

D1.4.3 Testing of the Fit for Circular and Digital Construction MOOC with tutorials

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Version 1.0

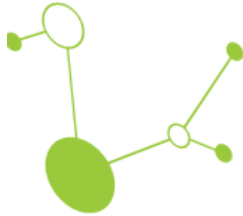
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1. Executive Summary

This deliverable documents the pilot testing of the Fit for Circular and Digital Construction MOOC, implemented under Activity 1.4.3 as part of the ReBuilt project. The testing aimed to verify the usability, relevance, learning impact, and technical functionality of the MOOC prior to long-term deployment. The MOOC is hosted on a Moodle-based LMS and consists of four learning tracks tailored to key target groups:

- (1) Government/Public Servants,
- (2) University & Vocational Education,
- (3) Industry/SMEs/Architects/Investors, and
- (4) the Wide Public (illegal construction and demolition waste dumping).

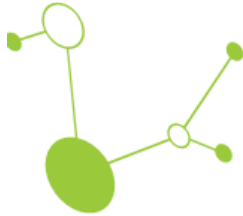
The courses combine expert video lectures, quizzes, supplementary resources, and embedded feedback tools, with gated progression applied in the wide public course.

Testing was conducted in two phases. **Internal testing** by consortium members and trainers verified course logic, navigation, multilingual delivery and platform configuration, and resulted in the identification of 26 bugs, which were recorded in a shared tracking table and addressed prior to and during launch. **Real-life testing** started on **1 February 2026** and ran for over 5 weeks, collecting evidence through Moodle analytics and structured feedback from learners and trainers using SurveyMonkey and Moodle embedded forms.

The pilot reached **81 registered participants from 13 countries**, generating **141 course enrolments** across tracks and language variants. Participation was concentrated in **Czechia (48 participants; ~59%)**, while additional uptake was recorded across the programme area and beyond, confirming cross-national relevance and the added value of multilingual access. Enrolment was highest in the **SME/Industry/Architects/Investors track (49)**, followed by University (37), Government (29) and Wide Public (26). Overall engagement showed a typical MOOC pattern: **62% of enrolments were active (88)** and **38% passive (53 enrolled without activity)**, highlighting the need for stronger onboarding and activation measures.

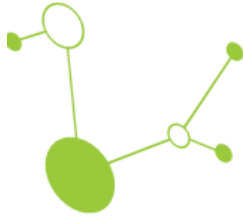
Among active learners, completion outcomes were encouraging: **32 enrolments achieved 100% module completion**, and the average module completion rate reached **80%** across courses. Quiz engagement was relatively strong (e.g., 89% of enrolled University learners started a quiz), but overall **quiz completion remained moderate (38%)**, indicating scope to strengthen motivation through recognition mechanisms such as **certificates or micro-credentials**.

Learner and trainer feedback confirmed **high perceived usefulness**, **improved understanding**, and **intention to apply knowledge in practice**, alongside strong appreciation for the breadth and credibility of expert content and the flexibility of self-paced learning. At the same time, **both groups recommended refinements aligned with modern e-learning expectations**: shorter and better-edited video units, clearer structure and metadata (“what this covers” and “who it is for”), improved readability of text-heavy



slides, stronger support for varying knowledge levels (introductions, glossary), enhanced interactivity beyond quizzes, and a sustainable workflow for maintaining up-to-date regulatory content across multiple languages.

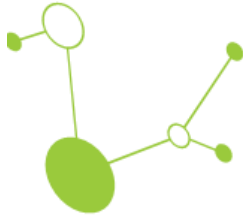
Overall, the pilot testing successfully validated the MOOC as a robust transnational training solution and generated a clear set of improvements for final adjustments and future exploitation through the ReBuilt ecosystem and Regional Circular and Digital Construction Hubs.



