

<Project References/>

1. Spain - Border Control Project

In 12/2005, Avalon Biometrics started as a subcontractor to Telvent (Spain) the adaptation and implementation of its Secure Border Management System solution SBMS + VeriDoc. The system is installed countrywide in Spain at every port of entry and contains as one of the main features a fully automated travel document verification system. The project was finished in 05/2007.

2. Philippines - Consulting Unified Multi-purpose ID System

In 12/2005, Avalon Biometrics together with Indra (Spain) and FNMT (Spain), consulted the government agencies NSO/NEDA with a feasibility study how to implement the executive order EO420 of the President of the Philippines. Deliverables were a feasibility study report, a technical and commercial feasibility study as well as Terms of References (TOR) for a subsequent bidding process. The consulting finished in 02/2006.

3. Liberia - Passport Project

In 07/2006, Avalon Biometrics won a subcontract from Safe ID/Germany to provide the live enrollment system in Liberia as part of the passport project work share. The system entails 2 data capture location in Liberia with a consolidated database in Monrovia. Installation was finished in 10/2006.

4. Brazil - State ID Card Rio Grande do Sul

In 08/2006, Avalon Biometrics won as a subcontractor to TSM the live enrollment of biometrics data in more than 100 locations in the state of Rio Grande do Sul. Decentralized data capture will consolidate all citizens' data into a central population register. Installation commenced in 10/06 and was finished 11/2006.

5. South Africa – Refugee & Deportation System

In 06/2006, Avalon Biometrics won as a subcontractor to MarPless the implementation of the Refugee/and National Deportation system for the Department of Home Affairs in South Africa. The system handles country wide refugees and illegal immigrants including their deportation procedure. It consists of a customized BioCap solution with more 330 workstations and a central refugee register that handles all related workflows and procedures, including an interface to the national Fingerprint system (AFIS). Implementation commenced in 06/06, consisted of 2 phases and was finished in 04/2008.

Project References

6. Georgia - ePassport Consulting

In 11/2007, Avalon Biometrics CEO, Helmut Sima was assigned by the EC delegation to Georgia to consult the Civil Register Agency in Georgia with regards to the introduction of an ePassport following EU regulations as well as the enhancement of its existing civil registers with a biometrics system for duplicate checks. The assignment was finished in 02/2009.

7. South Africa – Online Identity Verification Tool

In 03/2008 Avalon Biometrics won the development and implementation of an Online Identity Verification Application. The application consists of a fingerprint capture and verification module plus the interface to HANIS, the NEC AFIS. This application allows South Africa to verify the identity of their citizens. The total amount of stations installed was 1.000 and acceptance was in 05/2008.

8. Botswana - Mobile Banking Solution for Botswana Saving Bank

In 07/2008 Avalon won the mobile banking solution project of the Botswana Saving Bank (BSB) with a team lead by CFIT/ Tsarara Botswana. Avalon introduced, as part of the team, biometrics enrollment for all customers using BioCap and 1:n duplicate check using our civil AFIS - Delfi. The project stores additionally fingerprints onto ATM and Debit cards to enable Botswana Saving Bank to move from a PIN based authentication to biometrics authentication. The project was finished in 12/2008.

9. Iraq – ePassport Quality Assurance

In 09/2008 Avalon was awarded with a contract to supply the Quality Assurance system for the new Iraqi Passport. The system deployed and accepted 01/2009 has 20 Quality Assurance Stations that are connected to the Personalization system. Functionality includes, fully automated security features verification under all given light sources, QA of printing technology, data integrity, verification and biometric checks.

10. Cameroon - Student ID-Card

In 09/2008 Avalon won the Student ID-Card project for all universities of Cameroon. In this project each student receives a biometric multipurpose Smart ID-Card. Avalon supplied the technical infrastructure and implemented the project together with a local partner. The card serves as an ID card, an ePurse and as Student ID and provides biometrics verification using fingerprints at exams. It can be used for automated access control at the campus as well. Avalon implemented this project using BioCap with its own repository and a card personalization system; The project finished in 12/2008.

