



# ORIGINS – Project Overview & First Results

Montreal TRIP 15-17 November 2016

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# Agenda

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- **Setting the scene of breeder documents**
- **The ORIGINS project**
- **First results and findings**
- **Preliminary recommendations**
- **Standardisation activities**

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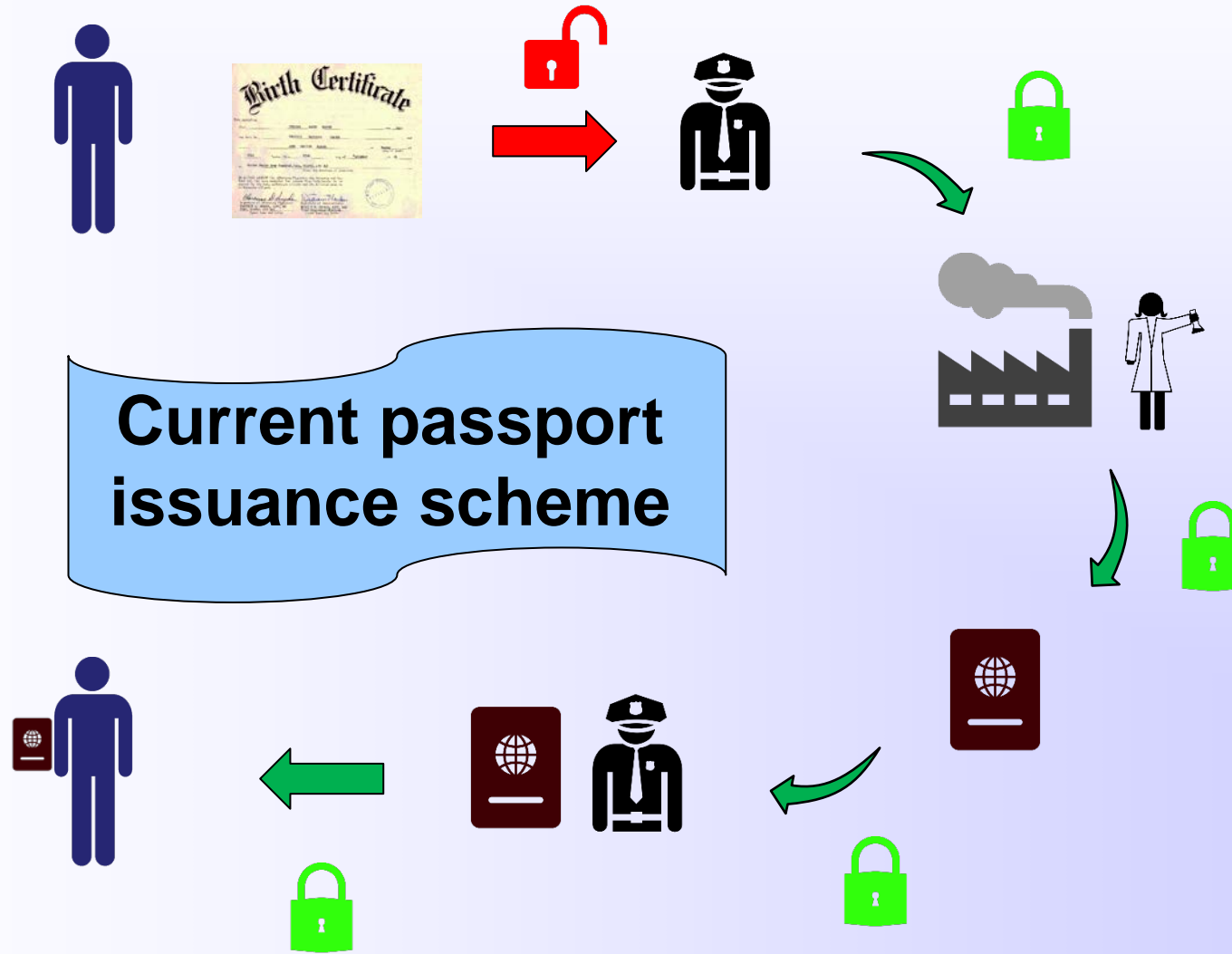
# Setting the scene (1)



- **Definitions**

- “A document, genuine or fraudulent, that can serve as a basis to obtain other identification documents or benefits fraudulently” (Oxford Dictionary)
- “Breeder document are documents used for access to other forms of legitimate identification for the purpose of establishing a false identity” (US Legal)
- “A document that allows you to obtain other documents”
  - *Examples: Birth certificates, Marriage certificates, Social security, Consular identification card, ...*
- “Documentary evidence that bear identifying details and nationality and are issued by a trusted government or other official source. » (ICBWG, ICAO 2009)

