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# **ERNICIP - Applied Biometrics Thematic Group**

## **The Application of Biometrics in Critical Infrastructures Operations: Guidance for Security Managers**

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Date: 28<sup>th</sup> April 2016 (IMPROVER Workshop, Ispra)

# Biometrics

- The **automated** recognition of individuals, based on their **biological and behavioural characteristics**  
usually, **in real time**  
usually, **living**
- Many broader uses - especially in operational policing
  - Forensic applications are usually 'examiner assisted'
  - Often not real time
  - Sometimes not dealing with living subjects

# Some Potential Biometric Applications for use in Critical Infrastructures

- Physical access control
- Logical access control
- 'On-the spot' verification of identity
- ABC gates for immigration
- Surveillance systems
- Employee vetting
- Authorisation and audit of key activities
- Confirmation of specialised training and qualifications

# Some Potential Biometric Applications for use in Critical Infrastructures

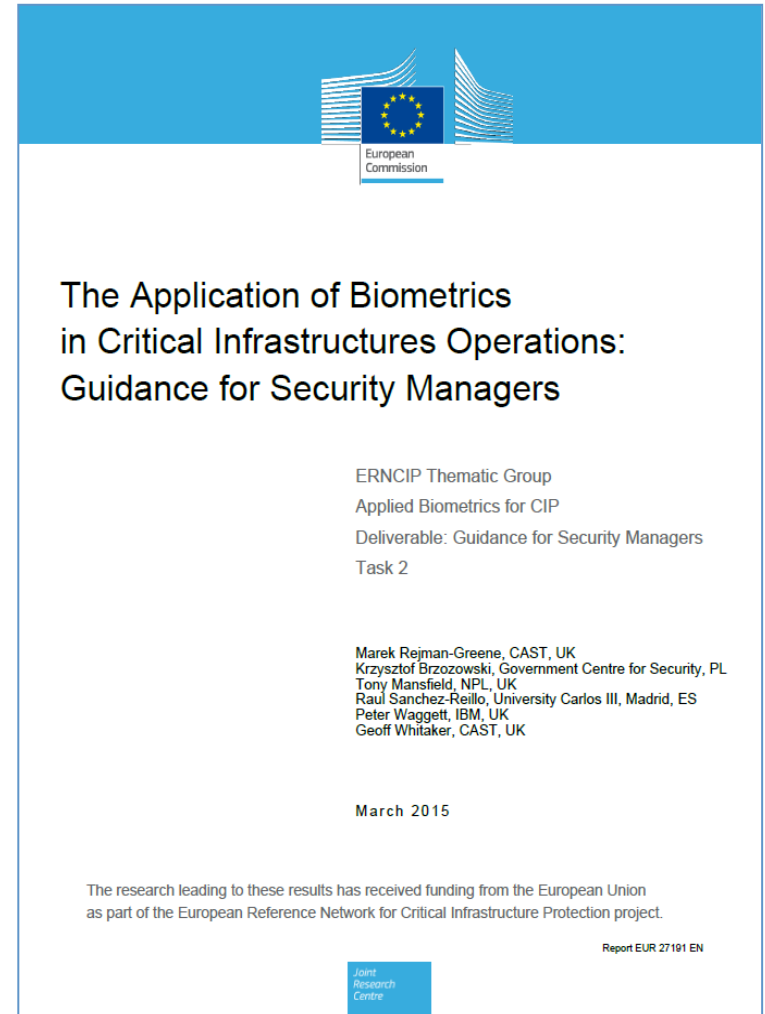
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# Published Guidance

