DIGITAL TRANSFORMATION MANAGER

[DELIVERABLE TITLE]:

D4.1 – Common Assessment System

VERSION 5

[PROJECT WORK PACKAGE 4]:

WP4 – Learning Outcomes Validation and Recognition

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09/07/2021	V5	CFPIMM	Fifth version – changes in general structure and in the assessment criteria (alignment with online platform)

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1   Introduction

The Common Assessment System aims to identify and to agree on specific assessment methods for the different learning units, defined in WP3, to assess if learners have achieved the desired knowledge and skills, following the European Credit System for Vocational Education and Training (ECVET) principles. Thus, the units of learning outcomes are created and used to carry out the procedure of assessing, validating and recognising learning outcomes acquired by learners.

Before developing the specific assessment methods, the consortium agrees to develop a common terminology, respecting the contents and the objectives of Digital Transformation Manager (DTM) curricula. This common language is based on the European Qualification Framework (EQF) and on ECVET, considering the assumption that all forms of learning can be assessed in terms of learning outcomes.

The assessment of the learning outcomes referrers to the process of evaluating knowledge, skills, responsibility and autonomy of a learner against predefined standards. Concerning the validation and recognition processes, developed afterwards, these will confirm that learning outcomes were assessed, corresponding to specific outcomes demanded by a unit or by all the qualification.

Thus, a common assessment system should define the methodology to assess learning outcomes, to validate and to recognise them. The theoretical framework and the logical succession of the procedures are developed on this project, as well as the proper methods and tools.

The participants in the DITRAMA training course are able to access two training paths (EQF level 4 and level 5). Each one is available in the 7 languages of the project. These way participants can assess their knowledge at the end of each one of the training units and after complete their learning process. 100 learning pills, elaborated in WP5, are available on DITRAMA learning platform allowing the participants to acquire and to develop the required knowledge, needed to access the final assessment. Learners that successfully pass all the units tests will get DTM Certificates.

The different itinerary and the related certifications are taken into consideration in the DITRAMA e-learning platform.

2   The common assessment system on DITRAMA training course

The definition and use of learning outcomes enable the procedure of assessing, validating and recognising learning outcomes that are acquiring by learners in different contexts (formal learning, non-formal learning and informal learning). In DITRAMA Project, only the assessment process is being implemented, by assessing the knowledge acquired by learners and participants on the training course. It is not objective to reach the official recognition.

The assessment of learning outcomes means ***methods and processes*** used to establish the extent to which a learner has attained particular knowledge, skills and competence. Generally, requisites are asked to access this assessment process, as an example, we can refer that learners must have, at least, the level 4 of qualification, professional experience and/or education and training on the related sector and present a complete curriculum vitae as well an educational certificate.

Regarding the assessment process developed on this Alliance, and needed requirements for pilot course learners, the procedures are defined in WP7.

To understand the whole assessment process, we need to clarify the structure of DITRAMA training course on the e-learning platform. Two training paths are available:

1) EQF level 5 (2.8 ECVET credits) – for Higher Education Students. To complete the course, with the duration of 70 hours, participants must attend the 100 micro training pills, grouped into 10 learning units (4 technical and 6 transversal), and pass the related tests in the end of each unit.
2) EQF level 4 (1.4 ECVET credits) – for VET students and professionals from furniture and wood sector. To complete the course, participants only have to complete 51 training pills from the 10 learning units, but they are able to see the 100 pills that are part of the course. In this itinerary, participants have the mandatory pills marked in red and the non-mandatory pills marked in green. Only the mandatory pills are considered for the final tests of each learning unit.

3   Definition of the common assessment system

4.1 The assessment process

The use of learning outcomes developed in WP3 guides the development of learning contents, learning methods (WP5) and assessment methods (WP4).

The consortium agrees on the common assessment methods presented on this deliverable and adopted to assess the preparation of learners in each learning unit. These assessment methods are being used in the pilot course in every partner country. Thus, and after the pilot course, a revision and improvement of the assessment methods will be undertaken, if necessaire.

The assessment refers to the process in which an individual's learning outcomes are compared against the specific qualification. The methodology used on this process is crucial to give the necessary credibility of validation of non-formal and informal learning.

