



ENHANCEMENT OF QUALITY ASSURANCE OF E-ASSESSMENT

Esther Huertas – Roger Roca, AQU CATALUNYA
13th European Quality Assurance Forum
Broadening the scope of QA
Vienna, 16 November 2018



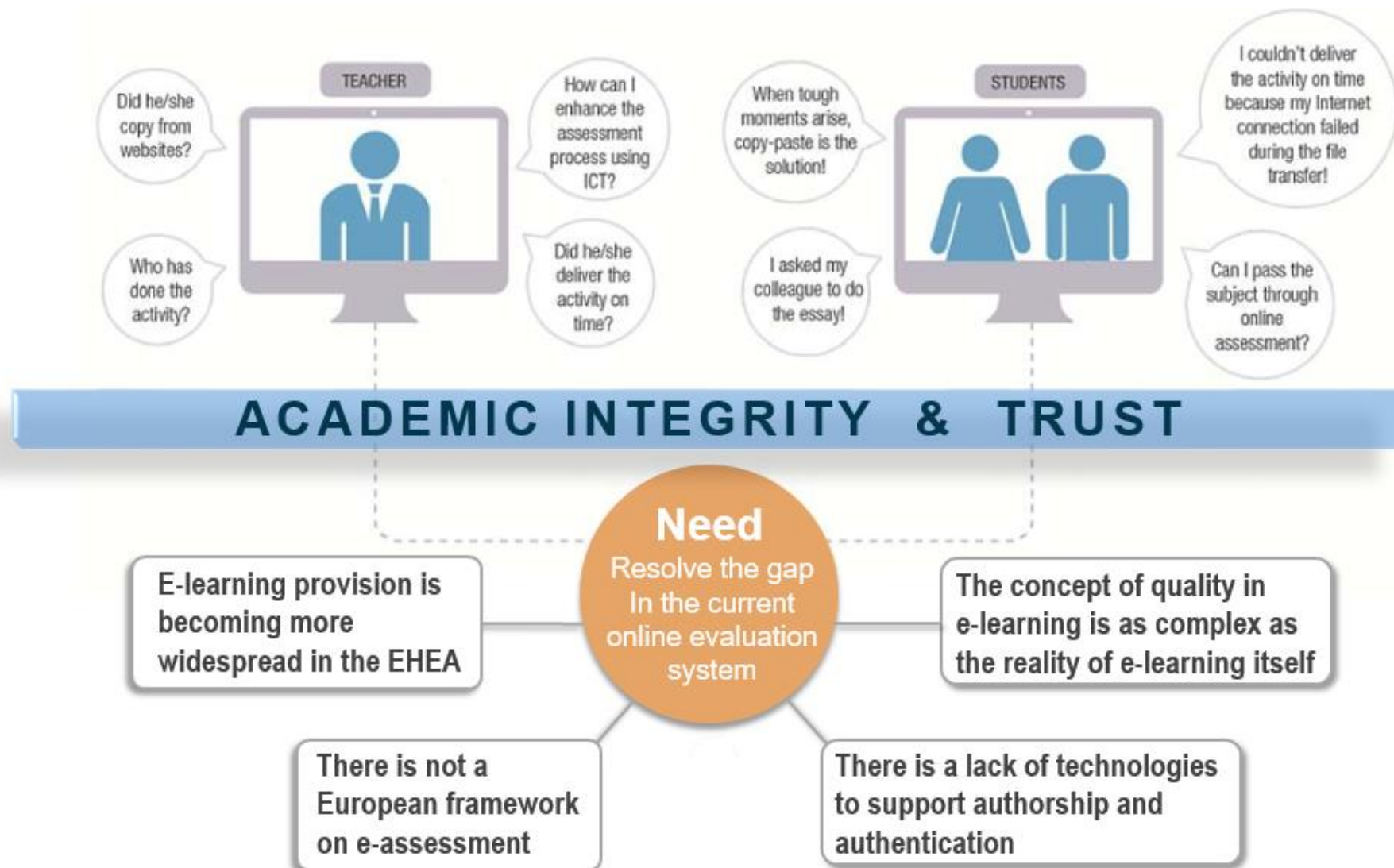
INDEX

- Introduction to the TeSLA project
- QA pillars in the TeSLA project
- Results
- Conclusions

TeSLA

Trust-based Authentication & Authorship e-assessment analysis





MAIN OBJECTIVES



Define and develop an **e-assessment system**, which ensures learners **authentication and authorship** in online and blended learning environments while avoiding the time and physical space limitations imposed by face-to-face examination.



