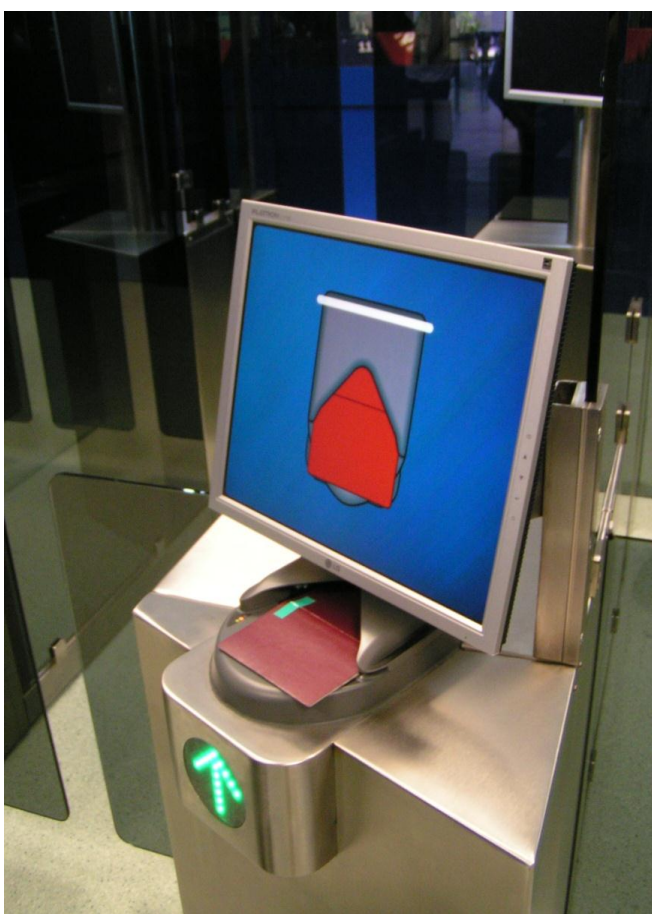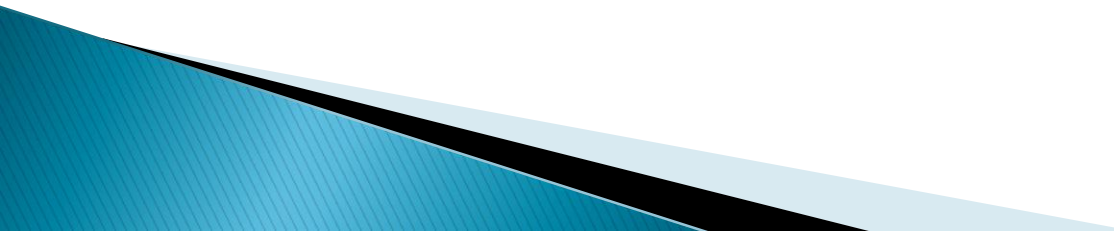# Automated Border Control Gates for Smoother Border Crossings

Juha Knuuttila

Laurea University of Applied Sciences

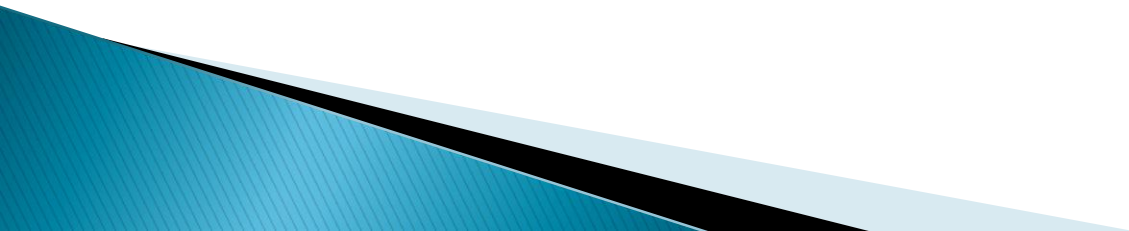Finland

Content

1. Elements and concepts of making a queue for border crossing
2. Lessons and regulations from USA
3. EUROPE´s border gate development
4. Finland´s challenge: tourism from East

1. Basic elements and concepts of making a queue for border crossing

"A short guide how to get rid of tourists and live your life in security ever after…"

Your passports,please!

▸ Result from nationalism/World War I

▸ Visa (Finland issued over one million in St. Petersburg alone last year, process outsourced to Indian company)

▸ Frequent traveller programs (No-Q,SENTRI etc.)