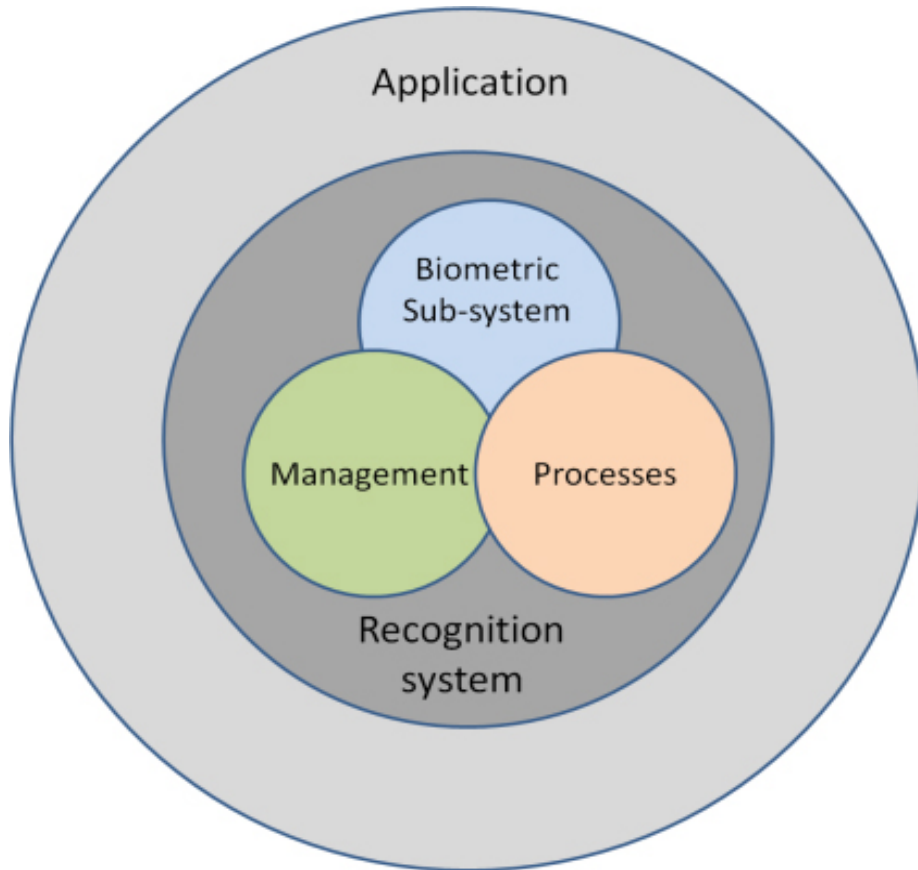
## ‘Guidance for Security Managers’

- published in May 2015
- focus of this presentation

<https://erncip-project.jrc.ec.europa.eu/networks/tgs/biometrics>



# Biometric Systems



- **Multiple components**
  - H/W and S/W
  - Communications network
  - Processes
    - Enrolment
    - Fall-back / business continuity
  - Policies
    - Security
    - Testing
    - Privacy

# Design and Implementation

Operating a biometric system

Acceptance testing of a biometric system

Planning for implementation of a biometric system

Determining the type of recognition system

Assessing the need for a recognition system

Use of relevant standards:

ISO/IEC 30124:  
Code of Practice for the  
Implementation of a Biometric  
System