Support any e-assessment model (formative, summative and continuous) **covering teaching and learning processes as well as QA aspects, privacy and ethical issues, and technological requirements.**



<http://tesla-project.eu/>

CONSORTIUM

18 Partners

8 Universities

3 QA bodies

4 Research Centers

3 Enterprises



TeSLA INSTRUMENTS

DOCUMENT ANALYSIS

Involves the analysis of written material using a qualitative analysis package that describes discourse and its interpretation

Plagiarism tools



Analyses written material and detects similarities among various written documents



Forensic analysis

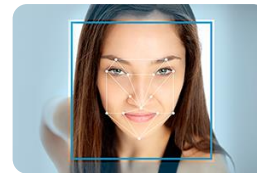
Determines the authorship verification and authorship attribution of written documents based on the comparison of current documents with stored data

AUTHORSHIP

BIOMETRICS

Allow the clear identification of humans based on some specific physical characteristics or special behaviour

Facial recognition



Analyses facial expressions in two stages: facial detection and recognition



Voice recognition

State-of-the-art audio description method. Speaker segmentation and cluster grouping

Keystroke dynamics



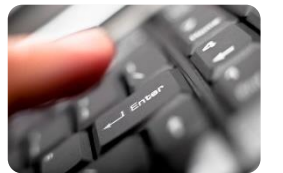
Measures how the user writes in regards to pressure and time-based measuring

AUTHENTICATION

SECURITY TECHNIQUES

Deploy a security service provided by a layer of communicating systems

Timestamp



Generates a sequence of encoded information identifying when an event is recorded

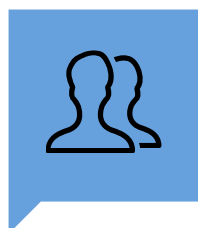


Digital signature

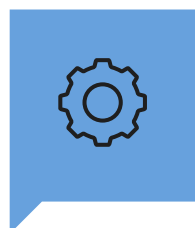
Guarantees the authenticity of a digital message or document by a mathematical scheme

CONFIDENCE

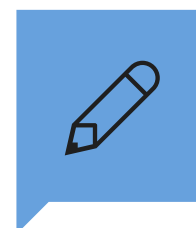
QA PILLARS IN TeSLA



EXPERTS



PROCESS



METHODOLOGY



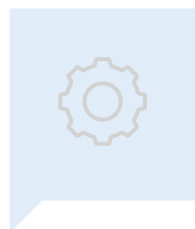
IMPROVEMENT

QA PILLARS IN TeSLA

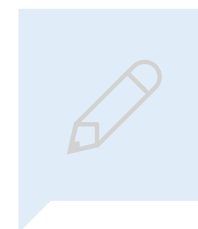
Assure and guarantee the quality
of e-assessment processes in HE



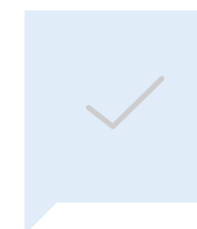
EXPERTS



PROCESS



METHODOLOGY



IMPROVEMENT



HEAD PANEL

Composition:

- 1 Academic
- 1 QA professional
- 1 Student
- 1 Technological expert
- 1 Secretary

Tasks:

- Improvement of assessment methodology
- Improvement of pilots
- Approval of regular panels reports
- Harmonization role

1st PILOT
SMALL EDUCATIONAL PILOTS
Course 2016/17 1S

2nd PILOT
MEDIUM TEST-BED PILOTS
Course 2016/17 2S

3rd PILOT
LARGE SCALE PILOTS
Course 2016/18



REGULAR PANELS

Composition:

- 1 Academic
- 1 QA professional
- 1 Student
- 1 Technological expert

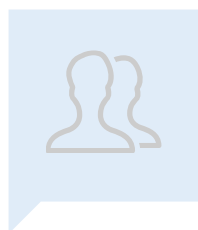
Tasks:

- Pilot assessment → Assessment report
- Improvement of assessment methodology
- Institutions

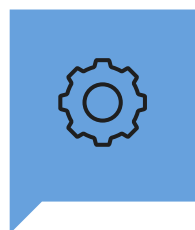
2nd PILOT
MEDIUM TEST-BED PILOTS
Course 2016/17 2S

3rd PILOT
LARGE SCALE PILOTS
Course 2016/18

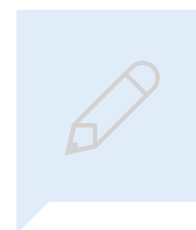
QA PILLARS IN TeSLA



EXPERTS



PROCESS

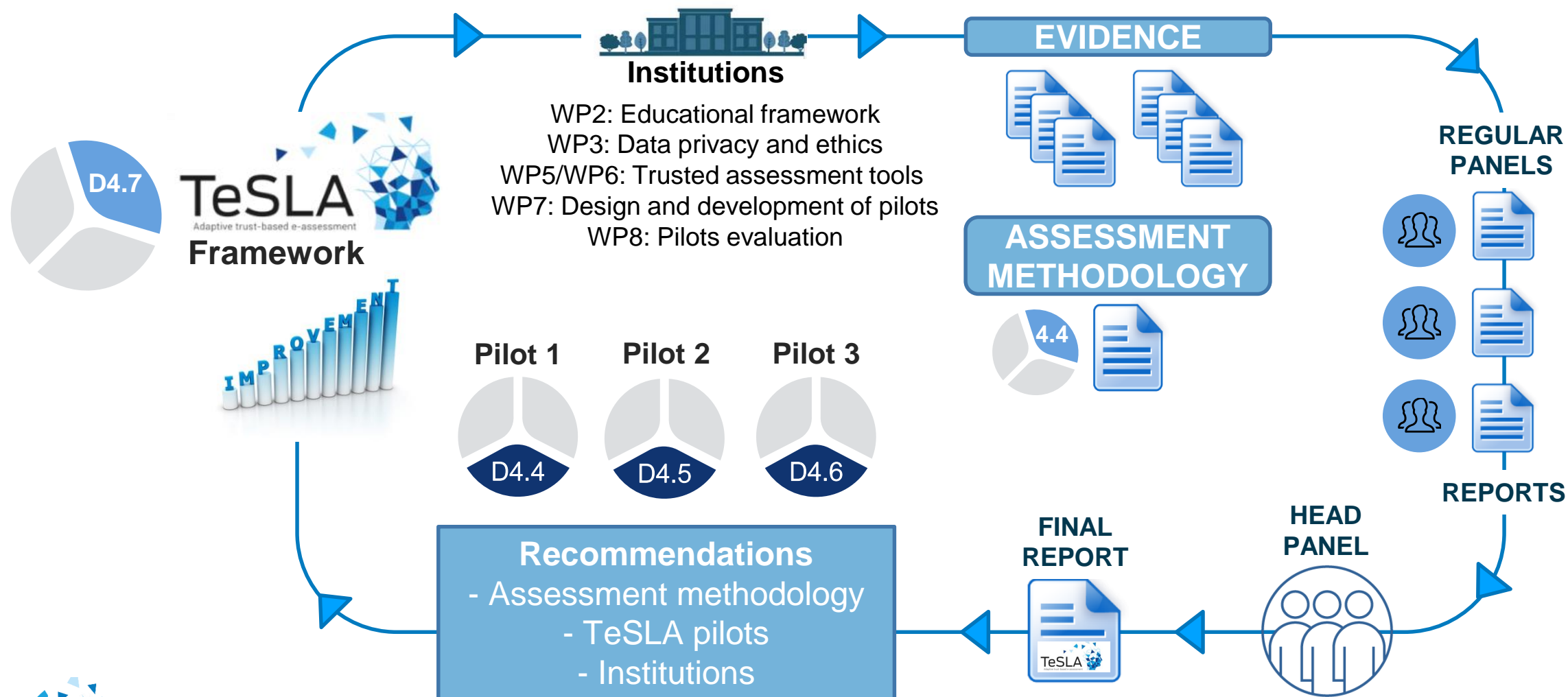


METHODOLOGY



IMPROVEMENT

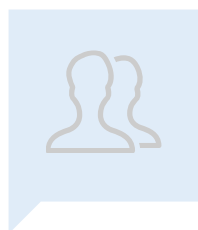
EVALUATION PROCESS



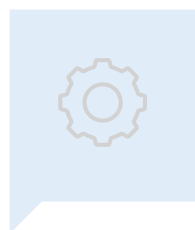
PILOT UNIVERSITIES



QA PILLARS IN TeSLA



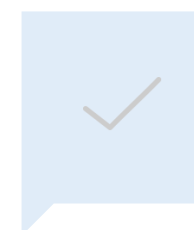
EXPERTS



PROCESS



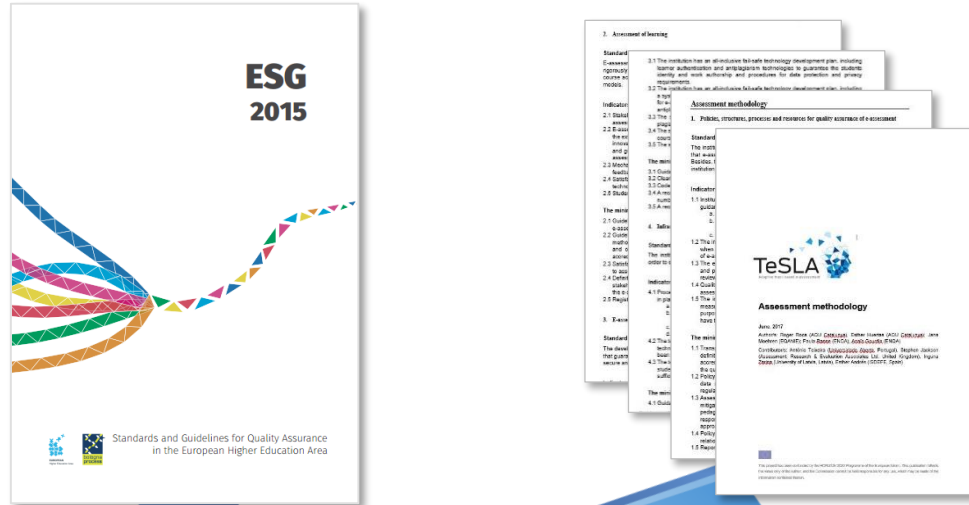
METHODOLOGY



IMPROVEMENT



REVIEW METHODOLOGY



STANDARDS

1. Policies, structures, processes and resources for QA of e-assessment.
2. Assessment of learning.
3. E-assessment system security, capacity and authenticity.
4. Infrastructure and resources.
5. Student support.
6. Teaching staff.
7. Learning analytics.
8. Public information.



INDICATORS



EVIDENCE

RESULTS

1. POLICIES, STRUCTURES, PROCESSES AND RESOURCES FOR QA OF E-ASSESSMENT

*The institution has appropriate policies, structures, processes and resources **to ensure that e-assessment is timely and fair**, and it includes **ethical and legal considerations**. Besides, the proposal for the e-assessment is aligned with the **pedagogical model** of the institution and ensures the constant achievement of its objectives.*



1. **Two different scenarios** in regard to e-assessment policies:
 - ✓ e-assessment is **permitted**.
 - ✓ e-assessment is **not permitted**.
2. All HEIs have **well defined policies and processes** for QA procedures in place (general purposes).
3. **Traditional universities** that have recently included blended and online provisions should **develop specific policies on e-learning and e-assessment**.
4. HEIs transitioning to e-learning/e-assessment should be supported by the **full involvement of their QA units**.