# Setting the scene (2)



# Setting the scene (3)

- Breeder documents in the EU

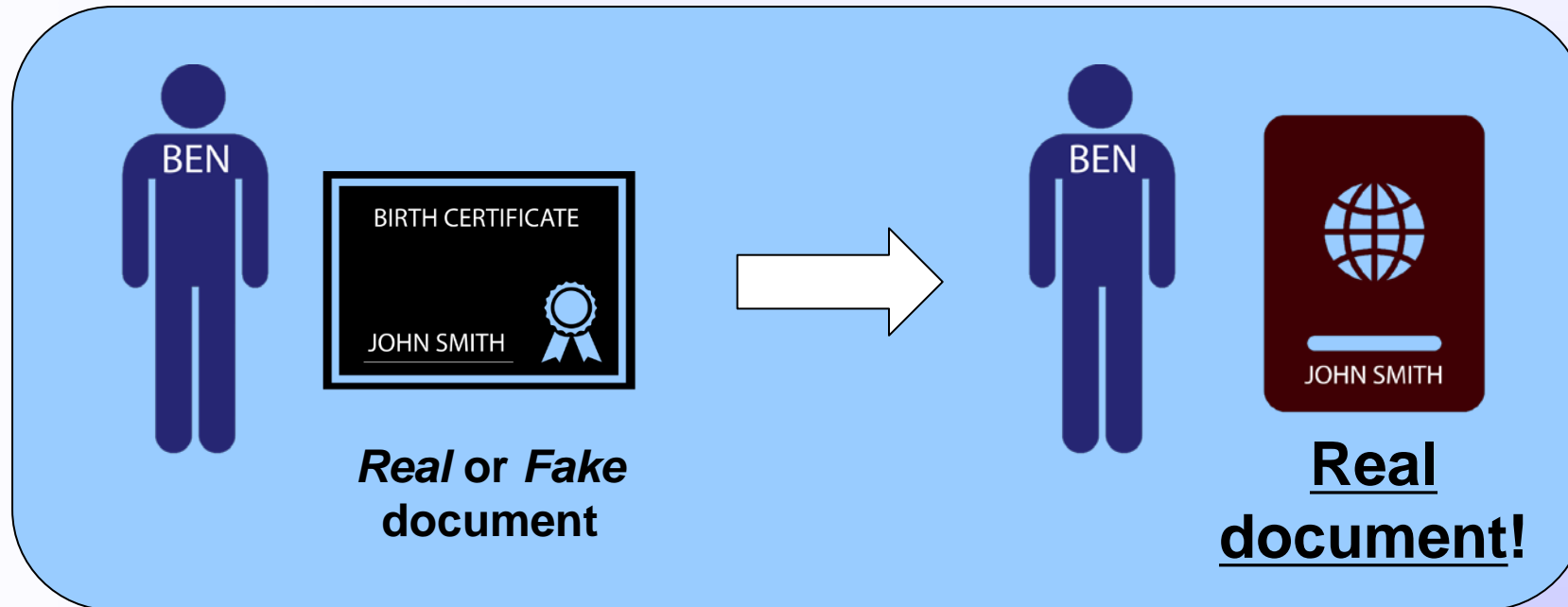
- “The issuing of passports in the Member States of the EU is dealt with under the national law of those Member States.
- National law requires the presentation of various documents, such as a birth certificate, citizenship certificate, family book, parental authorization, driving license, utility bill, etc.
- These documents are usually called "breeder" documents, as passports may stem from them.”
  - European Data Protection Supervisor (EDPS) on e-passports regulation



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# Setting the scene (4)

Forged or stolen breeder documents can create genuine passports!



Why? ...

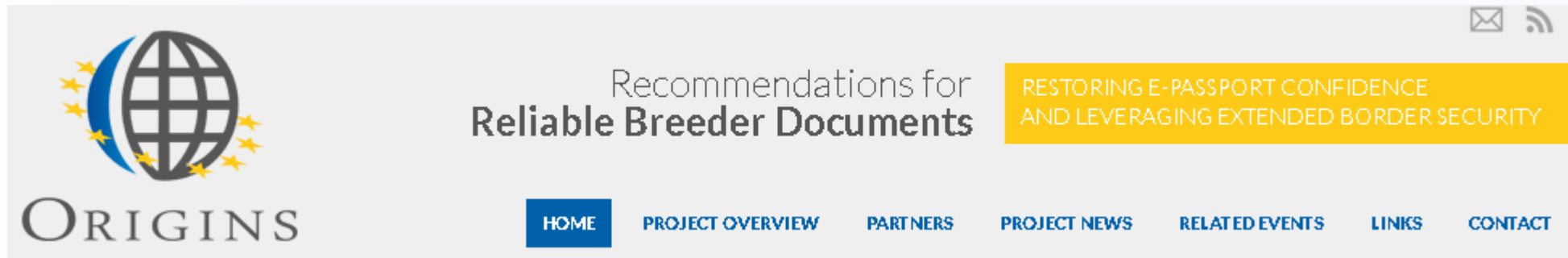
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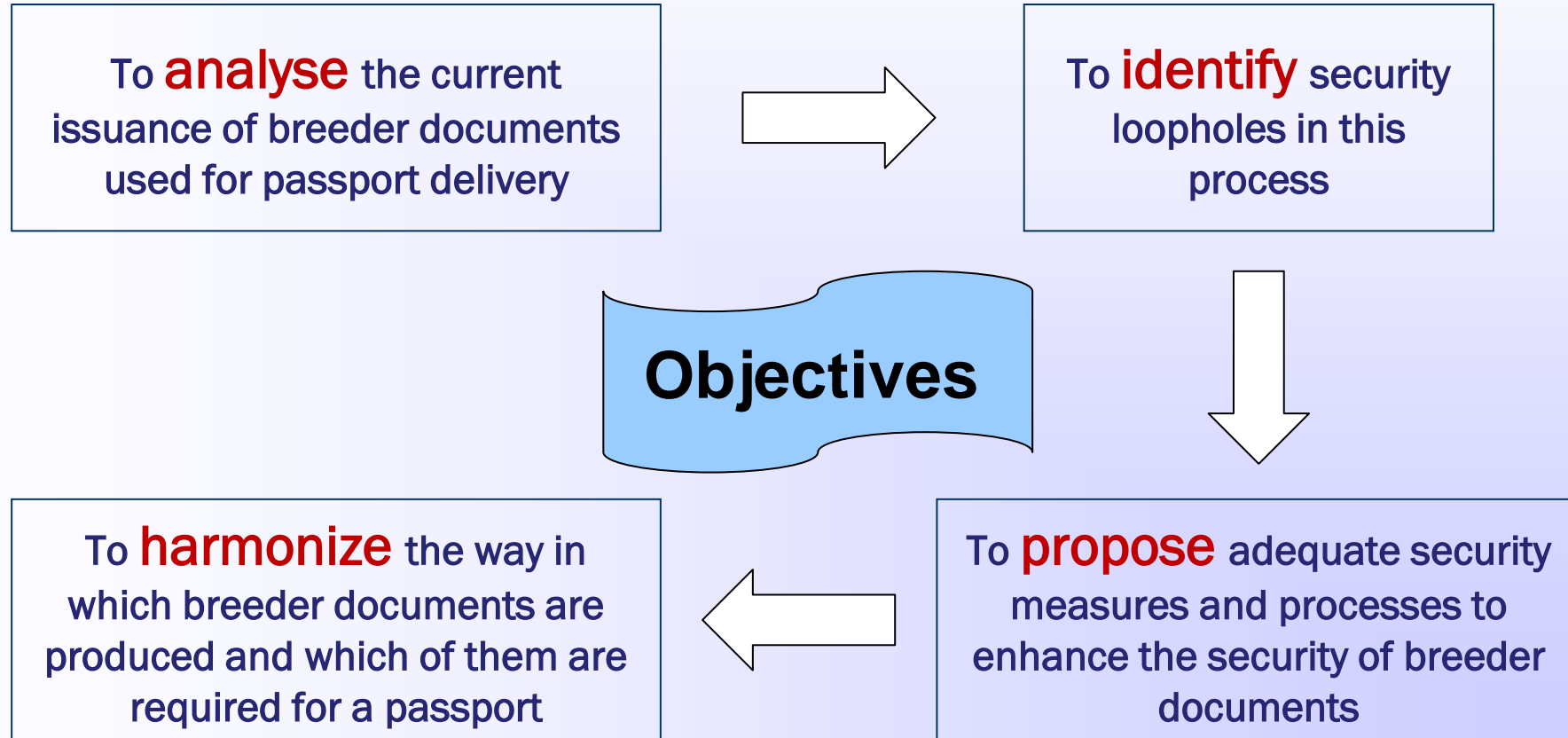
# ORIGINS Project (1)



