



Biometrics in Europe

The Way Ahead

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Identity Management & Security Solutions

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Biometrics Day at Danish Industries

Copenhagen, 26 Nov 2007



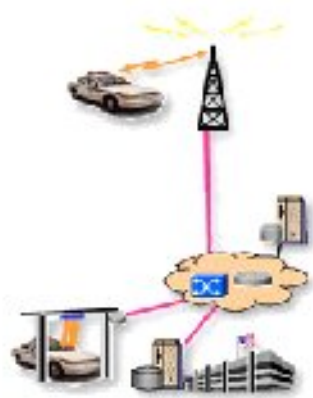
Motorola Structure

Ed Zander
CEO
Motorola

Mobile Devices
Business Segment

Networks and
Enterprise
Business Segment

Connected Homes
Business Segment



Voice & Data Network
Services and **Biometric ID**
over wireless



Mesh-
abled
olutions
&
ometric
ID over
Mesh



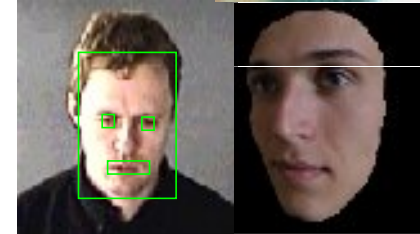
Professional
&
Commercial
Radio
Systems



Rugged Devices



Mobile AFIS



Biometric Identification &
Public Safety Application
solutions

Seamless Integration



Motorola's Presence

- **Approximately 10,000 employees in Europe**
- **Major research and implementation centres in UK, France, Germany**
- **Motorola's presence in almost 100 countries world-wide**
- **Experts with governmental and EU background**
- **300 biometric systems world-wide**
- **18 large-scale systems in Europe, 15 in EU/Schengen countries (criminal & civil)**



Professional & Commercial Radio

Biometric Identification & Public Safety Application solutions



Identity Management & Security Solution (IMSS) Portfolio Overview

Motorola

**Multi-Biometric
Enrollment**

**Multi-Biometric
Search / Storage**



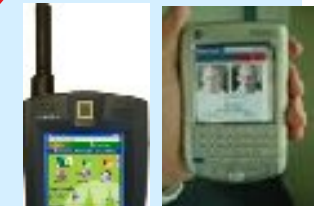
Partner (s)

**Credential Printing /
Personalization /
Distribution**



Motorola

**Multi-
Biometric
Verification**



EU Regulations and Trends

- The Schengen Acquis
- The EURODAC and DUBLIN regulations
- Council Regulation laying down a uniform format for visas and residence permits for third-country nationals.
- Regulation on standards for security features and biometrics in EU citizens' passports.
- The Hague Conclusions
- National ID cards and the European citizen card
- The Prüm Treaty
- Trusted traveller programs



Names: The Transliteration Problem

UK - press:

MOSCOW - Mikhail Khodorkovsky, Russia's richest man and the head of the oil company **YUKOS** was detained on Saturday morning in the Siberian city of Novosibirsk. Khodorkovsky's detention is the latest and most radical move of the special services in a string of actions against **YUKOS** executives and shareholders.



Names: The Transliteration Problem

UK: Mikhail Khodorkovsky

NL: Michail Chodorkovski

FR: Mikhaïl Khodorkovski

DK: Mikhail Khodorkovskij

AT: Michail Chodorkowski

SE: Michail Chodorkovskij

Fuzzy logic and phonetic searches can make things even worse:

Michael Kodorcowski

Mike Kuttergewsky

Similar problems result from frequent names:

- **Abu Raihan Mohammed ibn Achmed al Biruni**
- **John Smith, Werner Müller, Singh etc.**





The Schengen Acquis 1/2

- The removal of checks at common borders, replacing them with external border checks;
- A common definition of the rules for crossing external borders and uniform rules and procedures for controls there;
- Separation in air terminals and ports of people travelling within the Schengen area from those arriving from countries outside the area;
- Harmonisation of the rules regarding conditions of entry and visas for short stays;
- Coordination between administrations on surveillance of borders (liaison officers and harmonisation of instructions and staff training);



EURODAC and DUBLIN II

- **EURODAC is the first pan-European biometric system to hold fingerprints of asylum seekers**
 - **Combate asylum fraud**
 - **Allocate available budget to those who are real asylum seekers**
 - **Shorten the asylum procedures**
- **EURODAC Regulation and Implementing Rules**
 - Fingerprints from all over 14
 - 3 categories of persons (retention period 2-10 years)
- **Dublin II: The EU Member State where the person enters the EU territory first is responsible for the asylum procedure**



Visas and resident permits

- **Uniform format of visas with/without biometrics**
 - No chip on visas
 - Central EU visa information system (VIS)
 - Prevent visa fraud under different identities
 - Border control of visa carriers
 - Embassies and Consular Posts are visa issuing locations but also issuing EU passports
 - High impact on non EU countries
 - Many non-EU countries are transit countries



The EU Passport Regulation

- **Additional security layer on top of existing security features**
- **Origin: ICAO recommendations as a result of 9/11**
 - Photo in digitized form is obligatory
 - Fingerprints and Iris are optional
- **ICAO legally not binding -> transformation into EU regulation (EC) 2252/2004**
- **All EU passports issued after 28. August 2006 need a photograph stored on a RF chip**
- **Fingerprints will follow by 28 June 2009 as a mandatory European requirement**



The Hague Action Plan in 2004

1. **Fundamental rights and citizenship**
Ensure the full development of policies enhancing citizenship, monitoring and promoting respect for fundamental rights.
2. **The fight against terrorism**
Focus on different aspects of prevention, preparedness and response in order to further enhance, and where necessary complement, Member States capabilities to fight terrorism.
3. **Migration management**
Define a balanced approach to migration management developing a common immigration policy at Union level, while further strengthening the fight against illegal migration and trafficking in human beings, notably women and children.
4. **Internal borders, external borders and visas**
Further develop an integrated management of external borders and a common visa policy, while ensuring the free movement of persons.
5. **A common asylum area**
Work towards the establishment of a common asylum area taking into account the humanitarian tradition and respect of international obligations of the Union and the effectiveness of a harmonised procedure.



The Hague Conclusions in 2004

6. **Integration: the positive impact of migration on our society and economy**
Adopt, support and incentive measures to help Member States deliver better policies on integration so as to maximise the positive impact of migration on our society and economy.
7. **Privacy and security in sharing information**
Strike the right balance between privacy and security in the sharing of information among law enforcement and judicial authorities, fully respecting fundamental rights of privacy and data protection, as well as the principle of availability of information.
8. **The fight against organised crime**
Develop and implement a strategic concept on tackling organised crime at EU level, including knowledge of the phenomenon, law enforcement cooperation, judicial cooperation, legislative and non-legislative initiatives, and cooperation with third countries and international organisations. Make full use of and further develop Europol and Eurojust.
9. **Civil and criminal justice: an effective European area of justice for all**
Guarantee an effective European area of justice by ensuring an effective access to justice for all and the enforcement of judgments.
10. **Freedom, Security and Justice: sharing responsibility and solidarity**
Give meaning to notions of shared responsibility and solidarity between Member States by reviewing the type of policy and financial instruments that can meet the objectives of Freedom, Security and Justice in the most efficient way.