2. Background and Objectives of Testing

The Fit for Circular and Digital Construction MOOC represents the digital extension of the jointly developed cross-national training programme and translates the knowledge and lessons from the **on-site and hybrid training activities implemented under Activities 1.2 and 1.3** into a scalable, self-paced learning format. Building on the approved MOOC concept (D1.4.1) and the Train-the-Trainer methodology and online course (D1.4.2), the pilot testing under **Activity 1.4.3** was designed to validate the readiness of the MOOC for wider roll-out and long-term operation across the programme area. The specific objectives of the testing phase were to:

- **Validate usability and navigation** of the MOOC structure and learning tracks in the Moodle LMS (ease of use, clarity of course organisation and user journey).
- **Assess content quality and target-group relevance**, including perceived usefulness, clarity, appropriateness of the level of expertise, and applicability in professional practice.
- **Measure engagement and learning progression** using Moodle analytics (registrations, enrolments, active participation, completion of activities and modules, quiz engagement and completion).
- **Verify the technical functionality** of multilingual delivery (video embedding, subtitles/captions, quizzes, feedback forms, course settings and tracking features) and identify issues that could affect user experience or long-term operation.
- **Collect structured feedback from learners and trainers** through embedded Moodle forms and external surveys to inform final improvements, document testing outcomes, and provide evidence for future exploitation and further iterations of the MOOC.



3. Description of the Tested MOOC

The scope of the testing was a 4-course e-learning on circular and digital construction hosted on Moodle Learning Management System.

3.1 Target groups and learning tracks

The MOOC was organised into dedicated learning tracks for:

- **Government and public sector representatives,**
- **University and vocational students,**
- **Industry professionals, SMEs, architects, and investors** (merged due to strong thematic overlap).
- Additionally, a cross-cutting module addressing **illegal dumping and sustainable construction for the general public** was included.

3.2 Learning Topics

Across learning tracks, the MOOC covers:

- circular economy principles in construction,
- legislative and regulatory frameworks,
- environmental performance tools (e.g. LCA, EPD),
- digitalisation and digital platforms,

3.2 Structure

Each course was structured into modules combining expert video lectures, quizzes and supplementary learning materials (readings, links and downloadable resources where relevant). Courses are designed for self-paced learning and short knowledge checks to reinforce key messages. The wide public course additionally applies gated progression (unlocking selected content after completion of a quiz) to ensure minimum understanding of core concepts before learners proceed to more advanced content.



4. Testing Methodology

Testing and evaluation were conducted using the following tools:

- Moodle analytics (engagement and completion of courses)
- embedded feedback questionnaires for Learners in Moodle
- external structured feedback for Learners prepared in Survey Monkey
- qualitative inputs from Train-the-Trainer feedback collected in the Train-the-Trainer event and through a structured feedback by Trainers prepared in Survey Monkey

This multi-layered evaluation framework was designed to collect necessary data for further exploitation of the MOOCs. From previous projects, we worked with the experience that collecting the feedback from users is a challenging task, therefore this approach allowed us to collect and combine data from multiple sources.

The testing process was implemented in **two main phases** to ensure both technical stability and content relevance before wider roll-out:

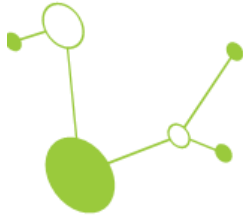
- 1) internal testing by consortium members and Trainers
- 2) 5-week real-life testing by end-users - practitioners from the field across all target groups

4.1 Internal testing

First, an **internal testing phase** was carried out by consortium members to verify course set-up, navigation, translations and overall functionality, and to identify and document any technical bugs or usability issues prior to go-live. All issues discovered during internal testing were systematically recorded and monitored in a **shared bug-tracking table**, enabling transparent follow-up, prioritisation and coordinated fixes.

During internal testing, the consortium identified **26 bugs** and recorded them in a shared tracking table for prioritisation and follow-up. The issues covered (i) **critical blockers** that could prevent course completion (e.g., missing quizzes in specific language versions and locked quiz settings), (ii) **major functionality and UX issues** (e.g., missing subtitles, scattered quizzes, missing 1-5 scale descriptions in feedback forms, or confusing quiz answer randomisation), and (iii) **minor/cosmetic issues** related mainly to translation consistency, naming, subtitle defaults, and video/subtitle quality. Overall, the bug log enabled coordinated fixes and improved stability and user experience before and during the pilot launch.

