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Mandatory business requirements and semantic interoperability specification for transcript of records

Written by the Erasmus Without Paper+ consortium



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1. Purpose of the document

This document maps and describes the business requirements and business processes for Erasmus+ digital exchange of transcript of records using Erasmus Without Paper (EWP). It aims to clarify the requirements for the technical solutions developed under EWP and in the local implementation that should adequately support the business processes related to the digital exchange of transcript of records at Higher Education Institutions.

The document is written by people who have experience with the exchange of transcript of records and is meant to increase the understanding of the process for IT-colleagues implementing both the local implementation supporting the nomination process as the EWP-connections and functionalities. As part of the development of this document, business requirements and processes in higher education institutions were mapped through a dedicated survey and consultation. 172 colleagues provided information which underpins its content. Next to that, the Business Process Owners – Standing Expert Group, its taskforce established on the topic as well as User groups (see more in the EWP governance here) and EWP Champions took part in the consultation.

2. What is a transcript of records?

In the ECTS Users' Guide the transcript of records is defined as follows: “An up-to-date record of the students' progress in their studies: the educational components they have taken, the number of ECTS credits they have achieved, and the grades they have been awarded” (p.76).

In the part describing ECTS and supporting documents, the usage of the transcript of records in the context of mobility is clarified:

“In case of credit mobility, the receiving institution provides a transcript of records to all mobile students and sends it to the sending institution and the student at the end of their period of study, in order to certify formally the work completed, the credits awarded, and the local grades received during the mobility period. This should be sent within a reasonably short period of time after proclamation of the student's results at the receiving institution” (p.60).

There are several use cases where a transcript of records needs to be made available. The mandatory business requirements focus on the transcript of records in the context of an Erasmus+ Studies mobility. At the end of the exchange period, the transcript of records is issued by the receiving institution and shared with the sending institution.

3. Description of the current process

The main actors involved in a 'transcript of record'-process, could be referred to as “academic services” who are not specifically dealing with exchange students but the whole student body. This is a crucial difference from other EWP-related processes, which are often initiated and guided by colleagues working in the “international relations office” who directly deal with exchange students and mobility affairs. However, the latter can also be involved in transcript of records processes for incoming exchange students.

Step 1: preceding the exchange of the transcript of records the content of the transcript of records

The first step of the transcript of records relates to its content, namely the educational components and number of ECTS credits that should be part of it. There is a clear connection of this content with the final step of the learning agreement completion. In principle the content of the latter needs to be reflected in the transcript of records (see also the [learning agreement guidelines](#)).

Step 2: preceding the exchange of the transcript of records preparation of the transcript of records

The student information system, or any other system keeping academic records, contains the grades for each educational component after the assessment. There are distinct types of student information systems. The system might be operated at the faculty/department level, university-wide, for a group of universities, or even a nation-wide system. The processes and procedures for recording the grades might be centralized or decentralized.

Once all the grades are recorded in the student information system where academic records are kept, a transcript of records can be issued.

Some institutions may require transcript of records before the mobility is finished (e.g. after each semester during a year-long mobility). In such cases, the receiving institution usually prepares a so-called provisional transcript of records that often is followed by the final version of transcript of records at the end of the mobility.

Step 3: receiving institution issues transcript of records and shares it with the student and sending institution

Upon the exchange period's completion and after the assessment process, the receiving institution issues the transcript of records for the incoming exchange students. The inter-institutional agreement should contain agreements on the timing of issuing the transcript of records. Normally, this process should not exceed five weeks, according to the Erasmus Charter for Higher Education guidelines. Moreover, the inter-institutional agreement stipulates the suggested maximum number of weeks it can take and by approving the agreement partners should commit to their own timeline.