ID cards and EU citizen card

- **In general, ID cards are national responsibility**
 - Multi purpose cards
 - ID card used as travel documents
- **e-Europe action plan 2005 sets out the importance of governmental e-Services**
 - e-Health
 - e-Finances / tax
 - e-Learning
 - e-Society (no disadvantage or anyone)
 - European Citizen Card (2010?, biometrics?)



Trusted Traveller Programs

- **EU approach to Registered Traveller**
 - Open debate with MS, stakeholders
 - Ongoing initiatives in some MS
 - Context of transatlantic partnership
 - Increasing security while facilitating travel
 - Making efficient use of resources at borders
 - Perform comprehensive impact assessment before proposing any legislation on RTPs



Trusted Traveller Programs

- **In EU Member States:**
 - Privium (NL), Pegase (FR), ABG (DE), IRIS (UK), etc
- **Third country initiatives:** N. America: US - TSA Clear, USPass (not yet fully ready);
- **Canada:** NEXUS, CANPass
- **Middle East:** Israel, Jordan, UAE
- **Asia/Pacific:** Japan Airlines, Australia - SmartGate
- **Inter-continental:** MiSense (HK, UK, UAE) trials
- **JFK-AMS** (ongoing discussion; trial to begin in 2007)
- etc



The European PRÜM Treaty

The History

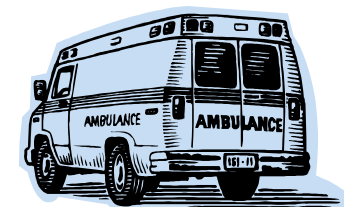
- A treaty between the Kingdom of Belgium, the Federal Republic of Germany, the Kingdom of Spain, the French Republic, the Grand Duchy of Luxembourg, the Kingdom of the Netherlands and the Republic of Austria
- on the stepping up of cross-border cooperation, particularly in combating terrorism, cross - border crime and illegal migration, signed in Prüm, Germany, on 27 May 2005.



The European PRÜM Treaty

Search Requests and Comparison

- **Dactyloscopic data (Fingerprint data)**
 - to establish a mutually accessible technical entry to each parties “automated fingerprint identification systems”
- **DNA data**
 - to compare DNA profiles on the basis of shared markers. Any DNA profile transmitted for automated search or comparison by the requesting Party will be compared with any DNA profile made available for comparison by the requested Parties.
- **Vehicle registration data**
 - to establish a network of national contact points to conduct automated searches in each party's respective vehicle registration data bases

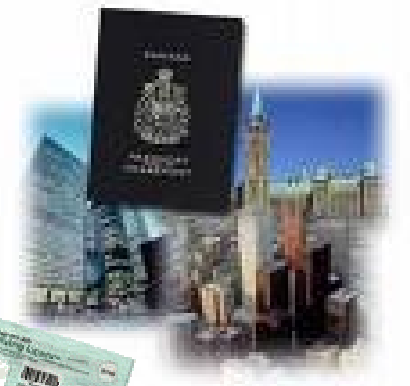


The Biometric Discussion

- Police co-operation
- Asylum/immigration policy
- Visas and Resident permits
- Border control/person verification
- Person identification
- Travel documents
- Registered traveller programs

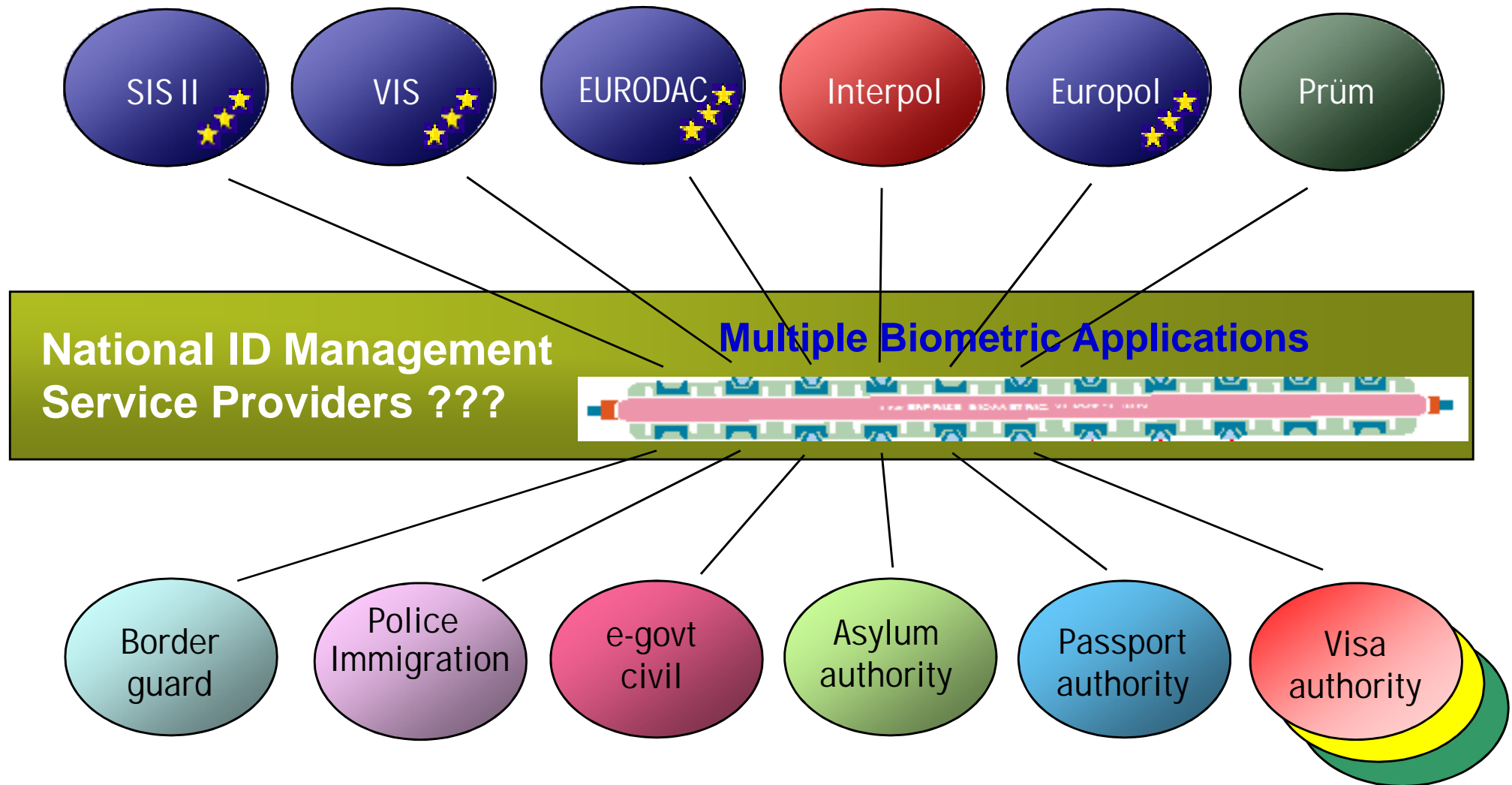
- ID documents and e-cards
 - e-Government
 - e-Health

- Civil use of biometrics
 - Tickets
 - Payment
 - Loyalty programs, etc.



