



An Adaptive Trust-based e-assessment System for Learning

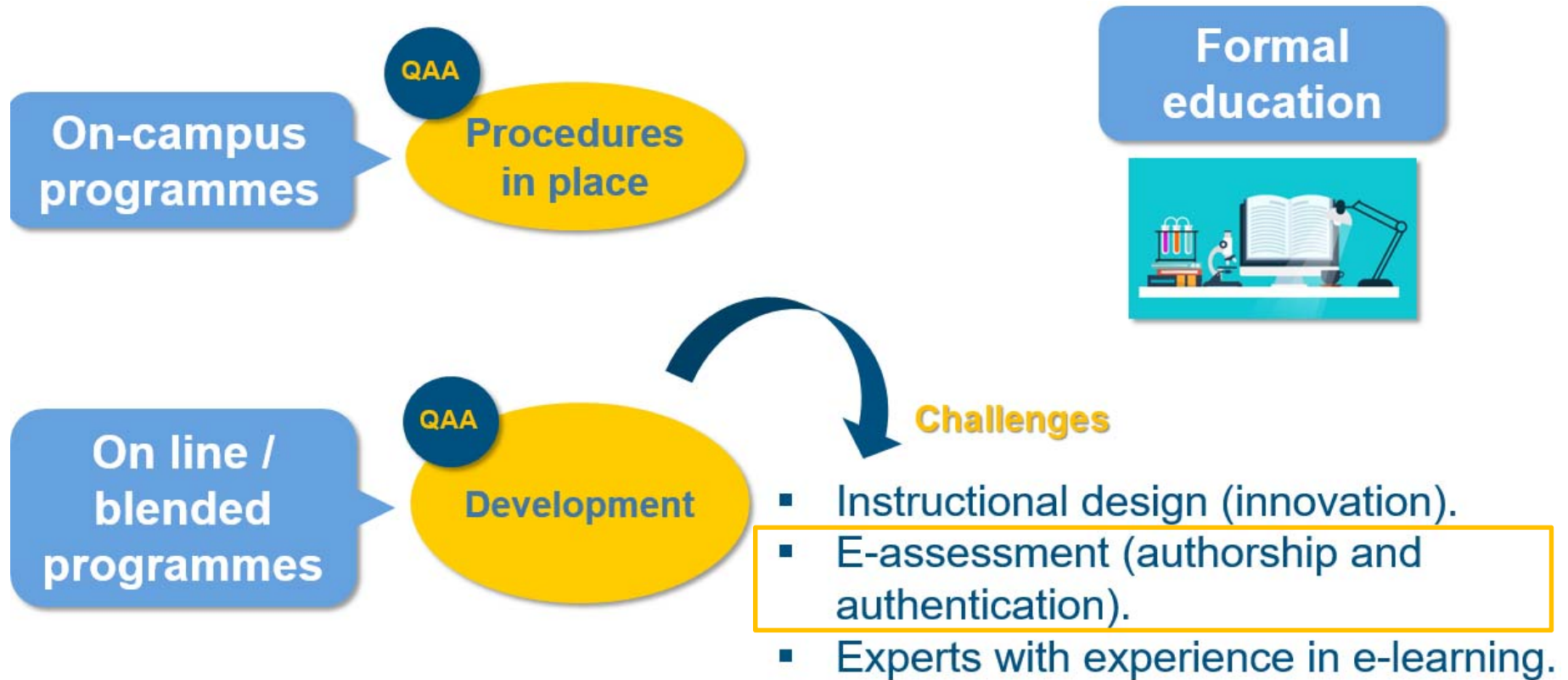
Esther Huertas (AQU Catalunya). WP Leader
Ana Elena Guerrero (UOC). TeSLA Coordinator

