



# **SOFIRA** [www.sofira.eu](http://www.sofira.eu)

System for processing exams, questionnaires  
and forms

exam processing system developed by

 **PSIT**  
Bulgaria Ltd



## Who we are?



is company with more than **40 years** of experience in the information and communication technologies. We have participated in and implemented a number of major ICT infrastructure projects and have provided support for ICT systems of national importance.

In the last **10 years** we are constantly developing and maintaining **SOFIRA** - an exam processing system, capable of handling exams, statistical forms and questionnaires. The largest user of the system is the Ministry of Education and Science in Bulgaria.

Each year **SOFIRA** is used for processing and evaluating the whole volume of the following exams:

State Matriculation Examination (Matura exam)

National External Assessment - the entrance for high schools

This means more than **200 000** students and over **800 000** exams per year.

*PSIT Bulgaria*



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- **Types of forms**
- **Scan**  
**automated recognition of marks, symbols and codes**
- **Scan**  
**indexing and storing**

## Types of forms

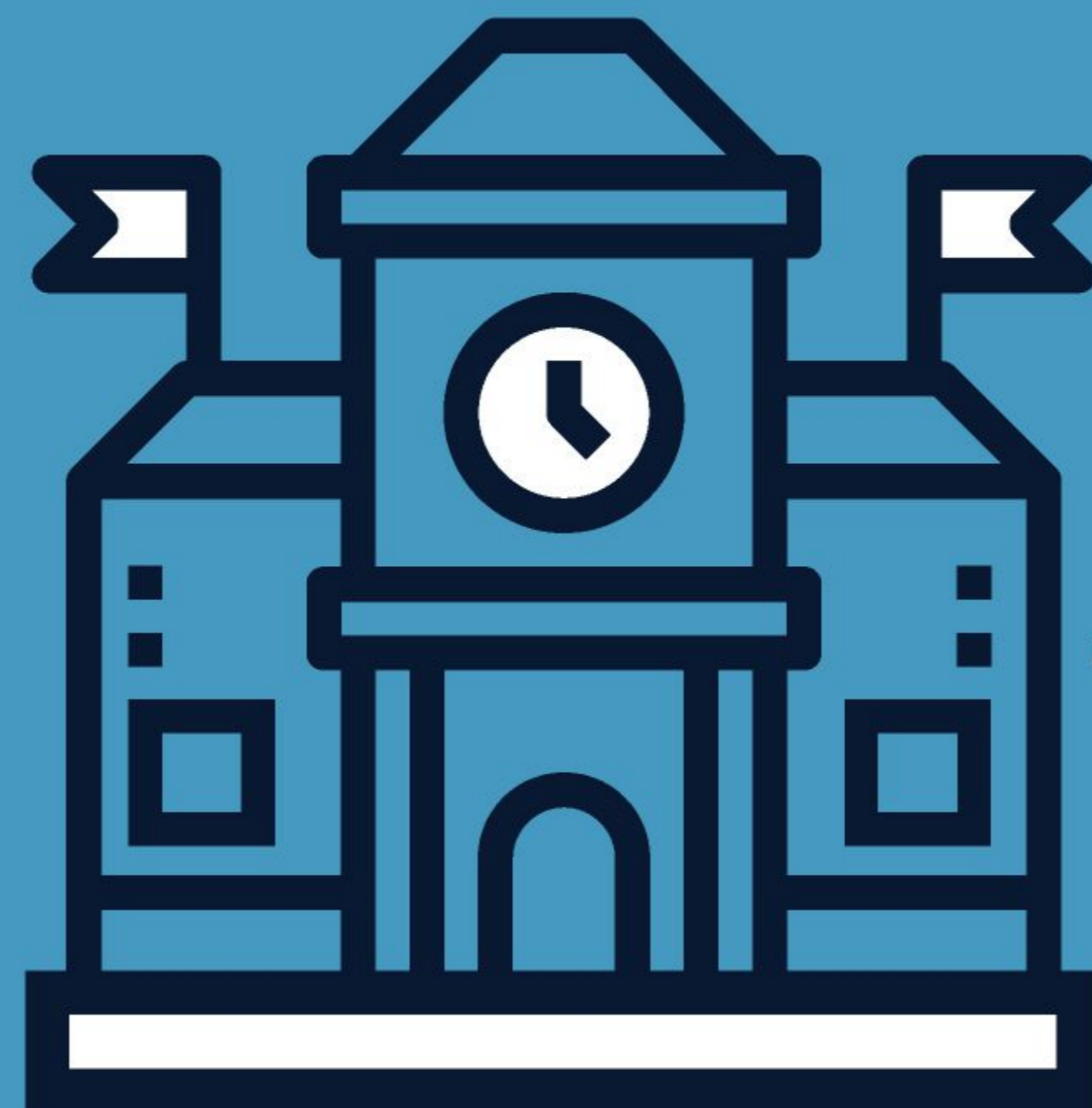
**Exam centers use paper forms of examinations and tests, which include:**

- Multiple choice questions type „1 of many“
- Open-ended questions - the answer is free text or a figure
- Mixed forms
- Draft sheet