There are currently many practices for making the transcript of records available:

- Student can access the student information system and print/download the transcript of records
- Student/sending institution receives a transcript of records via email
- Student/sending institution can download the transcript of records via a link
- Student can access the transcript of records via EMREX
- Paper transcript of records is shipped via regular mail

In many cases, the transcript of records itself is not shared between institutions. Often, the students themselves share the document with their sending institution. This practice contradicts the commitment to the Erasmus Charter principles, as these urge institutions to provide the transcript of records to the sending institution as well.

Step 4: after the transcript of records is shared with the sending institution: recognition at the sending institution including grade conversion

The final step is that the sending institution makes sure that the credits from the transcript of records are recognized in the home curriculum towards the students' degree.

At this stage, the sending institution also oftentimes needs to convert the grades, and to do that it needs the grade distribution information from the receiving institution (as described in the ECTS Users' Guide)

The grade distribution information is made available on the transcript itself, either by including the grade distribution tables or referring to a link. This is oftentimes a manual exercise unless both institutions uploaded their grade distribution tables in the [Egracons tool](#), which is the result of an earlier Erasmus project. Although the usage of grade distribution tables was introduced in the ECTS Users' Guide in 2009, many higher education institutions still use the A-B-C-D-E grading scale.

4. EWP objectives

The EWP transcript of records process allows for a unified way of sending transcripts for mobility participant students by the receiving institution to the sending institution participating in EWP without any duplication of work or efforts. Receiving a digital transcript of records directly from the host institution will greatly increase the authenticity of the documents received compared to the PDF scans of transcript of records which are common.

Currently, transcripts are often sent to the partner institution and/or the student via email. Sharing sensitive personal data, which are sometimes included in the document, via non-encrypted emails can pose a threat to GDPR compliance. Sending transcripts via EWP will significantly increase the safety of data exchanged.

5. Stakeholders

- Business process owners working on exchanges at institutions holding an ECHE;
 - Academic services who create the transcript of records
 - Erasmus coordinators who support their students (incoming and outgoing)
 - IROs managing the grants
- IT-managers working at IROs & third-party mobility software providers;
- IT-teams developing solutions for mobility administration

As described in the “current business process” introduction, the main actors involved in the transcript of records business process are “academic services”, who are not specifically dealing with exchange students. This discrepancy might be immaterial for institutions connected to EWP via in-house systems, but it is essential for all other institutions. Simply put, most third-party vendors already connected to EWP supply software used by IROs to manage international mobility and cooperation. However, academic services staff generate the transcript of records in the Student Information System (SIS, or Campus Management Systems).

6. Use cases

It is recommended to use a tailored case-by-case approach in the best possible scenario to exchange transcript of records via EWP.

Therefore, we can distinguish four use cases:

- a. In general, when the number of exchanges is substantial and there is a central system where the transcript of records is generated, it is recommended that the system where the transcript of records is issued is capable of communication with EWP. If this is not the case, international relations officers might be expected to manually generate the transcript of records through solutions that can exchange them via EWP, which would be a duplication of efforts.
- b. The third-party software connected to EWP offers functionality (whether directly integrated with SIS) to create a transcript of records and share it via EWP.
- c. In countries where a nation-wide system is used to keep grades, this system should be connected directly to exchange information that is part of the transcript of records. In doing so, all institutions from this country would be connected at once.
- d. Institutions only exchanging a few students each year, would rather opt for a last-resort solution as it is developed in the EWP-Dashboard. In this implementation the transcript of records can be generated based on the last approved version of the LA (if need be

modifications can be made) and a staff member can manually add the grades. Here there is a duplication of efforts as the grades need to be transferred from one system to another system manually but if numbers are low, the cost and effort to connect the system holding this info to EWP might not be justifiable.

One should also acknowledge that in some institutions the transcript of records is generated in a decentralized/faculty level database.

Also, there are cases where students can generate their transcript of records by themselves directly from the system.

7. EWP user stories

7.1. Generating a transcript of records for an incoming student

The educational components that are part of the transcript of records should be based on the latest approved version of the learning agreement. However, in practice discrepancies between both documents are possible. Upon completion of the evaluation of the educational components, grades are entered into the system used to keep track of the incoming students' achievements.