In parallel, **trainers** were invited to **review selected courses to provide an expert perspective on the quality** of the learning materials, clarity of explanations and suitability of the content for the intended target groups. Their feedback was collected via external Survey Monkey platform (see Annex 2).



4.2 Real-life testing

Following this preparation, the MOOC was opened for **real-life testing with end-users**, involving practitioners and learners from the field across all target groups. This testing phase was implemented as a self-paced MOOC pilot starting on 1 February 2026, delivered through a Moodle-based LMS. The pilot was designed to run for **at least 4 weeks**, during which **participation and performance data and feedback** were systematically collected to assess user engagement, learning progress and overall usability of the course environment.

Beyond the formal testing window, the courses will remain accessible after the end of the pilot period and beyond the project lifetime. Keeping the MOOC open supports **long-term sustainability**, enables continued uptake by new learners, and provides a basis for ongoing refinement of course content and learning features in response to the evolving needs of the different target groups.

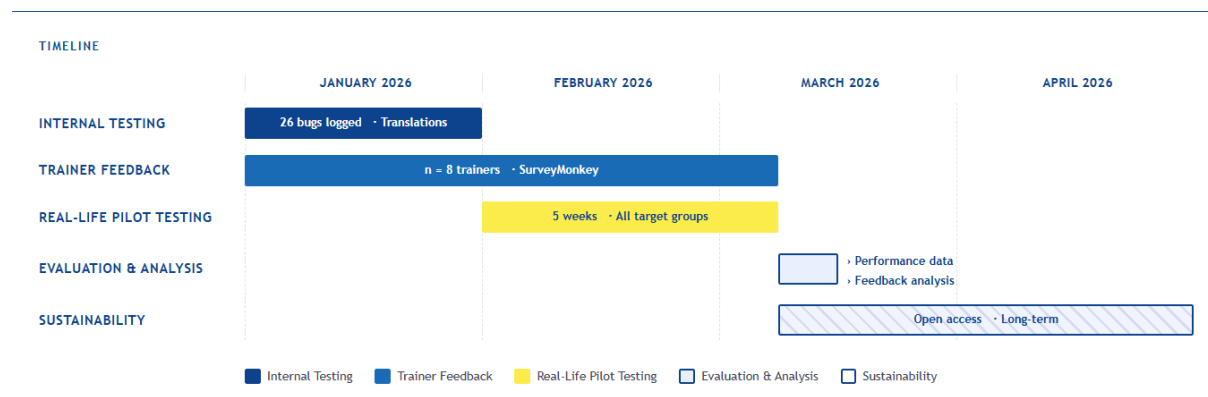


Image: Scheme of pilot testing



5. Testing Results

Testing results presented in this deliverable were evaluated as of **10 March 2026**, meaning that monitoring data and feedback were collected over **more than five weeks** since the pilot launch on **1 February 2026**. While this reporting cut-off provides an evidence base on participation, engagement, completion and user feedback, the MOOCs will remain available beyond the formal testing period. Keeping the courses open enables continued participation by new learners and allows the organising partners to further observe longer-term trends (e.g., uptake, completion patterns and learning benefits) and to refine the MOOC based on ongoing evidence and evolving target-group needs.

5.1 Participation and completion rates

5.1.2 Participation

From the Moodle LMS, we collected quantitative monitoring data on **registered participants, course completion rates** (defined as completing all required activities) and **quiz completion/performance**. Below, the indicated statistics of participation, excluding the organizing team of the Rebuilt project, are shown.

Over **80 participants** from across the programme area took part in the MOOC testing, representing all target groups and **13 countries**. In total, **81 participants** were registered for the pilot. Participation was strongly concentrated in **Czechia (48 participants; approx. 59%)**, reflecting the strength of Czech dissemination channels while also indicating the need to further balance outreach across the programme area in future roll-out.