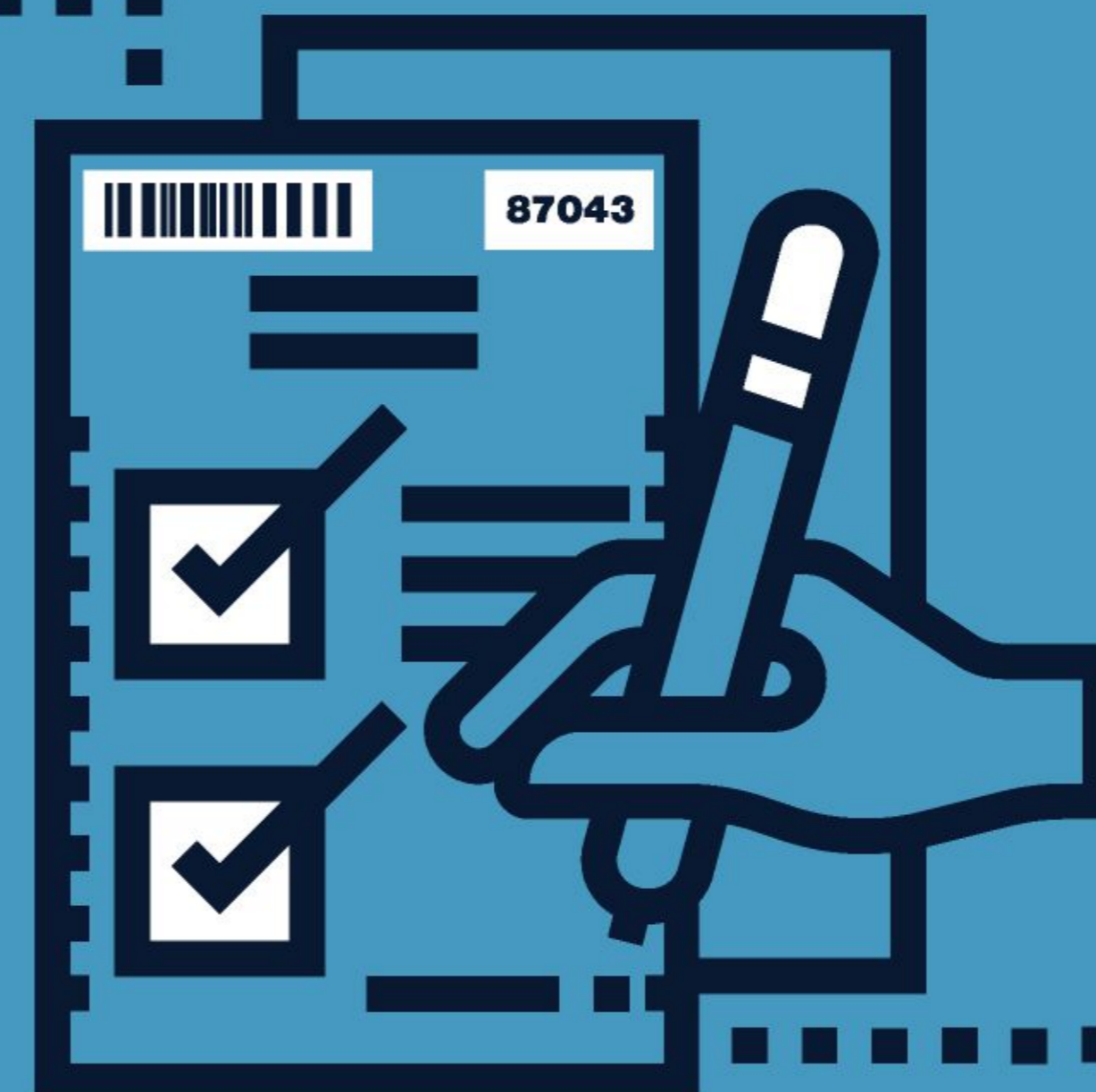
**SOFIRA provides:**

- Identification of the examination work
- Anonymity of exam work from the evaluator
- Randomly picked evaluator for each examination work
- Independent assessment from two evaluators
- Arbitrage of valuations if they differ over a certain value

The system provides results, statistics and data export in the required format and volume.



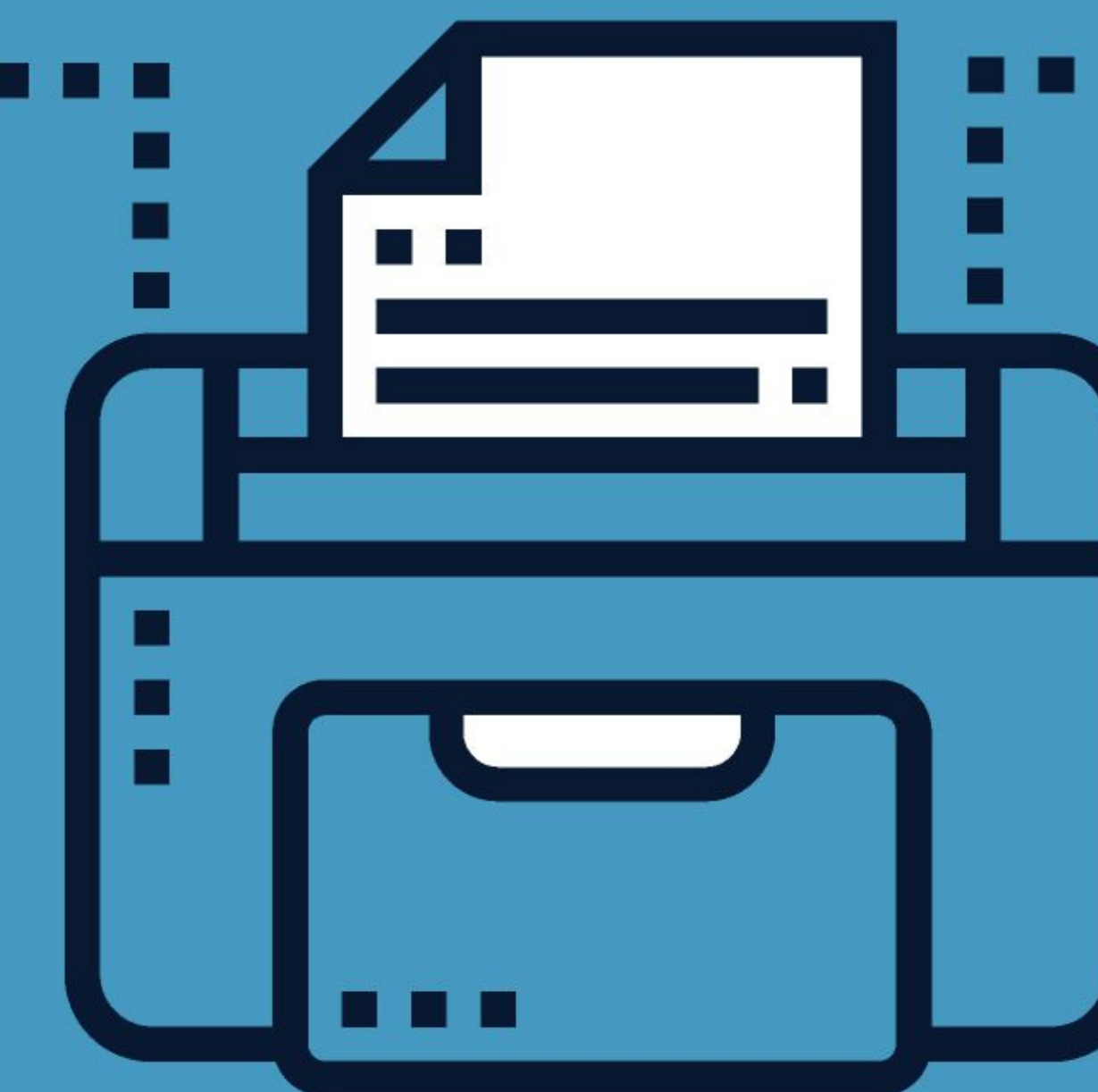
**Conducting an exam and/or a test in a pre-chosen building**