▸ Schengen Code
  • Prum Agreement
  • Third country citizen

Your e-passports,please!
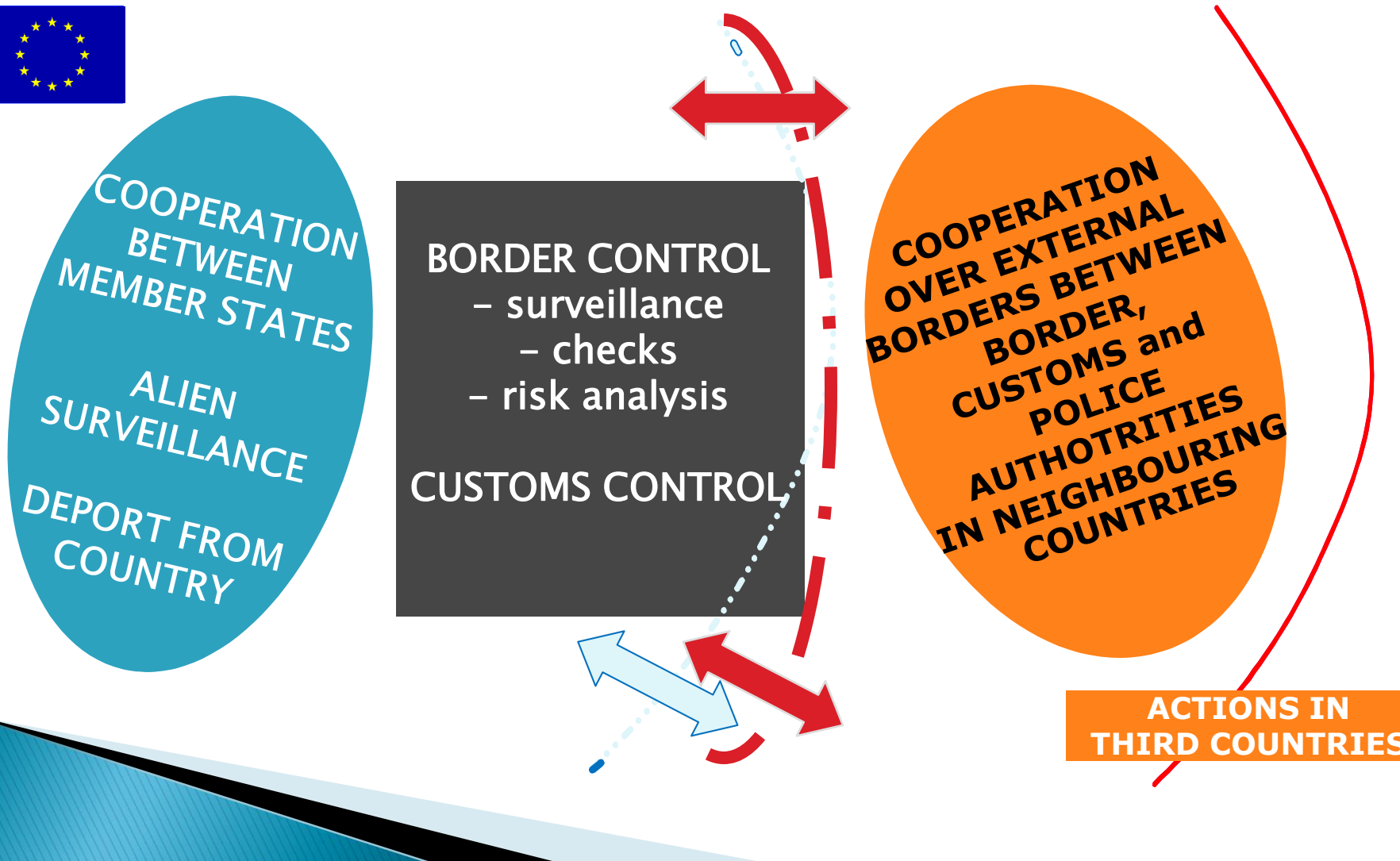# What is Automated Border Control (ABC)?

ABC systems:

- E- travel document based
- Requiring pre-enrolment

Basis for the discussion:

- ABC systems based on e-passports and facial recognition for EU/EEA citizens
- Fingerprint another ID to be applied in EU

EU integrated four tier border management system

COOPERATION BETWEEN MEMBER STATES

ALIEN SURVEILLANCE

DEPORT FROM COUNTRY

BORDER CONTROL
– surveillance
– checks
– risk analysis

CUSTOMS CONTROL

COOPERATION OVER EXTERNAL BORDERS BETWEEN BORDER, CUSTOMS and POLICE AUTHOTRITIES IN NEIGHBOURING COUNTRIES

ACTIONS IN THIRD COUNTRIES

ABC systems endorsed by European Commission in present legal framework

- 3 operational
- 1 pilot
- 5 planned pilots
- ?