<http://www.ORIGIN-project.eu/>

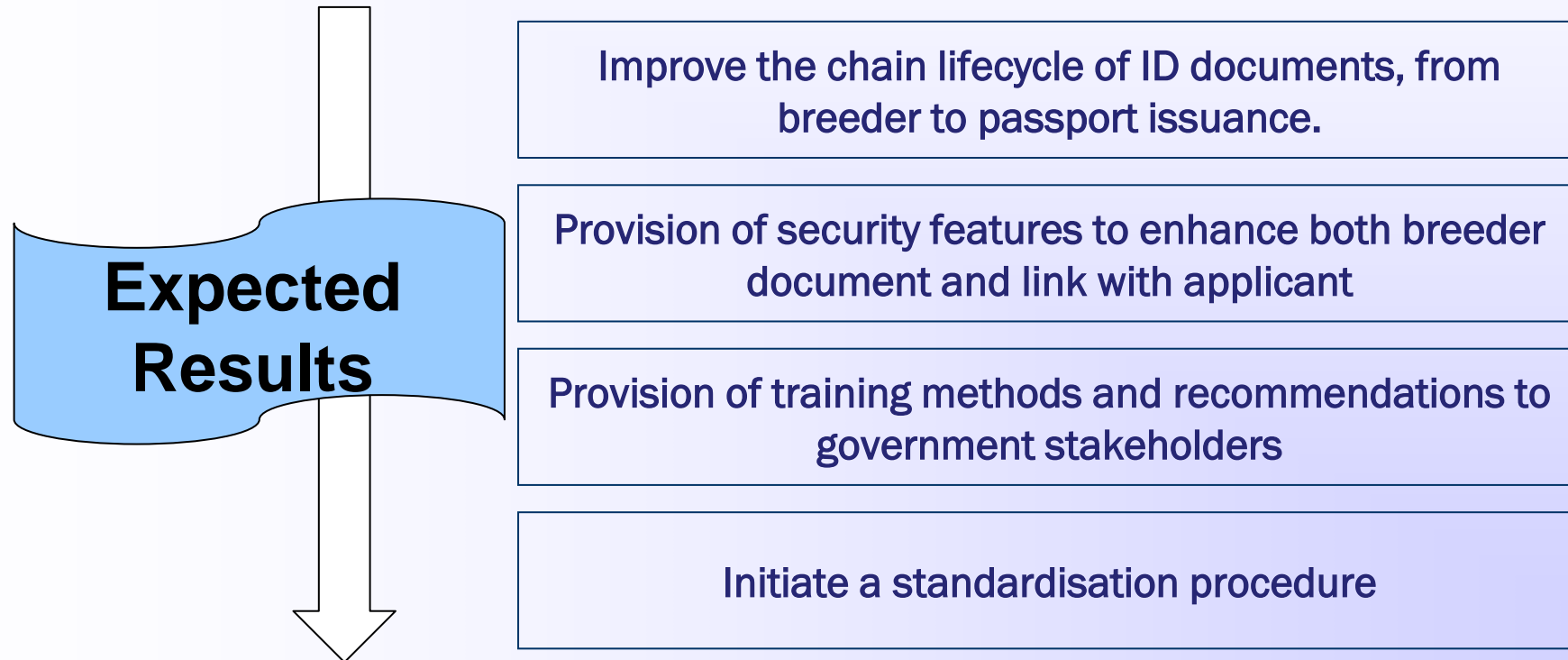


# ORIGINS Project (2)



# ORIGINS Project (3)

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# ORIGINS Project (5)

- Interviews performed in 20 countries
    - Passport application process and breeder documents issuance in **20 countries**
  - EU/Schengen/associate countries/EU membership prospects
  - Representative in terms of population size, geographical localization
- ➡ **48 government agencies**
- ➡ **36 face-to-face interviews**
- Overview of the existing practices, commonalities & differences between national schemes



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# Findings and results (1) : best practices

**Process**



- Decentralised passport application process but centralized passport issuance)
- Digital transformation in progress