11. Morocco - Secure Border Management System

In 12/2008 Avalon, as a subcontractor of the Consortium Marubeni-Gemadec, has been awarded the development and installation of the new entire Moroccan Border Control system for the DGSN. The project includes the complete replacement of the exiting border control and covers all areas of the immigration operation including: Passenger Processing, Exception Handling, Document Verification and Biometrics checks, Self attended border control units (eGates) for automated passenger processing, Control List Management System, APIS, VISA, Passport, PKI and PKD, Transit data and reporting tools. The initial deployment includes more than 120 stations and is the pilot for the system in 3 ports of entry. Another phase will deploy more than 1000 stations in all 45 border control points of Morocco. The projects 1st phase will finish in 02/2011.

12. Morocco - Automated Immigration eGates

In 12/2008 the DGSN in Morocco awarded Avalon Biometrics SL to supply automated eGates for the Moroccan airports. The solution features a full Man-Trap eGate with Authorization post and a biometric verification post with advanced "one-person-only" detection, full passport verification with pattern matching and EAC, face capture & verification, fingerprint capture & verification, transit data entry via touchscreens, control list & background checks, saving of all transit information & verification results into the Central system & a registered traveler program for VIP travelers with constant background checks over all control lists and direct interface to the National Population Register.

13. South Africa - Automated Form Capture

In 12/2008 the South Africa SAPAF project consisting of a project specific developed application that handles the Form Capture and Quality Assurance process for Biometrics data (facial image and fingerprint information), was awarded to Avalon. This application has been integrated into the existing workflow for ID card enrollment of Department of Home Affairs in South Africa. The deployment was completed 01/2009.

14. Mauritius - Automated Entry & Exit Card Processing

In 12/2008 Avalon won the contract for a custom tailored software solution for the Mauritian Border Control authorities for automatic capture and recognition of Entry & Exit cards, based on our FormCap software. The solution is part of the new secure border management of Mauritius. Several FormCap stations will automatically process several handwritten forms and Entry/Exit cards and create a repository of the recognized and post processed data with a state-of-the-art WPF front end. The captured & recognized data is made available from the Content Management System via a Web service (XML) interface.

15. Lebanon - Live Enrollment & Identification for United Nations

In 01/2009 Avalon received an enrollment & identification contract for the Indonesian Military Contingent (UNIFIL) in Beirut. The entire contingent of 10,000 soldiers will be added to a central register which subsequently can be searched for identification purpose with fingerprints against all enrolled fingerprints in the system. Additionally it will even provide the ability to identify a soldier with latent prints, thus providing a criminal AFIS functionality.

16. Georgia - ePassport Enrollment

In 02/ 2009 Avalon Biometrics delivered and implemented as part of the modernization of the Civil Registry Agency in Georgia, 100 biometric modules for Fingerprint Capture and Signature Capture. Those modules were integrated into the existing Civil Register clients to enable the entire register to capture and store ICAO and EU compliant biometrics for the new ePassport in Georgia.

17. Georgia - Biometric Face Recognition System

In 02 / 2009 Avalon Biometrics was awarded and implements right now a face recognition system for the Civil Registry Agency in Georgia, to strengthen the security and integrity of the Civil Register. The system is designed for 7million citizens, runs on 6 dedicated rack servers and performs 1:n duplicate searches during enrollment and on an ad hoc basis performs 1:1 verifications and 1:n identifications. Project was finished in 07/ 2009

18. Georgia - ePassport Quality Assurance

In 02/ 2009 Avalon Biometrics sold 15 licenses of our automated quality assurance software QDoc for travel documents were installed in Georgia to perform quality assurance for the current MRZ passport as well as for the upcoming ePassport. The QDoc stations work stand alone, distributed in 6 printing locations but will eventually be connected & integrated with a distributed personalization software. QDoc comes already with the respective web services for that.

19. South Africa - ePassport Enrollment

In 03/ 2009 Avalon got an order from the DOHA in South Africa to provide the new enrolment system for the South African ePassport project. System installation has been done in 04/2009 and has been accepted 05/2009. Functionality covered has enrolment and QA of Fingerprints, Facial Image, Digital Signature and demographics information. Additionally system has been connected to HANIS interface for duplicate and identity checks using Fingerprints.

20. South Africa - ID-Card Enrollment

In 03/ 2009 Avalon was awarded a contract to provide the new enrolment system for the South African ID Card Project. System installation has been done in 04-05/2009 and has been accepted in 06/2009. Functionality covered has enrolment and QA of Fingerprints, Facial Image, Digital Signature and demographics information. Additionally system has been connected to HANIS central system for identity check using Fingerprints.

