UNIQUE IDENTIFICATION

Information Privacy, Data Access and Ownership and Electronic Signature

Overview

- Introduction – Identification, Targeting & Social Programs
- Case Studies
- Technology – Biometrics Changes Everything
- Institutions – Who & Where

Identity – Basic Human Right

UN Declaration on Human Rights:

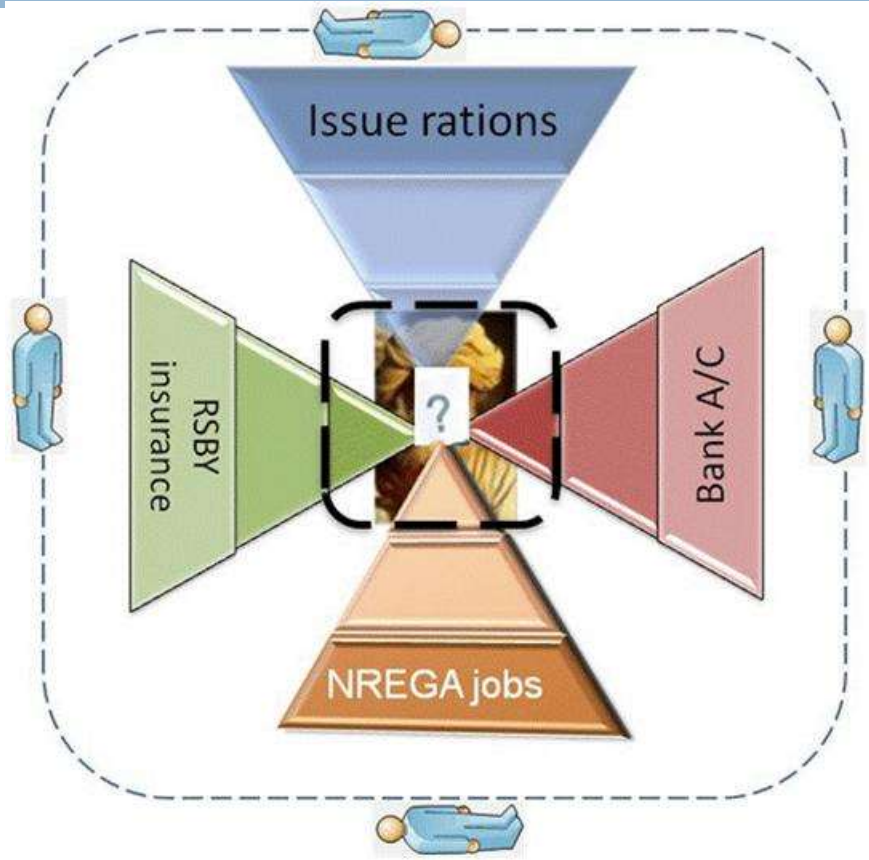
- Name
- Nationality
- Recognition Before The Law
- Taking Part In Government
- Family Identification
- Equal Access To Public Services

Unregistered

- Birth certificates are not enough
  - More than **50 million** unregistered births each year (36% of all births) (UNICEF)
  - Serbia 6,000 unregistered births in 2013
  - Kosovo 8% unregistered
  - Turkey 10% unregistered
  - BiH 100,000 unregistered
- 12 Million stateless (UNHRC)