The Big Brother Discussion

Multiple Applications – Different Purposes



Identity and mobility - features

Static identity

Enrolment at specific fixed locations

Verification at specific fixed locations

Authentication at specific fixed locations



Identity and mobility - features

Static identity

Enrolment at specific fixed locations

Verification at specific fixed locations

Authentication at specific fixed locations



Mobile identity

Biometric capture devices mobile (or transportable)

Mobile biometric verification devices

Authentication on mobile device but stationary when performed



Seamless Mobility 



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Identity on the Move

Biometrics captured while moving

Verification and authentication performed without need to stop

No need to be stationary



Seamless Mobility



Seamless Identity



Identity and mobility - features

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Identity on the *Move*

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Seamless Mobility



Seamless

Identity



Points to Note for the Future

- **Fingerprints remain fundamental**
- **Automated facial recognition increasing**
- **Iris partly accepted**
- **Use of multiple biometrics**
 - Intelligent Adaptive Combination
- **Increased connectivity, increased interoperability**
- **Evolution of sensors**
- **Mobile capabilities**
- **Increased automation – more ‘lights out’**
- **Identity on the *Move* – Seamless Identity**





European Pilot Projects

2 Examples

Norway

Contract awarded Nov 06



Biometric Enrollment for visas, e-passports and travel documents

Face

Fingerprints

Signature

First contract explicitly to take biometric data for EU passports

First publicly awarded contract for Schengen Visas

Coordination between authorities

Ministry of Justice (Police)