2. ASSESSMENT OF LEARNING

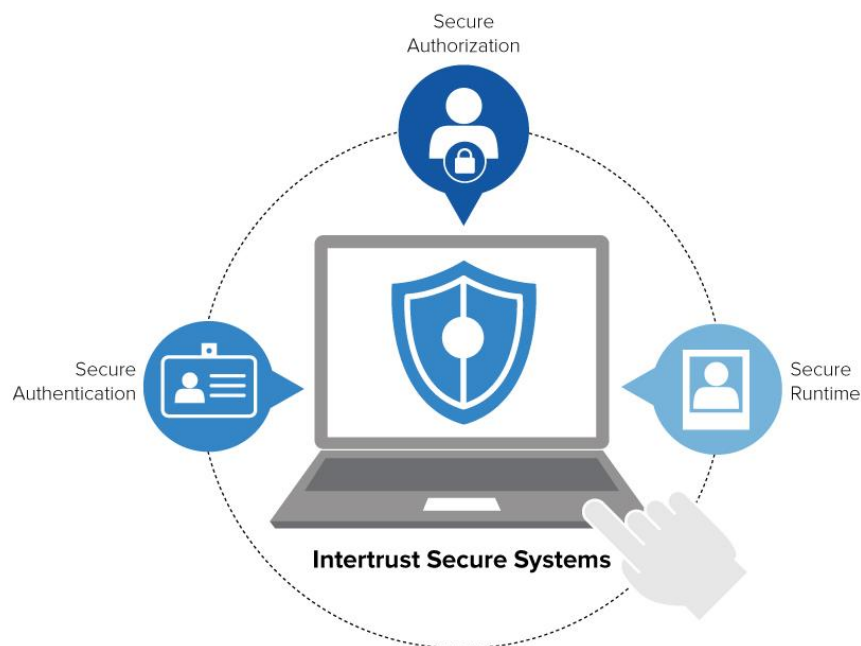
E-assessment methods are varied, facilitate pedagogical innovation and determine rigorously the level of achievement of learning outcomes. They are consistent with course activities and resources and adapt to the diversity of learners and educational models.



1. Diversity of assessment methods is applied in all HEIs.
2. HEIs offer diversified methodology for assessing SEND students.
3. Chosen assessment methods are aligned with learning outcomes.
4. Collaborative assignments are still a challenge.

3. E-ASSESSMENT SYSTEM SECURITY, CAPACITY AND AUTHENTICITY

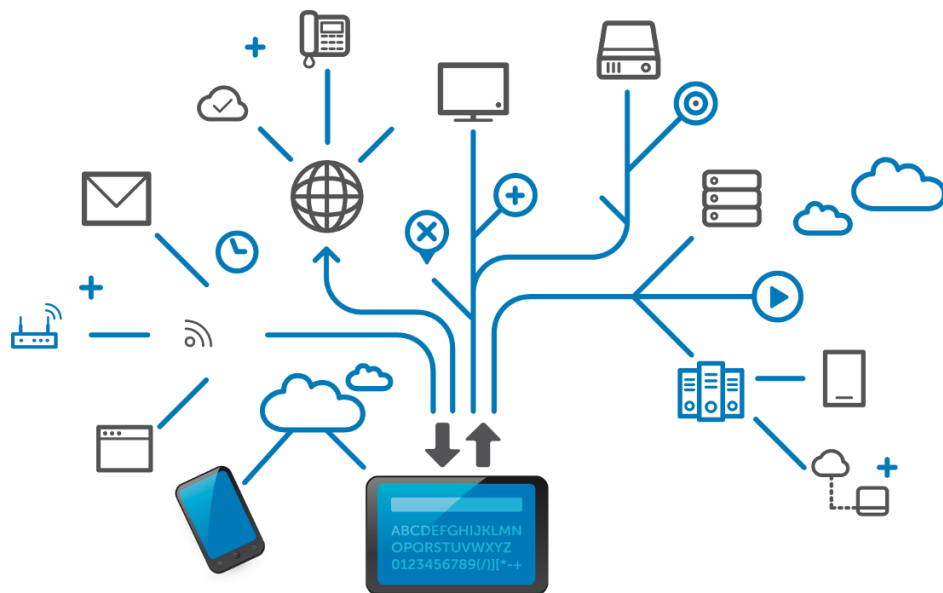
*The development and implementation of the e-assessment include protective measures that **guarantee learner authentication and work authorship**. The e-assessment system is secure and fit for purpose.*



1. All HEIs are aware of technical and security implications.
2. All HEIs address academic integrity issues.
However, they need to **define the threshold level** of normal behaviour vs. suspicious behaviour.
3. Even the TeSLA system complies with the European GDPR, **students need to be provided with enough information to be confident enough to share personal data**.
4. The implementation of a register of external attacks and technical problems needs to be improved.