…Largely concentrated in the bottom two quintiles

Establishing ID is a common challenge



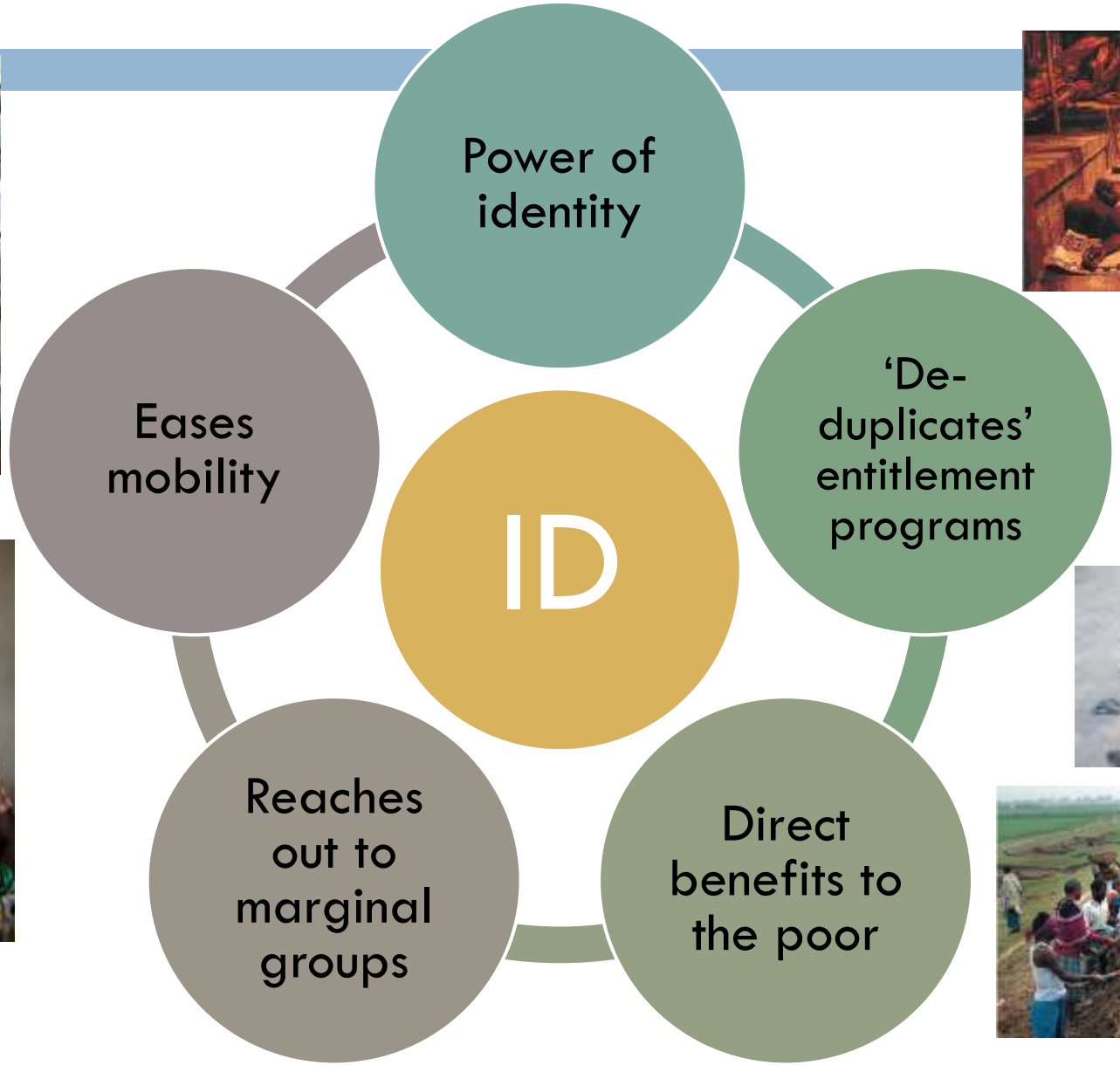
A resident typically accesses multiple service providers, at different times

Needs to repeatedly re-establish ID = problem for the poor

Birth records ✗
Address proof ✗
Money to 'beat' the system ✗

= No or limited access to entitlements and opportunities

Biometric ID will be the ‘infrastructure’