7.2. Sending a transcript of records for an incoming student for use cases a, b and c

After the grades of the student have been entered into the system used to issue the transcript of records, the transcript of records can be created directly via this system. Upon the creation of the transcript of records, it can be modified if needed before the sending is done via EWP.

7.3. Sending a transcript of records for an incoming student for use case d

The transcript of records can be generated based on the last approved version of the learning agreement in the system connected to EWP. If needed, modifications can be made. After the grades of the student have been entered into the system used to issue the transcript of records, the grades are manually entered into the system that is connected to EWP.

7.4. Receiving a transcript of records for an outgoing student

After the transcript of records has been created by the receiving institution, the sending institution receives a notification and can retrieve the transcript of records (this can be an automatic process, or a staff member needs to push a button via the system connected to EWP for transcript of records).

8. EWP interoperability mandatory requirements

- The transcript of records is directly shared by the receiving institution with the sending institution.
- Data fields to be exchanged as part of the transcript of records:
 - Data fields that must be exchanged:
 - First name of the student.
 - Last name of the student.
 - Date of birth.
 - European Student Identifier.
 - Academic year.

- SCHAC code of the sending higher education institution: SCHAC is the EWP identifier for higher education institution.
- SCHAC code of the receiving higher education institution: SCHAC is the EWP identifier for higher education institution.
- For each of the education components the incoming exchange student took at the receiving institution, regardless of the student did pass them (in theory this matches the last approved version of the learning agreement):
 - Component title at the receiving institution.
 - Term and or semester.
 - Number of ECTS credits (or equivalent) to be awarded by the receiving institution upon successful completion.
 - Grade awarded.
 - Grade distribution information.
- Data fields that are optional:
 - Mobility id
 - Component code
 - Component title translation to English
 - Information about the grading system.
 - File where the receiving higher education institution can share the transcript of records or additional documents as a pdf.
- When the transcript of records is ready, a notification is sent by the receiving institution to the sending institution that they can retrieve a new transcript of records.
- ESI is required to link the transcript of records to the right student.

9. User requirements in the local implementation

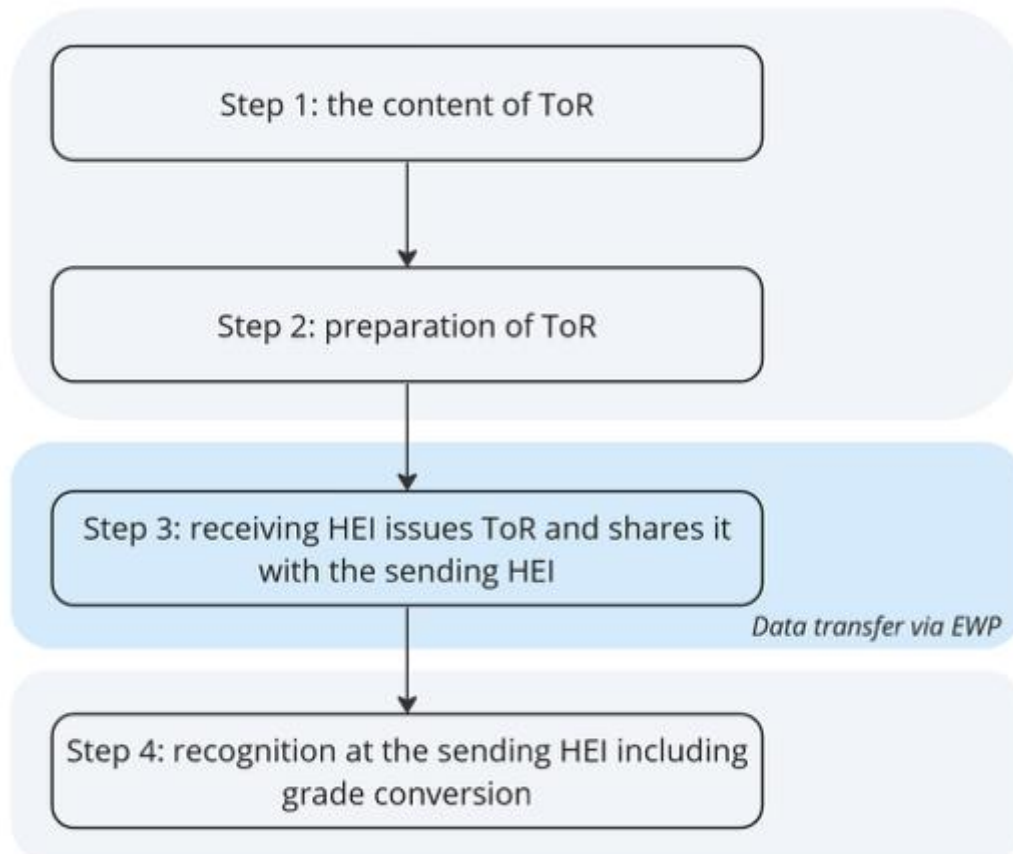
- If a digital transcript of records is shared with students it should be tamper-proof.