**Examination centers most often use paper forms of exams and tests**



**Examination works are strictly collected and processed in a protected place**



**Centralised scanning, indexing, processing and image storing through the SOFIRA system**

## Scan auto-recognition of markings, symbols and codes

### Examination work identification:

- Barcode
- Machine readable numbers, markings and signs

### Examination work marking

- Each examination work is marked with a dummy number or one is generated by the system
- Each page is marked with a barcode containing the examination work dummy number and the page number
- The dummy number is uniquely linked to the student's identifier, in case needed
- Binding the examination work to the specific person is done after the evaluation. This guarantees the ANONYMITY
- Barcodes placed on each page allow indexing and guarantee that the pages order won't be displaced

### Automatic evaluation of closed-ended question sets with one or more correct answers

- Logical control: Performs a check for correct recognition of markings according to the requirements of the examination center.
- Answer marking: Lack of marking; more than one marked answer; unclear marking
- Adjustment processing: The examined person is allowed to change his primary selected answer for each question.  
**SOFIRA** maintains a system for processing such adjustments.
- Automatic closed-ended question evaluation: **SOFIRA** performs optical mark recognition and calculates the score. Each question is evaluated separately and can have different maximum score.

### Identification of examination work: Barcodes

Each page is marked with a barcode, containing the dummy number of the examination work and page number. Barcodes placed on each page allow indexing and guarantee that the pages order won't be displaced.

### Automatic evaluation of closed-ended question sets with one or more correct answers.

### Examination work identification: Machine readable numbers, markings and signs

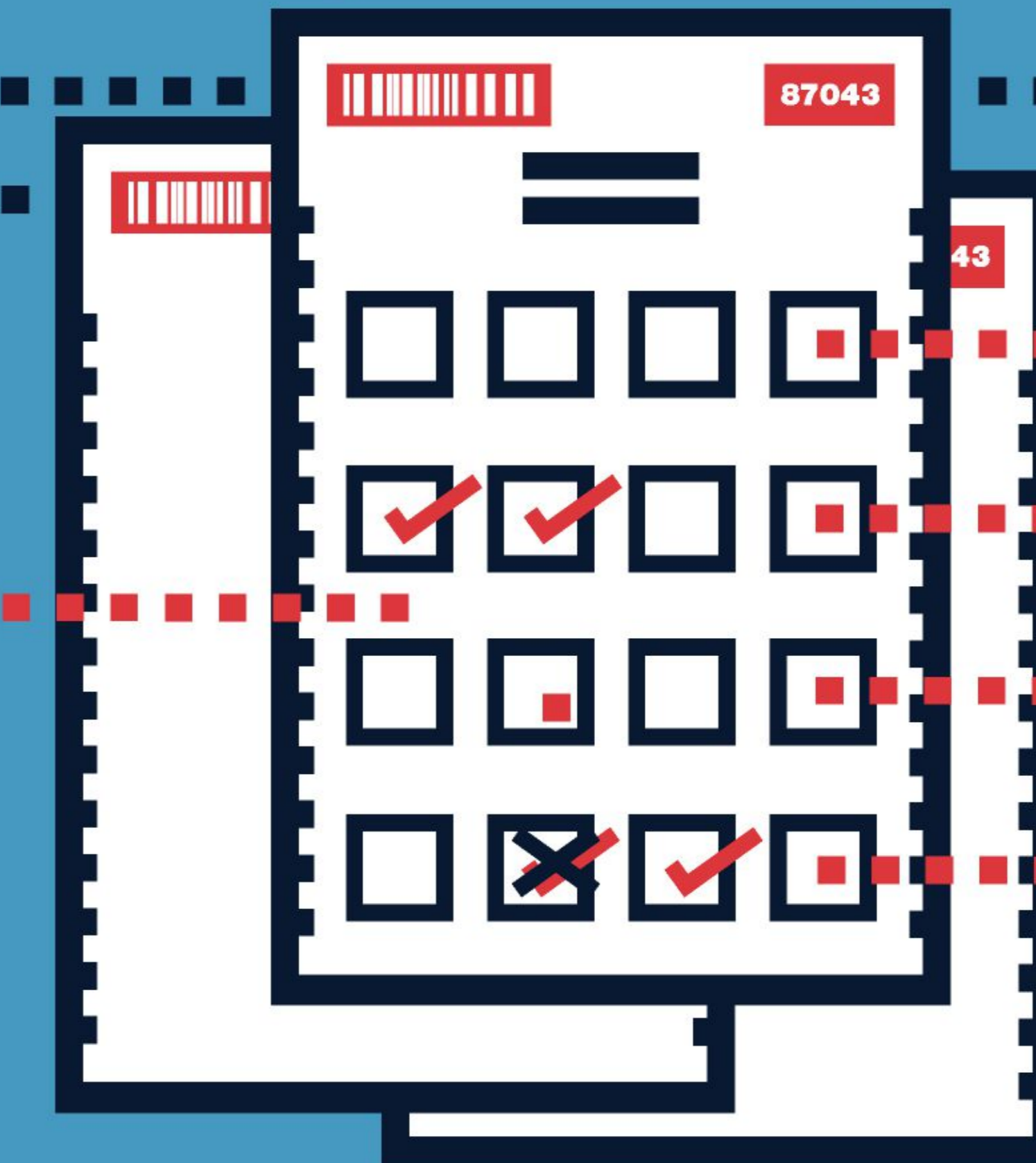
Each examination work is marked with a dummy number, or one is generated by the system. It is uniquely linked to the student's identifier, in case needed

■ Lack of marking

■ More than one marked answer

■ Unclear marking

■ Change of primary selected answer



Binding the examination work to the specific person is done after the evaluation. This guarantees the ANONYMITY.