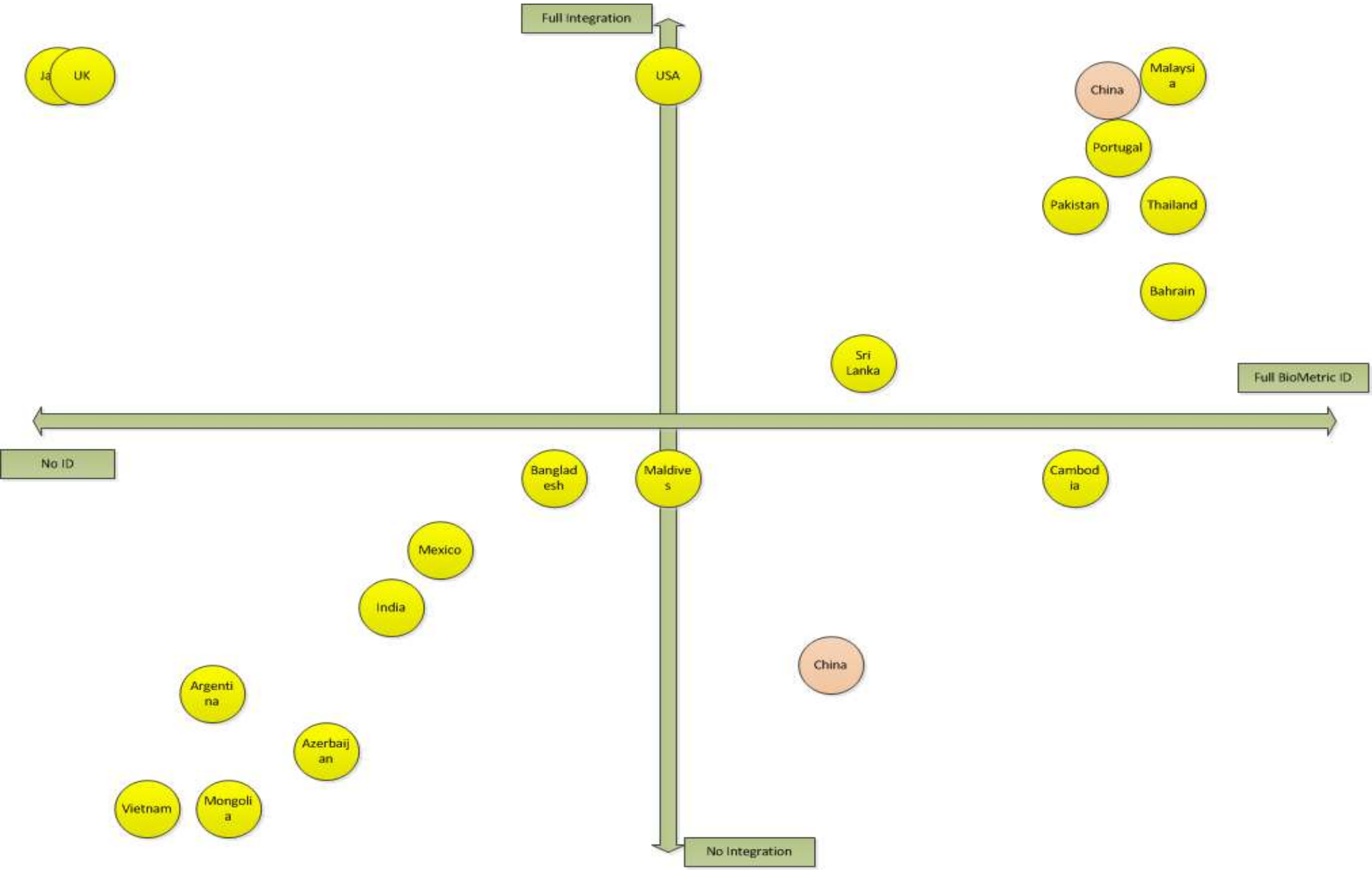
Identity and Social Protection

	Needs		
	Registration	**Authentication**	**Monitoring**
Citizens/ Residents	• Eligible individuals can enroll	• Eligible individuals can access service • Others can't steel their benefits	• Access to personal records
States, Donors	• No ghosts, double-dippers • Only eligible individuals are enrolled	• Only eligible individuals receive service • No individuals receives multiple benefits	• *Impersonal*: registration/service use tracked for statistics, audit, results-based financing, etc • *Personal:* individuals use service according to plan/requirement