- Pilot projects financed by European Border Fund (1,8 billion euros=2,7 billion USD) available for EU´s member states

From Present Low–End to Future High–End Gates

10 years of progressive work

- High–End Gates
  - Current research done in UoA led networks
  - Further proposals to DHS and Finnish Technology and Innovation Eagency, ABC4EU
  - Frequent travaler systems
  - Secondary etc. screening
  - Interactive

- Low–End Gates
  - Present passport-identifiocation kiosks used
    - Frontex´s study in Europe
- Primary screening

EU RULES

Technical Specifications for biometrics in passports
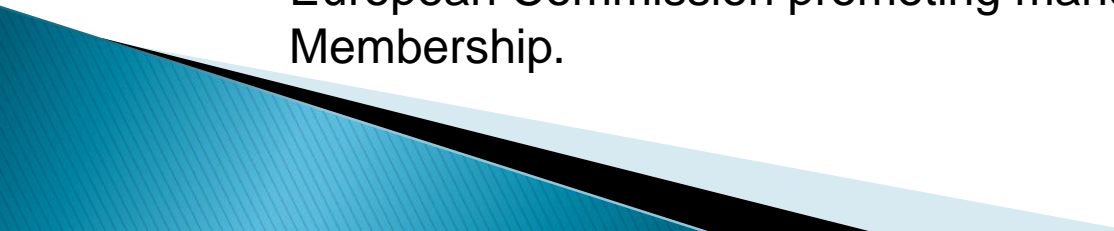Commission decision on facial image C(2005) 409 final of 28/02/2005

Exchange of certificates according to ICAO by diplomatic means.

Discussion in the Committee created by Article 6 of Regulation (EC) 1683/95 laying down a uniform format for visa:

Decided to exchange certificates in Article 6 Cte.

Commission decision on Extended Access Control C (2006) 2909 final of 28/06/2006:

Task: adoption of a common certificate policy within one year. European Commission promoting mandatory ICAO PKD Membership.

2.Lessons and regulations from USA

- USA has about 1 billion border crossings/year
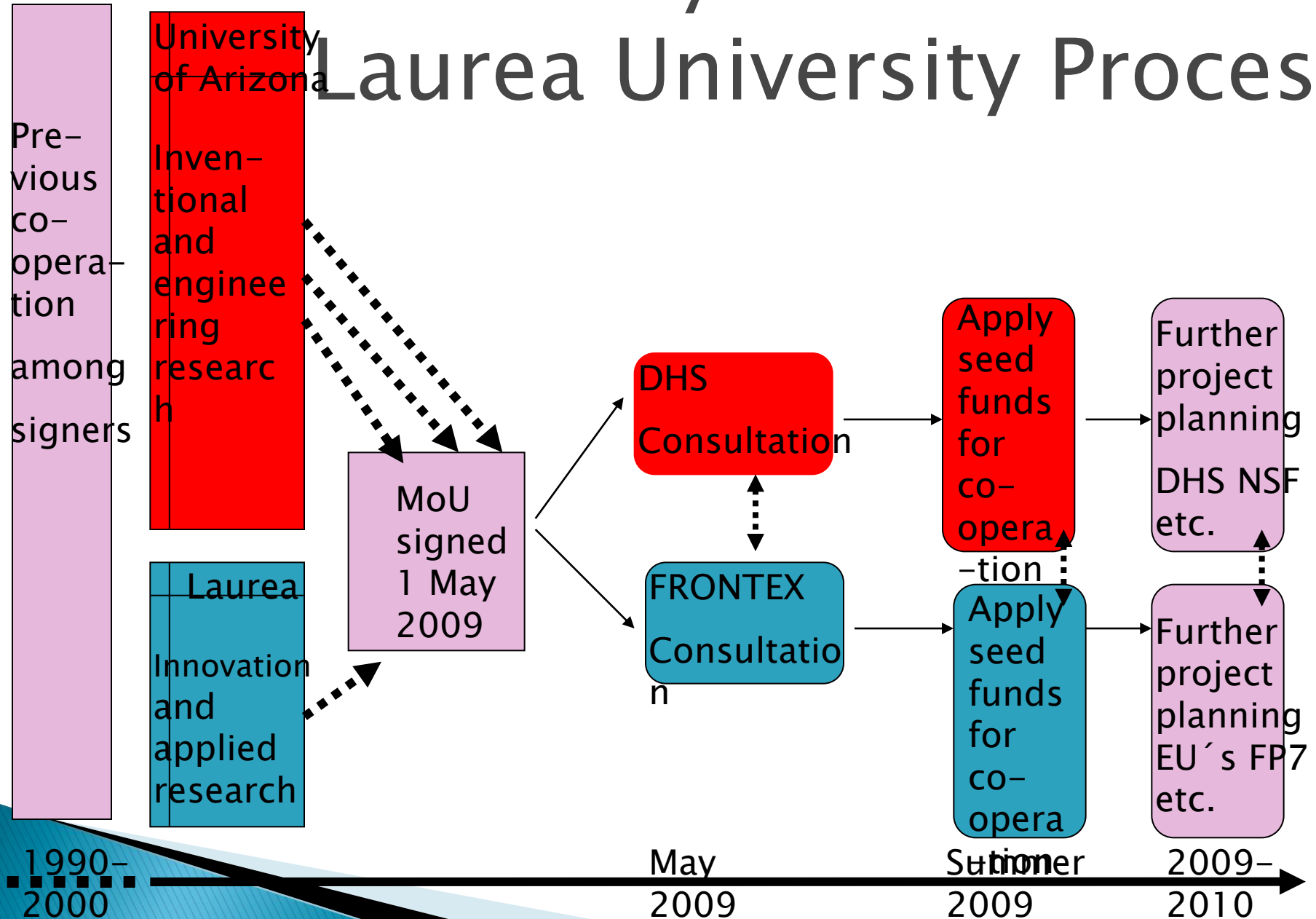
- Europe/Schengen area about half of that