At the same time, the pilot demonstrated clear cross-national reach, with the highest non-CZ participation coming from **Poland (9)** and **Germany (4)**, followed by **Slovenia (5)**, **Austria (3)** and **France (3)**, and smaller groups from **Croatia (2)** and **Hungary (2)**. Individual participants also joined from **Brazil (1)**, the **United Kingdom (1)**, **India (1)**, **Italy (1)** and **Slovakia (1)**. Overall, the geographic distribution confirms strong potential for transnational uptake, while highlighting that more coordinated partner-led promotion and targeted communication will be important to increase participation in underrepresented countries.



Country	Number of participants
AT	3
BR	1
CZ	48
DE	4
FR	3
GB	1
HR	2
HU	2
IN	1
IT	1
PL	9
SI	5
SK	1
Total number of participants	81

Table: Number of participants in the MOOCs per country

Participants were asked to self-identify their organisation type. Multiple selections were allowed, reflecting the fact that many actors operate across several roles in the construction value chain (e.g., a developer may also act as an investor or contractor). As a result, the number of registered types of organisations is higher than the number of individual participants.

Based on these self-declared categories, the largest group was **architects (43)**, followed by a diverse set of respondents classified as “**Other**” (23). Additional representation was reported for **construction companies (9)** and **developers (9)**, with further participation from **manufacturers (8)** and **investors (6)**. **Professional organisations (5)** and **financial institutions (5)** were less frequently selected. In total, respondents declared **108 organisation-type selections**, confirming that the audience profile is cross-cutting and cannot always be captured by a single organisational label.

Type of organisation	Number of organisations
Architects	43
Other	23
Construction companies	9
Developers	9
Manufacturers	8
Investors	6
Professional organisations	5
Financial institutions	5
Total numbers of declared types of organisations	108

Table: Types of organisations registered in MOOC



5.1.2 Enrollment

In total, **141 enrolments** (i.e. enrollment in the course) were recorded across the four MOOC courses. Note that learners can enrol in any course in any language variants resulting in multiple enrollments per learner.

The highest enrolment was in the Industry/SME/architects/investors course (49), followed by University & Vocational Education (37), Government/Public Servants (29), and the Wide Public course on illegal waste dumping (26). **Across language versions,** enrolment was **dominated by the Czech-language courses**, which accounted for the majority of registrations (CZ: GOV 12, UNI 14, SME 28, PUB 14), while the **English versions** also attracted a notable share of learners (ENG: GOV 6, UNI 11, SME 6, PUB 3). Additional enrolments were distributed across Slovak (SK), Polish (PL), German (GE), Croatian (HR), Hungarian (HU) and Slovenian (SL) versions, with limited or no registrations in Italian (IT) during the pilot.

Overall, the distribution confirms a strong uptake in the Czech language versions, which corresponds with the **stronger promotion in the Czech region but also the learners' preference to enroll in their mother tongue better than English version** in Czech, even though the English was the original language of the video-lectures. This indicates that **multilingual delivery** supported cross-country participation. We believe that **delivering courses in national languages supports wider reach to target audiences** better than sticking with a “universal” English version. This may be specific for the construction industry where specific terminology may cause a language barrier to some learners. However, we suggest to **verify this hypothesis over a longer period of active MOOC usage.**

Language	GOV	UNI	SME	PUB
CZ	12	14	28	14
DE	4	5	2	4
EN	6	11	6	3
HR	1	1	1	1
HU	0	1	1	0
IT	0	0	0	0
PL	3	2	3	3
SK	3	3	3	1
SL	0	0	5	0
Total enrolment per target group	29	37	49	26

Table: Number of enrolments in the courses per target group and language variant in MOOC

5.1.3 Completion

Pilot monitoring data from Moodle show that engagement varied across the four target-group courses. The overall completion performance was solid among active participants. In



total, 32 course enrolments reached full completion (100% of modules), with the highest number of fully completed courses in the SME track (15), followed by Government (7), University (5) and Wide public (5).