# Sofira Scan

## Scanning | indexing and storage

### Work process organization:

#### Centralised scanning:

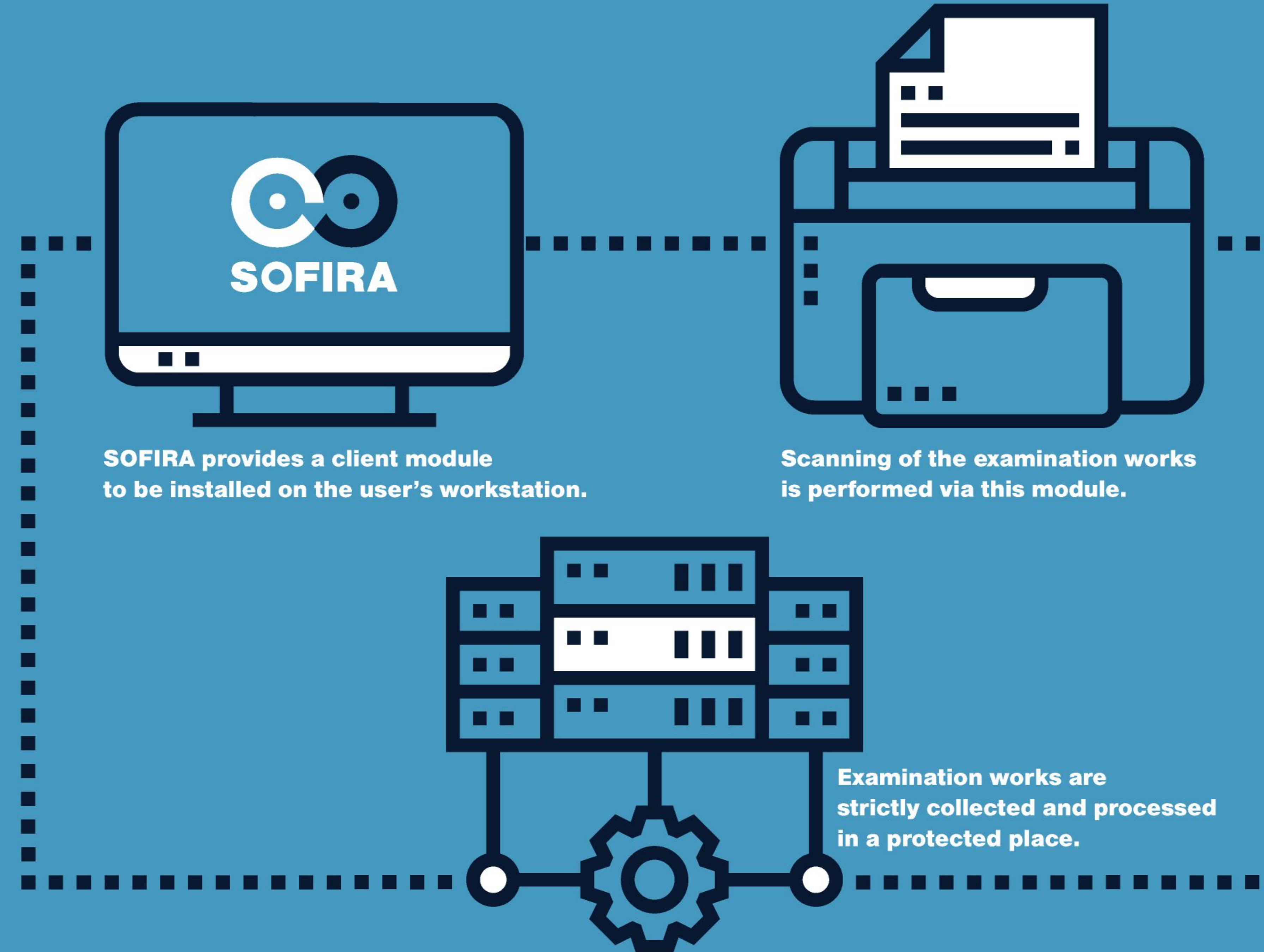
- Used by high security requirements
- Examination works are strictly collected and processed in a secure location
- Examination works are indexed and then stored by the examination center

#### Remote scanning:

- **SOFIRA** provides a client module, which allows decentralised scanning
- The client scans the forms himself
- Examination works are indexed and then stored in a location determined by the examination center

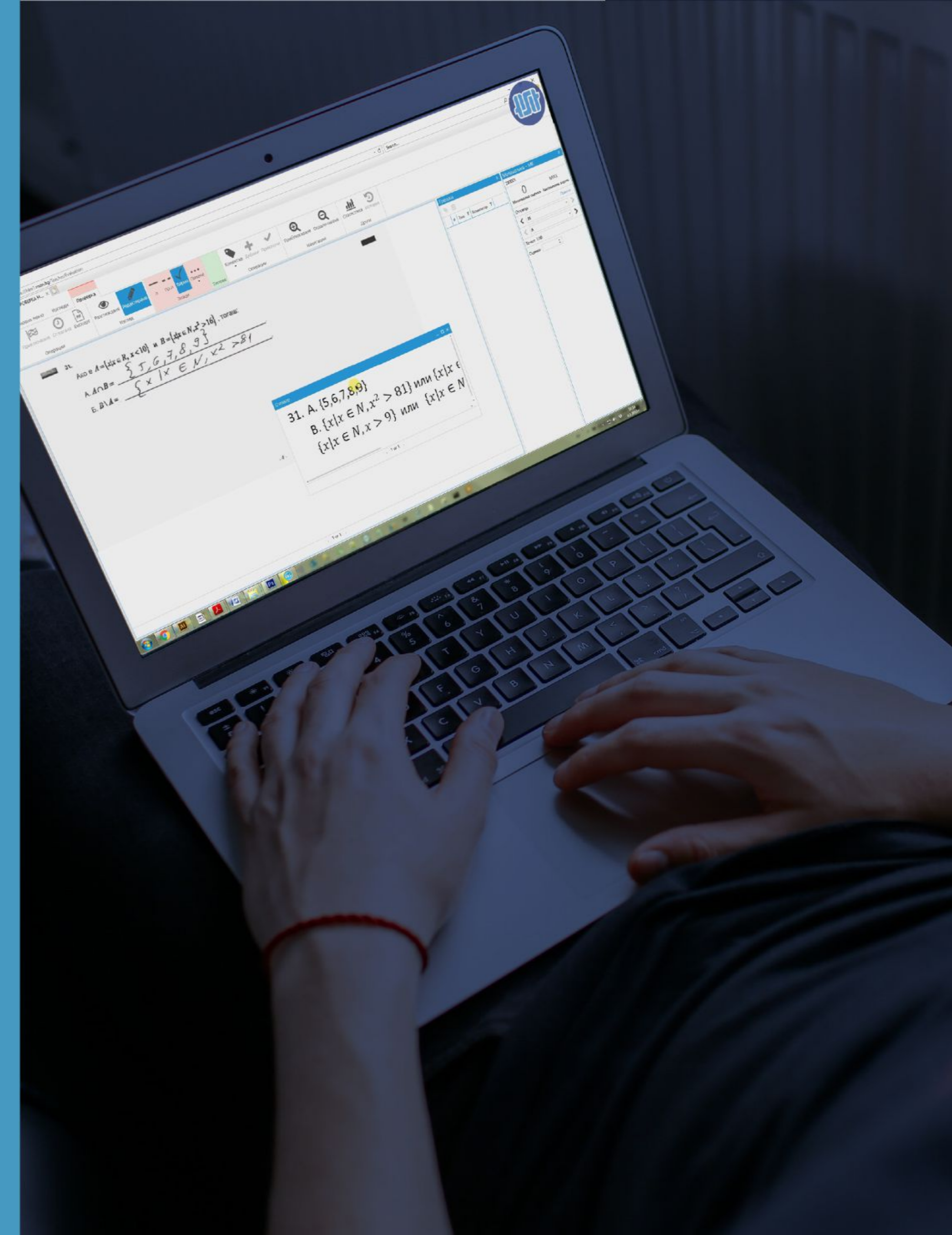
### LOGICAL CONTROL during scanning for:

- Image quality
- Completing the examination work





**SOFIRA** remote evaluation



■ **SOFIRA**  
processing open-ended questions



# Sofira Remote evolution

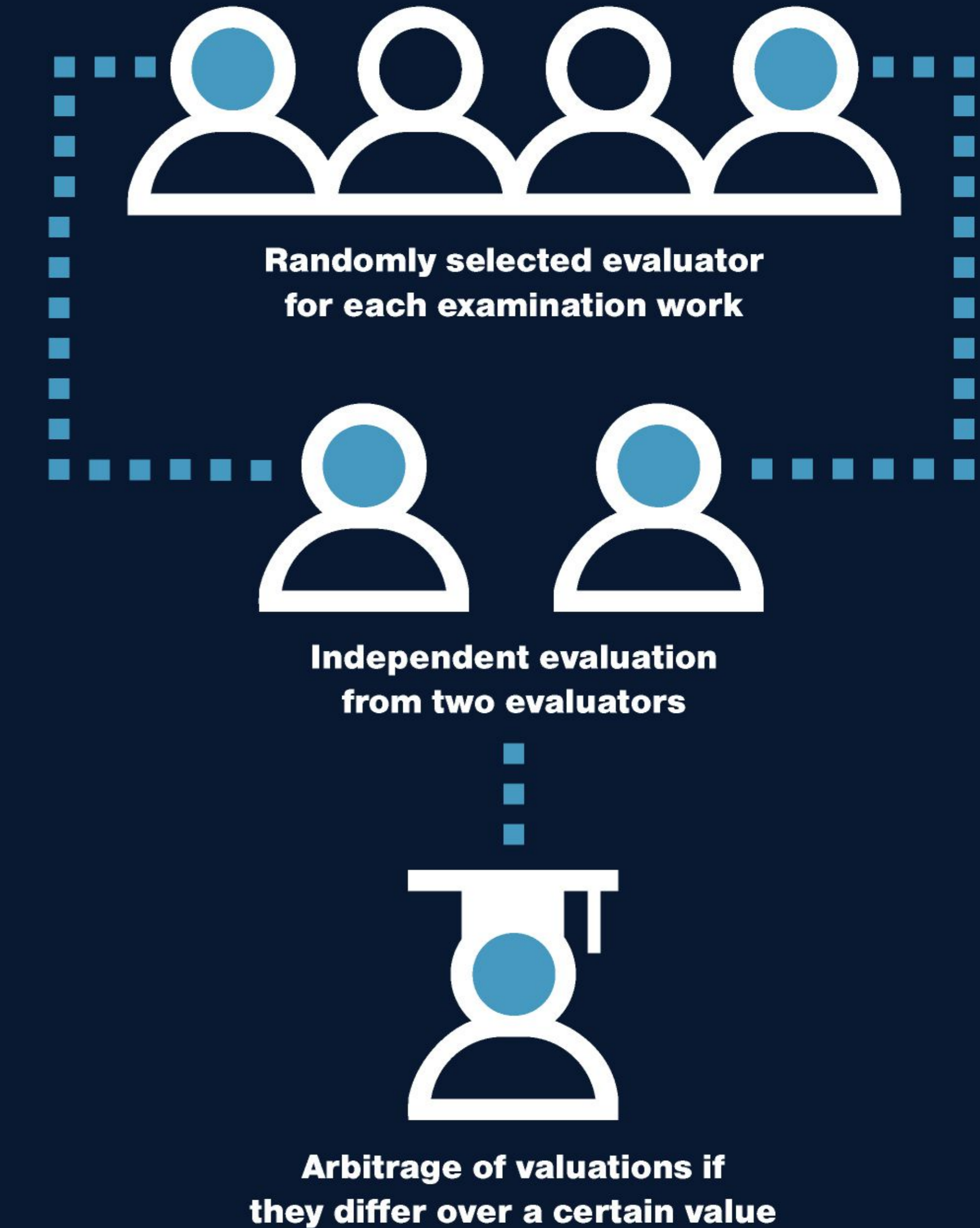
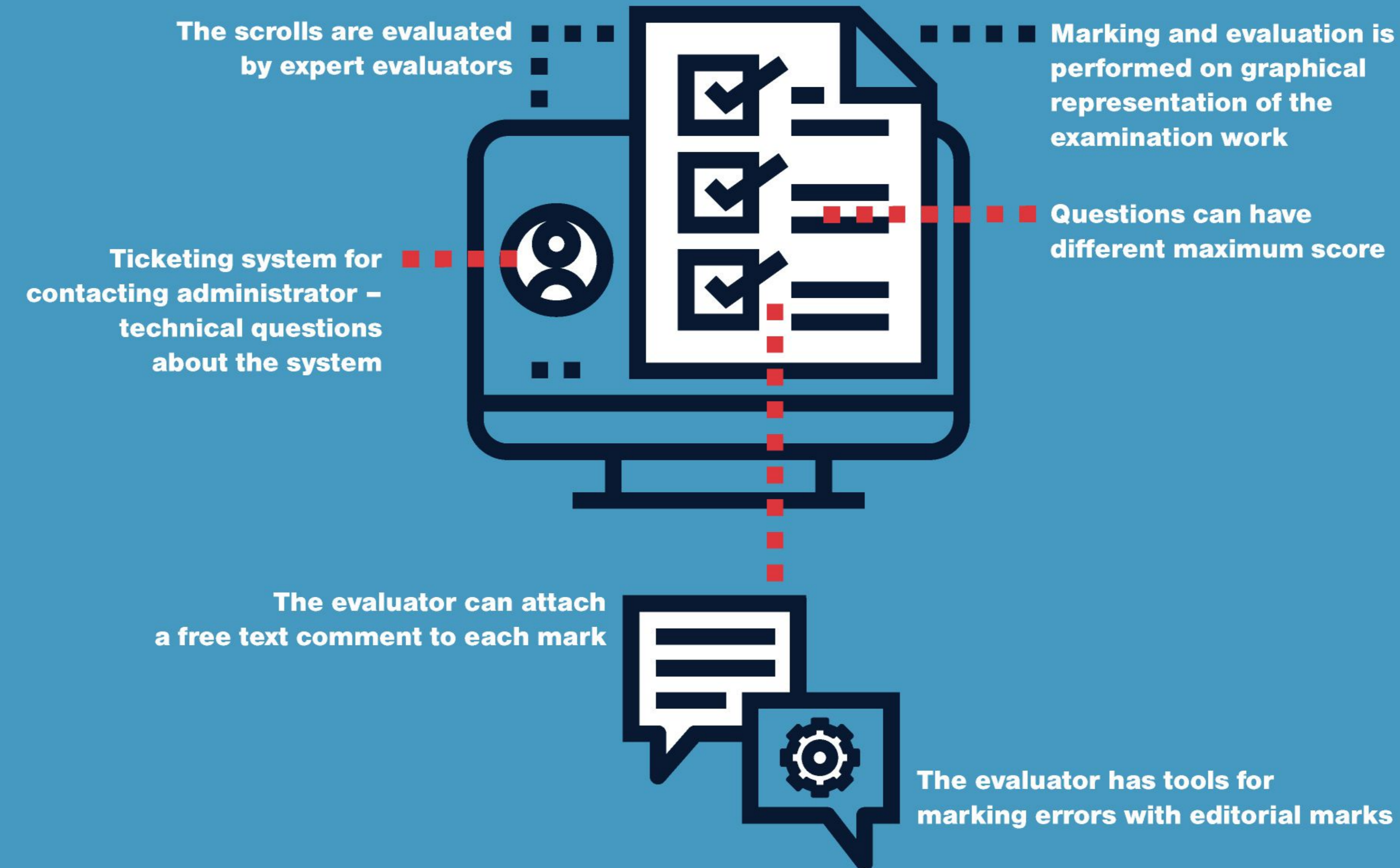
## Sofira

