



ICAO

SECURITY & FACILITATION

NO COUNTRY LEFT BEHIND

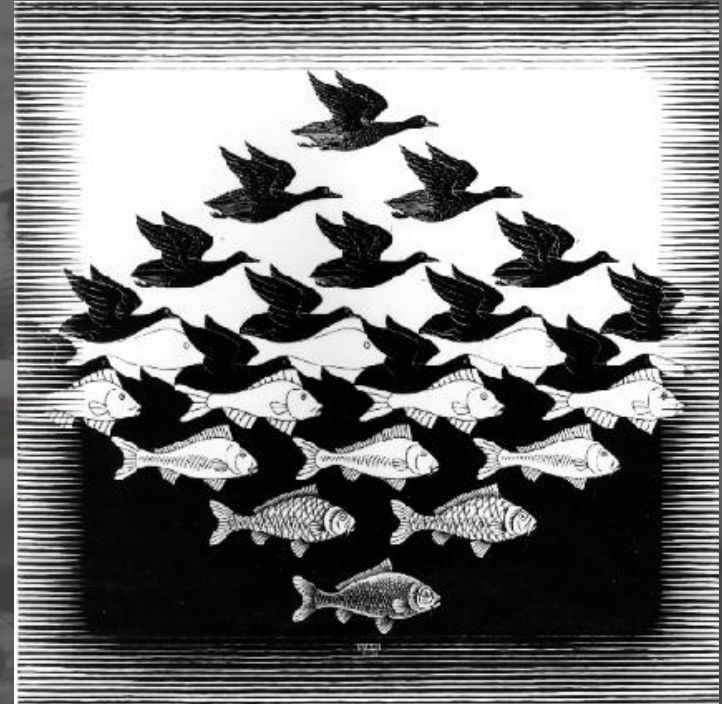


# Devices and their impact on Issuance and Control

**Fons Knopjes**

*Research & Development Advisor*

*Ministry of the Interior and Kingdom relations  
National Office for Identity Data  
the Netherlands*



Strengthening Aviation Security through Improved Traveller Identification



ICAO

SECURITY & FACILITATION

NO COUNTRY LEFT BEHIND



## Agenda

1. Look, Observe and Interpret
2. Scanners
3. ID-Verification and photo
4. Space for improvement



ICAO

SECURITY & FACILITATION

NO COUNTRY LEFT BEHIND



What is the colour of this flower?



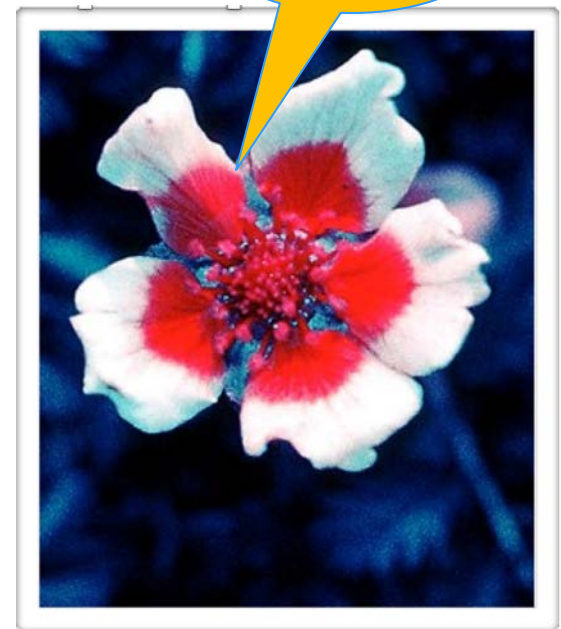
*Courtesy of Prof. dr. D. Meuwly, NFI, the Netherlands*



Is this the right colour?

Look

Is this the right colour?





# Observe



Yellow !



Who is right?



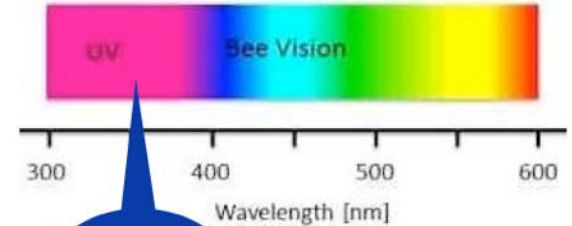
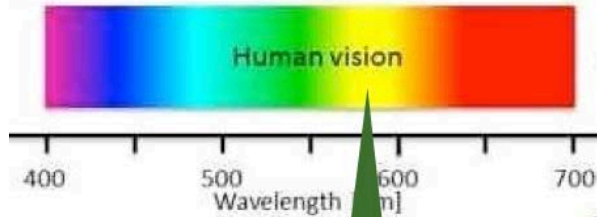
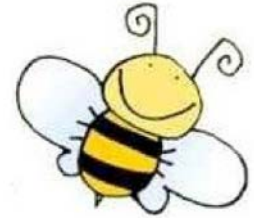
Red !