ISO/IEC 19795: Biometric  
Performance Testing and  
Reporting

# Choice of Modality

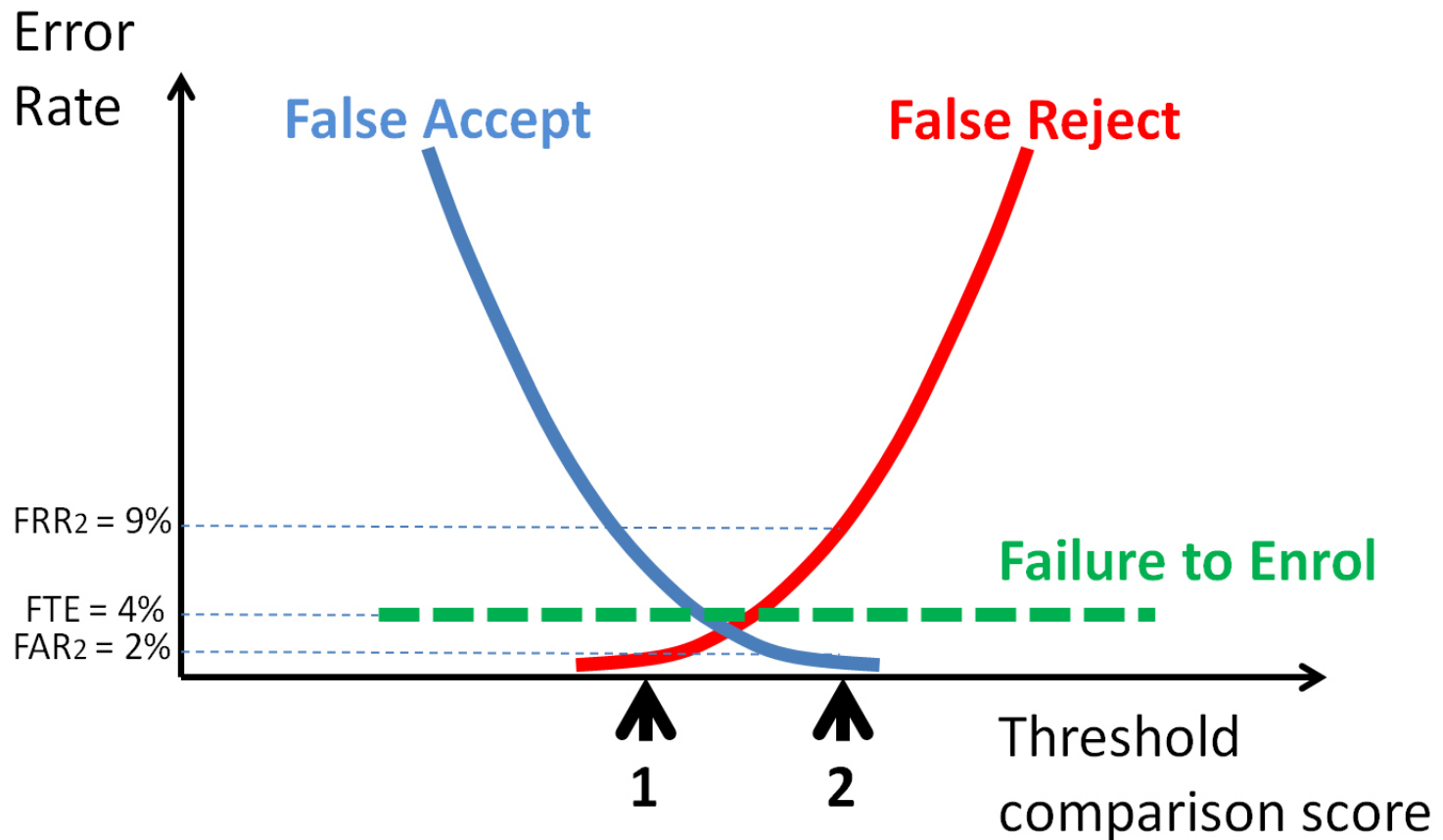




# Biometric Processes

- Enrolment
  - supervised / unsupervised
    - training
  - obtaining a high quality sample is key to performance
    - Automated quality assessment software
- Verification
  - 1:1 comparison of a probe to a single reference
    - Typically used with a PIN pad or smartcard and reader
- Identification
  - 1:many search against a database of reference samples to identify the user
  - Duplicate check to determine if a 'new' subject is already enrolled

# The comparison process: Accuracy



# Security - spoofing



# Summary

- Biometric technologies may not always be the most appropriate solution
- Need to consider the 'end-to-end' process, not just the technology
- Not COTS products – especially for Critical Infrastructure applications
- Proper testing is vital
- Need to consider non-functional aspects such as
  - Privacy
  - Legality
  - Inclusivity
  - Usability