Considering this, when learners finish the learning process, they must demonstrate the achievement of the expected learning outcomes. This process may combine, in general, different existing methods consistent with the learning outcomes and the learning activities, including evaluation of written and documentary evidence, but also other forms of evidence[1]. Many of these methods and tools are based, or similar, to those used in formal education and training and might include, among others:

- *Self-assessment*

- *Written assignments*

- *Oral and written tests*

- *Interviews*

- *Skills demonstration*

- *Portfolio*

- *Essays*

- *Exams (theoretical and/or practical)*

- *Presentations*

- *Simulated conversations*

Considering the DITRAMA purposes, the assessment of the learning outcomes (defined in WP3), within the Alliance, are supported on multiple choice tests or quizzes made in the end of each training module or learning unit, that is, each of the participants on the training course is able to access the automatic assessment included on the training course platform.

In DITRAMA assessment process, carried out online, only knowledge is assessed, not competences. Nevertheless, this is an assessment procedure considered suitable for the

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[1] *European guidelines for validating non-formal and informal learning*, CEDEFOP, 2015.

objectives of the project and should provide clear assessment of specific knowledge guaranteeing high levels of objectivity, validity, reliability and fairness.

Still, we underline that for validation and for official recognition purposes, and if other entities, outside this consortium, wish to develop the validation and recognition process for this DTM qualification, other complementary assessment methods should be considered and used (as the examples, of methods and tools, presented before), not only the method supported on multiple choice tests or quizzes.

4.2 The assessment methods

For each learning unit, defined in WP3, based on the needs identified in WP2 and the training materials developed in WP5, a multiple-choice test is available on the online platform that will allow to assess the level of knowledge acquired by each participant in that same learning unit.

Participants must take the multiple-choice tests for all the modules. Although the modules are organized in a way that respects the coherence of the training course, the participants will be able to define their learning, choosing EQF level 4 or EQF level 5, considering all their academic and professional experience. This means that it will be possible to personalize the training path, offering the possibility to enrol on the full course (EQF level 5) or just in the learning units, they are interested as specified in the D3.1 DTM curriculum document (EQF level 4 or 5). In the case they are enrolled on the full course, to receive the DTM Certificate, they must pass all the tests related to all training units. If they are enrolled on the alternative reduced training path, as specified in D3.3 DTM curriculum document or in one specific learning unit, they must pass the test of that/those learning unit/s and they will receive that same Certificate.

Based on these possibilities, the assessment process – the tests – are automatic and available on the online platform and cover all the knowledge identify on the DTM learning outcomes units. This assessment process is being implemented and tested in the pilot course (WP7). Thereafter, a revision and improvement of the assessment methods and tools will be delivered.