Body scanners deployed rapidly. What next?

Picture: Helsinki Technical University

Regulation starts from bomb in Ahmed´s underpants

University of Arizona – Laurea University Process

Pre-vious co-opera-tion among signers

University of Arizona

Inven-tional and enginee-ring researc h

Laurea

Innovation and applied research

MoU signed 1 May 2009

DHS Consultation

FRONTEX Consultation

Apply seed funds for co-opera-tion

Apply seed funds for co-opera

Further project planning DHS NSF etc.

Further project planning EU´s FP7 etc.

1990-2000

May 2009

Summer 2009

2009-2010

Elyse, Juha, Jyri,Harri, Aleksei,Jay and Laura in Nuijamaa Border Crossing, 2009

Research Partner Map
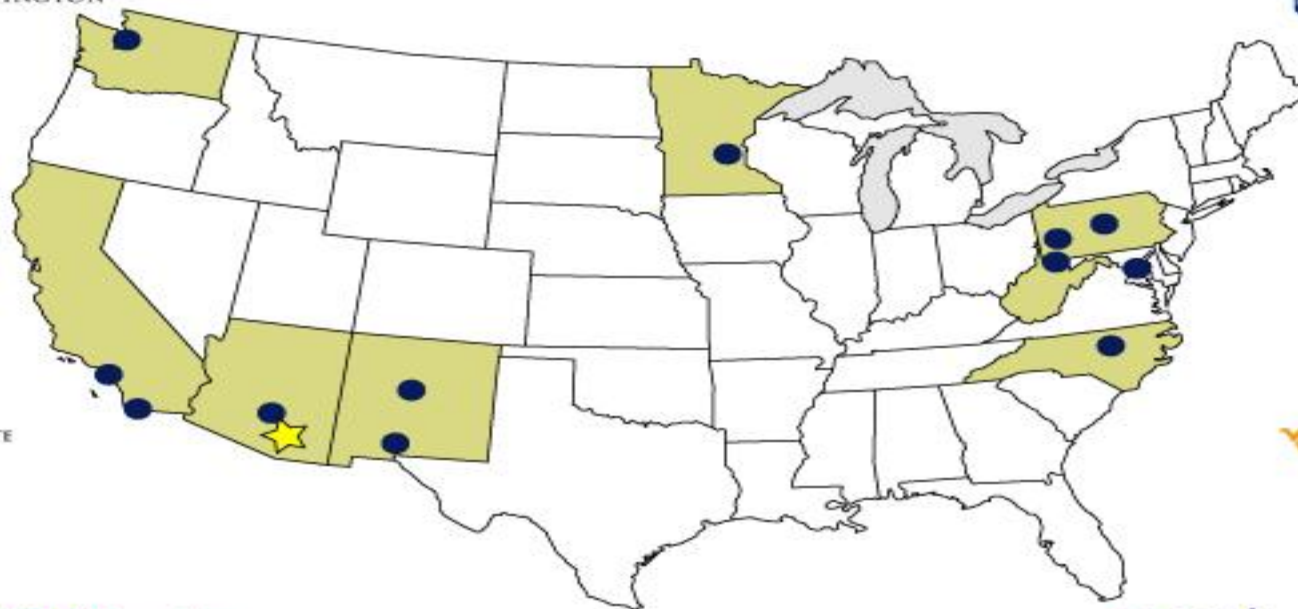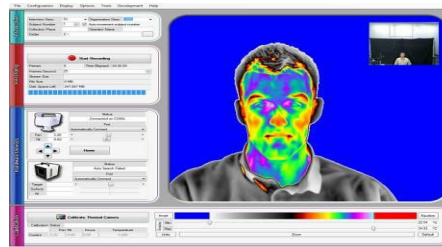
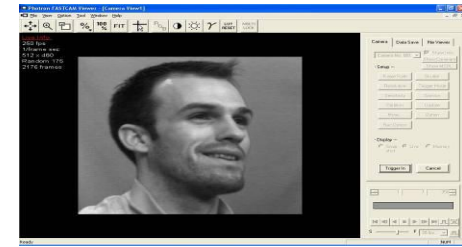# Physiological Credibility Assessment Devices