# Reality



**Yellow !**

**Who is right?  
Both!**

**Red !**

**Observation 1**

**Observation 2**



# Observe

Yellow !



# Interpret

Flower, it's  
spring !



Red !





Good food !





# Observe

# Interpret





				
			<b>Red</b>	<b>Food</b>
	<b>Yellow</b>	<b>Spring</b>		
	<b>O</b> bserve	<b>I</b> nterpretation	<b>O</b> bserve	<b>I</b> nterpretation





# Observe

# Interpret

	 Layman	 Expert		
		Red	Food	
	Yellow	Spring	Yellow	Spring
	<b>O</b> bserve	<b>I</b> nterpretation	<b>O</b> bserve	<b>I</b> nterpretation



| ICAO

SECURITY & FACILITATION

NO COUNTRY LEFT BEHIND



## Document scanners





ICAO

SECURITY & FACILITATION

NO COUNTRY LEFT BEHIND



# Mobile Document scanners





## Scan process

### Scanner

- ✓ Functionality

### Software

- ✓ Configuration

### Documents

- ✓ Great variety

### Reference database

- ✓ Is quality and completeness know

### Civil servant

- ✓ Variable knowledge level and level of experience



## Scan process

### Scanner

- ✓ Resolution
- ✓ Light source (VI-UV-IR)

(Capture)

### Software

- ✓ Visualisation
- ✓ Check routines (MRZ etc.)
- ✓ Establishing Model
- ✓ Template generation

(Observe)

### Verifying against a database

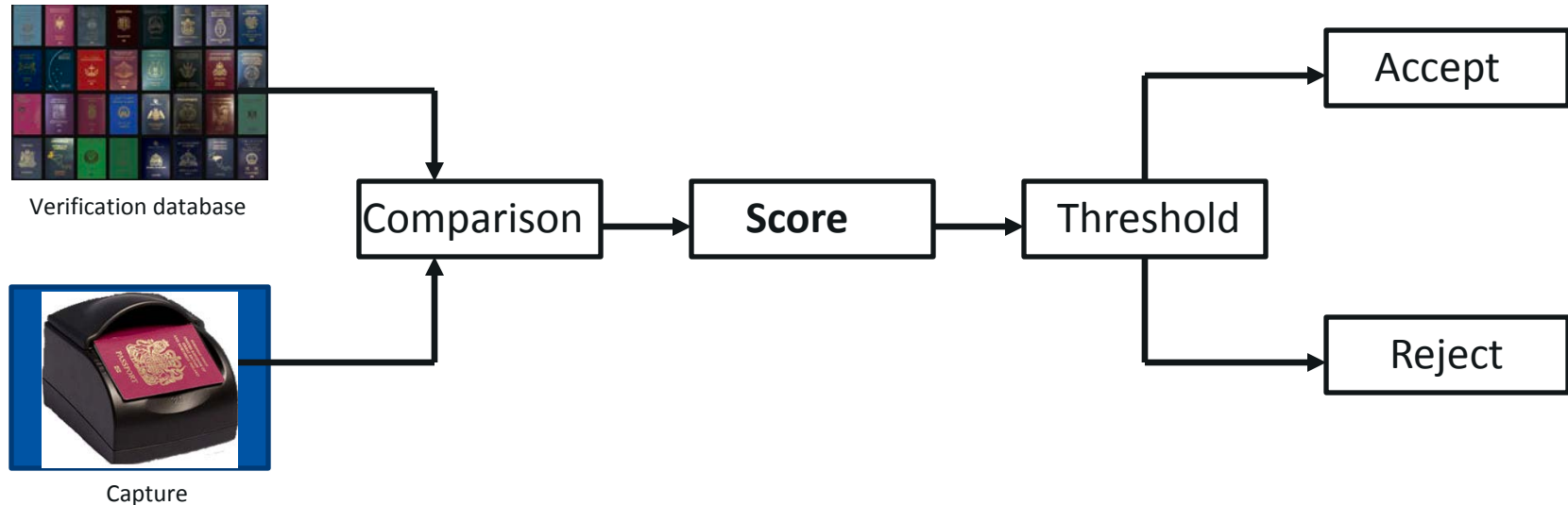
- ✓ Model (based on the template) comparing with (template) model in database