Ministry of Labour and Social Inclusion

Ministry of Foreign Affairs

Ministry of Finance



Norway

Facts & Figures



Norway

not a member of the EU

but participates in Schengen cooperation

> 100 foreign missions worldwide

Passports

Approx 610.000 issued every year

- 590.000 in Norway by the police

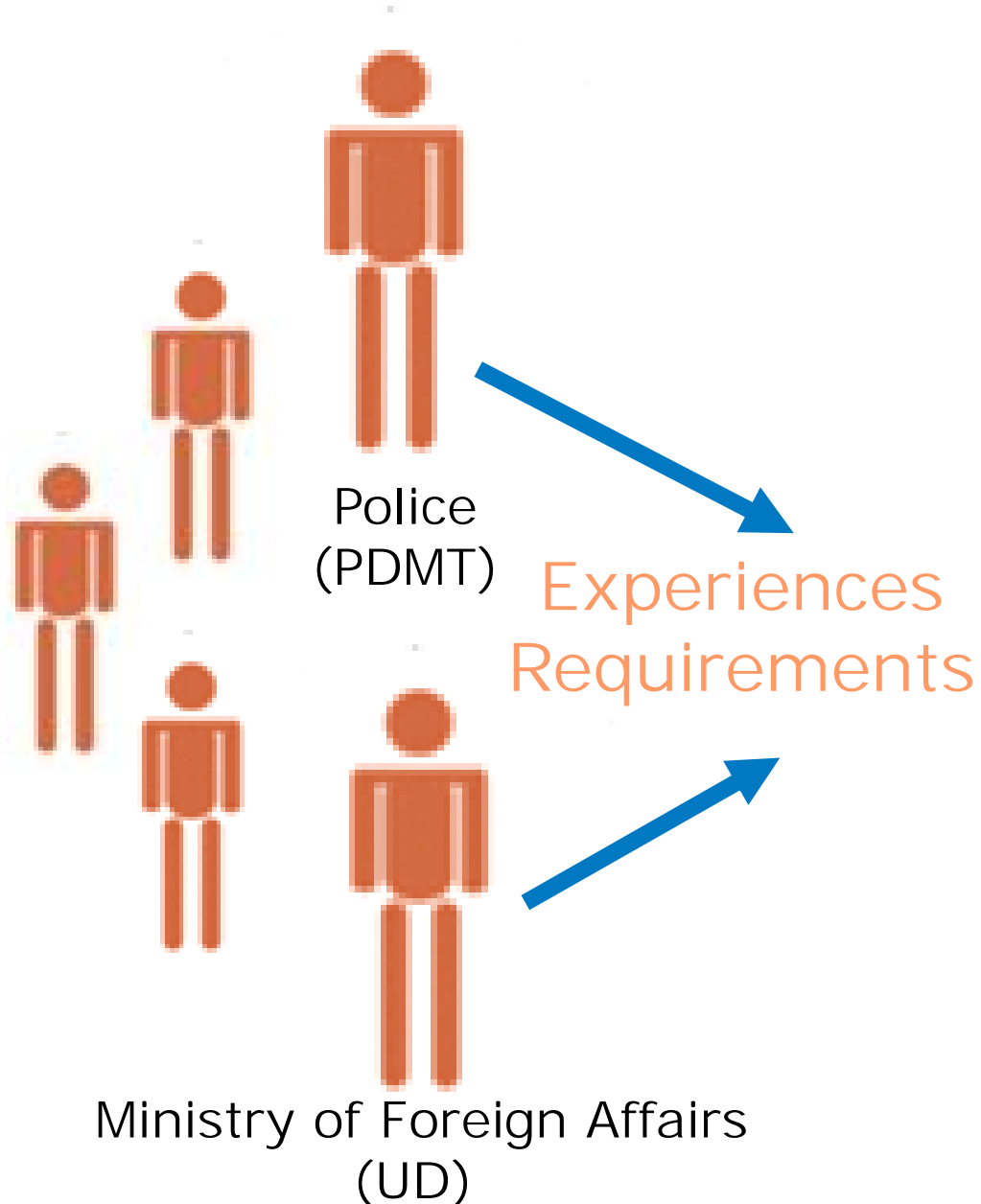
- 20.000 abroad

Visas

Approx 100.000 issued every year worldwide



Contractual Challenges



Technical Specifications



Solution

2-3 min per enrolment

Combination enrolment

Self enrolment

Operator monitors enrolment

**Can interfaces to existing
Norwegian passport and
visa systems**

Standards

ISO/IEC 19794-4

ICAO compliance

CBEFF file format

Current Requirements

Norwegian Passports

Visa applicants

Special travel documents

Biometrics