**Data collection, exchange and verification**



- Use of passport database with automatic data processing
- Use of central registers with civil identification of physical persons
- Digital exchange of civil events data between municipalities
- Cross verification of application data using various information sources
- Holistic management of lost or stolen documents,
- Portrait live acquisition to avoid any fraud on facial photo
- QR code to secure paper breeder documents

**Best practices sharing**



- Task Force on Identity fraud

# Findings and results (2) : best practices

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- **Breeder documents issuance :**
  - Registration
    - *Birth and death registration based on a statement, report or notification by a hospital*
    - *Central or centrally consolidated civil registers*
    - *Civil/Population register : single source with all relevant data : foundations of the efficient Identity Systems*
    - *Digital transformation*
      - Automatic data update in registers.
      - Online event notification and/or registration
  - Issuance of certificates:
    - *Limitation of the number of persons who can apply for a Breeder document*
    - *Delivery in person*
  - Once-only principle: information sharing between public administrations compliant with personal data privacy rules
  - Data access: Reliable authentication and communication security for civil officers and citizens

# Findings and results (3) : Country differences

## • Birth Registration (Identity Creation)

- ✓ Face to face declaration by parents or family members (online declaration service not broadly implemented)
- ✓ Proof of birth (medical certificate) required  
Medical notification directly to the civil registry (online or by post) for birth at hospital
- ✓ Civil Registration sometimes available at hospitals
- ✓ Sometimes it generates a unique National number to the baby
- ✓ No verification of applicant's ID



## • Death Registration (Identity Termination)

- ✓ Face to face declaration or on line (3 countries)
- ✓ Medical certificate request except for one country
- ✓ Declaration not restricted to family members
- ✓ No verification of applicant's ID





# Findings and results (5)

## Civil status harmonisation initiated but still not unified

- **CIEC/ICCS** : International Commission on Civil Status founded in 1948
- Facilitate international co-operation in civil-status matters
- 10 members, 9 observer members (European and non European)
- 34 conventions and 11 recommendations
  - Harmonisation of format and content of civil data records and extracts
  - Recommendation for combatting fraud
- Project of Platform to enable secure electronic transmission of civil-status document between states
- **ECRN**: European Civil Registry Network
  - Launched in 2008
  - Pilot among Civil Registries and Administrations to allow safe transmission and identification of the civil acts exchanged between European administrations
    - ECRN civil act web application on a certified platform
    - Obtain a certificate from another country in 2-3 days
  - 7 EU countries: Belgium, Germany, Italy, Netherlands, Poland, Romania, Slovenia

Not all EU members, need for a unified approach and common acceptance of findings

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# Preliminary recommendations (1)

- Physical and optical security features for breeder documents
- Many outcomes from



- Security features proposed for breeder documents:



**BIRTH CERTIFICATE**  
GEBURTSURKUNDE / CERTIFICAT DE NAISSANCE

01. DOCUMENT NUMBER: D001456BABC123

02. PLACE OF BIRTH: Brandenburg

03. DATE OF BIRTH: 15.12.1990

04. SEX OF THE CHILD: F

05. SURNAME OF THE CHILD: Mustermann

06. FORENAMES OF THE CHILD: Erika, Maria, Sophia

07. SEX OF THE FIRST PARENT: F

08. SURNAME OF 1. P. P.: Mustermann

09. FORENAMES OF 1. P. P.: Katharina

10. BIRTH NAME OF 1. P. P.: Schmidt

11. SEX OF THE SECOND PARENT: M

12. SURNAME OF 2. P. P.: Mustermann

13. FORENAMES OF 2. P. P.: Jakob Thomas

14. BIRTH NAME OF 2. P. P.: -

15. NAME OF THE ISSUING AUTHORITY: Standesamt Mitte

16. DATE OF ISSUANCE: 22.12.1990

17. PLACE OF ISSUANCE: Berlin

18. DATE OF BIRTH OF THE FIRST PARENT: 31.12.1965

19. PLACE OF BIRTH OF 1. P. P.: Hamburg, Germany

20. CITIZENSHIP NUMBER OF 1. P. P.: German

21. CITIZENSHIP NUMBER OF 2. P. P.: D0012345XYZ1234

22. DATE OF BIRTH OF THE SECOND PARENT: 01.02.1960

23. PLACE OF BIRTH OF 2. P. P.: Wien, Austria

24. CITIZENSHIP OF 2. P. P.: Austrian

25. CITIZENSHIP NUMBER OF 2. P. P.: AUT9876ABCDEFG

26. NAME OF THE ISSUING OFFICER: Klaus Mueller

27. BIRTH PLACE ADDRESS: Zentralkrankenhaus, Musterstr. 1, 12345 Brandenburg

28. YEAR OF BIRTH: 21.00

29. SECONDARY IDENTIFICATION NUMBER: 123456789ABCDE

*K. Mueller*  
Signature/Initials/Signature

30. REMARKS: none

1. Numéro du document; 2. lieu de naissance; 3. date de naissance; 4. sexe de l'enfant; 5. nom de l'enfant; 6. prénoms de l'enfant; 7. sexe du premier parent; 8. nom du premier parent; 9. prénoms du premier parent; 10. nom de naissance du premier parent; 11. sexe du second parent; 12. nom du second parent; 13. prénoms du second parent; 14. nom de naissance du second parent; 15. nom de l'autorité de délivrance; 16. date de délivrance; 17. lieu de délivrance; 18. date de naissance du premier parent; 19. lieu de naissance du premier parent; 20. nationalité du premier parent; 21. nom de naissance du premier parent; 22. date de naissance du second parent; 23. lieu de naissance du second parent; 24. nationalité du second parent; 25. nom de l'autorité de délivrance; 26. lieu de délivrance; 27. date de naissance; 28. lieu de naissance; 29. prénoms de l'enfant; 30. remarques.