### Processing open-ended questions

- Open-ended answers
- Evaluated by expert evaluators
- Marking and evaluation is performed on a graphical representation of the examination work
- The evaluator has tools for marking errors with editorial marks
- The evaluator can attach a free text comment to each mark
- **SOFIRA** uses evaluation system provided by the examination center

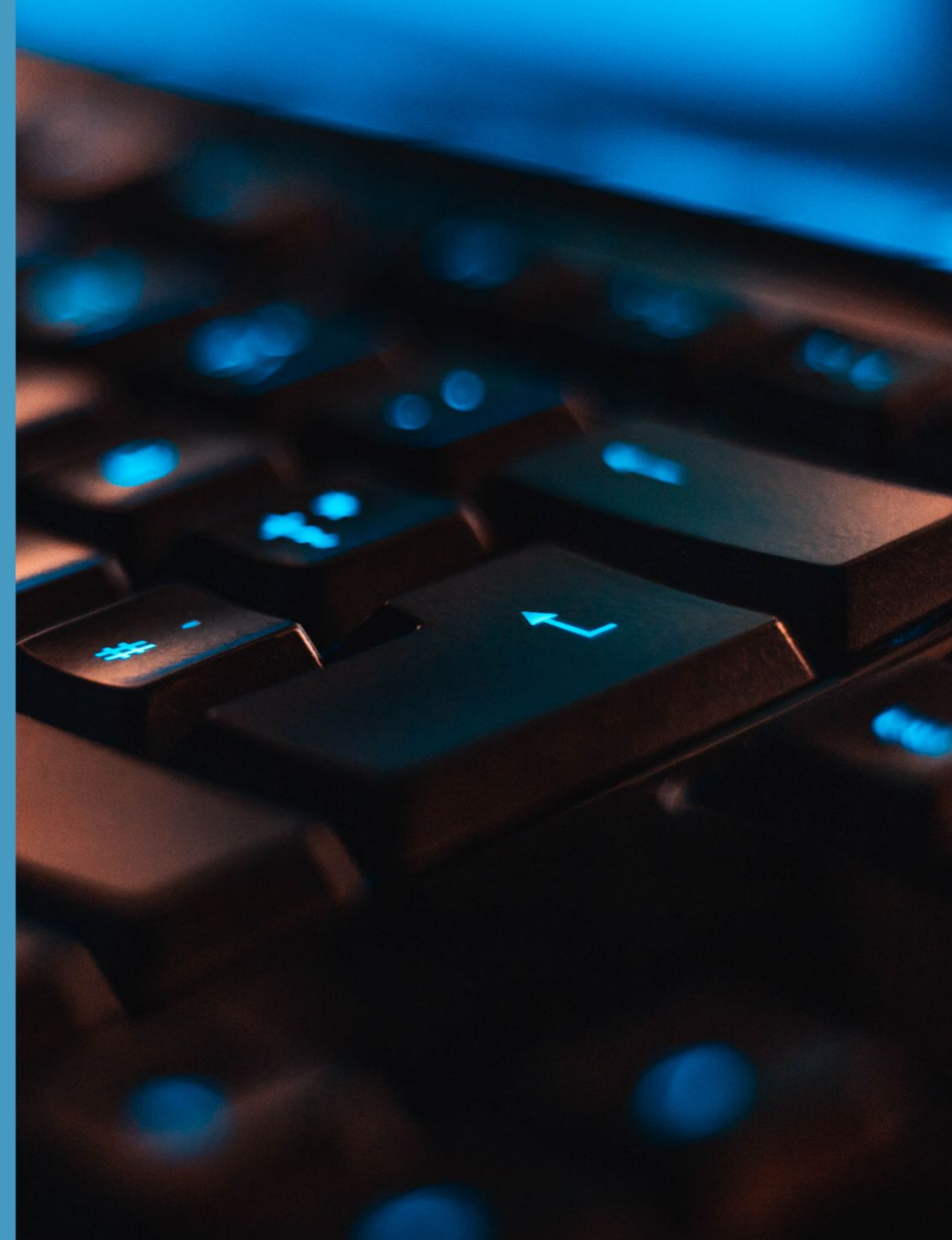
### Help tools

- Standardized correct answer provided by the examination center
- Ticketing system for contacting administrator about system technical questions
- Support from experts in the examination center regarding questions about evaluation or violation of the anonymity of the examination work





**SOFIRA** security



■ **Informational security authentication system**

