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future of identity

Biren Shah

What is required

- **IDENTIFICATION**

  – **A person could be identified based on**

    - **"something that you know"**

    - **"something that you possess"**

    - **"something that you are"**

      The characteristics could be either a person's physiological traits, e.g., fingerprints, Face, Iris, etc. or her behavioral characteristics, e.g., voice and signature.

- **VERIFICATION**

    - **Person should be verified Anytime Anywhere Anybody.**

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Components of Identity Management:

Over the past several years, a number of factors have sharply increased the world-wide market need for stronger Identity Management in both the public and private sector.

Public Sector Drivers

All factors have driven the creation of varying forms of legislation across the world (e.g., REAL ID, HSPD-12, ePassport, Schengen)

|	
Terrorism Threat	• 26/11, 9/11, Beslan, Madrid, London • Increased government focus on public safety
Illegal Immigration	• Increased drive to control illegal immigration, human trafficking • Relationship to national security
Globalization	• Increased volume/speed of international commerce • Security vs. facilitation balance
ID Fraud & Fragmented Identity schemes	• UK social service/benefit fraud estimated to be £2 Billion per year • Non-integrated schemas: numerous Fed/State ID's for travel, voting, driving, permits social benefits, etc. (e.g, 2000 ID variations in State of NJ)
Drive for High Performing, eGovernments	• Increased gov't focus on efficiency, automation, less duplication • Public perception, media scrutiny • Push for horizontal (within Fed) and vertical (Fed to State) integration

Private Sector Drivers

Identity Theft	• ID theft fastest growing form of fraud (10M people in U.S. in 2003) • Annual global cost of theft estimated to be $2 trillion per year
Globalization	• Networked/distributed organizations; mobile, wireless workforces
Virtualization, eCommerce, Self-Service	• ID integrity critical to increasing self-service, sales, client case mgmt/CRM; 'customer fears' • Differentiation; shareholder value
Regulatory Requirements	• Sarbanes-Oxley; HIPAA; Patriot Act, Sec. 326; FACT; Grahm Leach Bliley; CFR21, etc. • EU Privacy; Canada C6
New Technology, Capabilities	• Proliferation of sensors, smartcards, RFID, biometrics, nanotechnology, etc.

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WAYS TO TRACK A CITIZEN

- *National identity register* Designed to store biometric and administrative data linked to all type ID card use.
- An audit trail of citizens' interaction with services. Intelligence agencies and police get largely unrestricted access.
- *Contact Point* Index of all students .
- *Health repository information of every citizen.*
- Driving license and property purchase linked repository.
- Background check for tenants / servants / employees etc.