1. Dokumentnummer; 2. Geburtsort; 3. Geburtsdatum; 4. Geschlecht des Kindes; 5. Vorname des Kindes; 6. Geschlecht des ersten Elternteils; 7. Nachname des ersten Elternteils; 8. Vorname des ersten Elternteils; 9. Geburtsname des ersten Elternteils; 10. Geschlecht des zweiten Elternteils; 11. Nachname des zweiten Elternteils; 12. Vorname des zweiten Elternteils; 13. Geburtsname des zweiten Elternteils; 14. Name der ausstellenden Behörde; 15. Ausstellungsdatum; 16. Geburtsdatum des ersten Elternteils; 17. Geburtsort des ersten Elternteils; 18. Nationalität des ersten Elternteils; 19. Geburtsname des ersten Elternteils; 20. Staatsangehörigkeit des ersten Elternteils; 21. Nr. des Urkundendokuments des ersten Elternteils; 22. Geburtsdatum des zweiten Elternteils; 23. Geburtsort des zweiten Elternteils; 24. Nationalität des zweiten Elternteils; 25. Nr. des Urkundendokuments des zweiten Elternteils; 26. Name der ausstellenden Behörde; 27. Geburtsort / Ausweis; 28. Urtag der Geburt; 29. Nummer der Elternpaare (E.P.); 30. Bemerkungen.

1. document n.º; 2. lugar de nascita; 3. data de nascita; 4. sexo del bambino; 5. cognome del bambino; 6. nome del bambino; 7. sesso del primo genitore; 8. cognome del primo genitore; 9. nome del primo genitore; 10. cognome di nascita del primo genitore; 11. sesso del secondo genitore; 12. cognome del secondo genitore; 13. nome del secondo genitore; 14. cognome di nascita del secondo genitore; 15. Autorità; 16. data di nascita; 17. luogo di nascita; 18. data di nascita del primo genitore; 19. luogo di nascita del primo genitore; 20. cittadinanza del primo genitore; 21. numero del certificato di nascita del primo genitore; 22. data di nascita del secondo genitore; 23. luogo di nascita del secondo genitore; 24. cittadinanza del secondo genitore; 25. numero del certificato di nascita del secondo genitore; 26. nome dell'autorità; 27. indirizzo del luogo di nascita; 28. età di nascita; 29. numero di identificazione secondario; 30. commenti.

1. document n.º; 2. geboortplaats; 3. geboortedatum; 4. geslacht van het kind; 5. achternaam van het kind; 6. voornamen van het kind; 7. geslacht van het kind; 8. achternaam van het kind; 9. achternaam van het kind; 10. achternaam van het kind; 11. geslacht van de tweede ouder; 12. achternaam van de tweede ouder; 13. voornamen van de tweede ouder; 14. geboortedatum van de tweede ouder; 15. naam van de uitvaardigende autoriteit; 16. afgeleverde datum; 17. afgeleverde plaats; 18. geboortedatum van de eerste ouder; 19. geboortedatum van de eerste ouder; 20. nationaliteit van de eerste ouder; 21. nummer van de geboortedatum van de eerste ouder; 22. geboortedatum van de tweede ouder; 23. geboortedatum van de tweede ouder; 24. nationaliteit van de tweede ouder; 25. nummer van de geboortedatum van de tweede ouder; 26. naam van de uitvaardigende autoriteit; 27. adres van de geboortplaats; 28. geboortedatum; 29. tweede identificatienummer; 30. opmerkingen.

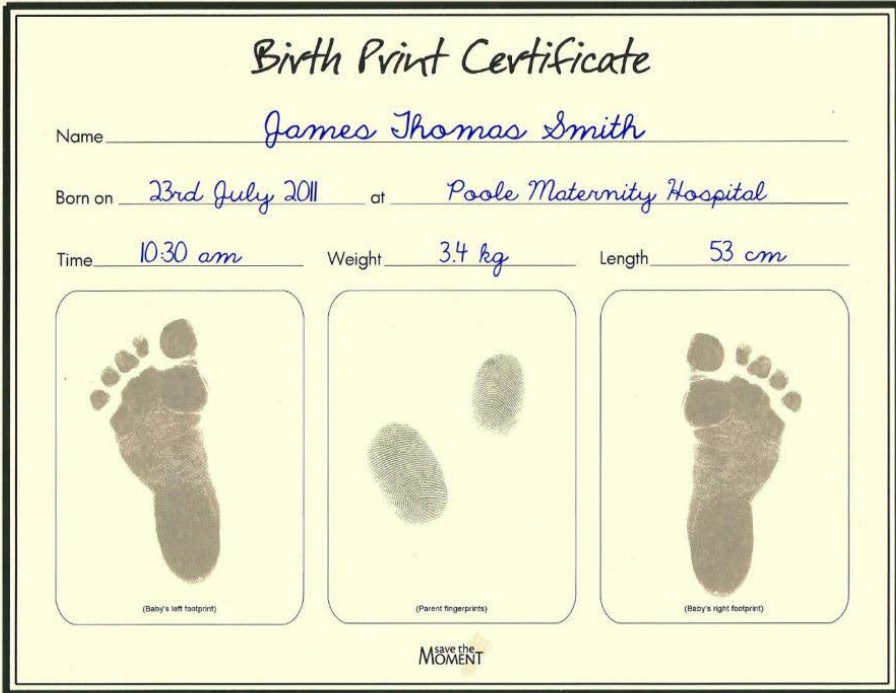
1. número de documento; 2. lugar de nacimiento; 3. fecha de nacimiento; 4. sexo del niño; 5. apellido del niño; 6. nombres del niño; 7. sexo del primer progenitor; 8. apellido del primer progenitor; 9. nombres del primer progenitor; 10. apellido de soltera del primer progenitor; 11. sexo del segundo progenitor; 12. apellido del segundo progenitor; 13. nombres del segundo progenitor; 14. apellido de soltera del segundo progenitor; 15. nombre de la autoridad emisora; 16. fecha de emisión; 17. lugar de emisión; 18. fecha de nacimiento del primer progenitor; 19. lugar de nacimiento del primer progenitor; 20. nacionalidad del primer progenitor; 21. número de identificación del primer progenitor; 22. fecha de nacimiento del segundo progenitor; 23. lugar de nacimiento del segundo progenitor; 24. nacionalidad del segundo progenitor; 25. número de identificación del segundo progenitor; 26. nombre de la autoridad responsable; 27. dirección del lugar de nacimiento; 28. fecha de nacimiento; 29. número de identificación secundario; 30. comentarios.