## Information security:

### The system is installed and operated in:

- Certified data center
- Secure environment provided by the examination center

### Authentication system:

**SOFIRA** provides multilayer security, as required by the examination center:

- Username, password + additional element provided by the examination center
- Username, password and SMS with confirmation code
- Username, password and email with confirmation code
- Username, password and confirmation code generated by TOKEN (software or hardware device)

For each user the system generates a report about:

- User activity
- Access right
- Quality and quantity of evaluation
- Comprehensive assessment

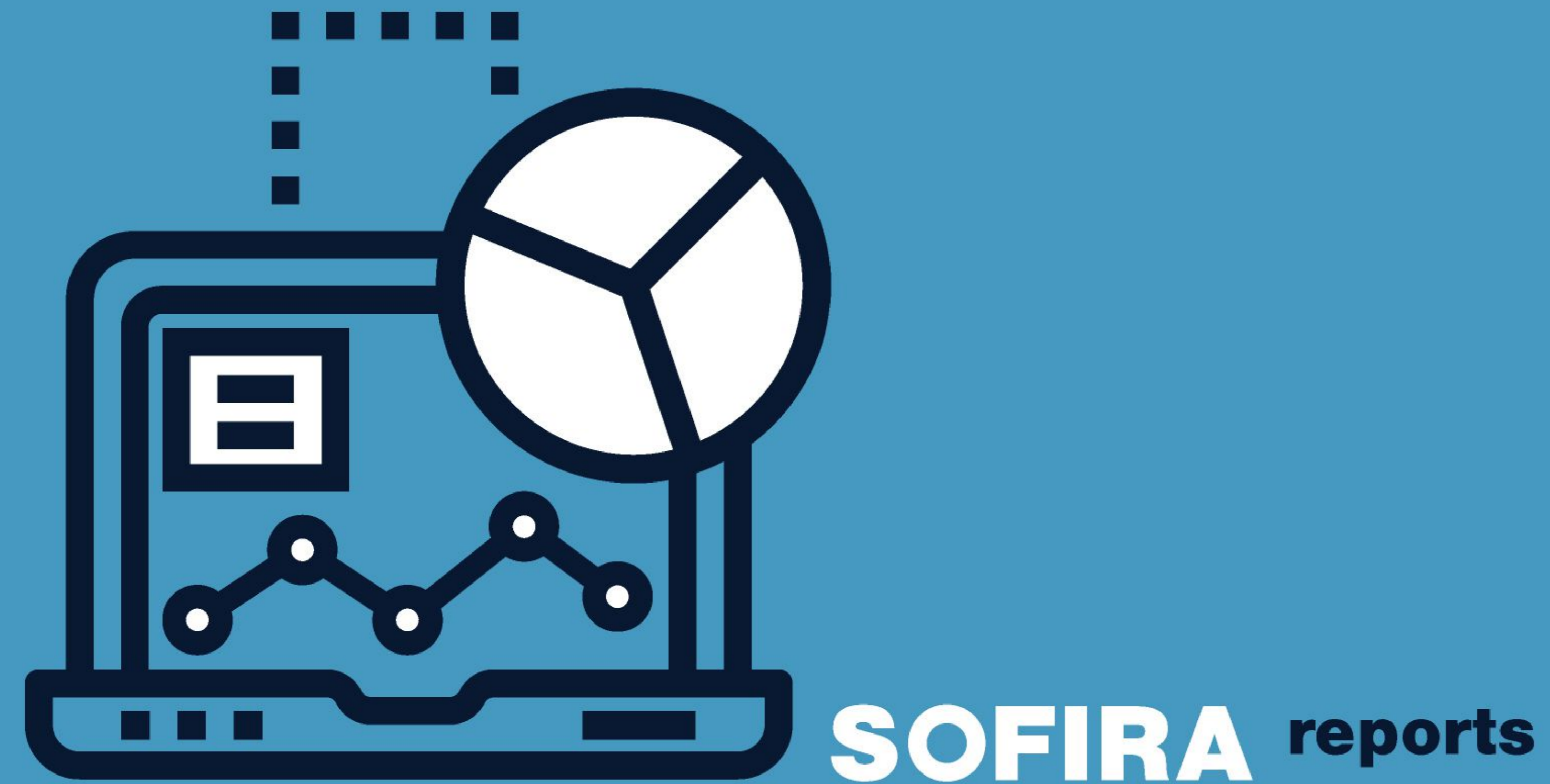




**SOFIRA** training



- **Training and certification of evaluators for using SOFIRA**  
maintains and updates a database of trained evaluators.

