

# OFIQ: “Open-source Face Image Quality”

## I. THE OFIQ PROJECT AND eu-LISA

Since August 2024 eu-LISA, through the R&I team, contributes to the maintenance of the OFIQ project. The project was launched within the ISO/IEC SC-37, and is currently led and developed by the German BSI (Federal Office for Information Security).

Find in the present document some information regarding OFIQ, the involvement of eu-LISA in the project, and the strategic importance of such project for the Agency.

## II. STANDARDISATION AND COLLABORATION BETWEEN eu-LISA AND ISO/IEC SC-37

Standardisation is key to the core business of eu-LISA in order to:

- Ensure interoperability
- Contribute to business continuity
- Avoid vendor lock-in

Biometric technology is one of the areas where standardisation is needed to reach these objectives.

In this context, in June 2020, eu-LISA applied to the International Organisation for Standardisation (ISO), to establish a liaison with the ISO Sub-Committee 37 for Biometrics (ISO/IEC SC-37). Since then, eu-LISA has been actively involved as a Liaison C type organisation in the activities of the ISO/IEC SC-37.

External liaison representatives of an organisation are involved in the activities of ISO to ensure that the organisation’s specialist experience and expertise is included during the development of the standards in a given ISO/IEC committee.

## III. BIOMETRIC SAMPLE QUALITY

The most important factor impacting the accuracy of biometric recognition systems is the so called “quality” of the acquired biometric data (i.e., samples), which is influenced by numerous factors.

Automatically assessing the quality of biometric data in terms of its ability to produce future good accuracy results is key to detect low-quality samples and make decisions accordingly.

This quality assessment is performed by automatic algorithms referred to as “quality measures”.

Software tools for the assessment of biometric sample quality such as OFIQ, play a major role in the overall operation of the EU Large-Scale IT Systems managed by eu-LISA, from data acquisition, to its processing and storage, to its final use for recognition purposes.

Furthermore, biometric quality measures like OFIQ are valuable assets as self-auditing tools, in order to ensure that the overall quality of the biometric data stored and processed in the large datasets managed by the Agency, complies with the minimum required levels to ensure the correct operation of the systems according to the expected recognition accuracy set in the regulation.

Therefore, biometric quality measures are central to the shared Biometric Matching Service (sBMS) as one of the instrumental building blocks of the interoperability (IO) framework that eu-LISA is developing, in order to transition from a siloed architecture of the IT systems managed by the Agency, to an interconnected ecosystem, in compliance with the applicable IO regulation.

Given the importance of biometric quality measures for the core business of the Agency and for the successful implementation of its mandate, eu-LISA is engaged in the development of these applications, in collaboration with:

- EU institutions, especially the Commission through DG Joint Research Centre (JRC)
- International institutions, especially ISO/IEC SC-37.

eu-LISA expressly promotes and supports open-source solutions, which:

- enhance transparency of the operation of the Agency,
- contribute to a long-term management of the EU large-scale IT systems,
- provide a cost-efficient solution to one of the Agency's needs,
- contribute to avoid vendor lock-in situations and
- contribute to the interoperability and benchmarking of systems.

#### IV. FACE IMAGE QUALITY

The need for a standardised face image quality measure to be integrated in eu-LISA's Core Business Systems (CBS) was identified in the Science for Policy report authored by DG JRC in 2019, where face recognition technology was analysed for its integration in SIS<sup>1</sup>.

This JRC report was one of the factors that eventually contributed to the decision of including automatic face recognition technology in the recast of SIS, through the shared Biometric Matching Service (sBMS) that will also provide this capability to VIS, EES, Eurodac and ECRIS-TCN.

In particular, the 2019 JRC report mentioned the need to develop and promote a:

- open-source,
- vendor-agnostic (i.e., vendor-independent) and
- standardised

face image quality measure, similar to the existing NFIQ quality measure used for fingerprint images<sup>2</sup>, already integrated in eu-LISA's sBMS and in the User Software Kit (USK) distributed by eu-LISA to Member States (MS).

#### V. OFIQ

Based on the need/gap identified in the 2019 JRC Report, a specific project for the development of an open-source, vendor-agnostic and standardised face quality measure was launched within Working Group 3 (WG-3) of the ISO SC-37.

The project started in 2020 led by the German BSI (German Federal Office for Information Security)<sup>3</sup>.

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<sup>1</sup> [JRC Science for Policy Report 116530](#)

<sup>2</sup> [NIST official website on NFIQ](#)

<sup>3</sup> [OFIQ – BSI website](#)

The face image quality measure being developed within the project is referred to as “Open-Source Face Image Quality (OFIQ)”.

It was decided that, as main development guideline, the OFIQ project will follow the Commission implementing decision (EU) 2019/329 for the Entry/Exit System<sup>4</sup>, which requires that the quality of facial images comply with the standard ISO/IEC 19794-5:2011 frontal image type (standard for biometric interchange formats – face image data).

Within ISO/IEC SC-37, an ad-hoc group for the development of OFIQ was formed under the overall umbrella of WG-3 that has developed the new version of the standard “ISO/IEC 29794-5:2025 on Biometric Sample Quality – Face Image Data”<sup>5</sup>, finally approved and published in April 2025.

The standard has been developed by a very large group of experts from all over the world (including public institutions, private sector, academia/research). This new version of the standard includes OFIQ as the enforced standard quality measure for face images.

Since the launching of the OFIQ project in 2020, eu-LISA, as part of the team involved in the development of the face image standard and the quality measure, has actively participated, commented and contributed to the discussions that have led to the design and development of the first version of OFIQ.

## VI. TIMELINE OF OFIQ

2010. Publication of the initial Technical Report “ISO/IEC TR 29794-5:2010 on Biometric Sample Quality – Face Image Data”.

2020. Decision to revise the Technical Report ISO/IEC 29794-5, and decision to convert it from Technical Report to International Standard and for the inclusion in the standard of vendor-independent quality measures to be developed within the ISO/IEC SC-37.

2020. Launching of the project for the development of OFIQ.

2020-2024. OFIQ is developed by the German BSI. The tool is developed as an open-source software project on the GitHub platform.

2023/09. A first Beta version, still in prototyping and testing phase, of OFIQ is made available.

2024/06. Eu-LISA officially commits to contribute to the maintenance of OFIQ once the first stable version is released.

2024/08. First stable final version of OFIQ is released and made freely available to the public in the OFIQ GitHub Repository<sup>6</sup>.

2025/04. Publication of the International Standard “ISO/IEC 29794-5:2025 on Biometric Sample Quality – Face Image Data” which cancels and replaces the first edition of “ISO/IEC TR 29794-5:2010” after its technical revision. The new International Standard enforces OFIQ as the implementing tool of its guidelines.

2025 - onwards. BSI will continue to develop, update and evolve OFIQ based on the feedback received from users during the utilisation of the latest released stable version of OFIQ.

## VII. QUESTIONS ABOUT OFIQ

OFIQ users can address general questions regarding the tool to: [OFIQ@eulisa.europa.eu](mailto:OFIQ@eulisa.europa.eu)

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<sup>4</sup> [2019/329 EES Implementing Decision](#)

<sup>5</sup> [ISO/IEC 29794-5:2010 on Biometric Sample Quality – Face Image Data](#)

<sup>6</sup> [OFIQ GitHub Repository](#)