The elaboration of multiple-choice tests, referring to each learning unit or training module, will be done based on the respective learning outcomes and on the 100 training pills developed in WP5. Considering the information available on WP3, about the learning units, and the learning pills that integrate each one of that learning unit, the assessment method based on multiple choice tests can be summarized, as follows:
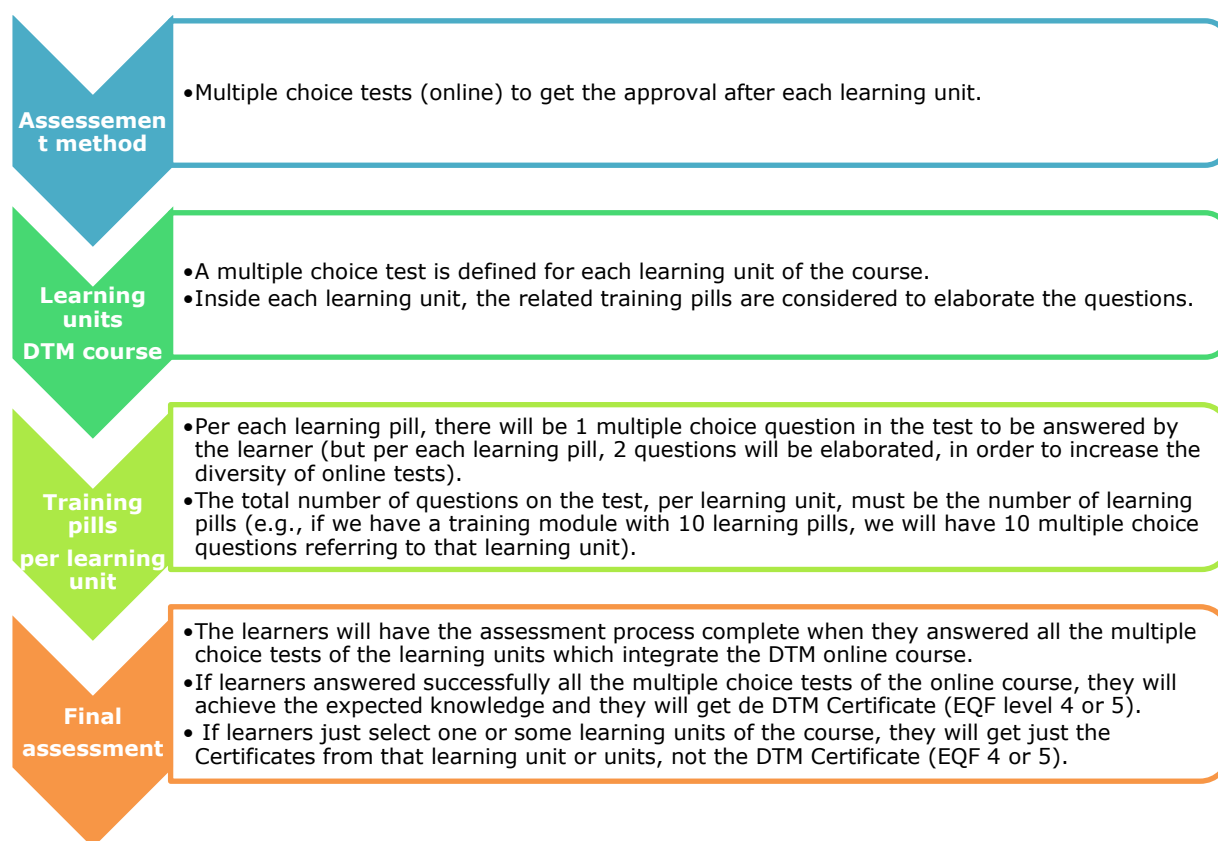
Figure 1 - Definition of the common assessment method for DTM online course.

4.2.1 Guidelines to elaborate multiple choice questions

Considering the assessment method selected, it is important to underline that multiple choice questions, also known as items, can be an effective and efficient way to assess learning outcomes. Multiple choice items have several potential advantages[2], such as *versatility* (items can be written to assess various levels of learning outcomes, from basic recall to application, analysis, and evaluation), *reliability* (defined as the degree to which a test consistently measures a learning outcome) and *validity* (the degree to which a test measures the learning outcomes it purports to measure).

The key to taking advantage of these strengths, however, is the construction of good multiple-choice items.

A multiple-choice item consists of a problem, known as the stem, and a list of suggested solutions, known as alternatives. The alternatives consist of one correct or best alternative, which is the answer, and incorrect or inferior alternatives, known as distractors.

However, writing high quality questions that probe learners' deep understanding and tap onto the whole variation of learning outcomes among them does require lots of careful work and specific knowledge as follows:

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[2] Haladyna, Thomas M. Developing and validating multiple-choice test items, 2nd edition. Lawrence Erlbaum Associates, 1999.

a) How to write the stems?

- *The stem should be meaningful by itself and should present a definite problem. A stem that presents a definite problem allows a focus on the learning outcome;*

- *A stem should stand on its on such that, upon reading the question and viewing any visual information the learner should know the correct answer without reading the options (assuming the learner has mastered the content);*

- *A stem should be written as a positive expression; using negative words such as "except" or "not" creates confusion;*

- *A stem should avoid trick questions.*

b) How to design multiple choice questions?

- *Limit the number of options to four;*

- *Make sure there is only one acceptable answer;*

- *Make sure there is one best answer (refrain from using "all of the above" and "none of the above");*

- *Avoid using absolutes, such as "always" and "never";*

- *Keep the options approximately the same length so as not to give away the answer;*

- *Make sure the options are worded in a similar way;*

- *Make sure the grammar and syntax of both the question and the options are in agreement;*

- *Create distractors that are appealing and plausible;*

- *Make sure to vary your placement of the correct answer; avoid creating a pattern;*

- *The most commonly used answer in a multiple choice assessment is (C). When assembling a test, make sure to review the placement of the keyed responses to avoid using the same letter answer choice more frequently than others do.*

c) How to write distractors?