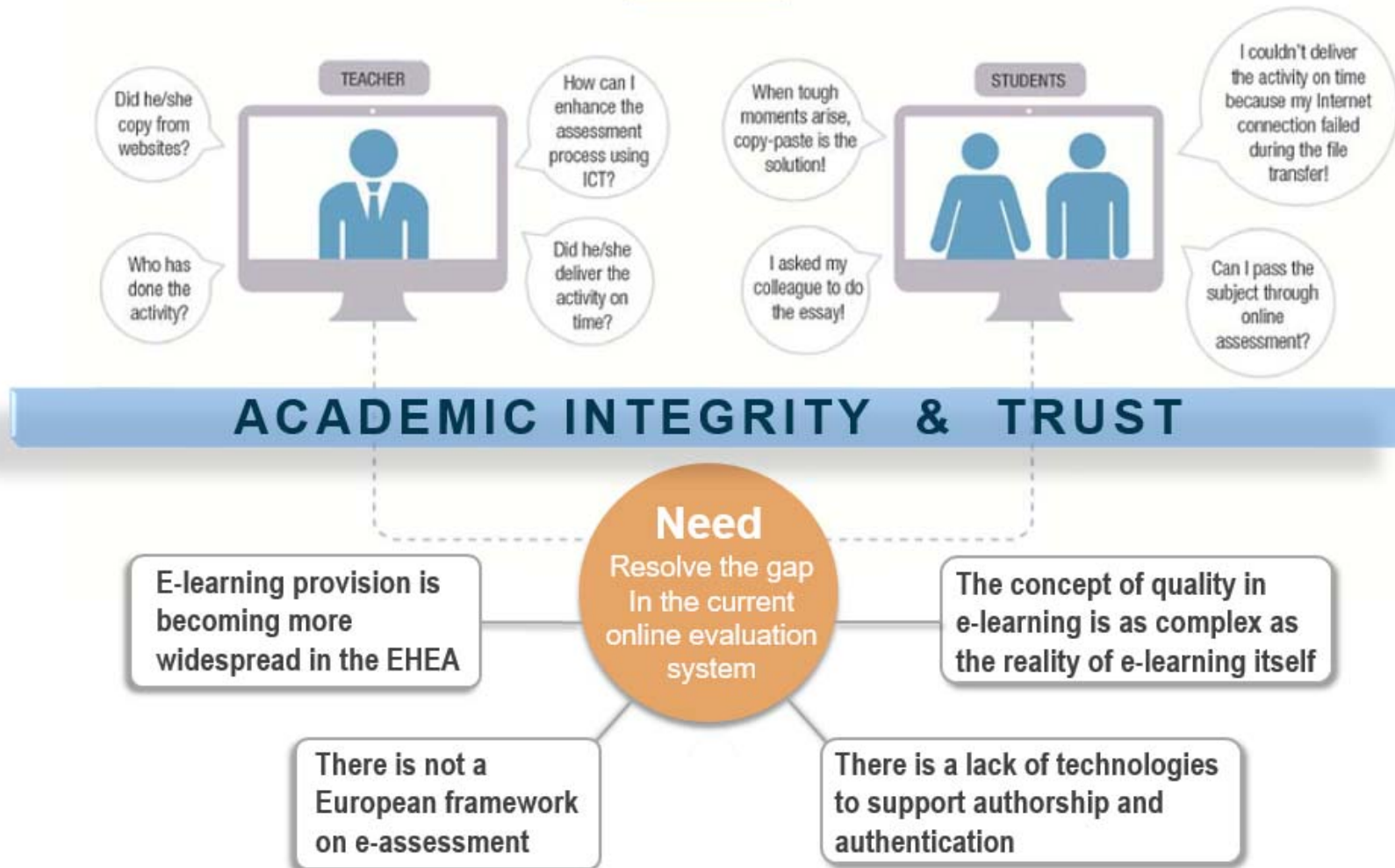
ENQA Members' Forum
Zaragoza, 20th April



Funded by
the European Union

Project Number: 688520 – TESLA – H2020-ICT-2015/H2020-ICT-2015
Agreement Number: 688520

