

Quality and integrity are central to the manufacturing of all secure documents and software developments. Customers can be assured that their solutions are delivered to meet their exact requirements as well as the highest standards.

Delivering Professional Projects

Specialized, dedicated project management teams ensure that the customer's needs are met, enable clarity throughout the process and foster a collaborative, productive partnership.

Technical Consultancy

TOPPAN Security provides expert consultation to governments looking to better understand and comply with international standards. As well as offering clear insights on the solutions, features and technologies available, specialists create solution roadmaps and give advice on upgrades and futureproofing.

Full Personalization Service

Personalization services can be located at the customer's site, or at secure premises provided and fully managed by TOPPAN Security. The result is a world-class, cost-effective and flexible solution, underpinned by deep knowledge and expertise.

In-Country Installation

With their extensive local knowledge, TOPPAN Security's on-the-ground teams provide support throughout the implementation phase and manage regional third-party contractors and partners.

Knowledge Transfer and Training

As part of the ongoing support package, teams also provide dedicated workshops and in-country training so that customers are fully informed about their identity management solution.

Operational Service Catalog

TOPPAN Security has developed long-term partnerships with governments by providing tailor-made service and maintenance contracts, managed by dedicated support teams. TOPPAN Security also helps manage all new requirements that arise during the life of a contract.

Disaster Recovery and Business Continuity

Being effectively prepared to respond to any potential interruptions to business is essential. Emergency response procedures are always clarified and agreed with the customer upfront.

BENEFITS OF THE TOPPAN SECURITY APPROACH

Cost-effective

Custom solutions provide flexible commercial models that balance upfront investment levels with overall total cost of ownership based on individual needs.

Low-risk solutions

TOPPAN Security holds a unique position as a manufacturer and in-house supplier of most of the key elements of the physical supply chain, from the manufacture of secure, watermarked passport paper to the design, configuration and implementation of proven software issuance solutions and PKI infrastructure. This reduces risk while maximizing overall control and, therefore, security.

Increased security

TOPPAN Security offers a sophisticated layering of multiple unique features along with an innovative issuance process. This guarantees the highest levels of security control and document integrity.

Futureproofing

Experts in complex transition to new technologies and infrastructure, TOPPAN Security can help guide countries through every step of the identity ecosystem roadmap, from MRP issuance through to highly secure, cloud-based identity data solutions.

Browser-based citizen management software

Integrate™ is a modular citizen management system that includes flexible, web-based technology and provides an excellent fit with a future-facing customer strategy. Comprised of seven modules, the solution can be completely tailored to individual needs.

Comprehensive package

A fully project-managed approach, including full documentation, training and implementation, is provided.

Proven capability

TOPPAN Security has provided over 20 million ePassports since 2010, and can successfully deliver a solution to fit any needs.