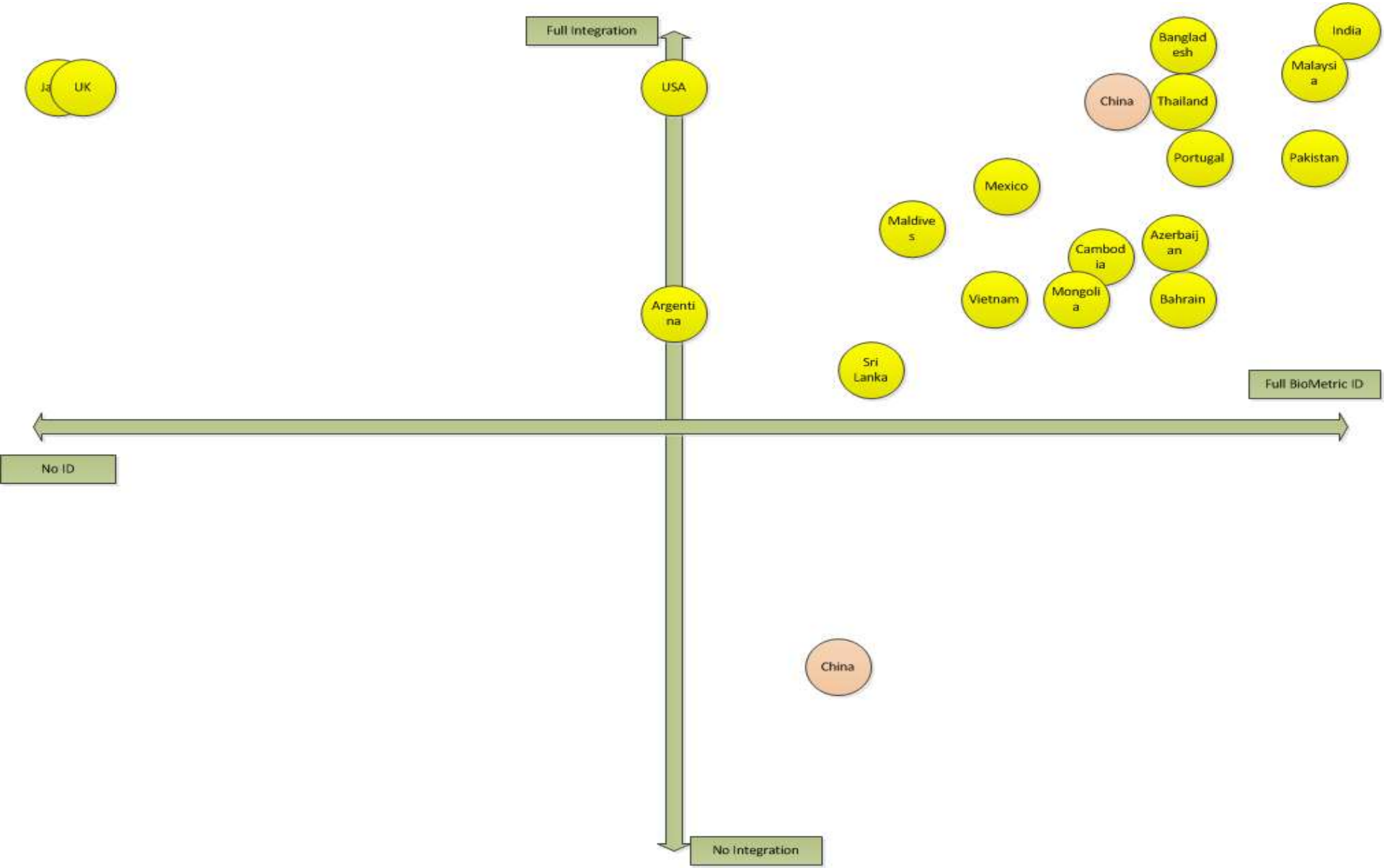
Regional IDs

- WWII legacy makes creating National IDs difficult
- Internal passport legacy is "Good Enough"
- Personal data privacy and security
- Banking infrastructure fairly robust
  - Banking cards used by large percentage of population
- Tale of the haves and the have-nots

2010


Full Integration
USA
UK
China
Malaysia
Portugal
Pakistan
Thailand
Bahrain
Sri Lanka
Full BioMetric ID
No ID
Bangladesh
Maldives
Cambodia
Mexico
India
China
Argentina
Azerbaijan
Vietnam
Mongolia
No Integration

2020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Maldives
Cambodia
Azerbaijan
Vietnam
Mongolia
Bahrain