LDV
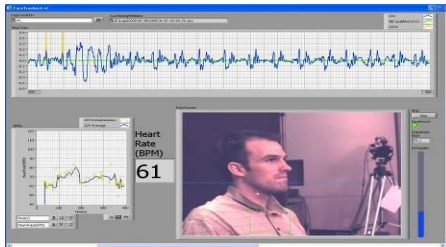
THERMAL

BLINK

PUPILLOMETRY

EYE-TRACKING

Center for Identification Technology Research (CITeR)

CITeR Founders: University of West Virginia, University of Arizona, Clarkson University

CITeR Affiliate Organizations
Biometric Identity Management Agency – BIMA
Booz Allen Hamilton
Computer Sciences Corporation
National Center for Credibility Assessment
Department of Defense – Defense Research & Engineering Enterprise
Department of Homeland Security – S & T
Federal Bureau of Investigation
FLIR Systems, Inc.
Irvine Sensors
Laurea University of Applied Sciences, Finland
Lockheed Martin
MorphoTrak
National Security Agency
National Institute of Standards & Technology – NIST
Nemesco Voice Analysis Technology
Raytheon
Sandia National Laboratories
Science Applications International Corporation – SAIC
SRC, Inc.

Secure **E**lectronic **N**etwork for **T**ravelers **R**apid **I**nspection

- Expedited processing for registered, pre-approved travelers
- Dedicated lanes for SENTRI users

- Automated person and vehicle identification

- Processing time 3-4 times faster than normal

Smooth operating in USA

SENTRI lane at U.S. – Mexico border

NEXUS lane at U.S. – Canada border

3. EUROPE´s border gate development

- Towards more flexible integrated border checks with mobile devices for peaks and extra-ordinary occasions

FRONTEX study results (by Rasa Karaubaskaite)

ABC systems increasingly tested/used by European Union´s Member States:
- National-based approach
- No overview of state of the art and key aspects of technology
- No common European approach
- No minimum requirements/standards

Case Portugal

- Includes business case Vision Box – inherited casino face recognition technology
  - Big business is watching
  - Competition ?

Portuguese Electronic Passport - PEP

The Kiosk–PEP **[K-PEP]** performs live enrollment in about 200 different sites and 270 kiosks
(in-land and Portuguese consulates)

Portugal´s experience

➢ A significant experience: 1.150.000 pax

  ▸ Positive feedback from citizens

  ▸ Decrease of Border crossing time:
  . 1 border guard = 7 e-gates (16 s)
  . 1 border guard controls 26 pax/mn
  . Increase of human resources of 430%
  . Improvement of the levels of attendance on the second line control checks