Facial Image

All

2D camera

Fingerprints

2 flats or 10 flats or none

4-4-2 fingerprint scanning

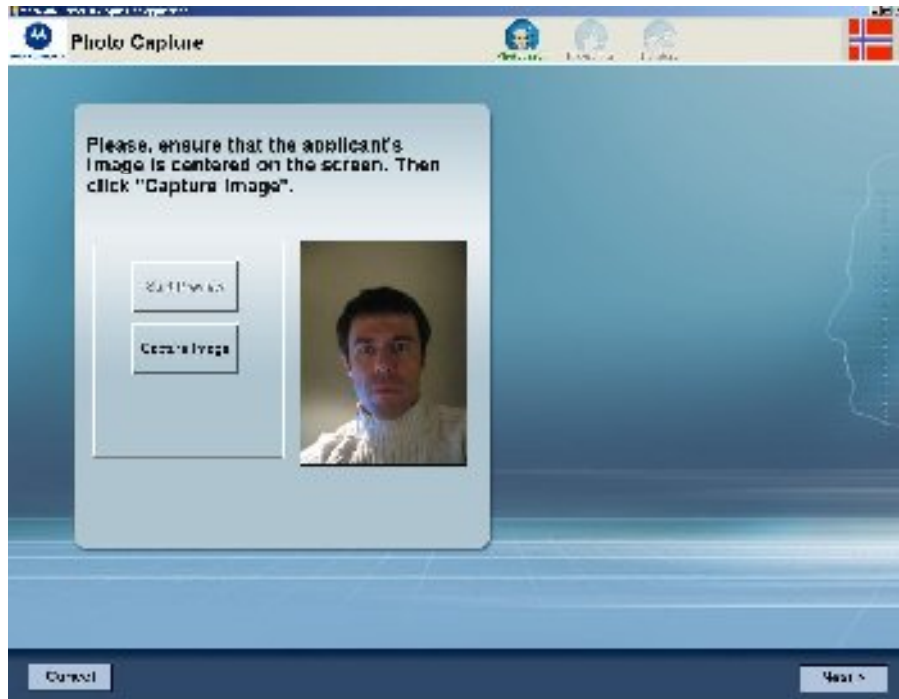
Electronic Signature

Depends on age



Solution

Operator Screen



Applicant Screen



Phase 1 of 21 kiosks started in September 2007

Locations

1st Phase

21 Units ordered
Sept 07

Full deployment

> 300 National sites
> 100 Consulates



Solution Challenges

Flexibility

Different user requirements

Age of person

Height of person

Type of document

Robustness

Environmental Conditions

Quantity

Multiple Physical Solutions

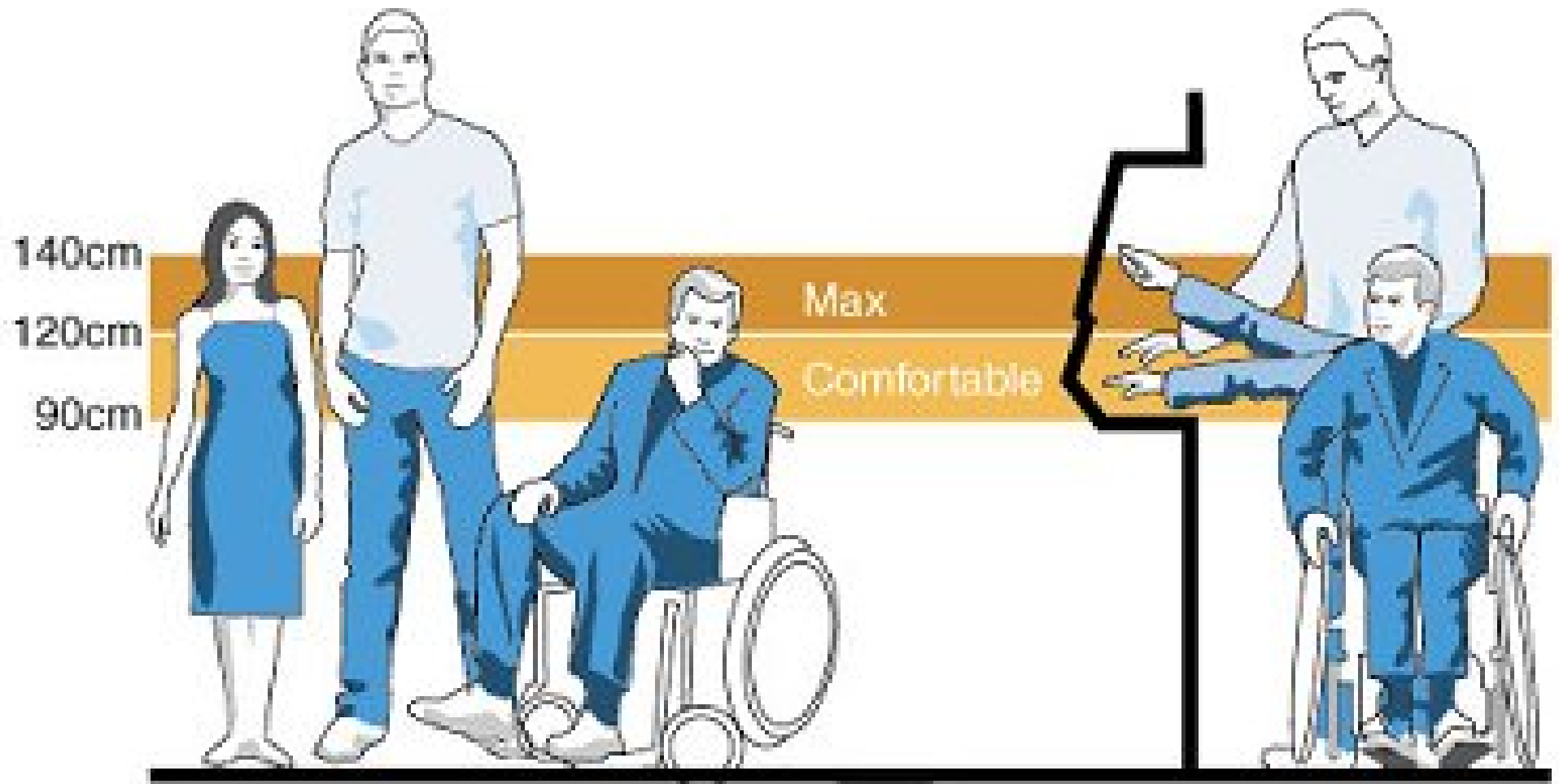
Kiosk

Modular

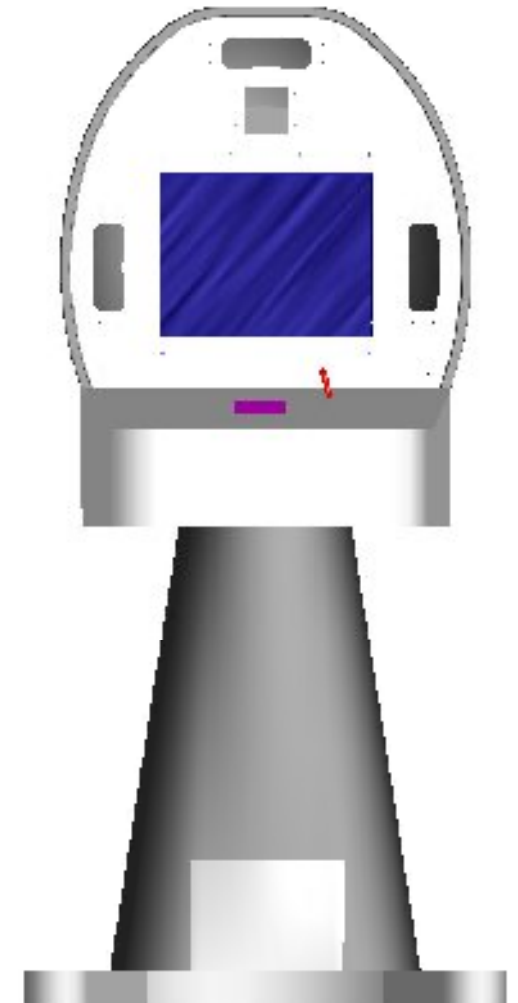
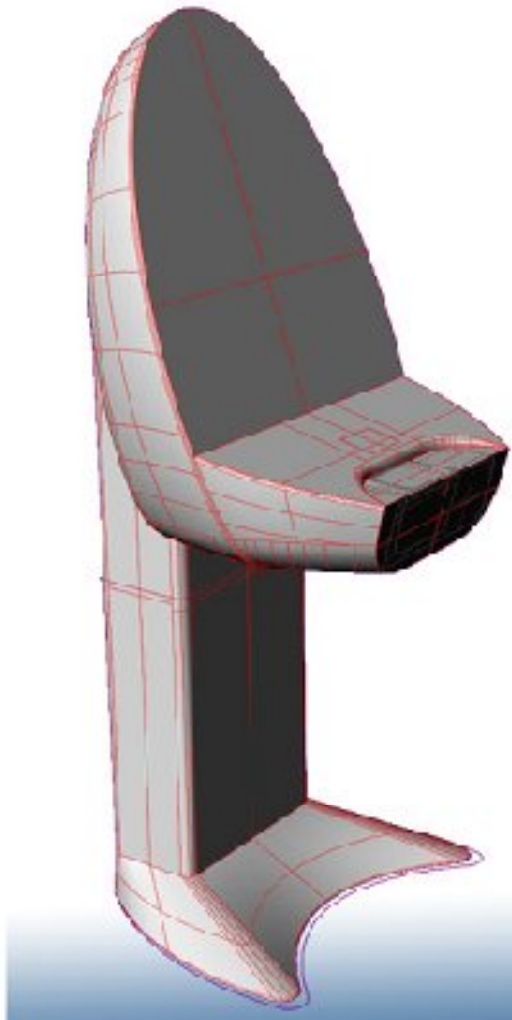
Portable



Height



Kiosk Development



Solution

Fingerprint scanning