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Components of the An Identity Solution
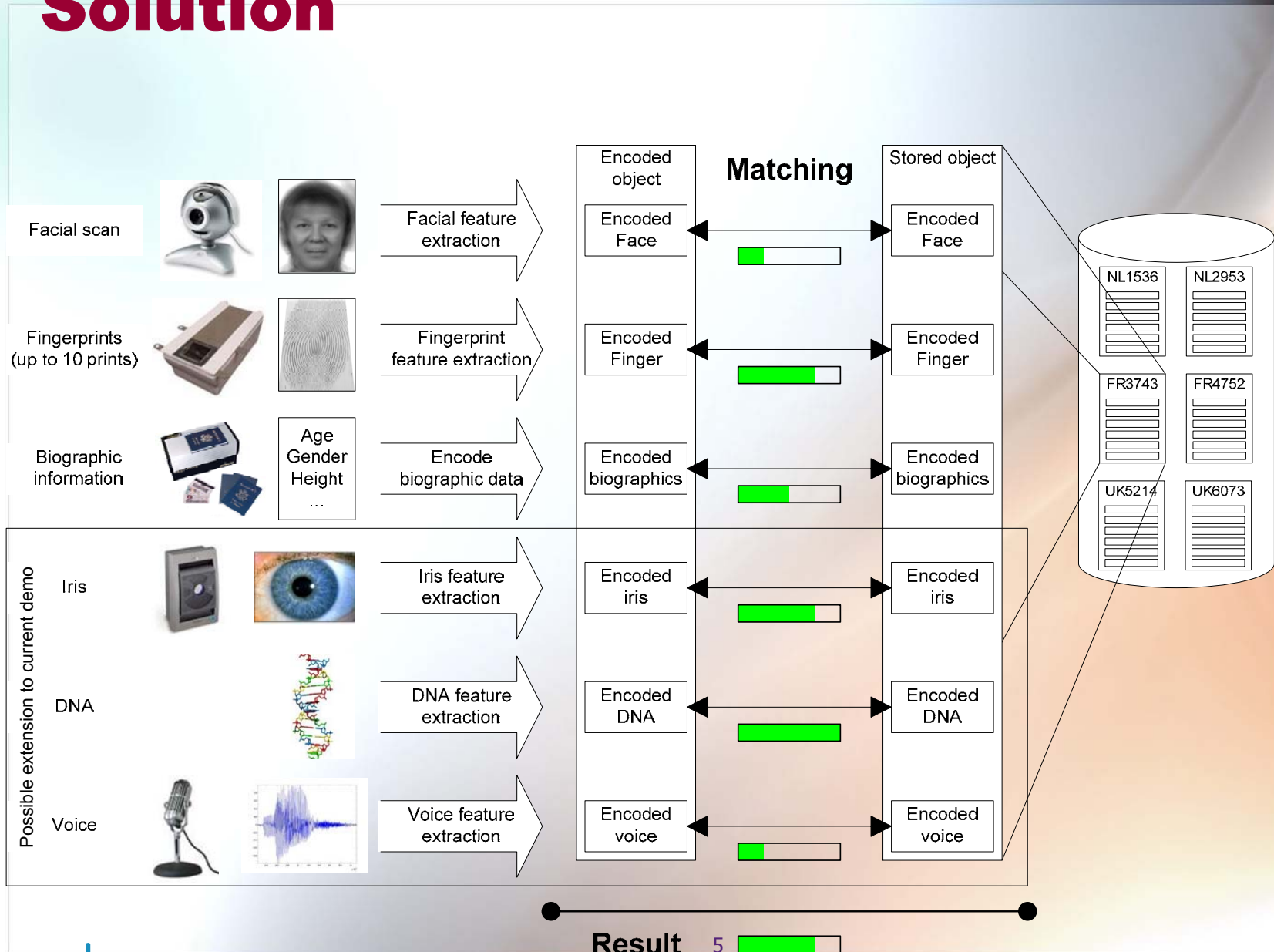
Terrorism is no more a faraway blip on the radar in conflict areas. It is thumping at the doorsteps of our cities.
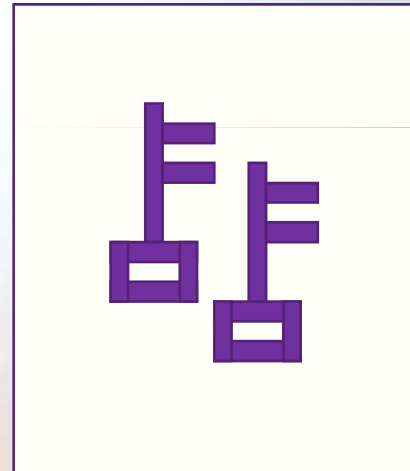
About Biocryptics

