

# The European Union approach to Biometrics

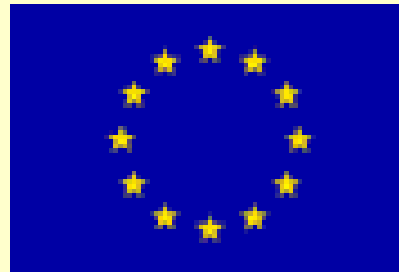


Information Society

[gerald.santucci@cec.eu.int](mailto:gerald.santucci@cec.eu.int)

Head of Unit "Trust & Security"  
European Commission  
Directorate General Information Society

***The Biometric Consortium Conference 2003***



# Current biometrics RTD projects

## **Sensor - basic technologies**

SABRINA, FINGER\_CARD, VIPBOB

## **Technology improvement and validation in applications**

BANCA, U-FACE

## **Applications (e-polling, e-government, travel)**

E-POLL, FASME, S\_TRAVEL

## **Socio-economic aspects**

BEE

## **Shaping the Future**

BIOVISION => European Biometrics Forum, Dublin



**Business environment of Biometrics  
involved in Electronic commerce**

<http://www.expnet.gr/bee>

## **BEE**

- To identify open issues and propose solutions for the technological, societal, business and legal aspects of biometrics and to define a viable business environment for these promising technologies
- Supported by BIOWORK advisory committee



USER FRIENDLY ACCESS  
CONTROL SYSTEMS  
AND HEALTHCARE APPLICATIONS

## User friendly access control systems and healthcare applications

<http://uface.netsmart.gr/>

# U-FACE

- Develop working access control systems using advanced face recognition technologies

Novel techniques for explicit modelling of expression, pose change, etc. to improve system reliability

- Secure access to healthcare applications and medical workstations

Novel use of technology in privacy sensitive area

- Perform usability trials

Control physical access to office

Control access to medical data/applications

Test performance of face recognition in realistic scenarios



## Biometric Access Control for Networked and e-Commerce Applications

<http://falbala.ibermatica.com/banca>

# BANCA

- Complete secured system with enhanced identification, authentication and access control schemas ( tele-working and web-banking services )
- A multi-modal and multi-lingual realistic condition database
- Basic security services: biometrics authentication, security protocols, secured storage on Smart Cards
- Security management: Public Key Infrastructure, certificates mg<sup>nt</sup>, biometric profiles mg<sup>nt</sup>
- Legal framework
- Scalable and robust multimodal (face & speech) verification
- Scalable classifier combination techniques (fusion)



## Secure Authentication by a Biometric Rationale and Integration into Network Applications

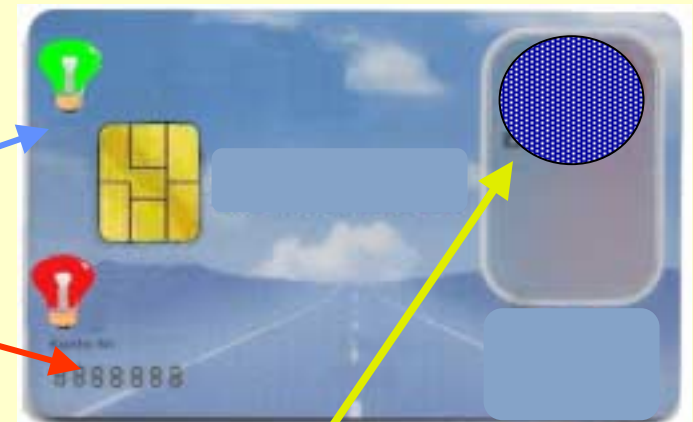
<http://www.ma.rz.uni-karlsruhe.de/~ae44/sabrina/>

# SABRINA

To develop a high secure new sensor based on the epidermis of a finger and using ultrasonic echo

### Objectives:

- all individual data inside the chip
- solution for offline and online authentication  
result is: person identified **yes** or **no**
- less computing performance needed
- avoiding attacks with artificial objects
- avoiding “big brother” effect
- high security while using the individual characteristic of the finger and the chip