Capture of the photograph

Electronic Signature

Locations

Space

Lighting

Internal Procedures

Queuing

Preparation of the clients

E-learning for the staff

Awareness information for applicants



Space



Lighting

Glare on some glasses

Deep curve

Reflective lenses

Guidelines for environmental lighting



BIODEV II

European Visa Policy in Action

Pilot Project of a Complete Border Solution

Biometric Enrolment, Central AFIS, Biometric

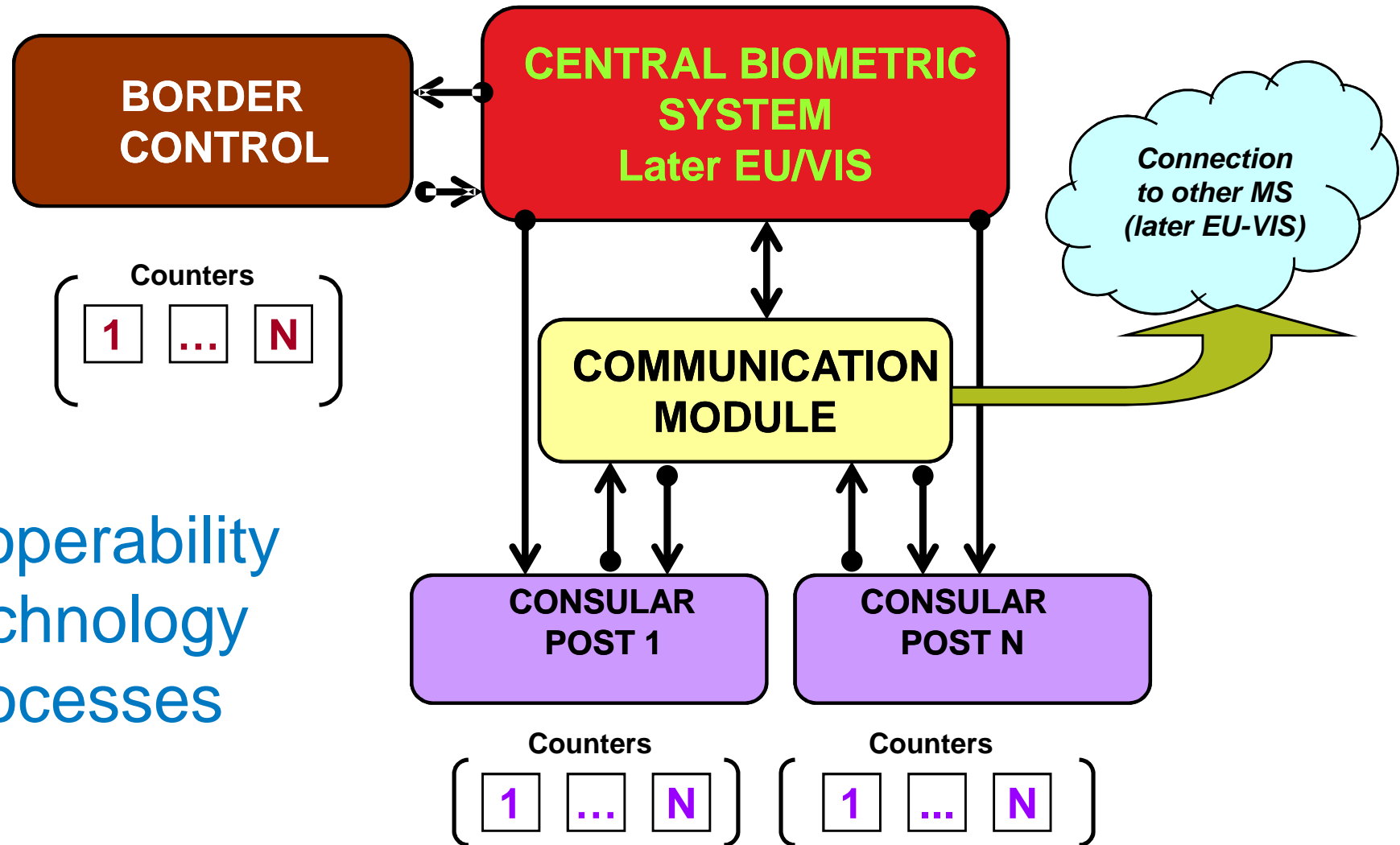
Host Country	Consular Posts	Border Posts	Central System
Austria	Tirana (Albania)	Vienna Airport	Vienna
Luxemburg	London (UK)	Luxemburg Airport	Luxemburg
Portugal	Algiers (Algeria)	Lisbon Airport	Lisbon
Spain	Casablanca (Morocco)	Madrid Airport	Madrid
United Kingdom	Freetown (Republic of South Africa)	Gatwick Airport	London

