ABC and Integrated Border management

A solution concept for integrated border management and ABC
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Current Situation

Challenges

- Sheer traveller volumes (700 million travellers crossing Shengen external border 2013, 6 billion travellers per year world wide expected until 2030)

Source: Shengen countries
Global Security

RISKS

- Risks and Security threats
- Security, efficiency and economic challenges (20-30 seconds vs. 13 years)
- Rapid technological development and innovations
Answers to facilitation and security challenges

Solutions for challenges and answers to things to do

- Improving facilitation (Chicago Convention Annex 9)

- New International programs and guidelines
  - Global: ICAO Traveller Identification Program (ICAO TRIP Strategy)
  - EU „Smart Border“ package and ABC4EU

- New Standards and next generation eMRTDs
  - LDS 2.0 for electronic travel stamps / eVisa / additional biometrics

- Enhanced Integrated Border Management systems

- Technical innovations & future trends (Checkpoint of the future)
IBM is the organization of various border agency activities to meet challenges of facilitating the legitimate movements of people and goods while maintaining secure borders and meeting legal requirements.

**Four-Filter –Model**

**Pre-Entry**
- API/PNR, Visas, No-fly lists

**On Entry / at borders**
- eMRTD checks, custom, SIS 2, etc., exit checks

**After Entry**
- Domestic databases
- Entitlement to work and to services

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**Integrated Border Management**

**4-Filter model**

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<td>Arrangements in third countries</td>
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**Four-Filter Model**

(Part of the European System of the integrated border management)

1. **Pre-Entry**
   - API/PNR, Visas, No-fly lists
2. **On Entry / at borders**
   - eMRTD checks, custom, SIS 2, etc., exit checks
3. **After Entry**
   - Domestic databases
   - Entitlement to work and to services

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**Illegal Migration / cross border crime**

**Legal Migration**
Integrated Border Management
Integrated Border Management Interfaces

- **Interpol**
  - Stolen and Lost Travel Documents Database (SLTD links 26.629 travel documents to fugitives, appr. 400 Mio searches in 2012)
  - EdisonTD – genuine examples of 3000 documents from 206 countries
  - Dial-Doc – Interpol alert library) to share counterfeiters among G8 countries

- **Advanced Passenger Information**
  - Simplified migration procedures due to using passport, visa, flight information (eAPIS, PNR)

- **Visa Information systems to open ABC for non EU passengers**
  - E.g. Shengen, Exchange of short term traveller visa data between Shengen member states

- **Shengen Information System (SIS and SIS 2)**
  - Automatic person and watch list information system (approx. 46 million data records) including missing persons, items, etc.
Implementation: Integrated Border Management Architecture

Overview

- General Integrated Border Management
- Integrated Border Management for passengers
- Local Border Management
- Check points and ABC gates
Automated Border Control
Modularity and Flexibility

Designed according to Frontex’s “Best Practice Technical Guidelines for ABC Systems”

User Centric Approach
- Supports all eMRTD, ePassports, eID cards
- Optimized for face recognition and fingerprint
- Prepared for other biometrics, such as iris matching

Modularity
Equal frame design concept for flexible setups at different locations/airports and fast replacement of devices
Automated Border Control
Software architecture considerations

Software architecture for modularity, scalability and flexibility

- Enhanced Business process modeling functions for customizable inspection workflows
- Software Scalability for adding additional Gate Clusters
- Software components can be replaced and extended, e.g. document verification process in order to catch up with latest developments
- Latest bioemtric face (Option: finger, iris) algorithms
- Sophisticated data mining and reporting tools
- Interfaces
Modularity to support all known ABC topologies

- **Single door** – usable as biometric immigration or boarding gate
- **One step process** – available as single door and two door setup
- **Integrated two-step** - traveler initiates document reading and verification as step 1 and biometric matching in step 2
- **Segregated two-step** possible traveler verification and passage through border are completely separated
- **Bi-directional** – available as one or two step process
- **Kiosks** – ABC / APC / AIC
Automated Border Control
Security against forced access

- **Measures against document fraud**
  - Optical and electronic document verification and authorization check
  - Chip data verification via ICAO PKD interface (45 ICAO PKD members in 2014)
  - Background system checks (querying databases)

- **Vision System and monitoring to detect:**
  - Double person detection
  - Breakthrough detection
  - Forgotten item detection

- **Measures against biometric fraud**
  - Biometric security due to two biometric algorithms for biometric traveller verification and result evaluation
  - Detection of biometric presentation attacks
Automated Border Control
Biometric attack detection

2D images

2D video

3D mask detection

Complexity
Automated Border Control
User guidance and eGate Monitoring

- Intuitive user guidance system covering the complete immigration process
- Pictograms, animations, light indicators
- Reduces acoustic and language messages for selected events or try to avoid

- Powerful mobile (Tablet and Handheld) 1st line monitoring solution
- Highest security, via device authentication
- Integration of priority driven monitoring concepts
Integrated Border Management Solution

Data management systems

- Registered Traveller Program (System)
  - Pre-register person, travel document and bio data
  - Intensive pre-checks
  - Enable ABC for TCN (third country nationals) and even for non electronic MRTDs

- Entry and Exit data System (EES)
  - Alphanumeric person and travel document data
  - Biometric data and visa information
  - Entry and Exit data
  - Synchronization of local and central servers
  - Strict conditions for EES use in law enforcement
Integrated Border Management

eVisa System

- Web based eVisa registration
  - Web-portal for submitting visa application data
- Data checks and traveller pre-clearance

- Visa issuance at embassies
  - Biometric and personal data capturing at embassies
  - Validation of presented passports and documents
  - Central approval of visa application data through visa register, background systems and AFIS
- Local printing of central approved visas and handover at embassy
Towards Checkpoint of the future
MB FastGate – integrated streamlined processes

Integrating MB’s eGate / immigration systems into passenger end to end experience

Seamless integration of
- Security, ticket and boarding checks (commercial)
- Based on modular comprehensive MB Fast Gate hardware & software architecture

Source: IATA
Integrated Border Management Solution

Further aspects

- **Mobile Border Control**
  - Where stationary systems can't be used in cars, busses, trains, ferries, sea ports or during peak times at airport
  - Verification of ICAO 9303 compliant eMRTDs
  - Face and fingerprint verification of document holders
  - Online / offline

- **Border Control on the road**
  - Car identification system based on license plates and pre-personalized RFID windshield stickers
  - Supports vehicle inspection/verification
  - Central data management including watch list connection, entry & exit data registration
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