21. United Kingdom – Joint Visa Application Center

In 03/ 2009 Avalon delivered for VFS Global a Live Data Capture & Visa Application solution Visalon to the Joint Visa Application Center Multi Client enabled serving different embassies with specific workflows and business logics on one machine. The Visalon application includes the biometric capture of face and fingerprints with a 4-4-2 scanner and the generation of a secured XML file according to corresponding specifications.

22. Spain – Iris Enrollment & Access Control System for OKI

In 04/2009 Avalon developed an Iris Enrollment & Access Control System for OKI Iberia, based on our BioCap technology and the IrisPass-M iris camera from OKI. The system features a FAR from under 1 in 1 Million and can serve fast enrollment and fast identification on a 1:N basis. Enrollment time of around 6 seconds and identification times of around 2 seconds make the system a state-of-the-art Iris-based Access Control System for an unlimited amount of users, featuring even a Service Denial list directly at Enrollment.

23. Belgium – Visa Application at Embassy

In 05/ 2009 Visa Application Management & Biometric Enrolment system Visalon was ordered by VFS Global for the Belgium embassy for facilitating Live-Enrollment for Visa Applications in the London embassy according to European Guidelines and conventions for Visa Applications. XML objects are created out of the Visalon system and send to the Belgium N-VIS to interact with C-VIS.

24. Croatia – Quality Assurance Croatia ePassport

In 06/ 2009 Avalon received an order for Quality Assurance of the new Croatian ePassport with Avalon's QDoc solution by In2 Croatia. The system inherits all possible security checks and quality assurance checks over the Croatian ePassport and a full integration with the ePassport production system. The system includes pattern matching under all given light sources, Data integrity checks from the MRZ vs. Chip vs. Database, facial recognition from Datapage vs. Chip vs. Database, Signature Verification between signature printed on the Datapage vs. signature stored in the Database, fingerprint verification from Chip (EAC) vs. fingerprints in Database, OCR recognition and the entire data integrity of all fields vs. the Production Database and delivers herewith the most complete range of Quality Assurance and Document Verification on the market.

25. USA – Document Verification for Travel & ID Documents

In 07/2009 Avalon received an order for our Document Verification System VeriDoc for the verification of all sort of travel documents (ePassport, passports, ID Cards, Drivers Licenses, Visas, etc.) for the Technology Scouts of the Department of Homeland Security (DHS). The system features all possible security checks and includes various pattern matching actions under all given light sources, Data integrity checks from the MRZ vs. Chip vs. VIZ (OCR) vs. Barcodes, facial recognition from VIZ vs. Chip, all actions related to RFID chips, including BAC, PA, AA, EAC, as well as OCR recognition of the data in the VIZ and Barcode reading and verification. The system is supplied with the VeriDoc Client and VeriDoc Admin components to deliver the most complete Document Verification nowadays in the market.

26. Switzerland – Document Verification for Banks

In 10/2009 Avalon was selected by the one of the largest private Banks in Switzerland as the solution provider for a new Document Verification solution. Avalon provided a Document verification Systems specifically for Banks – VeriDoc Bank – to fit their business logic and secure the due diligence procedure and combat identity fraud and money laundering. The system provides on the spot verification of over 1000 travel documents, which are in real life operation with the use of the Regula Database and a forensic reference system for operators to thoroughly check the passports

alongside with the automatic checks (Data Integrity MRZ vs. VIZ vs. RFID, pattern matching under all light sources, laminate checks, facial matches of RFID image vs. Datapage, full PA, AA, BAC & EAC support, IPI, etc.) The systems are used as fixed and mobile workstations in different environments, meeting and exceeding the needs of our client. The project was finished in 11/2009

27. India – Document Verification & Border Control for Forensic Labs

In 03/2010 Avalon received an order for their Border Control suitcase for a standalone Border Control station with embedded Database and synchronization capabilities to the HQ with forensic document examination capabilities. The suitcase features a ruggedized and splash-proof storm casing, a document / passport scanner, fingerprint reader, webcam, laptop with SBMS Primary & Secondary Inspection, Document Repository Administration, SBMS System Administration, WebClients for Control List Management & Transit Data Query & forensic examination equipment with 8 different light sources, transmitted light table and forensic reference system.