Sensor

## Virtual Pin Based On Biometrics

<http://vipbob.gi-de.com>

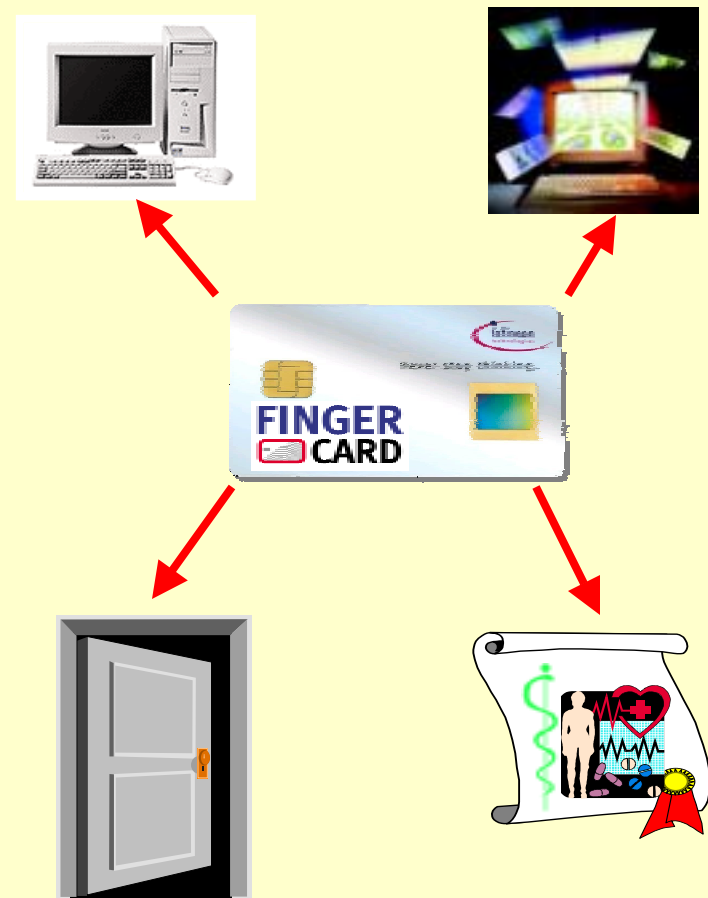
# VIPBOB

A new approach to gain a unique number out of a biometric trait

- To encode private data with the individual biometric data extracted from a trait (fingerprint, face, iris)
- To correct the difference between the data acquired in the enrolment step and the verification step (this replaces the matching step)
- Use for different purposes: PIN authentication and offline user authentication (e.g., in combination with an ID document)
- Storage of the encoded private data does not allow attackers to obtain the private data or the biometric trait data => storage in central databases is possible without privacy concerns

# FINGERCARD

Sensor on Card	<b>BIO-SYSTEM ON CARD</b>
Matching-on-Card	
Template-On-Card	
Encoding-On-Terminal	
Physical Access	<b>APPLICATIONS / PILOTS</b>
PC Access	
e-commerce	
Banking	
Healthcare-Application	





## Facilitating Administrative Services for Mobile Europeans

<http://www.fasme.org>

# FASME

Facilitating the exchange of electronic data between different administrations

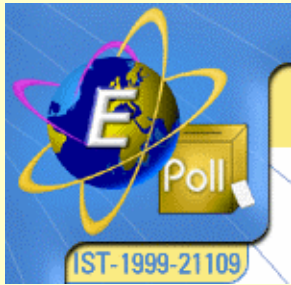
Prototype: administrative processes (changing the place of residence or car registration,... )

The citizens transport all required data to the offices on the card

The data are read via the card terminal and processed according to the requirements