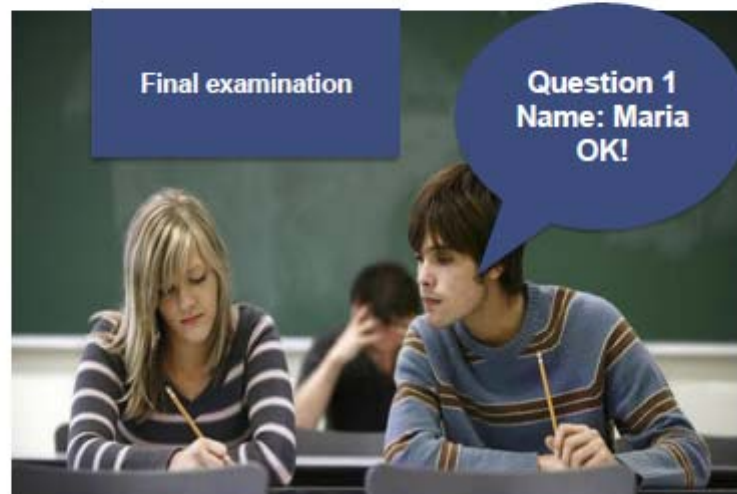




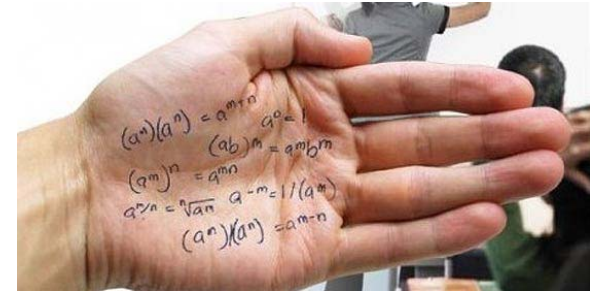
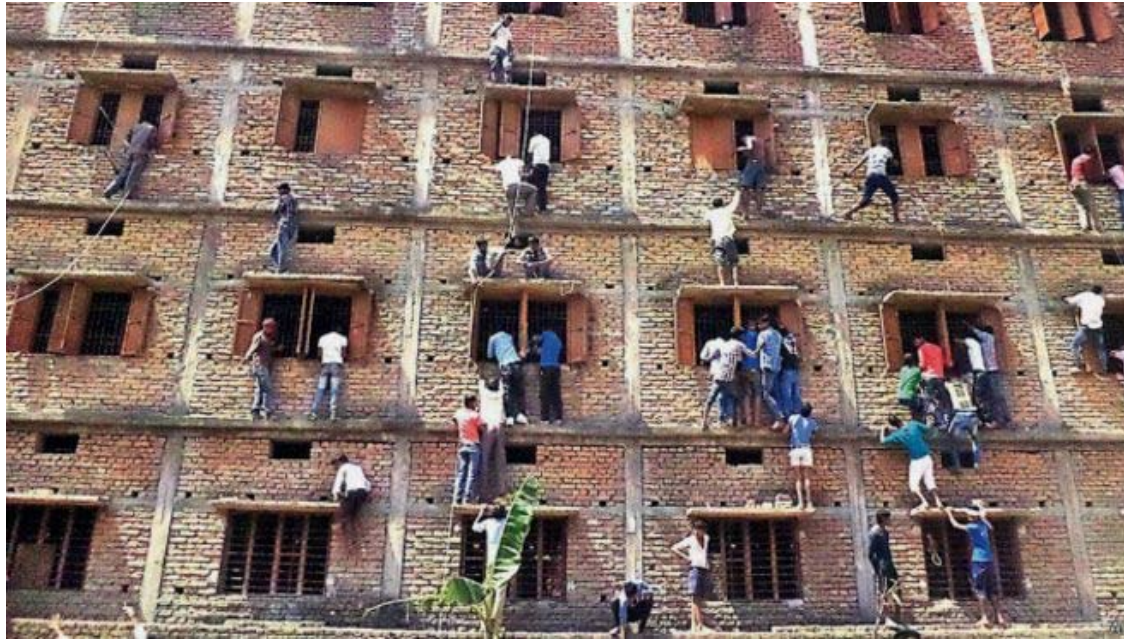
Crime Scene



Trad copy







Main objective

To 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.

The TeSLA project will cover teaching and learning processes as well as **quality, ethical, legal** and **technological aspects**.



Consortium

18 Partners

8 Universities

3 QA bodies

4 Research Centers

3 Enterprises



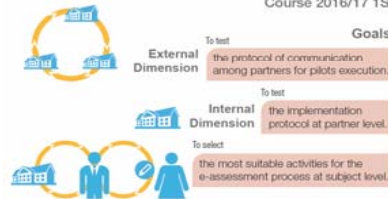
Pilots scheme

Pilots scheme

3
Years



1st Pilot Small educational pilots Course 2016/17 1S



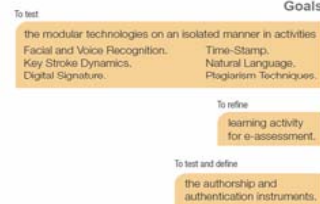
Level of:
e-assessment model Development Integration TeSLA system