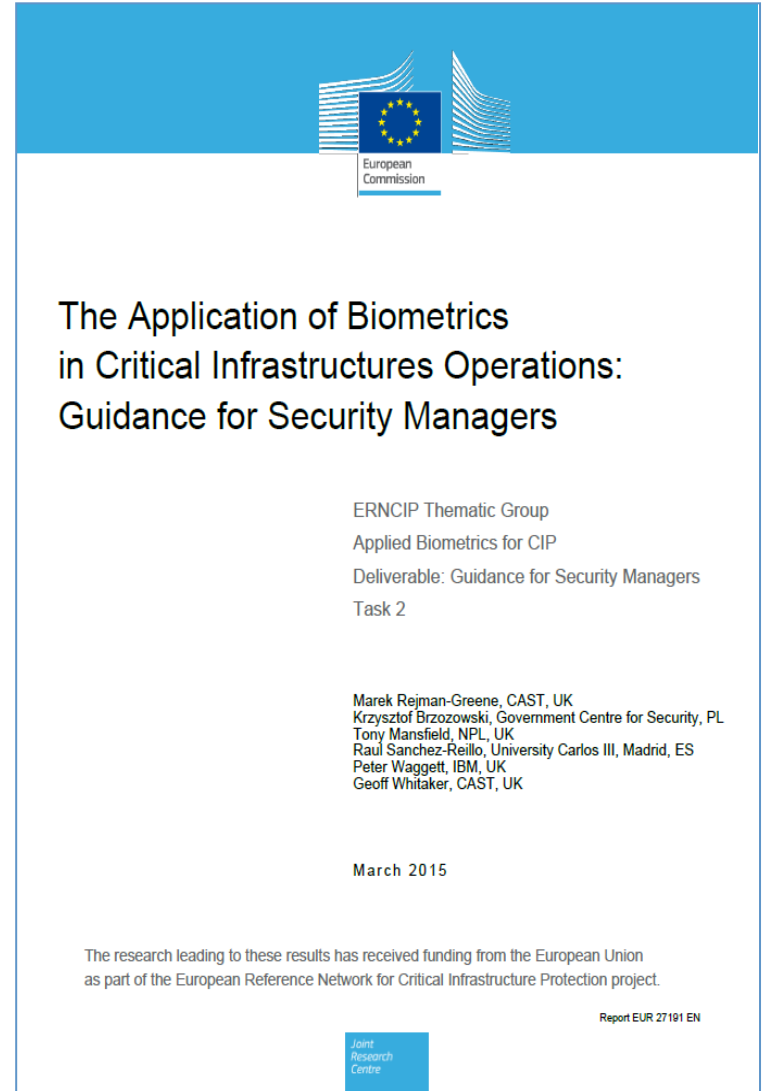
# Questions?

# Comments?

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The cover page features a blue header with the European Commission logo and the text 'European Commission'. The title is 'The Application of Biometrics in Critical Infrastructures Operations: Guidance for Security Managers'. Below the title, it lists the ERNCIP Thematic Group, Applied Biometrics for CIP, and Deliverable: Guidance for Security Managers Task 2. The authors listed are Marek Rejman-Greene, CAST, UK; Krzysztof Brzozowski, Government Centre for Security, PL; Tony Mansfield, NPL, UK; Raul Sanchez-Reillo, University Carlos III, Madrid, ES; Peter Waggett, IBM, UK; and Geoff Whitaker, CAST, UK. The date is March 2015. A note at the bottom states that the research received funding from the European Union as part of the European Reference Network for Critical Infrastructure Protection project. The report number is EUR 27181 EN. The Joint Research Centre logo is in the bottom right corner.

European Commission

## The Application of Biometrics in Critical Infrastructures Operations: Guidance for Security Managers

ERNCIP Thematic Group  
Applied Biometrics for CIP  
Deliverable: Guidance for Security Managers  
Task 2

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Report EUR 27181 EN

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