Austria

- Austrian Citizen Card is a Concept not a token
- ID Framework for all ID issuing authorities
- 8.6 Million Citizens – 24 Million IDs
- Source PIN and Sector Specific PINs – Digital Signatures
- Strict cryptographic standards
- 2 factor authentication

Romania

- Legal framework 1949
- 1990 ID linked to the National Registry of Personal Records IT System
- 2002 Foreign residents registration
- Several Postponed
  - 2002 eID Card legal framework
  - 2007 Health card
  - 2009 eID Card issuance
- 2011 Smartcard and Biometrics

Estonia

- Legal framework 2000 Ministry of Economic Affairs
- Central database contains all valid and non-valid document submitted
- PKI Digital signature ID
- 2006 Working group to integrate the ID into all life functions
- 2007 Mobile ID
- Company eID
- X-Road data inter-exchange
- 25% of votes in last election

Numbers

- Czech Rep
  - YYMMDD/SSSC
    - SSS Serial Number
    - C checksum (11)
- Austria
  - NNNDDMMYYC
    - NNN Consecutive serial number
    - C Checksum

…Easy to guess and easy to steal an Identity

Numbers Trends

- Planning for 150 years
- Removing identifying aspects
  - Religion
  - Citizen / Resident
  - Region or origin
- **Trending to random**

Biometric Terminology

- Verification 1:1

  I am who I say I am.

- Identification 1:N

  Who am I?

- De-Duplication

  I am unique!

National ID Card Stored Information survey

- Types of personal data stored in Europe/Asia regions, birth/residence information, card, biometric recognition technologies all analyzed and listed as shown below.

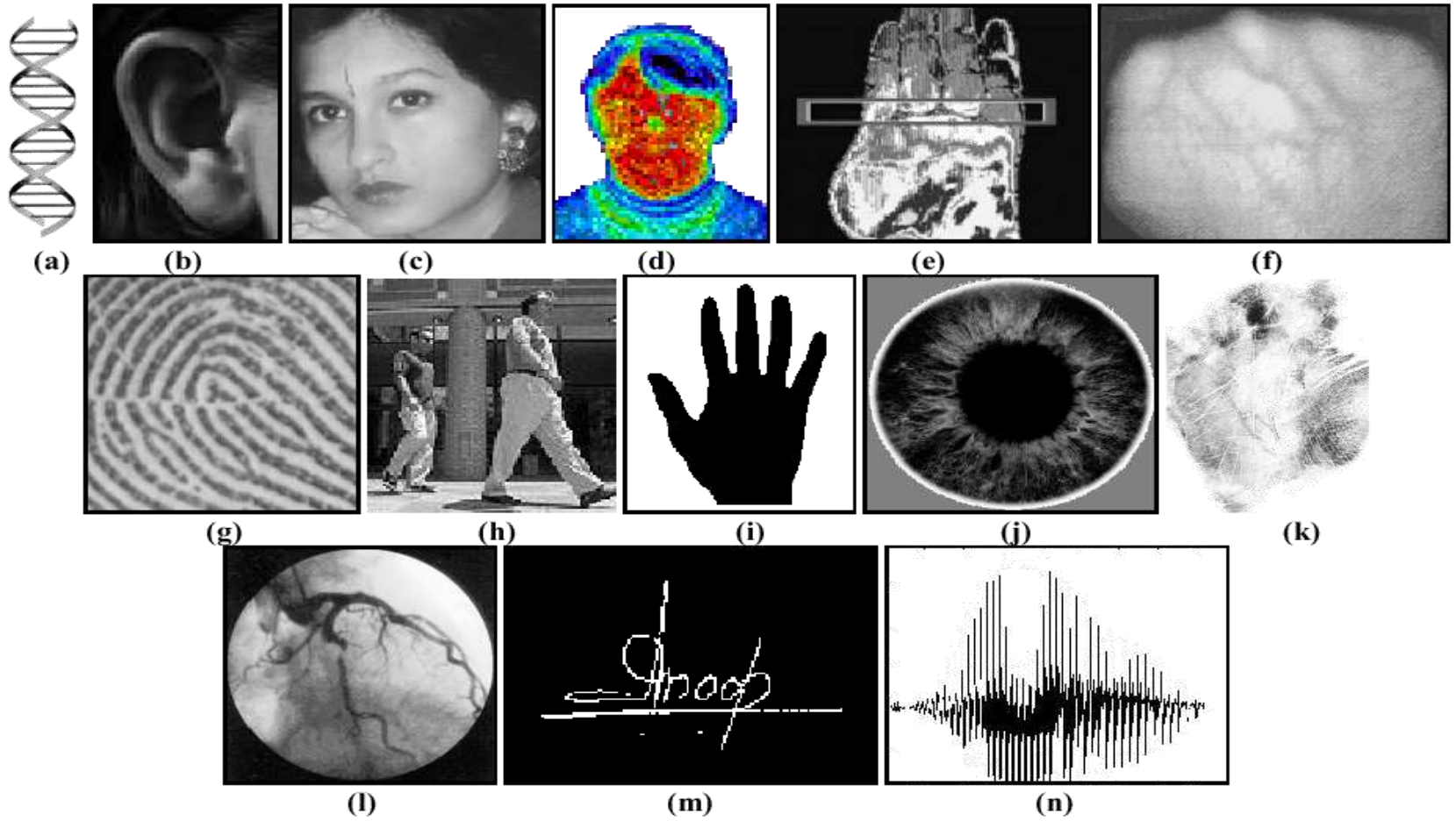
		Personal Information					Birth/Residence			Card	
		Name	Sex	Photo	Number	Nationality	Birth date	Birth place	Address	Issuance date	Issuance Agency
Europe	Finland	X	X	X	-	X	X	-	-	X	-
	Belgium	X	X	X	X	X	X	X	X	X	-
	Estonia	X	X	X	X	X	X	-	-	X	X
	Sweden	X	X	X	X	X	X	-	-	-	-
	Spain	X	-	X	-	X	X	-	X	X	-
	Italy	X	-	X	X	X	X	X	X	-	-
	Germany	X	-	X	-	X	X	X	X	X	X
	Austria	X	-	X	-	X	X	-	X	-	-
	Norway	X	X	-	-	X	X	-	-	-	-
Asia	Japan	X	X	X	X	X	X	-	X	-	X
	Hong Kong	X	X	X	X	X	X	-	-	X	-
	China	X	X	X	X	X	X	-	X	X	X
	Singapore	X	-	X	-	X	X	-	X	X	-
	Malaysia	X	-	X	X	X	X	-	X	-	-
	Thailand	X	-	X	-	X	-	-	-	-	-