Impact

1 Pilot
7 Institutions
≈ 600 students
≈ 75 students/institution

Finished

2nd Pilot Medium Test-Bed pilots Course 2016/17 2S



Level of:
e-assessment model Development Integration TeSLA system

Impact

4 Pilots
Minimum 7 Institutions
≈ 3,500 students
≈ 125 students/institution/pilot

Finished

3rd Pilot Large scale pilots Course 2017/18



Level of:
e-assessment model Development Integration TeSLA system

Impact

2 Large Scale Pilots
Minimum 7 Institutions
They can choose some technologies or the whole system.

Stage 1
≈ 6,500-7,000 students

Stage 2
≈ 10,000-14,000 students

Finished

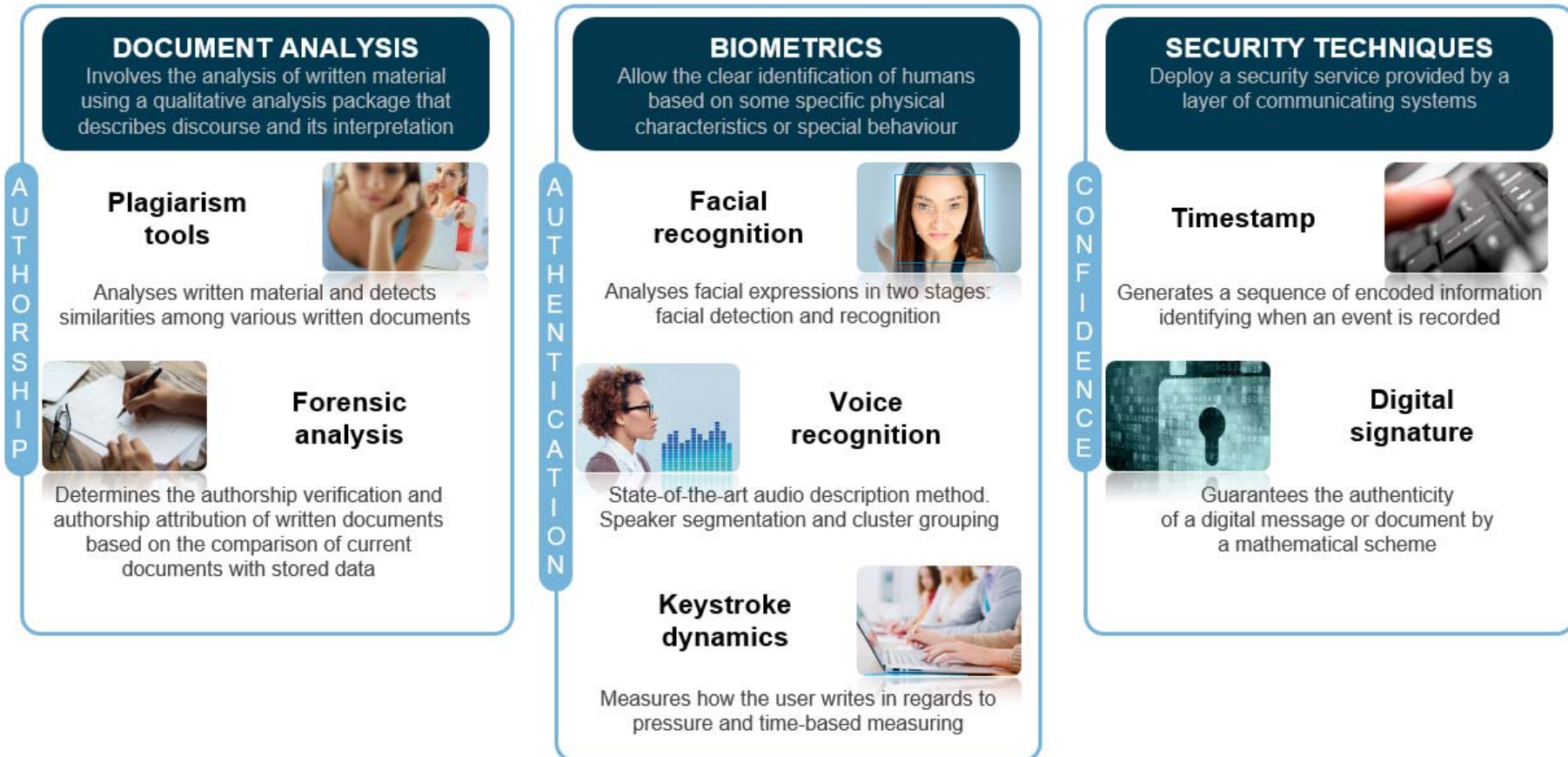
Started Feb. 2018

New institutions

April 2018

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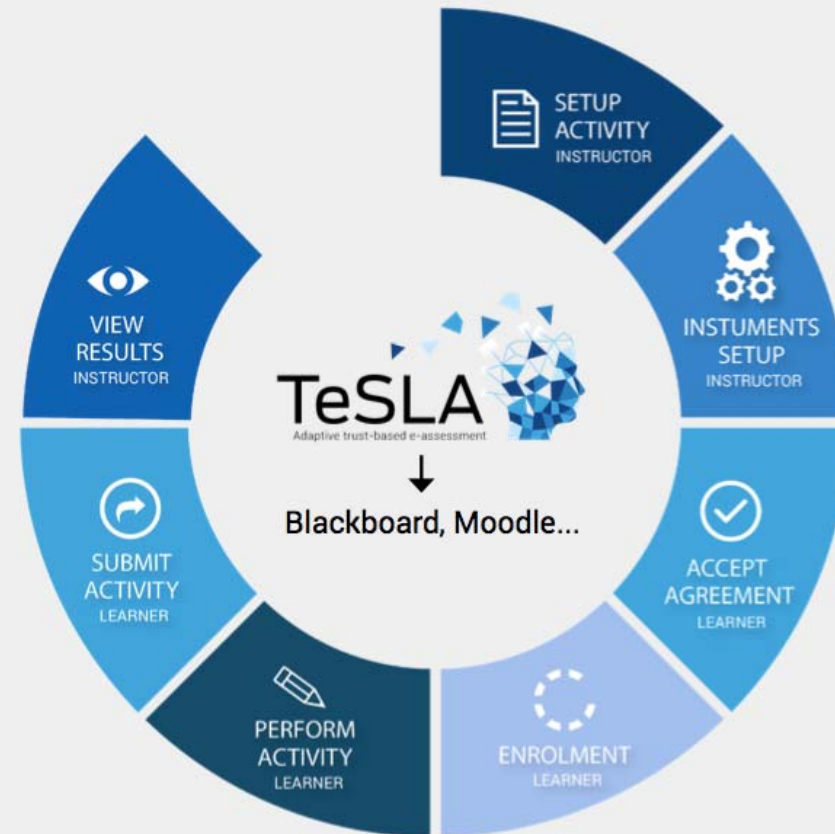
Student