  ▸ Minimization of queuing time through better handling of passengers' flow

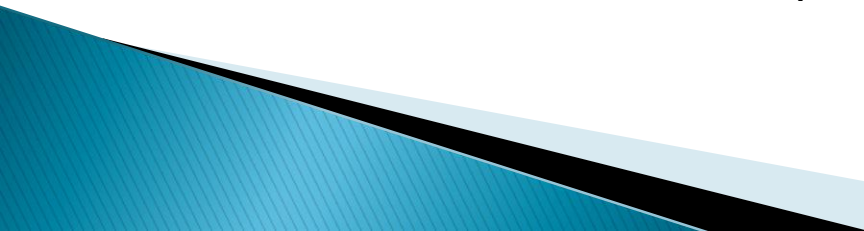# Approaching IBC : Kiosk2 + x

Kiosk1= Work done in University of Arizona
Kiosk2= To be built for replication studies in Finland
Kiosk2+ = Built in a manner that make add-ons possible, (API-wise?)
x= various add-ons like eNose and other sensors or features under study
   "Not only id-ing people , but informating for something else"
            (Phrase vicarially learned and modified from Judee Burgoon)

Integrated Border Control (IBC)
(Concept by Edgar Beugels, FRONTEX Head of R&D Unit)

- Modularity
- Standardization
  - *de jure* e.g. according EU´s new charter
  - *de facto* e.g. reacting to threats by terrorists
    - Body scanning
- Inter-national Governance transforming existing structures and channels
- Synchronization with existing intelligence and database systems and work practices
- Exit-Entry-System legislation now in European Parliament
- EUROSUR coming

# From Automated Border Control (ABC) To Integrated Border Control (IBC)

ABC

- is penetrating digitalization by automating border practices herited from VWI, VWII and Cold War
- focusing in EU citizens´ mobility
- creating basic skills for IBC
  - states´ cabapilities vary very much (e.g. Portugal,Sweden, France,Creece,Rumania,Lithuania)

IBC

- is focusing in future concepts enhanced by deeper inter-national collaboration (actions on terror, immigration policies etc.)
- preparing for EU´s forthcoming exit-entry-system
- developing public-private-partnerships into area
  - new service concepts and business models including airlines e.g.

4.Finland´s challenge: tourism from East
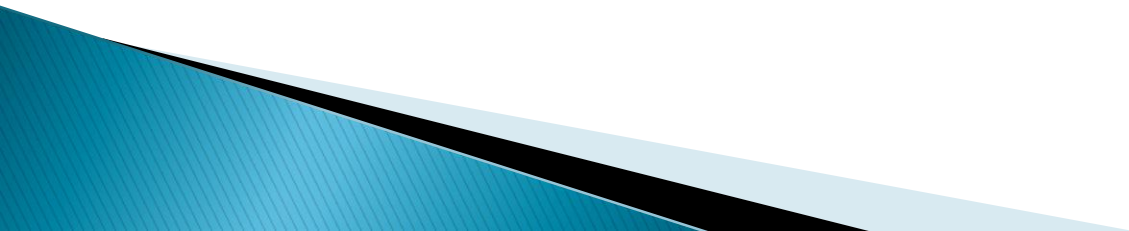
Finland – Why bother?

- 1300 km borderline with Russia
- 60 % of Russia´s import truck loads go through Finland and 31 % if her imports in total
- Finland´s biggest trading partner
- Russians top Finland´s tourism and immigration lists
  - 21 illegal immigrants crossed border 2009