GenKey's technology is truly unique, and will revolutionize
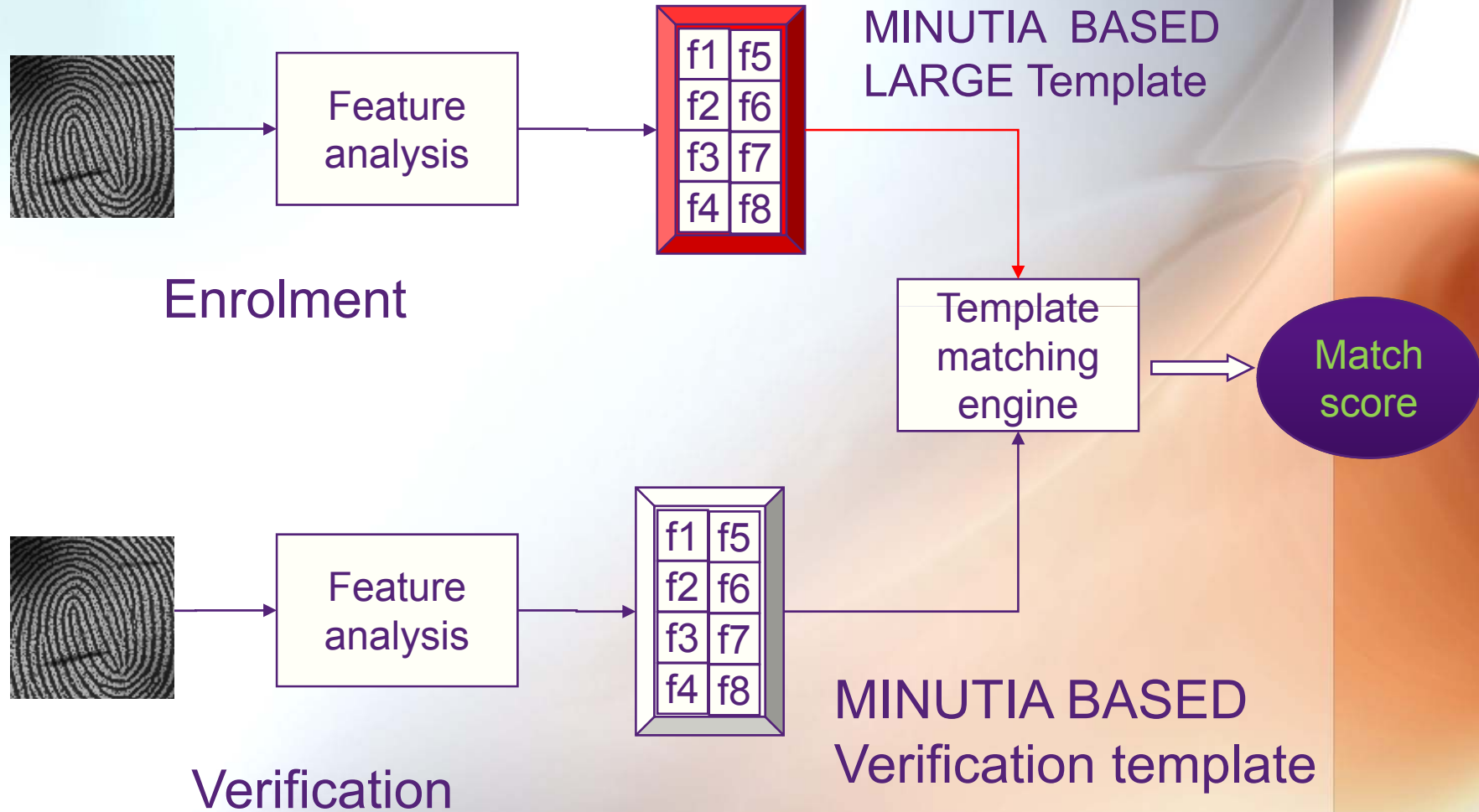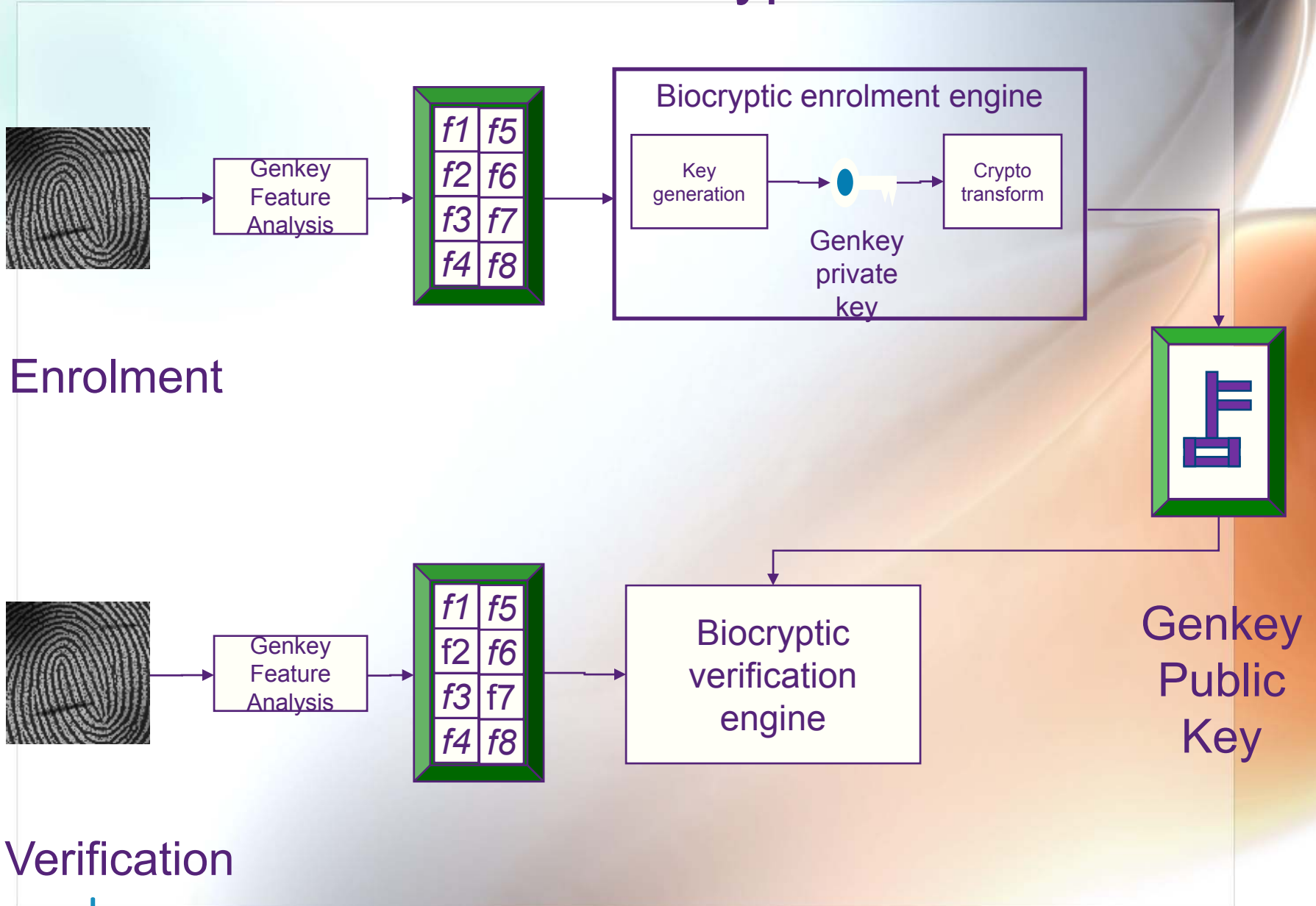the world of Biometrics and the world of PKI

