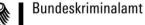# A Review of EU Prüm on DNA Data Exchange
- Expertise in Germany since the Operations in 2007 -

Bundeskriminalamt

On ICP's 60 Anniversary Celebration
October 10st - 11th, 2018
Prague, Czech Republic
Quo vadis European Forensics?

Dr. Jimmy Wang
Bundeskriminalamt
IT26 Biometrics
Wiesbaden, Germany
jimmy.wang@bka.bund.de

Bundeskriminalamt

- **Germany exchanges DNA Data with 21 EU countries**

- **Towards a fully connected landscape in Germany: 6 + 4 still missing**

- **A heterogeneous IT components communicating within the EU:**

  o SW made in Austria (AT-ME)

  o SW made in France (FR-ME)

  o SW made in Germany (DE-ME, DE-CC)

  o SW in a black-box/a runtime box (CODIS7-ME, CODIS7-MC)

  o SW made in other countries (e.g. Bulgaria and Cyprus)

Bundeskriminalamt

- **Germany exchanges DNA Data with 21 EU countries:**

  AT/BE/(BG)/(CY)/CZ/EE/ES/FI/FR/HU/LT/LU/LV/MT/NL/PL/PT/RO/SE/SI/SK

- **Towards a fully connected landscape in Germany: 6 + 4 still missing**

  o 6 EU-MS: DK/GR/HR/IR/IT/UK
     - **DK**: waiting for requests from Denmark
     - **HR**:
        ▪ partially tested July 2018 (Art 3)
        ▪ Art 4 test in preparation
        ▪ Wait for EU decision
     - **IT**
        ▪ Tests with DE in preparation
        ▪ Evaluation in Oct/Nov. 2019 by DE

Bundeskriminalamt

- **UK**:
  - ➤ Evaluated by AT/DE/FR August 1st – 2nd, 2018
  - ➤ Outcome DAPIX 17.09.2018:
    - ▪ **Option 1**: Stop op with UK after 1Y, if data suspects not improved
    - ▪ **Option 2**: Review after 1Y op
    - ▪ At the DAPIX: Most EU MS for Opt 2, only two or three for Opt 1, but will not block Opt 2
    - ▪ Wait for written notes from all EU MS
- **GR**: evaluated by the NL in 2016
  - ➤ EU document 12211/1/16 REV 1, DAPIX 147
- **IR**: no further information

o 4 Associated EU countries: Iceland, Liechtenstein, Norway, Switzerland
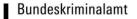- **CH**:
  - ▪ Info visit of FedPol Switzerland at BKA in September 2017
  - ▪ Info exchange of EU Prüm DNA and VRD
- Iceland, Liechtenstein and Norway: no further information

- **EU Prüm Decisions (2008/615/JHA and 2008/616/JHA)**

  o Common regulations of DNA Data Exchange

  o Common ICD for implementations

- **ISO/JTC1 Standardization on Biometrics Interchange Format** (19794/39794)

- **Some details have not been regulated in the legal documents,** e.g.

  o Wildcard substitution

  o Error categories and error messages

  o Fussy Match Equations (p.20 of the EU Decision 616)

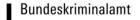- **No Common set of Business Information** for decision makers and/or stake holders

Inter-Operative Issues (1)

- **Ensure** the defined answering time
  $\rightarrow$ EU Prüm Decision: within 15 minutes
- **Customize** application architecture
  decoupled national and international DNA systems and linked by a synchronizing mechanism, e.g. by XML messaging

- **Count and verify** incoming and outgoing messages

- **Analyze** hits, no-hits and error messages by an application

- **Import** test data onto a test database more flexibly

- **Schedule** to carry out operations on Art 4 among all connected EU countries to avoid cross-border data discrepancies
- **Suppress** repeated same hits for further investigation

Inter-Operative Issues (2)

Bundeskriminalamt

- **Monitor** operation status of the running components (DB and applications) at national sites and exchange status information among the operational EU Member States

- **Handle** Amelogenin **correctly**: not a hit criterion, but a clue/reference

- **Handle** Homozygosis/Homozygosity **correctly** in a certain locus

- **Use** wildcards ONLY as a substitute for rare values

- **Handle** blank spaces **correctly**

- **Handle** tri-allelic loci for both candidate and targets

- **Generate** key data for EU statistics and other purposes by an application

- **Re-send** all not yet answered requests in an automated way

Problems and Solutions

- **Problems in daily operations**
  - No status info "DNA Data Exchange" of EU countries, e.g. online/offline
  - No info about who (EU MS) with whom on DNA Data Exchange
  - No info about crossed hits
- **Solutions in Germany**:
  - Special attributes/marks assigned to hits
    - Genuine Hits (Q1/Q2/Q3/Q4)
    - Crossed Hits
    - Re-typed Cross hits
    - Hits with changed hit quality
    - Generate various statistics automatically
      - Response time
      - Sending time
      - Answering rate
    - More explicit and precise error message catalogs
    - Common Business Information

Statistics of DNA Data Exchange among Connected EU Member States of CODIS and NON-CODIS Countries (1)

Bundeskriminalamt

Categories of Statistics in Daily Operations by Examples

- DE Sending requests to the member states

  - 01 - Daily and Monthly Statistics\2018\02 – Sending regs to MS – daily time\20180922_dns_anfrage_aus_de.txt (Saturday)

  - 01 - Daily and Monthly Statistics\2018\02 – Sending regs to MS – daily time\20180918_dns_anfrage_aus_de.txt (Tuesday)

- MS Sending answers to Germany

  - 01 - Daily and Monthly Statistics\2018\01 – Sending answ to DE- daily time\20180922_dns_antwort_an_de.txt (Saturday)

  - 01 - Daily and Monthly Statistics\2018\01 – Sending answ to DE- daily time\20180918_dns_antwort_an_de.txt (Tuesday)

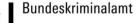Categories of Statistics in Daily Operations by Examples

- Monthly response rate

    – DE to MS: 01 – Daily and Monthly Statistics\2018\03 – Monthly Response Rate\Response Rate DE to MS\08_2018_dns_bearbeitungsdauer_an_DE.txt

    – MS to DE: 01 – Daily and Monthly Statistics\2018\03 – Monthly Response Rate\Response Rate MS to DE\08_2018_dns_bearbeitungsdauer_aus_DE.txt

Statistics of DNA Data Exchange among Connected EU Member States of CODIS and NON-CODIS Countries (3)

Categories of Statistics in Daily Operations by Examples

- Response time analysis

    - Minutes until answered: 01 – Daily and Monthly Statistics\2018\04 – Response Time Analysis\Minutes until answered\05-2018 Antwortzeiten.xlsx

    - No. of requests and responses monthly: 01 – Daily and Monthly Statistics\2018\04 – Response Time Analysis\No of requests+responses monthly\09_2018 Reqs+Resp.xlsx

Common Business Information CBI (1)

- **Feasibility**:
  - A rich set of IT parameters at the operational sites of all connected EU countries
  - Development of IT procedures upon a common set of rules and definitions

- **Current Status**:

  - No automatically generated management information

  - EU statistics compiled manually

  - No exchange of operational status information automatically

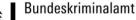 - Cumbersome cross-border error analysis and reports

Bundeskriminalamt

- A Set of CBI Parameters:

  - A Basic Set of Common Business Information.doc

Do you have any questions?

Thank you for your attention!

Dr. Jimmy Wang
Bundeskriminalamt
IT26 Biometrics
Wiesbaden, Germany
jimmy.wang@bka.bund.de