Biometric Effectiveness

Biometric identifier	Universality	Distinctiveness	Permanence	Collectability	Performance	Acceptability	Circumvention
DNA	H	H	H	L	H	L	L
Ear	M	M	H	M	M	H	M
Face	H	L	M	H	L	H	H
Facial thermogram	H	H	L	H	M	H	L
Fingerprint	M	H	H	M	H	M	M
Gait	M	L	L	H	L	H	M
Hand geometry	M	M	M	H	M	M	M
Hand vein	M	M	M	M	M	M	L
Iris	H	H	H	M	H	L	L
Keystroke	L	L	L	M	L	M	M
Odor	H	H	H	L	L	M	L
Palmprint	M	H	H	M	H	M	M
Retina	H	H	M	L	H	L	L
Signature	L	L	L	H	L	H	H
Voice	M	L	L	M	L	H	H

Anil K. Jain, Arun Ross and Salil Prabhakar:An Introduction to Biometric Recognition, *IEEE Transactions on Circuits and Systems for Video Technology, Special Issue on Image- and Video-Based Biometrics,August 2003*

Biometrics Identification



a) DNA, b) ear, c) face, d) facial thermogram, e) hand thermogram, f)hand vein, g) fingerprint, h) gait, i) hand geometry, j) iris, k) palmprint, l) retina, m) signature, and n) voice.

Authentication – Are you who you claim to be?