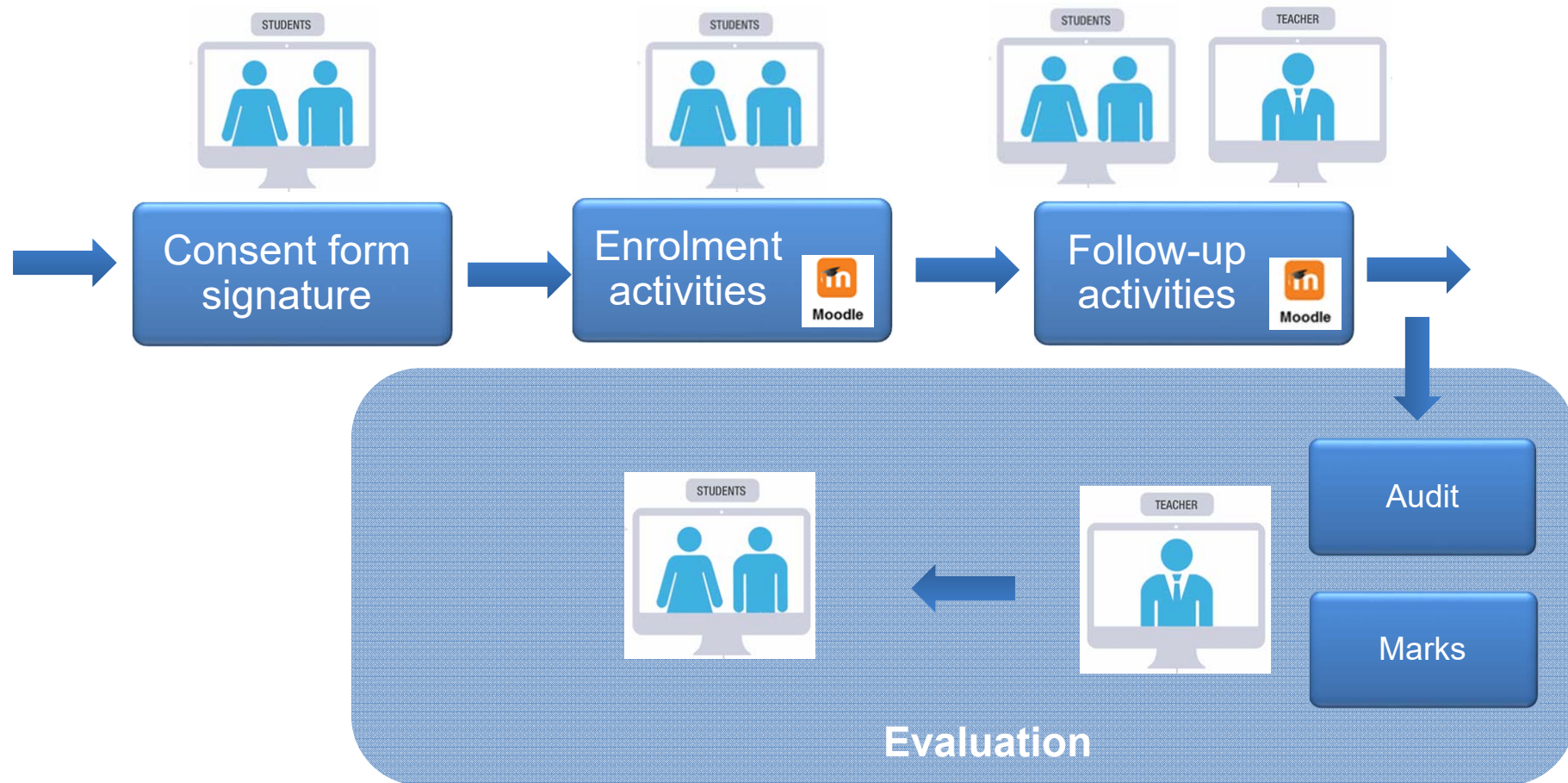
Student completes the assessment as he/she would normally do.
TeSLA may require input/interaction during the learning activity or examination to be able to complete continuous analysis around identity and authorship during the test.



Analysis and value

TeSLA system will provide a report of assurance about authenticity and authorship together with the assessment responses.





How it works in real VLEs: consent form

73.519 - Derecho del trabajo I aula 1 Contactar
Ignasi Beltran de Heredia Ruiz

Plan docente HDY julio 2017 agosto 2017 septiembre 2017 octubre 2017 noviembre 2017 diciembre 2017

Semanas (Lunes) 26 10 17 24 31 7 14 21 28 4 11 18 25 2 9 16 23 30 6 13 20 27 4 11 18 25

Actividad (PEC)

Actividad no evaluable

SOLPEF

Descargar en PDF Imprimir ¡Completada!

Materiales

PEC 4 TeSLA

Inicio: **03/07/17** Fin: **04/07/17**

Registro Actividad TeSLA

UOC R&I UOC Universitat Oberta de Catalunya

Consentimiento para la participación en el proyecto TeSLA

El objetivo principal del proyecto TeSLA es desarrollar un sistema de evaluación en línea que asegure la autenticación y autoría de las actividades entregadas por los estudiantes, y que a la vez permita evitar las limitaciones de espacio físico y de tiempo que tienen asociadas la realización de pruebas de evaluación finales presenciales.

[Formulario de notificación y consentimiento para el uso y registro de datos en el proyecto TeSLA](#)

He recibido la información necesaria para a entender los objetivos del proyecto de TeSLA y he tenido la oportunidad de solicitar información.
Se me ha informado debidamente sobre el acuerdo de protección de datos firmado por los asociados del proyecto TeSLA.
Doy permiso a los socios del proyecto TeSLA para tomar y procesar los datos referenciados en el formulario para los propósitos científicos del proyecto TeSLA.