10. User recommendations in the local implementation

- If the system containing the transcript of records cannot be directly connected to EWP, the system used for learning agreements should be expanded with a possibility to add grades, modify entries, generate a transcript of records and share with the sending institution.
- If the system containing the transcript of records cannot be directly connected to EWP, there needs to be an option to upload the transcript of records into the mobility database in bulk and share with the sending institution.
- Make use of the [push notification functionality](#) (this API allows third-party and in-house providers to share notifications directly via Erasmus+ App even if the application/nomination process is not managed via the EWP Dashboard) in the Erasmus+ App for notifying the student that a new transcript of records is available.

11. High level flow chart

Figure 1: High level flow chart



12. Semantic interoperability specification

Table 1: Semantic interoperability specification

Field name	Mandatory (M) / Conditional (C) / Optional (O)	Type of Field	Short description
Omobility ID	O	String	Technical identifier for the incoming mobility
Generated Date	M	Date/Time	Date when the transcript was generated.
European Student Identifier	M	String	The European Student Identifier is a unique identifier used to identify and authenticate mobile students using Erasmus Without Paper consistently across different IT systems. The ESI field should not be visible to end users.
Given Names	M	String	The student's given names.
Family Name	M	String	The student's family name.
Birthdate	M	Date	The student's date of birth.
Academic Year	M	trm:AcademicYear Id	Academic year the transcript of records is issued for.
Issuer Identifier	M	String	Technical identifier (SCHAC code) for receiving higher education institution.
Component title at the receiving institution	M	ELMO: LearningOpportunitySpecification – title	Title of the course the student took during the exchange period.
Term and or semester	M	ELMO: LearningOpportunitySpecification – academicTerm	Term or semester the course took place.
Number of ECTS credits (or equivalent) to be awarded by the receiving institution upon successful completion	M	ELMO: LearningOpportunitySpecification – scheme	Number of (ECTS) credits from the course.

Grade awarded	M	ELMO: LearningOpportun itySpecification – resultLabel	Grade awarded after the evaluation.
Grade distribution information	M	ELMO: LearningOpportun itySpecification – resultDistribution	Information about grade distribution as defined by the 2015 ECTS Users' Guide.
Component code	O	EWP: LearningOpportun itySpecification – Identifier	Code of the course.
Component title translation to English	O	ELMO: LearningOpportun itySpecification – title	Title of the course in English the student took during the exchange period.
Information about the grading system.	O	ELMO: LearningOpportun itySpecification – description	Information about the grading system.
Transcript of records PDF	O	ELMO: attachment- identifier-xs: token	Technical identifier of the file where the receiving HEI can share the transcript of records or additional documents in PDF format.

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