28. Bangladesh – Consulting UNDP – Bangladesh Election Commission

In 03/2010 Avalon consulted the Bangladesh Election Commission (BEC) over a period of 6 months for the introduction of a modern, secure and integrated Voters Register System for 90m voters. The consulting was funded by UNDP Bangladesh and the results were provided to UNDP and BEC. An IT master plan for the complete system was developed, communicated and agreed upon, technical tender specifications for the AFIS and central register were prepared and various options to the immense task of issuing ID-cards to 90m voters were discussed and evaluated.

29. Philippines – Social Security System

In June 2010, Avalon received an award to provide the new enrolment and management system for the Social Security Agency in the Philippines. The system includes full biometrics, demographics and document enrolment. It provides integration and interface to the NEC AFIS system. 133 Stations covering the entire Philippines and selected embassies. The project was implemented in 12/2010, is a BOT model and will operate for 5 years.

30. Croatia – Border Control System

In 09/2010 Avalon received as subcontractor of IN2 Croatia a purchase order for the upgrade of the existing Border Control System in Croatia. The scope of the project includes 335 licenses of our Document Verification System (VeriDoc), 335 licenses of our Fingerprint capture and Verification module, and a full mobile version of our SBMS system to run in biometrics handheld devices. The project is envisioned to be finished in 05/2011.

31. Bangladesh – Photo Capture System for Election Commission

In 08/2010 Avalon received as subcontractor of Tiger IT Bangladesh the order to 750 licenses of its QFace tool to be incorporated into the live enrolment software of Tiger IT for the Bangladesh Election Commission. Automated eye finding and cropping as well as ICAO conformance checks where the deciding factors for our solution. The licenses were delivered as a library in 10/2010.

32. Germany – Travel & ID Document Verification

In 06/2011 Avalon delivered its VeriDoc Document Verification Suite, including the VeriDoc Client Application, the VeriDoc Admin Application and the VeriDoc Software Development Kit (SDK) to a German (undisclosed) government Agency, following half a year evaluation and an order from April 2011. The system was delivered successfully with installation, configuration, solution introduction and basic training on the SDK and the applications in Germany in June 2011.

33. Argentina – Worldwide Biometric Enrolment System

In 07/2011, Avalon signed a contract with the prime contractor VALID Argentina to deliver its state-of-the-art Biometric Enrolment System “BioCap” & “Visalon” to provide quality assured live enrolment & data capture capabilities in line with international standards and best practice recommendations for all embassies & consulates around the globe for the personalization & issuance of all kinds of travel & id documents. The solution offered includes 160 workstations that are running worldwide “BioCap” & “Visalon”, customized for the Republic of Argentina. The system collects general and biographical data and biometric information such as photo, fingerprints and signature as well as the archiving of supporting documents that are linked to the specific application. Following the award and invitation in July 2011 in Argentina and proofing all offered functionality successfully, the system will be delivered for functional and integration testing at the beginning of September 2011.

34. Spain – Visa Application Live Enrolment System

In 08/2011 Avalon won as a subcontractor to VFS Global/UK the worldwide contract of the Visa Application Live Enrolment System for all embassies, consulates and Visa Application Centers (VAC) for the Spanish Ministry of Foreign Affairs (MOFA) to facilitate biometric Visa application management & processing according to international best practice and recommendations. The system features customized secure BioCap clients with support for Barcode Scanning, Finger & Photo capture & quality assurance, as well as biographic detail capture, summary & statistics and the generation of compliant ANSI / NIST ITL 2007 /2008, as well as encryption of the data and the communication and transport level and use of a Entrust PKI and integrated with an Active Directory for user authentication. The system features a local embedded and encrypted database as well as a highly available clustered central backend system running a secured Web Service to store applicant data in an Oracle EE database within a securely hosted environment and be able to extract records from the system via a Web Service and forward / upload it to the Spanish MOFA system. The system is being delivered beginning of October 2011.

35. The Netherlands – Automated Document Verification for Rabobank

In 02/2012 Avalon signed as a prime contractor a contract with Rabobank/Netherlands to supply 1500 VeriDoc licenses and ePassport readers to be installed in each branch of Rabobank. Each station is connected to a central VeriDoc repository that holds around 1400 travel and identification documents. New customer demographic data, derived automatically from the document presented is populated directly into the core banking system. A central table of experts (Help desk) provides support to all users and creates besides the VeriDoc Repository a Counterfeit Repository. The project is supposed to be finished by September 1st 2012.