Continuar y aceptar

Student who has not signed the informed consent

How it works in real VLEs: enrolment



73.519 - Derecho del trabajo I aula 1 Contactar 
Ignasi Beltran de Heredia Ruiz

Plan docente HOY julio 2017 agosto 2017 septiembre 2017 octubre 2017 noviembre 2017 diciembre 2017

Semanas (Lunes) 26 10 17 24 31 7 14 21 28 4 11 18 25 2 9 16 23 30 6 13 20 27 4 11 18 25

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SOLPEF Materiales

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Inicio: **03/07/17** Fin: **04/07/17**

PEC 4 TeSLA 1

Registro Actividad TeSLA 2

Estado del registro

Haz clic en los iconos de abajo para proporcionar los datos que se utilizarán más adelante para verificar que eres la persona que realiza las actividades. Por favor, asegúrate de completar la entrada de datos hasta el 100% para cada uno de los siguientes tipos de verificación: ritmo de escritura desde teclado, estilo de escritura, reconocimiento facial y reconocimiento de voz. El reconocimiento de voz requiere la entrada de datos en una serie de sesiones diferentes -encontrarás instrucciones más detalladas al hacer clic en el icono correspondiente. Una vez se haya recogido información suficiente, el botón "finalizar" se habilitará. Haz clic en ese botón y la pantalla se cerrará automáticamente. [Acaba](#)

Ritmo de escritura desde teclado




Reconocimiento facial



Estilo de escritura



Reconocimiento de voz

PEC 4 TeSLA

Confirmación TeSLA


Esta actividad está gestionada por el sistema TeSLA. A continuación se muestran los instrumentos que se utilizarán durante o después de la actividad. Ten en cuenta que en el momento que aceptes, puede ser que se active tu webcam y/o micrófono.

Los siguientes instrumentos están habilitados:

- Reconocimiento Facial
- Reconocimiento de voz

[Aceptar](#) [Cancelar](#)

Student with completed enrolment


73.519 - Derecho del trabajo I aula 1 Contactar 
Ignasi Beltran de Heredia Ruiz



Plan docente Hoy Julio 2017 agosto 2017 septiembre 2017 octubre 2017 noviembre 2017 diciembre 2017


Semanas (Lunes) 26 3 10 17 24 31 7 14 21 28 4 11 18 25 2 9 16 23 30 6 13 20 27 4 11 18 25


Actividad (PEC)

Actividad no evaluable

SOLPEF Materiales 

 Descargar en PDF  Imprimir ¡Completada!

PEC 4 TeSLA 

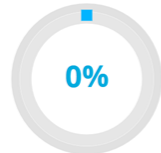
Registro Actividad TeSLA 

Inicio: **03/07/17** Fin: **04/07/17**

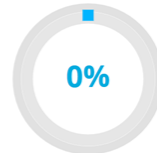
Estado del registro

Haz clic en los iconos de abajo para proporcionar los datos que se utilizarán más adelante para verificar que eres la persona que realiza las actividades. Por favor, asegúrate de completar la entrada de datos hasta el 100% para cada uno de los siguientes tipos de verificación: ritmo de escritura desde teclado, estilo de escritura, reconocimiento facial y reconocimiento de voz. El reconocimiento de voz requiere la entrada de datos en una serie de sesiones diferentes -encontrarás instrucciones más detalladas al hacer clic en el icono correspondiente. Una vez se haya recogido información suficiente, el botón "Finalizar" se habilitará. Haz clic en ese botón y la pantalla se cerrará automáticamente.

Ritmo de escritura desde teclado



Estilo de escritura



Reconocimiento facial



Reconocimiento de voz



Student without completed enrolment









Perform an Activity (Learner)

The screenshot displays a Moodle dashboard for a user named Antoni Bertran. The dashboard features a sidebar with navigation options: Dashboard, Site home, Calendar, Private files, My courses, and demo. The main content area shows four circular progress indicators, each labeled with '100%' and a corresponding activity name: Face Recognition (top-left), Voice Recognition (top-right), and two unlabeled indicators (bottom-left and bottom-right). The bottom-left indicator is also labeled '100%'. The bottom-right indicator is also labeled '100%'. The URL at the bottom of the page is <https://moodle.tesla-project.eu/test/local/tesla/views/enrollment.php?nav=1&...>

View Result Details (Instructor)

Student TeSLA results

Tesla Instructor Tool / Student TeSLA results: _13_1

evaluation result	start date	end date	Audit data
90	February 16th 2017, 12:12:19 pm	January 1st 0001, 12:00:00 am	view
10	February 16th 2017, 12:16:25 pm	January 1st 0001, 12:00:00 am	view
51	February 16th 2017, 1:02:37 pm	January 1st 0001, 12:00:00 am	view
40	February 16th 2017, 2:40:23 pm	January 1st 0001, 12:00:00 am	view
70	February 16th 2017, 3:37:00 pm	January 1st 0001, 12:00:00 am	view
0	February 16th 2017, 3:39:41 pm	January 1st 0001, 12:00:00 am	view
0	February 16th 2017, 3:44:48 pm	January 1st 0001, 12:00:00 am	view
5	February 16th 2017, 5:16:09 pm	January 1st 0001, 12:00:00 am	view

Cancel

Work Packages

WP 1. Project Management (UOC).