- *Make the distractors believable;*

- *Ensure that the distractors represent actual incorrect results you would expect learners to produce.*

4.3 The assessment criteria for DITRAMA online course

The participants on the online course will be able to answer multiple choice tests at the end of each learning unit to assess if they acquire the expectable knowledge available in the learning unit, as follows:

- *By the end of each learning unit, participants will find an online test composed by one question for each pill that is part of the learning unit (for example, if the learning unit has 10 pills, we will find 10 questions);*

- The evaluation mode is made by multiple choice questions;

- For each question, there are 4 possible answers and 1 correct answer;

- To pass the multiple-choice tests, participants need to achieve, at least, 50% of correct answers. If learners failed on the first attempt, they will have more two attempts to do it successfully. The possibility of repeating can help make the process of taking the test more an educational activity rather than simply assessment to get the certificate.

Multiple choice test – grading system	
Conditions to pass the test	**Result**
≥ 50% correct answers	*Approved*
≤ 50% correct answers	*Not Approved*

Table 1 – Grading system for multiple choice tests.

To assess successfully the training module and learning outcomes, participants need to score at least 50% of correct answers. If learners score less than 50% of correct answers, they must repeat the multiple-choice test under the terms referred to.

4.3.1. The results of the common assessment system – DTM Certificate

As referred before, learning outcomes will be assessed in the end of each learning unit, online and through multiple choice tests, against the defined criteria.

How do learners will get the Certificate?

The final Certificate will be available for learners after assessing all the learning outcomes defined for all the learning units, that is, after answering successfully all the multiple choice tests available in the end of every training modules.

To obtain a certification, a DTM Certificate, EQF level 4 or level 5, learners must pass the multiple choice tests of the training course that means that learners need to have at least 50% of correct answers in all the tests answered. The Certificate will be available for downloading once the learners pass the test.

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Assessment procedure for certification	
Certificate of Digital Transformation Manager (Total certification – EQF level 4 or 5)	**Certificate** (e.g., Learning Unit A + Learning Unit B + Learning Unit B) (Partial certification – EQF level 4 or 5)
✓ All the multiple choice tests score more than 50% correct answers. ✓ All the learning outcomes from the training course were assessed and validated. ✓ Certificate can be issued validating the course participation and the qualification of DTM (EQF 4 or 5). ✓ The certificate must contain the identification of all the learning units of the training course.	✓ Learners selected only the learning units they were interested on, not all of them. ✓ The selected learning units were successfully assessed through the tests. ✓ Certificate can be issued validating the participation on the learning units of the training course. ✓ The certificate must contain only the identification of the learning units assessed and validated (one or some learning units). ✓ If learners failed all the attempts to pass, one or some learning units, they can always obtain a certificate with the identification of the validated learning units.

Table 2 - Assessment procedure for certification.

4.4 Final remarks on common assessment system

In addition to the assessment system defined for the learning outcomes of the training modules, there will be more 20 hours on the pilot course for the development of a voluntary final project. The rules and the assessment criteria for this work-based project are defined in WP5.

4   Conclusion

Considering the foreseen objectives of this Alliance, partners agreed on specific assessment methods to confirm if learners have achieved the desired knowledge. These units of learning outcomes were created in WP3, based on WP2 and WP5, and used to carry out the procedure of assessing following a common terminology based on the EQF and on ECVET, considering the assumption that all forms of learning can be assessed in terms of learning outcomes.

Regarding the common terminology needed, most of the partners have already in their own countries developed and implemented the NQF, which also facilitates the development and implementation of the outputs and outcomes of this Alliance.

The common assessment system to be used on the learning outcomes validation is based on an automatic online assessment composed by multiple choice tests, available for learners in the end of all the learning units of the training course. Concerning this method, we emphasize that we are assessing knowledge and not competences.

It is also important to underline that learners have the possibility to personalize their training path according their own interests. It is possible to enrol all the course, assessing and validating all the learning units and get a final certificate on DTM (total certification in all the learning units for EQF 4 or 5), but it is also possible to enrol just one or some learning units (EQF 4 or 5) and get on the final a certificate where it is identify the learning units achieved successful in the course (partial certification in one or some learning units).

The idea is, and considering the foreseen objectives, to adopt common assessing methodologies in all participating countries and based on these, assess the pilot course learners. Following the pilot course, a revision and sequent improvement of the assessment methodologies will be delivered.

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