User authenticity is secured by fingerprint





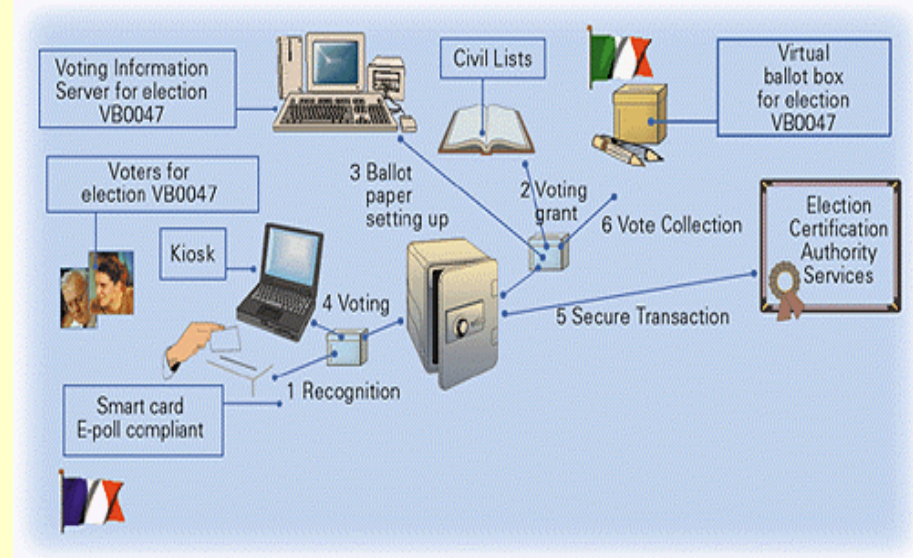
## E-Poll Electronic Polling system for remote voting operations

<http://www.e-poll-project.net/>

# E-POLL

## Innovative organisation of voting processes

- European Virtual Ballot Network
- Information flows between administrative authorities at different levels
- Pilots: real elections in Italy and in France
- Based on UMTS (bandwidth and security) - kiosks anywhere, within a private, reliable and protected network
- Innovative smart card with an embedded biometric fingerprint reader
- Ergonomic kiosk facilitates use by disabled people



# BIOVISION

- **Responds to increased potential of biometrics**

IDC report predicts annual growth rate of 57% in Europe

- **Recognises fragmentation of sector**

Response: European Biometrics Forum

- **Identifies gaps in knowledge & experience:**

Response: pointers to work in Integrated Projects in new EU funded Research and Technological Development Programme<sup>1</sup>



<http://s-travel.aero>

# s-TRAVEL

- Urgent need for stronger air transport security since the 11/9 events

- Biometrics and smartcards as part of a global system to streamline the passenger process in an airport from check-in until the ultimate boarding phase

- Defining Industry security solutions, interoperable across borders and with airports infrastructure & airlines Departure Control Systems (DCS)  
Standardisation:

Set-up with IATA a biometrics enrolment procedure that would be recognised by all Airline & Airport parties and could be proposed to ICAO for standardisation

Interoperability with Airline check-in / boarding / DCS infrastructure and Airport operational systems

# NEW RESEARCH INSTRUMENTS

## AIMS:

➔ EU Competitiveness  
or solve major  
societal problems  
**CRITICAL MASS**  
**CLEAR OBJECTIVE**

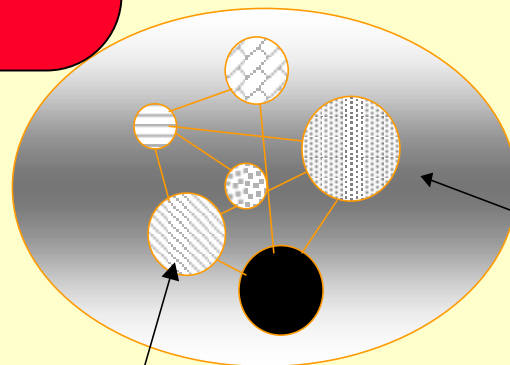
## SIZE:

10-20 M €

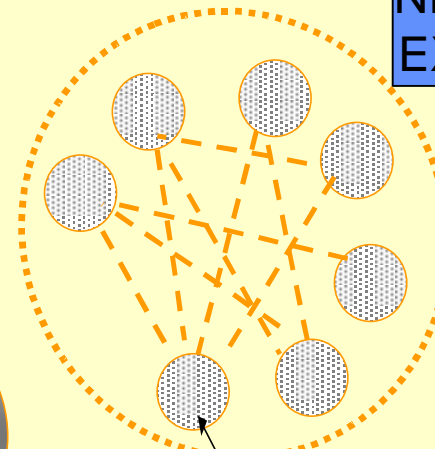
## DURATION:

3-5 years

INTEGRATED  
PROJECT



NETWORK OF  
EXCELLENCE



Centres of  
Excellence

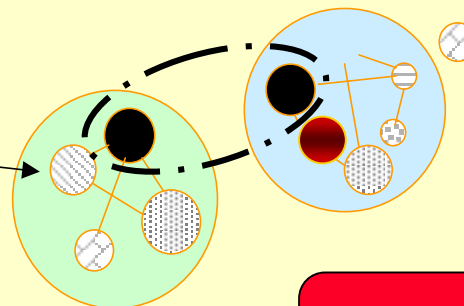
## AIMS:

- VIRTUAL CENTER OF EXCELLENCE
- INTEGRATION OF EXCELLENCE CAPACITY FOR CRITICAL MASS
- PRECISE RESEARCH THEMES AND TOPICS

## SIZE:

•several 8-15 M €

RTD projects



NATIONAL RTD  
PROGRAMMES  
(Art 169)

MEMBER STATES  
INITIATIVES

# Are Biometric Technologies Mature for Public Applications?

- **Interoperability** - not yet supported by standards nor technology
- **Performance** - in the 1-2 digit range
- **Scalability** - no experience of large scale field trials
- **Data Control** - need of effective safeguards and remedial actions with respect to the risk of misuse

# AVAILABLE OPTIONS

- **Digitised and partially compressed images** - as the data format for interoperability
- **Facial scan** - as the preferred biometric technology/identifier for authentication
- **Fingerprint scan** - as the preferred biometric identifier for database search

These options should prevail in the short term for large scale and multi-jurisdictional deployment systems

Standards/guidelines are missing on how to produce good quality pictures in real-field environments

# THE EUROPEAN ROADMAP

- 
- Collaborative R&D (technology innovation and application innovation)
  - International standardisation (ICAO, ISO/IEC,...)
  - Open dialogue and “concertation”
  - Assessment and certification
  - Development and exchange of good practice

# DG INTERNAL MARKET

## Data Protection Directive (95/46/EC)

Harmonisation in the Member States

Status of the implementation

The content of the Directive directly linked to biometrics:

Article 6: Limitation principle - Proportionality

Article 8: Sensitive data

Article 10: Transparency

Article 17: Technical means to protect unauthorized access

## ART 29 - Working Party on the Protection of Individuals with regard to the Processing of Personal Data

Advisory status and act independently

Opinion 10/2001 on the need for a balanced approach in the fight against terrorism Adopted on 14 December 2001



[http://www.europa.eu.int/comm/dgs/justice\\_home/index\\_en.htm](http://www.europa.eu.int/comm/dgs/justice_home/index_en.htm)

# DG JUSTICE & HOME AFFAIRS

**Goal :** Deliver co-operative measures required for the establishment of a European area of Freedom, Security and Justice.

## **Immigration - asylum - free movement**

- *Visa* - “A coherent approach is needed in the EU on biometric identifiers or biometric data for documents for third country nationals, EU citizens’ passports and information systems (VIS and SIS II)” (Thessaloniki European Council of 19/20 June 2003).

Two legislative proposals for Regulations (uniform format for visa, uniform residence permit for third country nationals).

- *Travel documents* - A legislative proposal in relation to documents of EU citizens is in preparation.

## **Public order and law enforcement**

Public safety, criminal investigation, e-Justice, e-Government, etc.

## **Civil society applications**

Exploring overlapping interests with law enforcement applications.



[http://www.europa.eu.int/comm/dgs/energy\\_transport/](http://www.europa.eu.int/comm/dgs/energy_transport/)

# DG ENERGY & TRANSPORT

## **EU Regulation (2320/2002) establishing common rules in the field of civil aviation security**

Adopted Dec. 16th, 2002, applicable in all MS since Jan. 19th, 2003

Areas of application for biometrics:

- Access Control
- Passenger boarding re-conciliation

## **Commission Regulation No 622/2003 laying down measures for the implementation of the common basic standards on aviation security**

Holds additional operational details to aviation security measures

# Thank you for your attention



Information Society

*gerald.santucci@cec.eu.int*

Head of Unit "Trust & Security"  
European Commission  
Directorate General Information Society

<http://www.cordis.lu/ist/>  
[http://europa.eu.int/information\\_society](http://europa.eu.int/information_society)