Biometric
Input

Crypto
Keys

GenKey's patented technology collapses
biometrics
and converts it into crypto keys
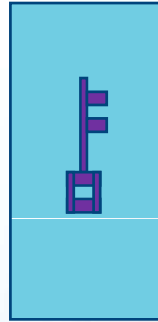
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Authentication with Conventional templates tech.

Enrolment

MINUTIA BASED
LARGE Template

f1	f5
f2	f6
f3	f7
f4	f8

Feature analysis

Template matching engine

Match score

Verification

f1	f5
f2	f6
f3	f7
f4	f8

MINUTIA BASED
Verification template

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Authentication with biocryptics

Enrolment

Biocryptic enrolment engine

Genkey Feature Analysis

f1	f5
f2	f6
f3	f7
f4	f8

Key generation → Genkey private key → Crypto transform

Verification

Genkey Feature Analysis

f1	f5
f2	f6
f3	f7
f4	f8

Biocryptic verification engine

Genkey Public Key

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Sample case for India – Visit Program VISA

Authentication:
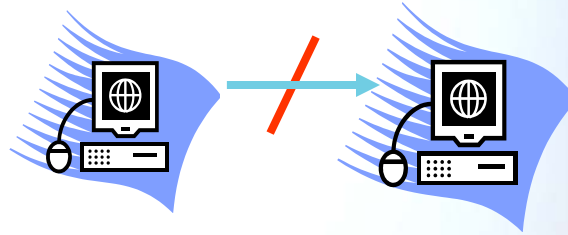
Match?

Verified ✓

Benefits

1	**Cost Efficiency**
2	**Off Line Mode**
3	**Speed**
4	**Revocation of Biometric ID**
5	**Supports multimodal biometric systems**

Cost Efficiency

- No chip card required

- Inexpensive Sensors

- Utilizes existing Computers

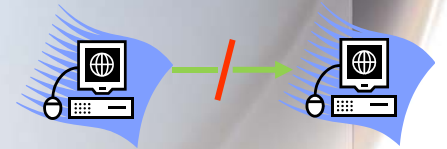- No costly infrastructure or central database

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Benefits

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5	**Supports multimodal biometric systems**

Off Line Mode

GenKey provides authentication
without any connection between
issuance and verification.
Hence you can verify
individual at middle of sea
or at any Naka bandi.