WP 2. Requirements and modeling of the educational model (UOC).

WP 3. Data privacy and ethics (Namur).

WP 4. Quality assurance in online higher education (AQU). ENQA & EQANIE.

WP 5. Design and implementation of trusted assessment mechanisms (Lplus).

WP 6. Integration of the framework in learning environments (Watchful).

WP 7. Design and development of pilots (SU).

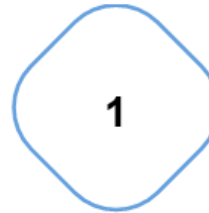
WP 8. Pilots evaluation (OU).

WP 9. Communication, dissemination, liaisons and exploitation (protOS).

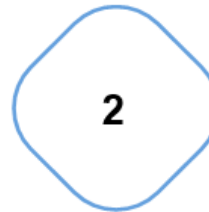
ESG (2015)



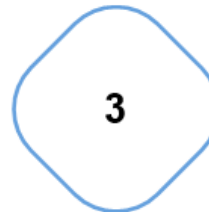
Same standards for HEI
(face to face or online)



+



+



**PART 1. INTERNAL
QUALITY ASSURANCE**

Development of internal quality assurance elements

**PART 2. EXTERNAL
QUALITY ASSURANCE**

Design of the external review methodology for the pilots

**PART 3. QUALITY
ASSURANCE AGENCIES**



ASSESSMENT METHODOLOGY

1. Policies, structures, processes and resources for quality assurance of e-assessment	
Standard The institution that e-assesses. Besides, the institution and	Standard 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 assessment of its objectives.
Indicators 1.1 Institution guidance a. E.U. b. Au c. Pro 1.2 The main when dec of e-asses 1.3 The e-ass and pedo review an 1.4 Quality of assessme 1.5 The meth measure) purposes have to ar	Indicators 1.1 Institution guidance a. E.U. b. Au c. Pro 1.2 The main when dec of e-asses 1.3 The e-ass and pedo review an 1.4 Quality of assessme 1.5 The meth measure) purposes have to ar
The minimum 1.1 Transpare definition accreditation the quality 1.2 Policy for data and regulation 1.3 Assessment mitigation the quality 1.4 Policy and regulation 1.5 Reports to	The minimum 1.1 Transpare definition accreditation the quality 1.2 Policy for data and regulation 1.3 Assessment mitigation the quality 1.4 Policy and regulation 1.5 Reports to



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



EVIDENCES

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.

Main aspects:

- Organisation and protection against academic fraud
- Accessibility to students with special educational needs
- Adoption of new technologies to ensure the expected quality of e-assessment
- Technical support
- Electronic security measures
- Alignment with educational objectives and pedagogical models
- QA procedures for external partners

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.

Main aspects:

- Informed and consistently applied
- Reflect innovative pedagogical practices
- Encourage the use of a variety of assessment methods
- Understand the diversity of learners
- Learning feedback is timely given to students
- Satisfaction procedures and student appeals processes

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.*

Main aspects:

All-inclusive fail-safe technology development plan for:

- Technologies, data protection and privacy requirements
- Building and maintenance of the infrastructure and processes for the ongoing review of technologies
- Ensure the operability and security against external attacks

Code of conduct on academic integrity, including sanctions and good practice

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.*

Main aspects:

- Ease of use for all students
 - Consider ethical and legal aspects
 - Constant update in light of technological changes
 - Support of a variety of methods and tools
 - Sufficiently tested prior to its use
 - Ensure coverage and the setup of the required technical system
 - Accessible for SEND students
-

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**.*

Main aspects:

- Student support policies
- Access to timely and adequate support services
- Satisfaction procedures with student support

6. TEACHING STAFF

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

Main aspects:

- Teaching staff is trained and proficient
 - Procedures to identify the support requirements of the teaching staff
 - Adequate, accessible and timely technical and pedagogical support services
 - Satisfaction procedures
-

7. LEARNING ANALYTICS

The institution has an **information management system** 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.

Main aspects:

- The institution collects, analyses and uses relevant information from stakeholders for the effective management of the e-assessment methodology

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.

Main aspects:

- The institution publishes reliable, complete and updated information on e-assessment methods, students' technical requirements and institutional technical support
-