Verification based on one or more of:

Who you are

- Biometrics – Photo, fingerprint, iris

What you have

- Paper, card, smart card, RFID card,

What you know

- Demographic and other information, PIN, password, secret answer

ID Verification is a key process in most forms of public service delivery

Signature and Document Formats

Document Format

- The current law considers only textual information as an electronic document
- We use PDF (based on ISO/IEC 32000-1) format

Signature Format

- Signatures of *AdES family of ETSI standards were found to be permitted under the Georgian signature law
- PAdES (ETSI TS 102 778) signatures are used
- PAdES-LTV is highly recommended as citizen's certificates expire in 2.5 years

Secure electronic signature

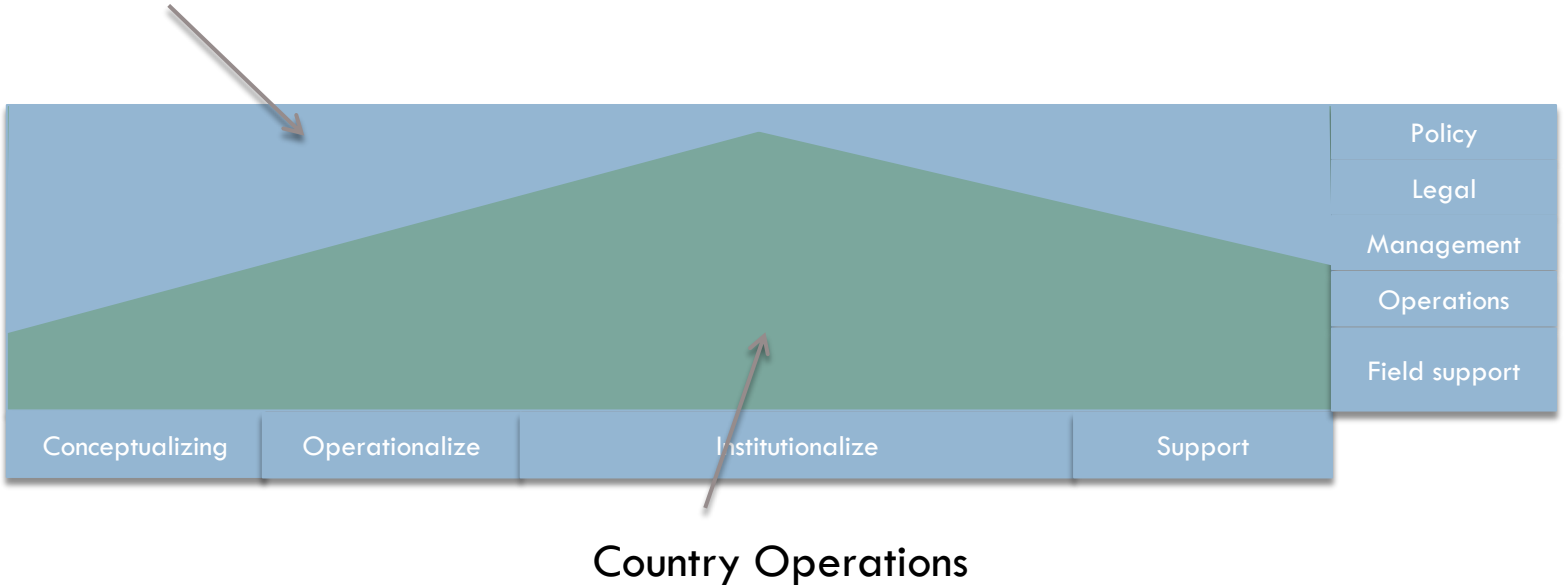
Secure electronic signature has strict security requirements – needed functions:

- it is linked only to the signatory,
- it ensures the personal identification of the signatory,
- it is created with secure electronic signature-creation devices, which may be controlled only by the signatory,
- it is linked to a signed electronic document so that later changes in the electronic document are detectable, and
- it is certified by a qualified certificate

…Example of a well written Secure Electronic Documents Act Latvia -- http://likumi.lv/doc.php?id=68521

Support Lifecycle

Donor Support



Institutional Structure

- Independent agency
- Social security or Health Insurance
- Electoral, Tax or Census

- Interior or Police

Wrap up

- Independent agency
- Globally trending to using biometrics not just for issuing but also for authenticating
- Look to identify everyone not just residents or recipients of a government program
- Utilize open and publish standards