

The Need for an Open Source Face Quality Assessment Software - A Perspective on Application Logic

Workshop on Face Image Quality

EAB – OBIM – NIST – eu-LISA – ISO/IEC JTC1 SC37 WG3 – iMARS

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European Commissions' Open Source Strategy

"Think Open"

- The Commission's strategy for the internal use of Open Source Software was first adopted in 2000, and has since been updated three times
- Vision for encouraging and leveraging the transformative, innovative and collaborative power of open source, its principles and development practices
- Promotes the sharing and reuse of software solutions, knowledge and expertise, to deliver better European services that benefit society and lower costs to that society



eu-LISA approach for standardization & open source

- **eu-LISA promotes standardization and open source due to various reasons**
 - ❑ better interoperability between systems
 - ❑ transportability across framework contracts
 - ❑ technology agnostic solutions offer
 - ❑ financial advantages (reduced license and operational costs)
 - ❑ resource optimization (less projects)
- **open-source solutions used in the biometric domain**
 - ❑ NIST containers for biometric data exchange
 - ❑ NFIQ2
- **open-source solutions awaited**
 - ❑ standardized scalar metrics and quality components for FI quality (ISO)



“NFIQ2”-like algorithm for face?

- **Disadvantages**

- proprietary libraries may be better tailored to a specific matching engine

- **Advantages**

- no vendor lock-in
- reduced impact in case of a contractor change
 - no replacement of the USK on (ten)thousands of national workstations and mobile devices – convenient for both eu-LISA and Member states
- allows for maintaining the already defined quality thresholds across technologies/contracts



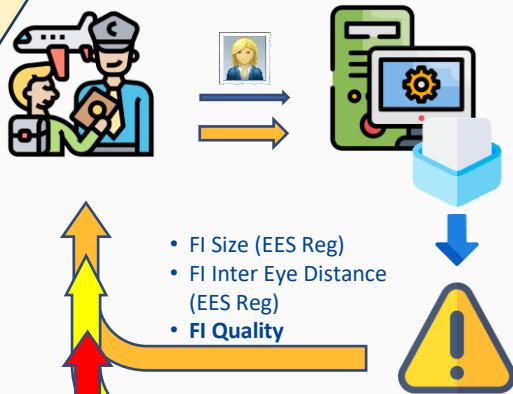
eu-LISA quality assessment application logic

Quality assessment, as part of the application logic, supports business operation through avoiding bad input to the underlying biometric system

Member States compute quality (via USK or similar) in order to recapture in case of low quality

- ❑ Minimising execution times is essential
- ❑ Number of recaptures is limited

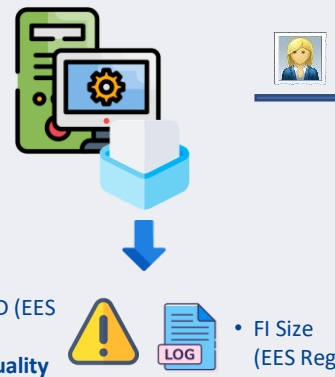
EES | National Implementation



- FI Size (EES Reg)
- FI Inter Eye Distance (EES Reg)
- FI Quality

eu-LISA

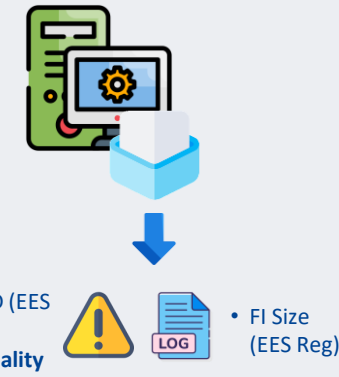
EES



- FI IED (EES Reg)
- FI Quality
- FI Size (EES Reg)

- Flag meaning the sample to be updated in the next interaction

sBMS



- FI IED (EES Reg)
- FI Quality
- FI Size (EES Reg)

- Flag meaning the sample will not be used for 1:N (except LEA)

On central side (EES, sBMS) quality is re-computed to enforce legislative requirements
Flagging (indication to re-enrol asap; no 1:N operations) and rejection in sBMS due to technical reasons are possible

eu-LISA requirements on FI quality assessment

- **Legislative conformance**

- eu-LISA shall comply to the relevant regulation
- eu-LISA plans to recommend the usage of ISO/IEC 29794-5 and its reference implementation in future European legislation
- GDPR-compliant solution with as little bias as possible

- **Importance of performance**

- Vendor agnostic reliable prediction of utility independent of current matching system
- Satisfaction of strict timing SLAs

- **Importance of conformance and reproducibility**

- Reproducibility of computed values and strict conformance is highly valued in our interoperable scenario

- **Importance of maintenance**

- Open-source collaboration and maintenance



THANK YOU!

eu-LISA

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