36. Denmark – Visa Application Live Enrolment System

In 03/2012 Avalon won as a subcontractor to VFS Global/UK the worldwide contract of the Visa Application Live Enrolment System for all embassies, consulates and Visa Application Centers (VAC) for the Danish Ministry of Foreign Affairs (MOFA) to facilitate biometric Visa application management & processing according to international best practice and recommendations.

The system features customized secure BioCap clients with support for Barcode Scanning, Finger & Photo & signature capture & quality assurance, as well as biographic detail capture, summary & statistics and the generation of compliant ANSI / NIST ITL 2007 /2008 files. It features furthermore individual encryption of the data per service / mission and secure communication and use of a PKI and is integrated with an Active Directory for user authentication & user roles & rights provision.

37. Denmark – Foreign Residence Permit Live Enrolment System

In 03/2012 Avalon also won the Live Enrollment System for the Foreign Residence Permit for Denmark as a subcontractor to VFS Global. Avalon extended its existing customized secure BioCap application for Visa Application Management to deliver a Multi-tenant, Multi-service system that features a fully quality assured enrolment of biographic and biometric data (face, finger and signature) of the foreign residents with segregated data to address privacy issues around Multi-tenant systems..

The system features customized secure BioCap clients with support for Barcode Scanning, Finger & Photo & signature capture & quality assurance, as well as biographic detail capture, summary & statistics and the generation of compliant ANSI / NIST ITL 2007 /2008 files. It features furthermore individual encryption of the data per service / mission and secure communication and use of a PKI and is integrated with an Active Directory for user authentication & user roles & rights provision.

38. Belgium – Visa Application Live Enrolment System

In 04/2012 Avalon won as a subcontractor to VFS Global/UK the worldwide contract of the Visa Application Live Enrolment System for embassies, consulates and Visa Application Centers (VAC) for the Belgium Ministry of Foreign Affairs (MOFA) to facilitate biometric Visa application management & processing according to international best practice and recommendations. Avalon added to the existing secure BioCap application with Multi-tenant & Multi-Service capabilities a designated service for the Belgium Visa Application Management.

The system features customized secure BioCap clients with support for Barcode Scanning, Finger & Photo & signature capture & quality assurance, as well as biographic detail capture, summary & statistics and the generation of compliant ANSI / NIST ITL 2007 /2008 files. It features furthermore individual encryption of the data per service / mission and secure communication and use of a PKI and is integrated with an Active Directory for user authentication & user roles & rights provision.

39. Malta – Visa Application Live Enrolment System

In 05/2012 Avalon won as a subcontractor to VFS Global/UK the worldwide contract of the Visa Application Live Enrolment System for embassies, consulates and Visa Application Centers (VAC) for the Malta Ministry of Foreign Affairs (MOFA) to facilitate biometric Visa application management & processing according to international best practice and recommendations. Avalon added to the existing secure BioCap application with Multi-tenant & Multi-Service capabilities a designated service for the Malta Visa Application Management.

The system features customized secure BioCap clients with support for Barcode Scanning, Finger & Photo & signature capture & quality assurance, as well as biographic detail capture, summary & statistics and the generation of compliant ANSI / NIST ITL 2007 /2008 files. It features furthermore individual encryption of the data per service / mission and secure communication and use of a PKI and is integrated with an Active Directory for user authentication & user roles & rights provision.

40. Greece – Visa Application Live Enrolment System

In 05/2012 Avalon won as a subcontractor to VFS Global/UK the worldwide contract of the Visa Application Live Enrolment System for embassies, consulates and Visa Application Centers (VAC) for the Greece Ministry of Foreign Affairs (MOFA) to facilitate biometric Visa application management & processing according to international best practice and recommendations. Avalon added to the existing secure BioCap application with Multi-tenant & Multi-Service capabilities a designated service for the Greece Visa Application Management.

The system features customized secure BioCap clients with support for Barcode Scanning, Finger & Photo & signature capture & quality assurance, as well as biographic detail capture, summary & statistics and the generation of compliant ANSI / NIST ITL 2007 /2008 files. It features furthermore individual encryption of the data per service / mission and secure communication and use of a PKI and is integrated with an Active Directory for user authentication & user roles & rights provision.