Also includes Belgium, France and Germany



BIODEV II: European Visa Policy in Action

Pilot Project of a Complete Border Solution

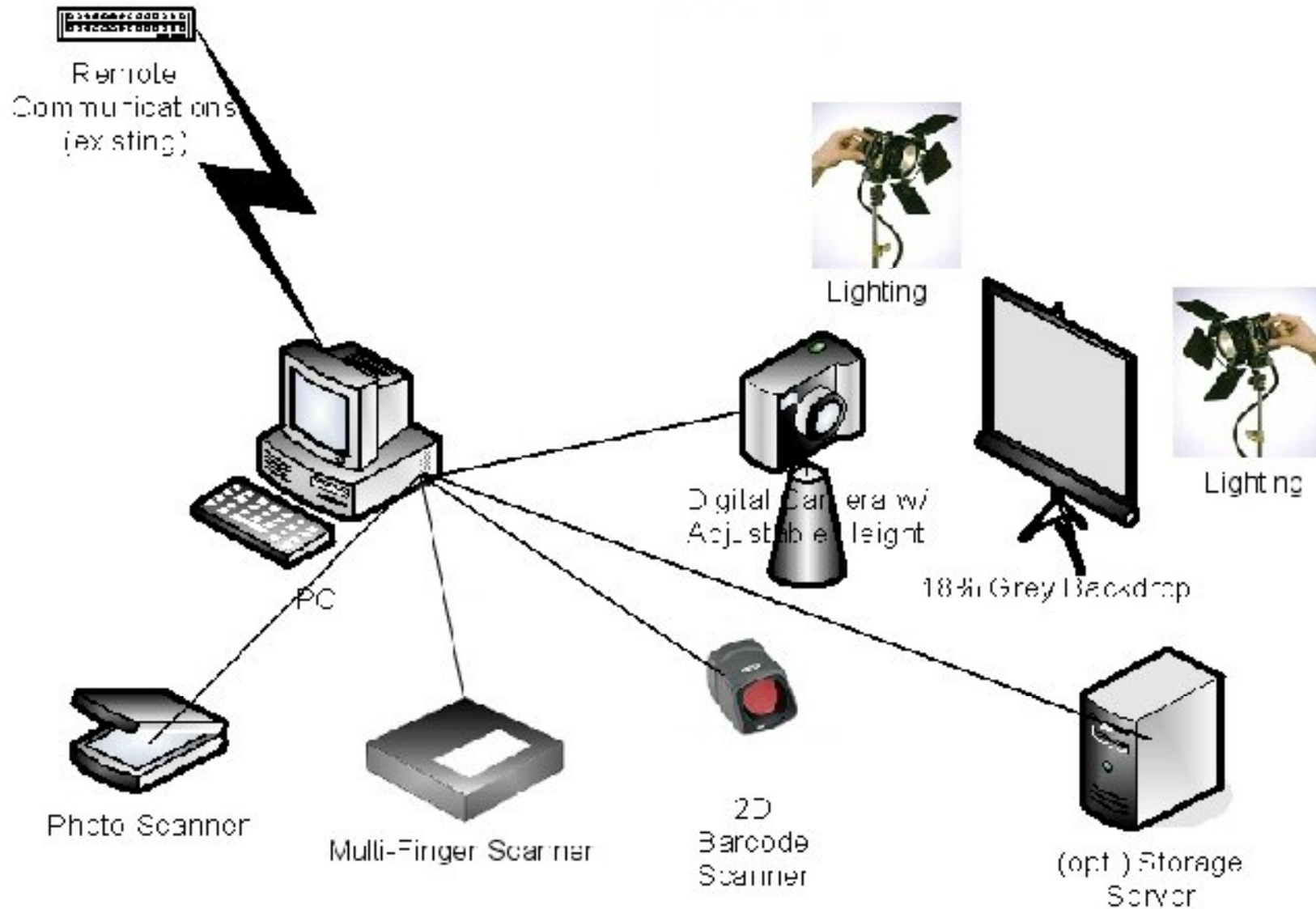


Interoperability

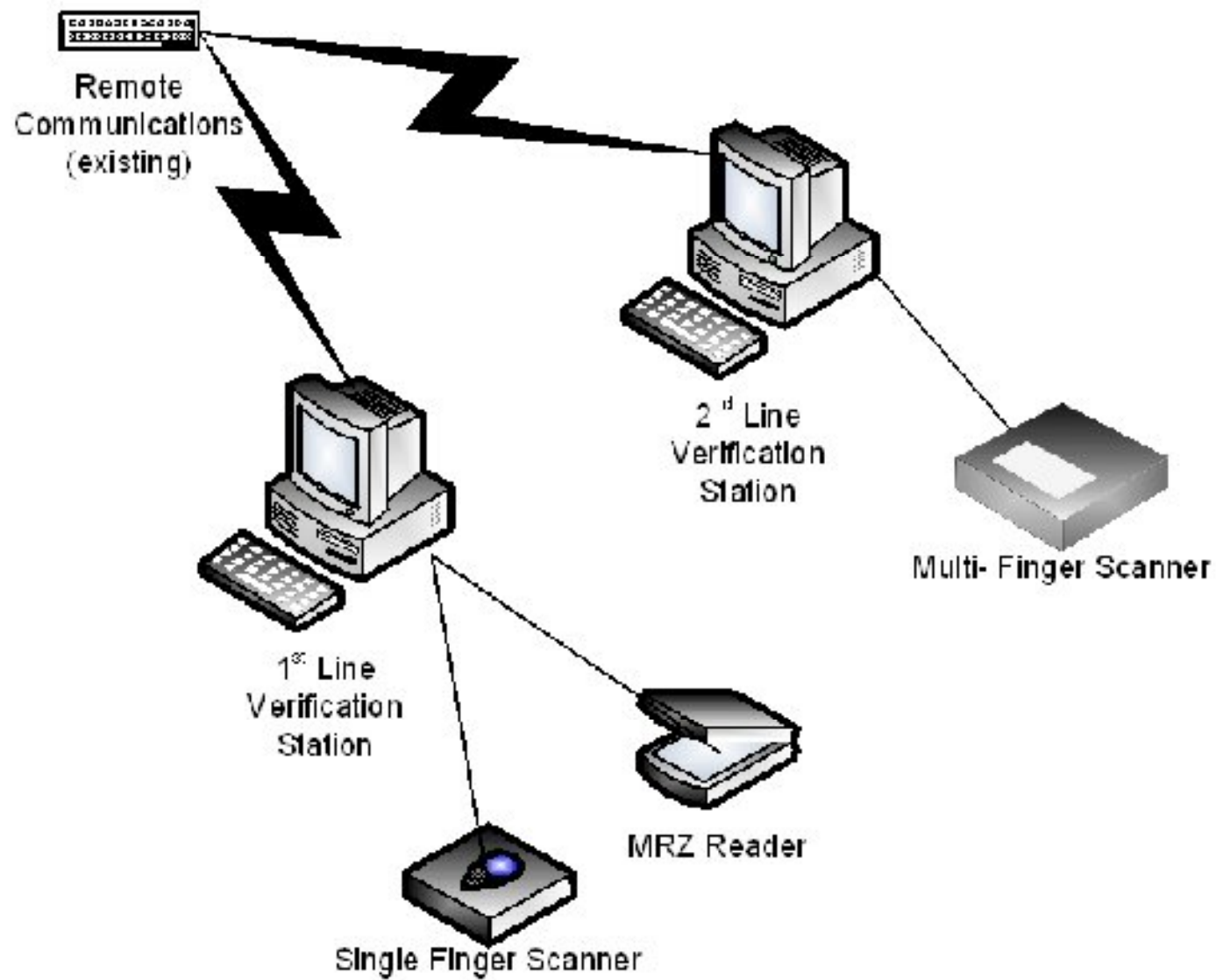
- Technology
- Processes



Consular Post



Border Control





Providing a biometrics service

The Business Case

The Business Case



Dollars

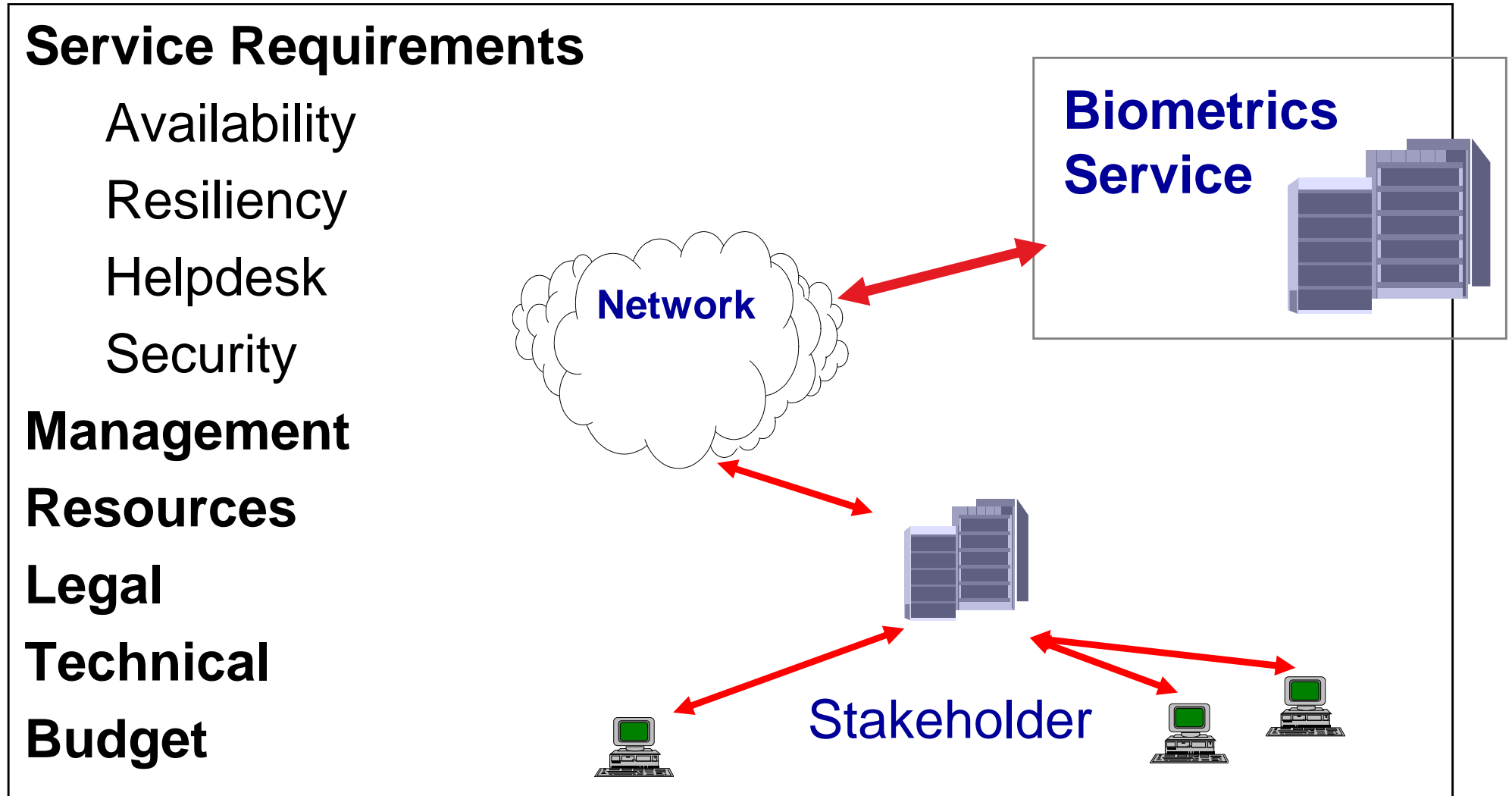


EUROS

Sterling



The Business Case



Service Requirements (1)

Availability : address the response time requirements

Enrolment

Do you issue or need an answer on the spot ?