QA PILLARS TO TESLA PROJECT



A) METHODOLOGY



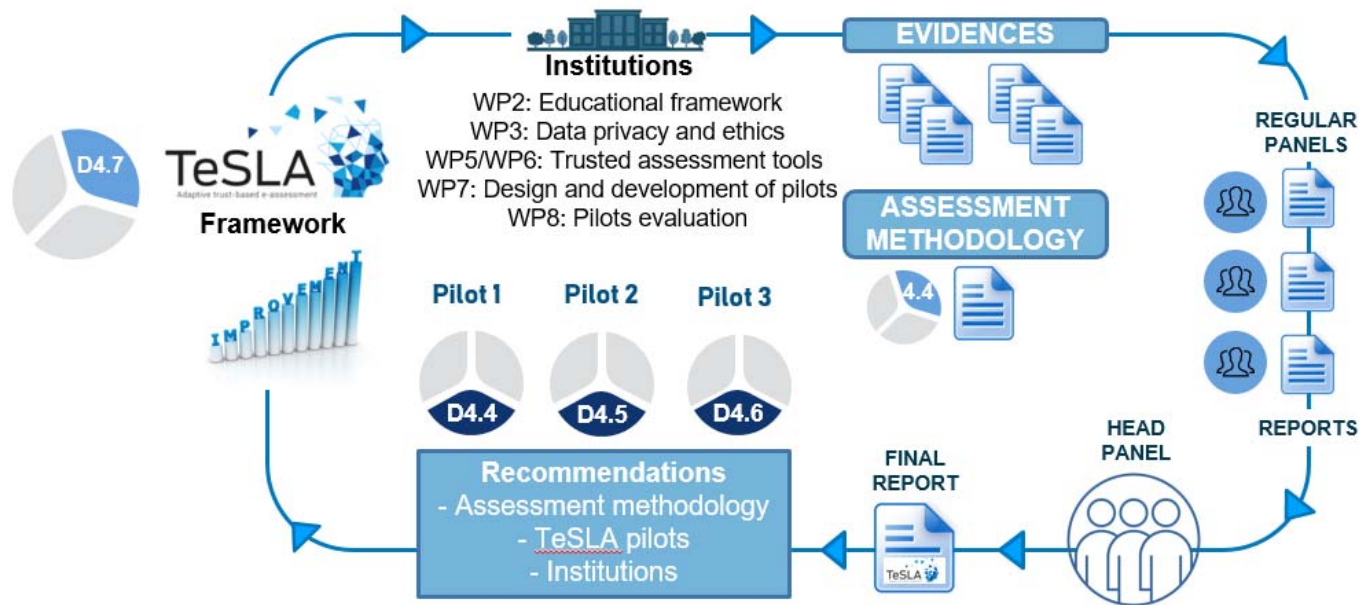
B) EXPERTS

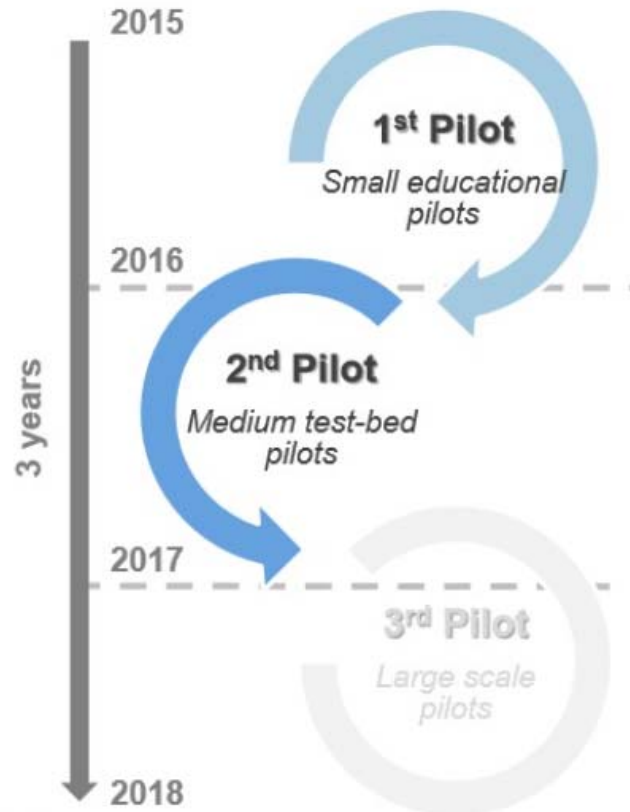


C) PROCESS




D) IMPROVEMENT





✓ To **TEST** the protocol of pilots' execution (external protocol) at higher level (i.e. process at subject level).

DONE

1st testing of  **INSTRUMENTS** ALPHA VERSION

✓ To **TEST** the modular technologies on an isolated manner in activities.

✓ To **RESEARCH** learning activity for e-assessment.

✓ To **TEST** and **DEFINE** the authorship and authentication instruments.

DONE



Number of unique students who completed minimum requirements for each instrument



STANDARDS

1. Policies, structures, processes and resources for QA of e-assessment.
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 3. E-assessment system security, capacity and authenticity.
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-

SCENARIO: *You are a reviewer of an imaginary HEI that uses TeSLA...*

How? Collaborative activity (2-4 groups)

1. Main questions that could arise if you are a reviewer
2. What do you need to see? Evidences
3. What would you reject if TeSLA is implemented in a HEI?
4. Would you need to see how it works during the site visit?

Timing:

- 15' to work in a collaborative way
 - 15' to present work performed and debate
-

- E-assessment system (TeSLA) can contribute to provide **confidence** to fully online and blended provision (formal or non-formal education).
 - E-assessment system (TeSLA) can contribute to **improve the perception of e-assessment** (formal or non-formal education).
 - E-assessment system (TeSLA) can contribute to **reduce** the number of **diploma mills** or with low reputation.
 - TeSLA can contribute to **enhance the quality assurance procedures** focused on the teaching and learning process.
-

Thank you!



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[@teslaprojectEU](https://twitter.com/teslaprojectEU)



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



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