# Preliminary recommendations (3)

- **Biometrics**

- Ensure a strong link between document and the document holder
- Multiple modalities exist
- Lifetime of document
  - *biometric ageing ?*
- Central database or data stored on document

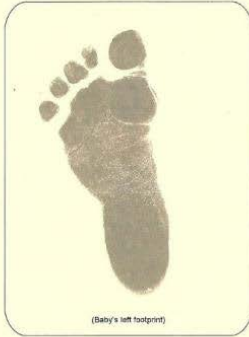


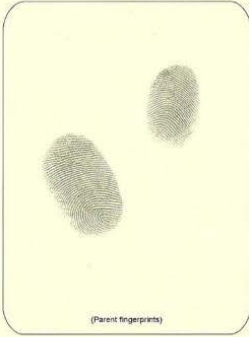
*Birth Print Certificate*

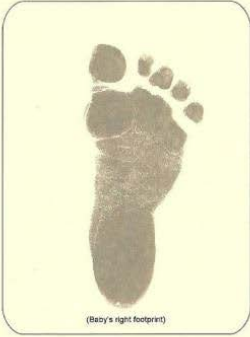
Name James Thomas Smith

Born on 23rd July 2011 at Poole Maternity Hospital

Time 10:30 am Weight 3.4 kg Length 53 cm

 (Baby's left footprint)

 (Parent fingerprints)

 (Baby's right footprint)

save the MOMENT

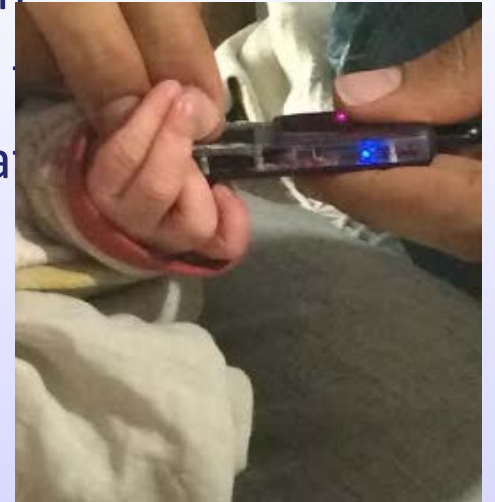
© 2011 Save The Moment [www.savethemoment.co.uk](http://www.savethemoment.co.uk)

# Preliminary recommendations (4)

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- **Biometrics**

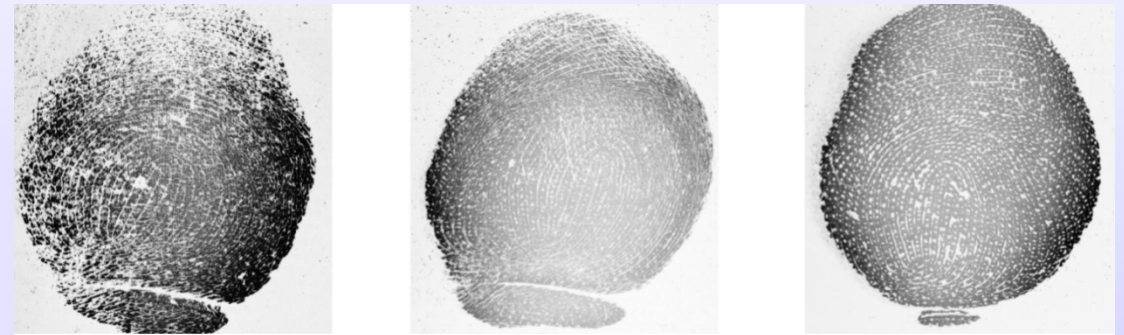
- Stability of biometric characteristics is key to long-term recognition
- Diverse biometric characteristics have been analysed with respect to
- In addition, the feasibility of recognizing infants has been investigated





# Preliminary recommendations (5)

- Researches suggest that iris and fingerprint should be the biometric characteristic of choice for reliable long-term recognition.
- However, different challenges have to be solved:
  - Sensor interoperability
  - Image quality
  - Template ageing effects
  - Sensor ageing effects