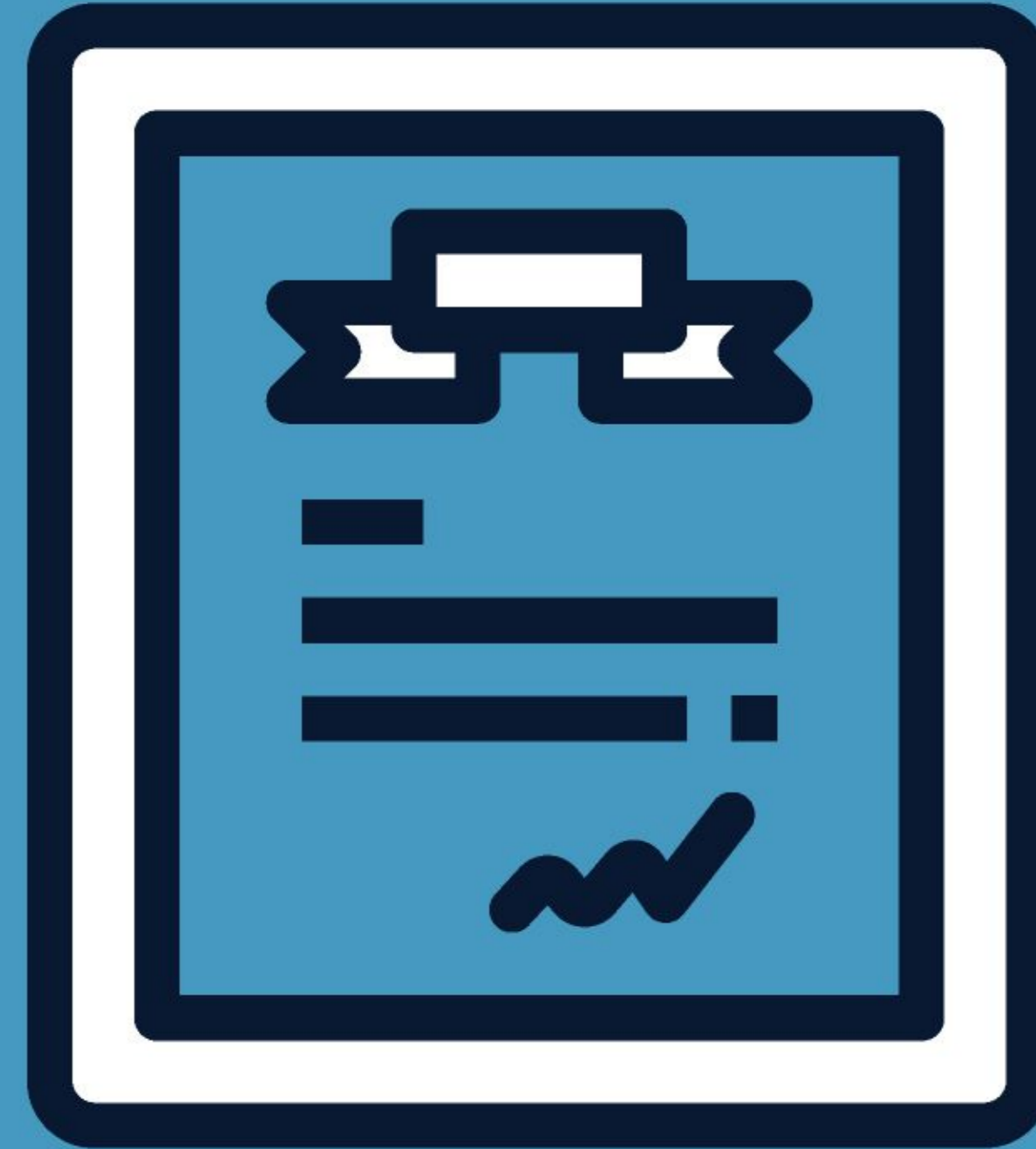


## Sofira Reports

The module generates reports which can be exported in formats determined by the examination center:

- **SOFIRA - STATISTICS**  
automatically generates statistics information defined by the examination center
- **SOFIRA - PROTOCOLS**  
automatically generates protocols with determined by the examination center content and format
- **SOFIRA - REPORTS**  
generates one time or periodical reports by criteria determined by the examination center

# Sofira Certificates



**SOFIRA** certificates



## CERTIFICATE

Management system as per  
**ISO/IEC 27001 : 2013**

In accordance with TÜV NORD CERT procedures, it is hereby certified that

**PSIT BULGARIA OOD**  
2, Panayot Volov str.  
1504 Sofia  
Bulgaria



Operative address: 11, Kutlovița str., floor 1, 1505 Sofia, Bulgaria

applies a management system in line with the above standard for the following scope

**Delivery, service and maintenance of informational, computer and communication systems, office and bank equipment systems, access control and video surveillance (CCTV) installation and certification of structured cabling systems. Delivery, development, integration and service of systems for the digitization and processing of books, exam and test forms.**

**As per the Statement of Applicability version 01 dated 01.12.2014**

Certificate Registration No. 44 121 15 32 0134  
Audit Report No. 3598 1779

Valid from 2018-12-29  
Valid until 2021-12-28  
Initial certification 2015

*[Signature]*  
Certification Body  
at TÜV NORD CERT GmbH

Plovdiv, 2018-12-03

This certification was conducted in accordance with the TÜV NORD CERT auditing and certification procedures and is subject to regular surveillance audits.

TÜV NORD CERT GmbH    Langemarkstraße 20    45141 Essen    www.tuev-nord-cert.com



## CERTIFICATE

Management system as per  
**BDS EN ISO 9001 : 2015**

In compliance with the procedures of the Management Systems Certification Body at TÜV NORD Bulgaria EOOD, it is hereby certified that

**PSIT Bulgaria OOD**  
2 P. Volov str.  
1527 Sofia  
Bulgaria



applies a management system in line with the above standard for the following scope

**Delivery, service and maintenance of informational, computer and communication systems, office and bank equipment systems, access control and video surveillance (CCTV) installation and certification of structured cabling systems. Delivery, development, integration and service of systems for the digitization and processing of books, exam and test forms.**

Certificate Registration No. 32 100 150066  
Audit Report No. 3218 0253

Valid from 2018-06-04  
Valid until 2021-06-03  
Initial certification 2009

*[Signature]*  
MS Certification Body at  
TÜV NORD Bulgaria EOOD

Plovdiv, 2018-05-28

The certification was conducted in compliance with the procedures of the MSCB at TÜV NORD Bulgaria EOOD for audit and certification, and is subject to regular surveillance audits.

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