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Benefits

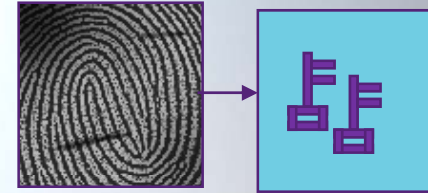|	
1	**Cost Efficiency**
2	**Off Line Mode**
3	Speed
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5	**Supports multimodal biometric systems**

Speed

Comparing images/templates is very time consuming. 1:n per sec. on a standard CPU is around 7 000.

Comparing numbers is very efficient. 1:n per sec. on a standard CPU is around 1 300 000.
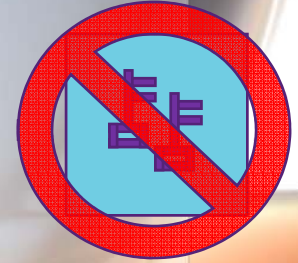
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Benefits

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Revocation of Biometric ID

In case of security breach, GenKey crypto keys can be revoked
and new keys generated

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Benefits

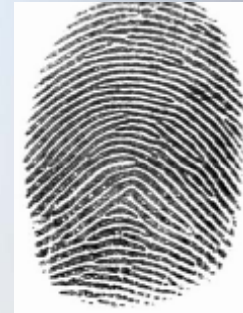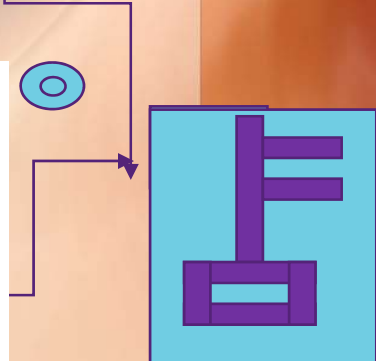|	
1	**Cost Efficiency**
2	**Off Line Mode**
3	**Speed**
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5	**Supports multimodal biometric systems**

Iris

Finger

Face

Other

- A system of multiple biometrics can be searched at the same speed as a single finger system

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Practical approach to Fisherman identity

Biocryptic Repository / Register distinguished from Identity Card

- ◎ **Challenges in issuing ID cards:-**

  - ■ **Data Collection:- With a given population of the state Decentralised data collection is required. Which itself is mammoth exercise.**

  - ■ **Printing and Logistics:- Smart Cards are required to be encoded and printed, hence such 365*24*7 facility is required.**

  - ■ **Cost:- Different organisations having unique purpose require Different cards hence centralised id card development is very expensive.**

- ◎ **ID Card :- Id card for any pool can be developed from the repository. Biographic and Biometric information in character and numeric format will always be available.**

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Use of citizen repository

- Identity of citizen residing in the city, villages near border
- Ease in updating Population record.
- Slum rehabilitation.
- Use as health card for Civil hospitals
- Use as supportive Ration card for right identity
- Local body election
- All types of municipal approval
- Schemes for people below poverty line
- Statistical data for analysing migrants in the city / village.
- Law enforcement.
- Criminal Act Data Storage.
- Census.
- Search Facilitator in Criminal Proceedings.
- Security at Civilian Facilities.

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Challenges

- **Governance Challenges**
  - **Data ownership across jurisdictions, agencies, nations**
  - **Central vs. State Roles; Centralized vs. network structures**
  - **Multi-vendor consortia implementing, delivering solutions**
  - **National and international policy making**
- **Privacy and Social Challenges**
  - **Privacy concerns regarding collection, usage of identity data**
  - **Social acceptance of biometrics**
  - **Big brother concerns; identity to track an individual**
- **Technology Challenges**
  - **Numerous or non-defined standards**
  - **Scale requirements: population sized databases and solutions**
- **Transition Costs, Transition Challenges**
  - **Infrastructure funding; large up-front capital costs**
  - **Integration of existing data**
  - **Business process, policy, organizational changes**
- **Risk of incorrect identities**

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"Nothing comes without a cost but the solution lies in minimizing it to bear minimum and make anything sustainable on its own with accrued benefits."

C. K. Prahalad

Thank you

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