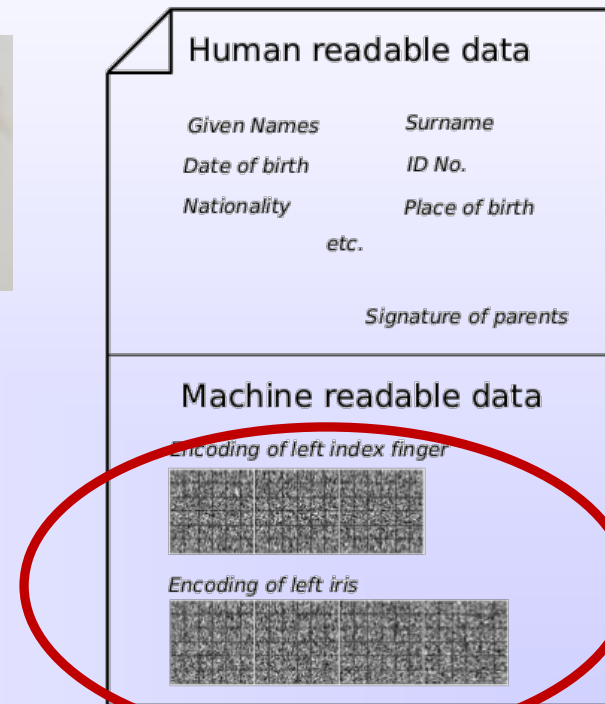


# Preliminary recommendations (6)

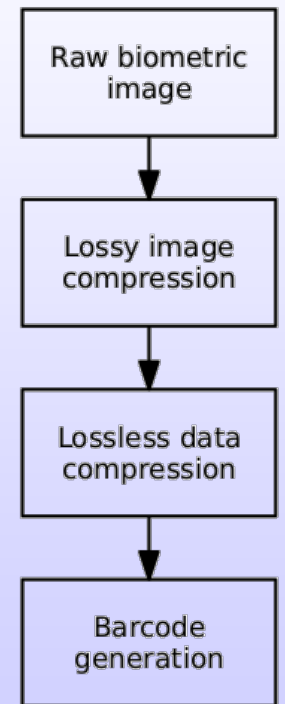
- **Biometrics**



Offline approach  
similar to ePassport



(a) document layout

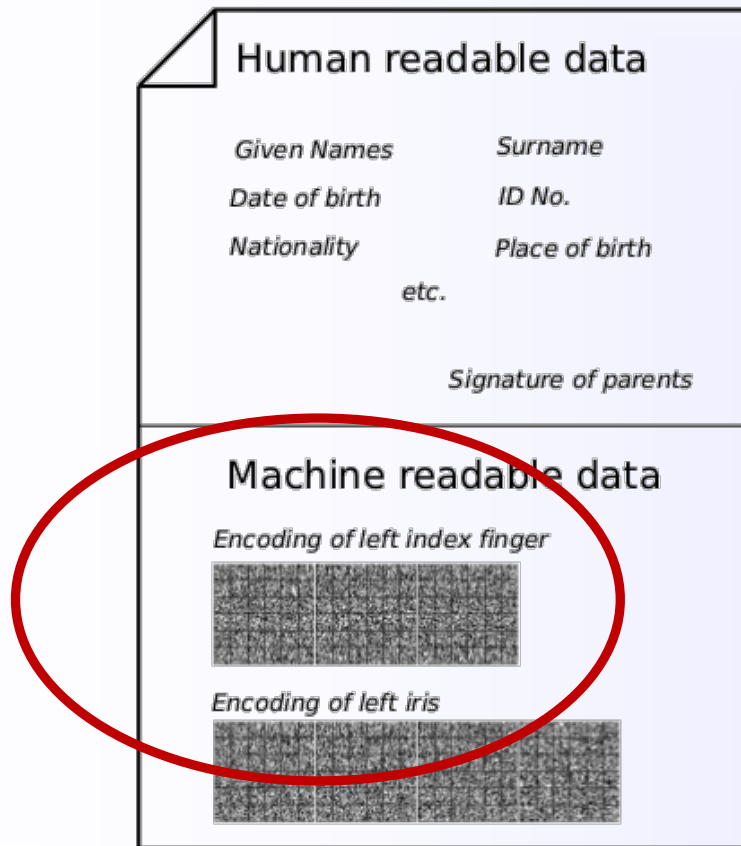


(b) processing chain

Fig. 1. Proposed birth certificate layout and overview of the processing chain of this study. Sizes of barcodes in Fig. 1(a) correspond to the approximated storage requirement for the compressed biometric sample.

# Preliminary recommendations (7)

## Biometrics



(a) document layout

OVERVIEW OF RELEVANT PARAMETERS OF EMPLOYED DATABASES.

Characteristic	Name	Sensor	Format	Image resolution	File size
Fingerprint	FVC02 DB1	TouchView II (optical)	Finger-image	388×374 px	142 kB
	FVC02 DB3	100 SC (capacitive)	Finger-image	300×300 px	88 kB
Iris	IITDv1	JPC1000 (NIR)	Cropped	320×240 px	75 kB
	BioSecure	IrisAccess 3000 (NIR)	Uncropped	640×480 px	300 kB

PROFILES FOR JPG AND J2K COMPRESSION OF FINGERPRINT AND IRIS

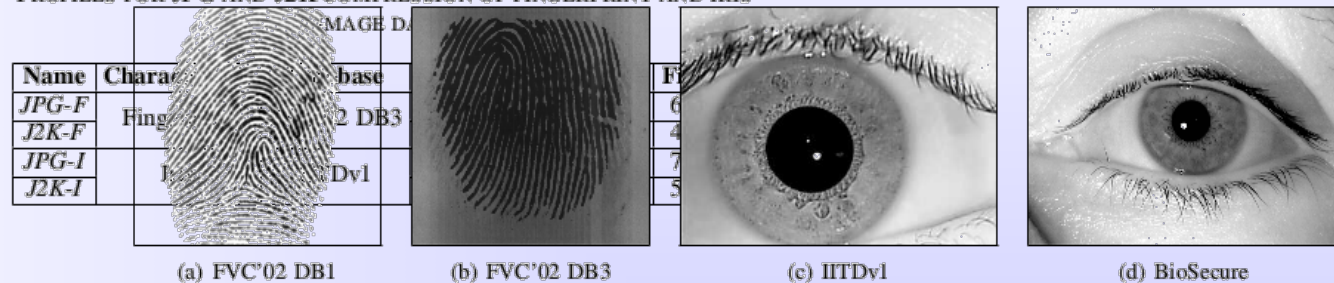


Fig. 2. Uncompressed image samples (images correspond to the first instance of the first subject).