(Interpret)





# Scanner based Identity/document verification





ICAO

SECURITY & FACILITATION

NO COUNTRY LEFT BEHIND



## Decision Document scanner

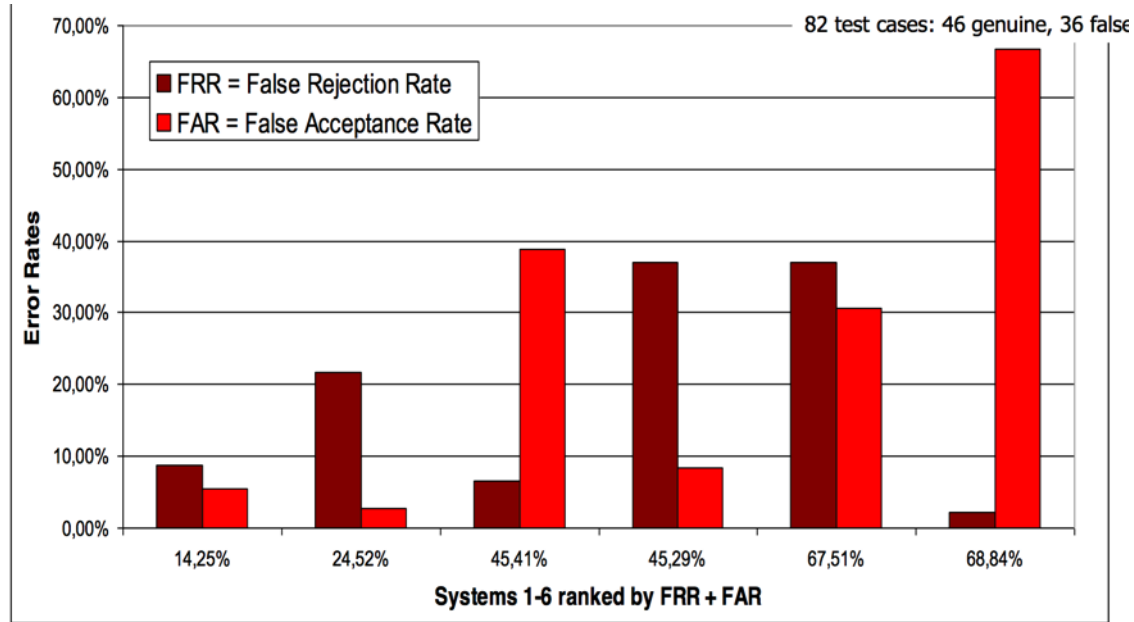
Document OK

Erroneously Rejected genuine docs (FRR)

Erroneously Accepted false docs (FAR)



## Space for improvement?!



FRR: erroneously rejected genuine docs; FAR: erroneously accepted false docs



## ID-verification and photo

### Applicant

- ✓ ID-document

### Photo

- ✓ Quality
- ✓ Same person as applicant

### Reference Database

- ✓ Photo database

### Civil servant

- ✓ Variable knowledge level and level of experience



# Photograph and ID-verification

## Quality

**Photograph quality**

The photographs must be:

- 25-40mm in width
- close up of face and top of shoulders so that face takes up 70-80% of the photograph
- in sharp focus and clear
- of high quality with no marks

The photographs must:

- show looking directly at the camera
- show skin tones naturally
- have appropriate brightness and contrast at high resolution

Photographs to be taken with a digital camera must be high quality colour.



## Same person as the applicant?







## Research judge photograph's *UNSW*

- We don't look like we think we look
- What we have shown is that passport issuing officers – despite their experience – do not perform any better than the rest of the population.
- Passport officers made an average of 10% errors on the *Person-to-Photo test*.
- “The accuracy of automatic face recognition software has improved markedly in recent years. But, despite its name, the system is not fully automatic,” says Dr White



## Space for improvement technique + human being?!

### Improvement process technique

- No standardization of scanner technology
- QA of reference database and decision-making process unknown for user (black-box)
- Interpretation of results complex for Front-Office

### Improvement process human beings

- No standardization of competences
- Complexity of information in GUI for Front-Office (to much, to technical)
- Officer gets dulled in the work



| ICAO

SECURITY & FACILITATION

NO COUNTRY LEFT BEHIND



## Contact Details

Name: Fons Knopjes

Email: [fons.knopjes@rvig.nl](mailto:fons.knopjes@rvig.nl)