Verification

Do you need an answer while the person is in front of you ?

Resiliency : address the availability requirements

Are you dealing with time zone issues?

Reduces the window for service unavailability

Does a service need to be available 24/7

Hot/Hot; Hot/Warm; Hot/Cold

High availability requirements means addressing

Pre-production Issues

Testing

Development

Training



Service Requirements (2)

Helpdesk

Better Monitoring of Service

Creates first line support for users rather than a call centre

Knowledge of the stakeholders problems

Improvements to system benefits all

Security

Better knowledge of IT security issues

Easier to test and monitor against known threats

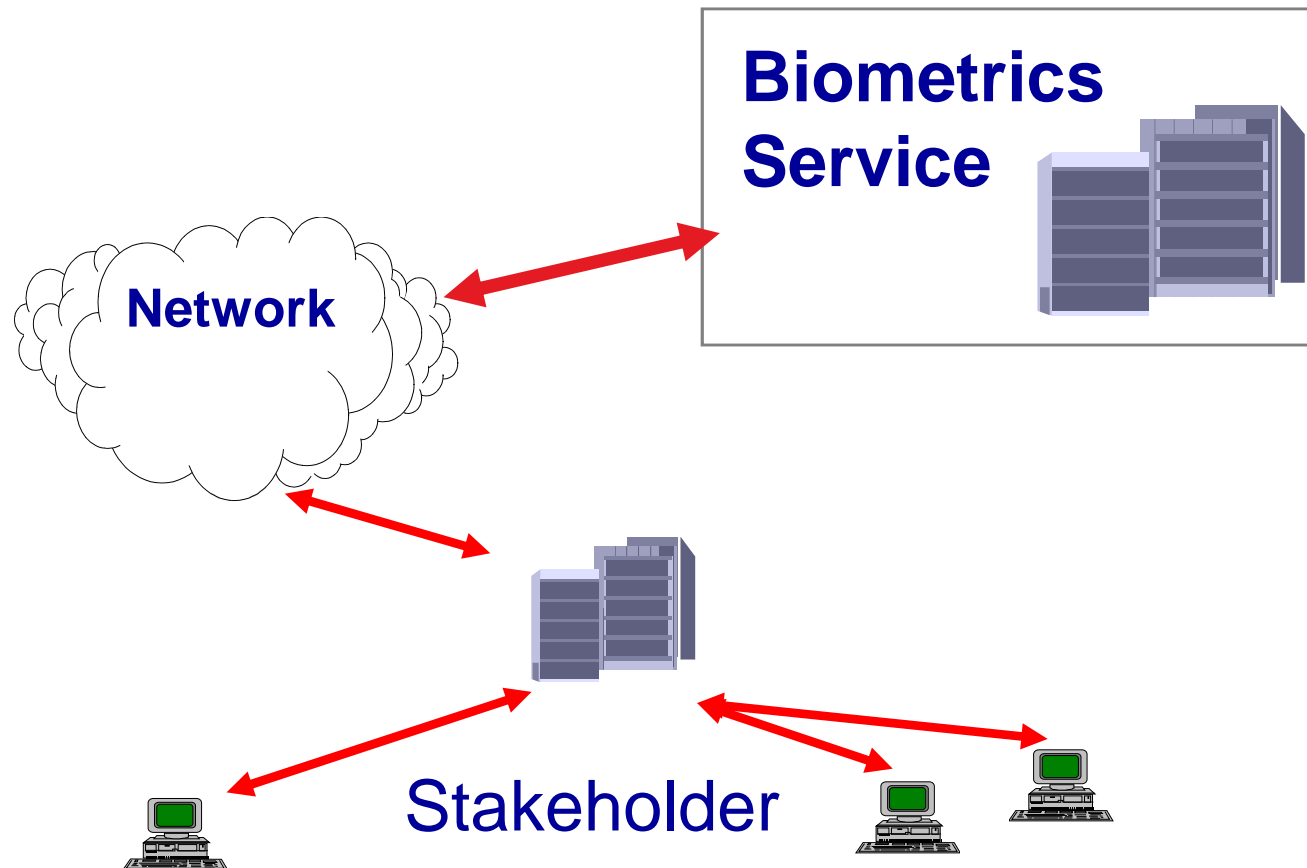
Easier to react to new threats



Management

How many stakeholders are involved ?

Demarcation lines of responsibility must be clear



Resources

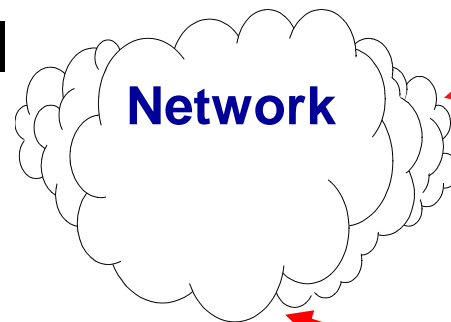
Put the skills where they are needed

Automatic systems

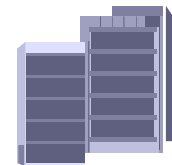
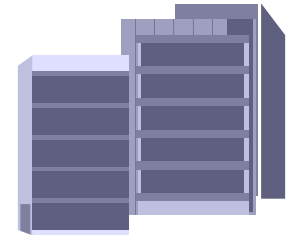
Manual Verifications

Better Training

**Easier to control
quality issues**



**Biometrics
Service**



Stakeholder



Data Protection and Privacy

Should the biometric data be on the same system as the supporting alphanumeric (identifying) data

More difficult to change the core biometric data of a person when the stakeholder and the biometric systems are separated

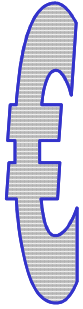
Can link the evolution of a person's prints

Can better guarantee the identification

Can better ensure that the use of the data is legal



Budget



Dollars



EUROS

Sterling



EURODAC

Community Expenditure (2001-2004)

Budget 9.5 million €

Extensive use of existing resources

Multiple Asylum Applications

2003 = 17,287 made more than 1 application

2004 = > 30,000 made more than 1 application

2005 = > 46.000 made more than 1 application



A few Conclusions

- Ensure that you use a common terminology
- Consider to invest in consultancy and feasibility studies before going for call for tenders
- Define if interoperability is required or should be avoided (privacy)
- If you go for pilots, share conditions and results with your neighbour organisations (domestic + international)
- Inform the users and collate feedback
- Always consider a fallback solution
- Don't believe that biometrics will solve all your problems in a short period of time
- Ongoing governmental security implementations are a driver. However, security solutions are not supposed to generate business (who pays) but linked services will be.
- Define the business case and define the purpose of biometrics



Thank You