# Preliminary recommendations (8)

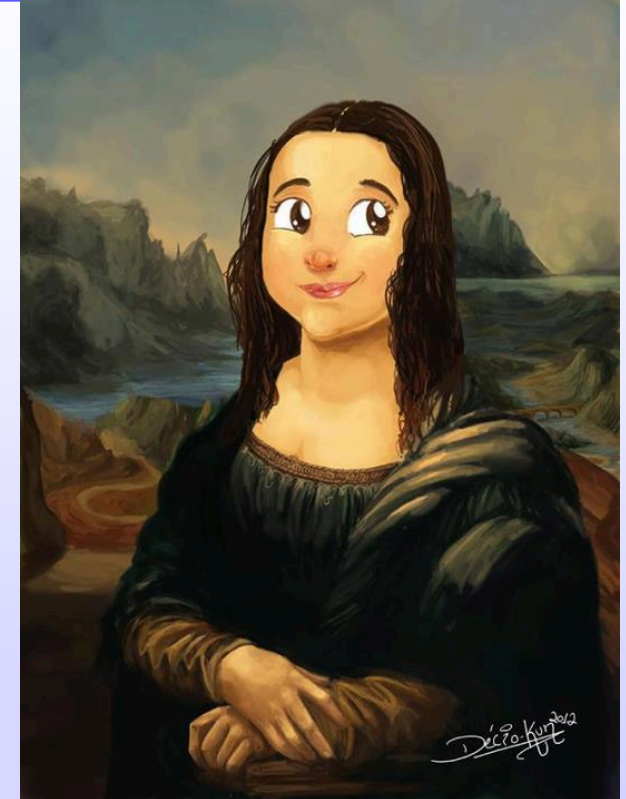
- **Facial photograph**

- Current procedure

- *Facial image captured by public photographer*
- *Printed and sold to customer*
- *Scanned before document personalisation*
- *Weakness of process:*
  - Image can be altered by document holder
  - Digital gap: digital -> analog → analog -> digital

- ORIGINS Recommendations:

- *Take picture directly in government office*
- *Or at least send picture digitally signed to personalisation process*



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# Standardisation activities (1)

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- **A voluntary standard may be the starting point to ensure harmonisation of security features and facilitate interoperability between MS Europe**
- **Setting-up of best practices for issuance and use of breeder documents**
- **Minimum set of requirements**
- **The standard should specify interoperable process without limiting or discriminating technologies**
- **An European Standardization initiative (rather than ISO) is considered to raise a first level agreement and implement key recommendations**
- **Issues are global: an overall standard should aim international level**

# Standardisation activities (2)

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ICAO

- ICAO Towards Better Practice in National Identification management, Guidance Material, Release 3, Draft 5, 2013, 9303 Spec

ISO/SC27

- ISO/IEC 24760 Part 1-3 framework for identity management, ISO/IEC 29003 Identity Proofing, ISO/IEC 29115 Entity Authentication Assurance Framework

ISO/SC37

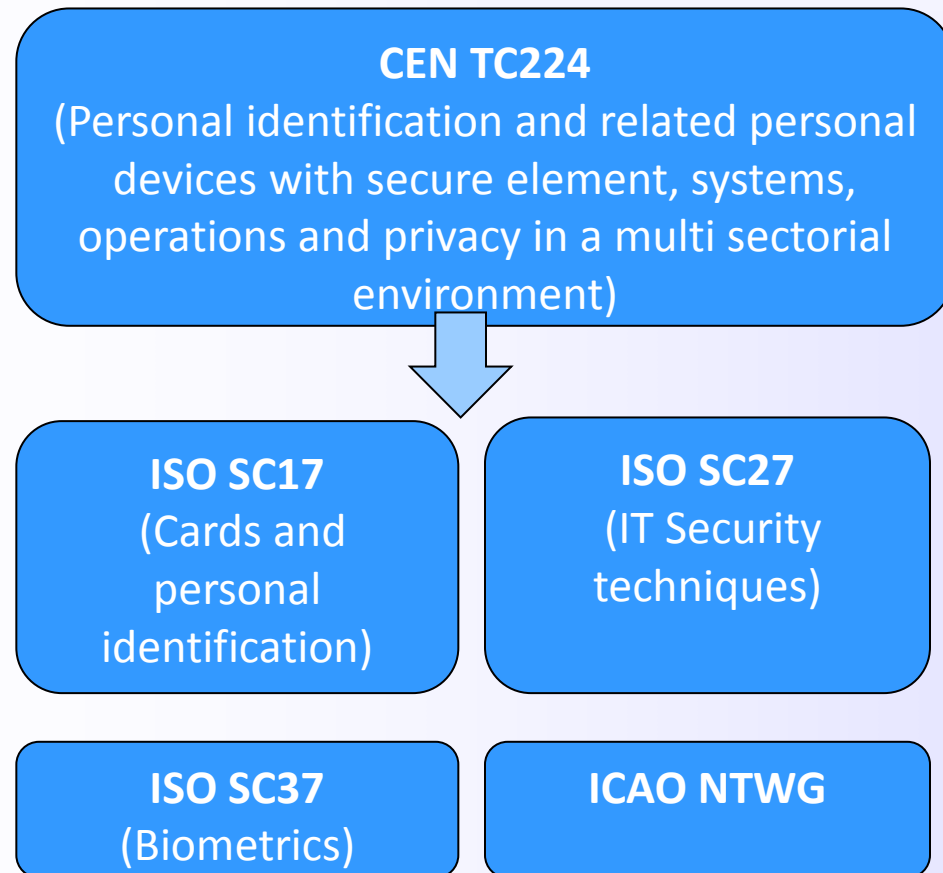
- Biometrics standards on fingerprint, iris, facial recognition...

ISO/TC292/WG4

- ISO 12931:2012 Performance criteria for authentication solutions used to combat counterfeiting of material goods

# Standardisation activities (3)

Launched at Berlin on October 14th 2016



## Technical Specification/Standard for

- Definition of use cases
- Technology neutral
- Open trust management environment
- Trust interoperability among different breeder documents
- Requirements on biometrics' use for breeder document ownership verification