Case Finland

Russians are taking very good care of their side of the border in good cooperation with Finnish Boarder Guard.
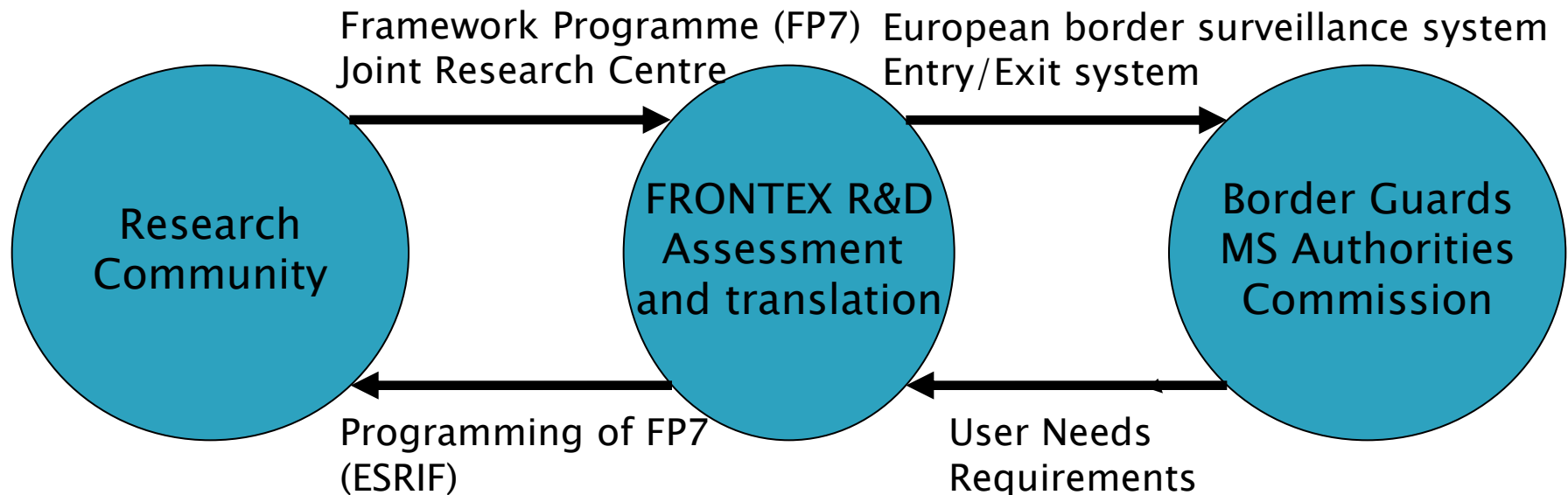
Putin in the aftermath of Beslan school incident:
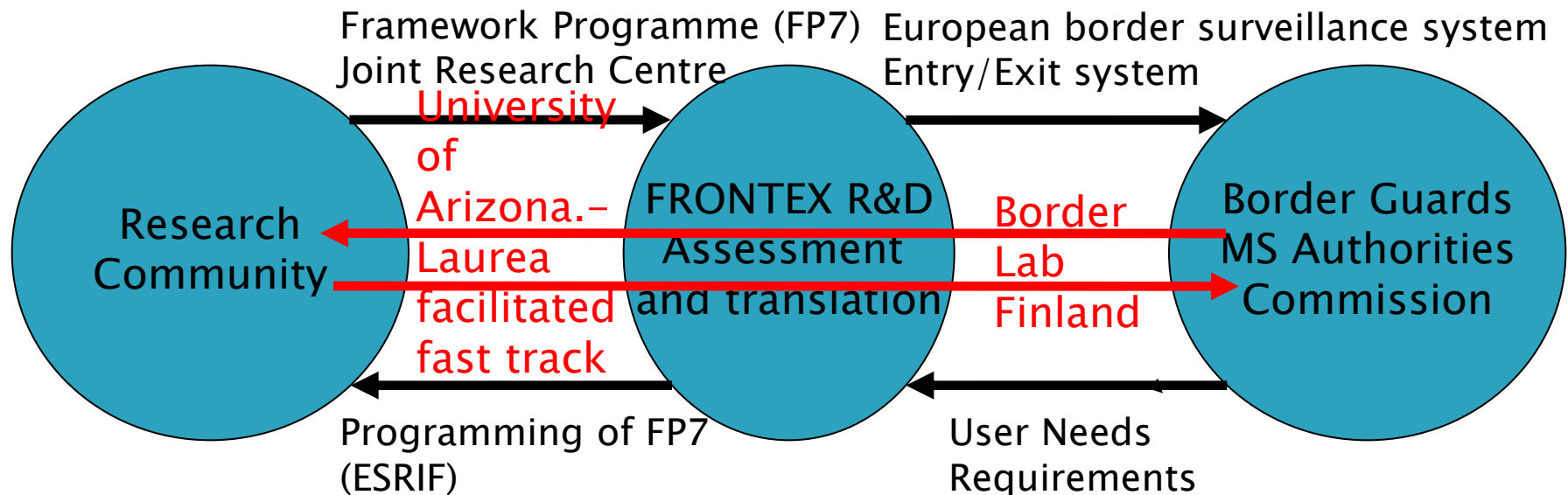" Why do we protect us from Finland instead of south, where we do not even have borders!"