4. INFRASTRUCTURE AND RESOURCES

The institution utilises the **appropriate technologies** that match the course content in order to enhance and expand learning for all types of students' needs.



1. **Different VLE are used by HEIs.**
2. HEIs should have **centralized technical support in place** (ticketing system, guidance and procedures for technical staff...).
3. HEIs should **collect satisfaction data from all key stakeholders on the use of the VLE.**

5. STUDENT SUPPORT

*Students are aware, have access and use effective and well-resourced **support services** for counselling, orientation, tutoring and facilitation in order to increase retention and success. Student support **covers pedagogical, technological and administrative related needs** and is **part of institutional policies and strategies**.*



1. All HEIs have **well-established support mechanisms** to meet all student needs (administrative, technical and pedagogical).
2. **SEND students receive an appropriate and wider range of support.**
3. **Student satisfaction surveys** need to be **revised and redesigned** (when necessary) in order to **improve support services**.

6. TEACHING STAFF

The teaching staff is **skilled and well-supported** in relation to **technological and pedagogical requirements and e-assessment methods**.



1. Teaching staff should be **trained on the innovation of the pedagogical practices** (including e-assessment) and should **receive technical training**.
2. Teaching staff should be **provided with updated information, guidelines and well-defined procedures** to deal with the **academic integrity** and the implementation of a **new assessment system**.
3. Some HEIs need to include procedures for the evaluation of teaching staff satisfaction.

7. LEARNING ANALYTICS

The institution has an **information management system (IMS)** that enables agile, complete and representative collection of data and indicators derived from all aspects related to e-assessment methodology and authenticity and authorship technologies.



1. All HEIs **agree** on the **potentiality and value of having an IMS in place** for the improvement of the learning process.
2. HEIs need to enhance an IMS for the **systematic collection of data related to the QA of e-assessment**.
3. HEIs should clearly **define the process around the use and analysis of personal data** (build trust).

8. PUBLIC INFORMATION

*The institution appropriately **informs** all stakeholders of **pedagogical development, the e-assessment method, and resources technology**. The institution **publishes reliable, complete and up to date information** on pedagogical methods and technical support. Students should be made aware of the hardware requirements and learning resources technology and technical support.*



1. All HEIs have **well-established systems and accurate information available.**
2. HEI websites are:
 - student-oriented;**
 - easy to navigate;**
 - structured based on the needs and requirements of users.**and provide transparent information on:
 - how new technologies for assessment ensure fair and correct results;**
 - software and hardware requirements.**

CONCLUSIONS

- Innovation projects, as **TeSLA**, can contribute to provide more **confidence to HE system**.
- Depending on the background and origins of institutions (on-campus vs off-campus) and taking into consideration European and national regulations, **resources and efforts to meet QA requirements on e-assessment may vary**.
- **Fully online universities comply with most of the QA elements** defined from the e-assessment point of view.
- **Traditional universities** offering new blended programmes **should pay attention to new elements** (i.e. pedagogical model, VLE, student's and teacher's support, etc.).
- **TeSLA system** can be seen as an **opportunity to enhance QA of e-assessment systems**.



Trust-based Authentication & authorship e-assessment analysis

THANK YOU FOR YOUR ATTENTION

Esther Huertas: ehuertashidalgo@aqu.cat

Roger Roca: rroca@aqu.cat

ACKNOWLEDGEMENTS

This work is funded by the TeSLA project (Grant Agreement Number: 688520 – TeSLA – H2020-ICT-2015/H2020-ICT-2015). Thanks are also given to head panel members: António Teixeira (Universidade Aberta, Portugal), Stephen Jackson (Assessment, Research & Evaluation Associates Ltd, United Kingdom), Esther Andrés (ISDEFE, Spain), Inguna Zarina (University of Latvia, Latvia)