"You have to have your kiosks ready when, not if, Russians get visa freedom to EU for logistical and national economical reasons." – Finnish Boarder Guard Major 9/2009

- Two-way link between researchers and end-users
- Strong position in EU security research

Framework Programme (FP7)   European border surveillance system
Joint Research Centre   Entry/Exit system

Research Community

FRONTEX R&D Assessment and translation

Border Guards
MS Authorities
Commission

Programming of FP7 (ESRIF)

User Needs Requirements

- Two-way link between researchers and end-users
- Strong position in EU security research

Framework Programme (FP7) European border surveillance system
Joint Research Centre   Entry/Exit system

University of Arizona.–Laurea facilitated fast track

Research Community

FRONTEX R&D Assessment and translation

Border Lab Finland

Border Guards MS Authorities Commission

Programming of FP7 (ESRIF)

User Needs Requirements

EUROSU R COMING;
"Promote sustainability of operational capabilities"
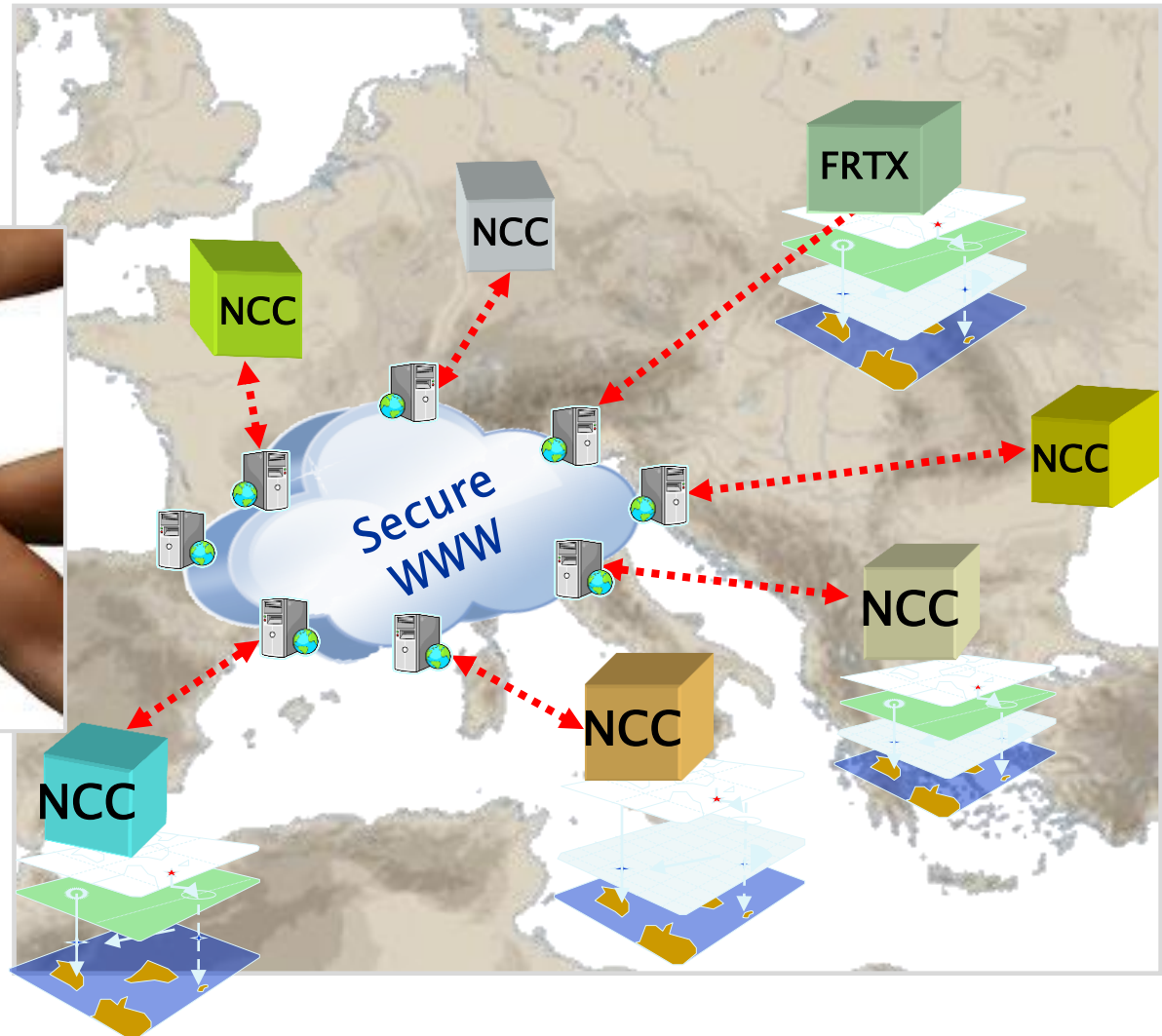
Courtesy: Ilkka Laitinen, FRONTEX

FRONTEX

Border Security And Arizona Collaboration Grids