Completion rates	GOV	SME	UNI	PUB	TOTAL
Number of learners who completed 100% of modules	7	15	5	5	32 = Total number of completed courses
Number of learners who completed over 50% of modules	2	5	6	3	16
Number of learners who completed over 50% of modules	8	14	13	5	40
Average completion rate of modules by target groups	84%	84%	77%	76%	80% = Average completion rate across all courses

Table: Completion rates by course for each target group

A further 16 learners completed more than 50% of course modules, while 40 learners completed less than 50%, indicating a **typical drop-off pattern for self-paced online training**. The average module completion rate was relatively high across all target groups, ranging from 76% (Wide public) and 77% (University) to 84% (Government and SME), with an overall average of 80% across the courses.

When comparing enrolment to **actual engagement**, the pilot recorded 141 total enrolments, of which 88 were active participants (62%) and 53 were passive enrolments (38% registered but with no participation). This suggests that while the **MOOC attracted significant interest, approximately two-fifths of enrolled learners did not engage**, highlighting the importance of **targeted onboarding, reminders and clearer value propositions** (e.g., certificates, time estimates, or recommended learning paths) to **convert registrations into active learning**. Overall, the data confirms strong learning performance among active users and point to outreach and engagement mechanisms as the main lever for improving impact in future roll-out.

Number of enrolments	141
Number of active participations	88
Number of passive enrolments = enrolled but did not participate	53

Table: Comparison of active participation vs. only enrolled learners

5.1.4 Quiz completion and engagement

Across target groups, quiz engagement (defined as learners who enrolled and started at least one quiz) was relatively strong, especially in the University track, where 89% of



enrolled learners started a quiz (37 enrolled). Quiz starters also represented a clear majority in the SME course (73% of 49 enrolled) and the wide public course (69% of 26 enrolled), while the Government course showed the lowest quiz-start ratio (55% of 29 enrolled). These results suggest that **quizzes were generally successful in prompting initial interaction across most courses.**

	GOV	UNI	SME	PUB
Total enrolment in course per target group	29	37	49	26
Ratio of learners who enrolled the course and started the quiz	55%	89%	73%	69%

Table: Engagement with quizzes by enrolled learners

However, quiz completion during the pilot was moderate. Across all quizzes, there were **271 quiz enrolments and 103 completed attempts, resulting in an overall quiz completion rate of 38%.** Completion was highest in the SME course (SME1 56%, SME2 50%), while the wide public quiz reached 39%, and completion in the Government and University quizzes remained lower (typically 27-36%).

QUIZ	Number of learners who enrolled the quiz	Number of learners who completed the quiz	Completion rate for quizzes
GOV	16	5	31%
UNI	33	12	36%
UNI2	33	11	33%
UNI3	33	10	30%
UNI4	33	11	33%
UNI5	33	9	27%
SME1	36	20	56%
SME2	36	18	50%
PUB	18	7	39%
TOTAL	271	103	38% Average completion of quizzes

Table: Completion rates of quizzes

Therefore, when **quiz engagement compared with the lower overall quiz completion rates,** they also indicate that the **main challenge is not getting learners to start quizzes, but supporting them to finish them**—through clearer module-to-quiz alignment, reduced friction in quiz navigation, timely feedback, and incentives such as certificates or recommended learning pathways.



5.2 Feedback by learners and trainers

5.2.1 Feedback by learners

The findings below summarise **self-reported feedback from learners** collected during the pilot testing phase through structured questionnaires in Survey Monkey and Moodle.

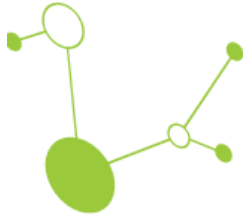
The results reflect participants' own perception of their motivation, engagement, learning outcomes and user experience, including **self-assessed knowledge before and after** engaging with the MOOC. While these insights provide valuable evidence on perceived usefulness, clarity and applicability of the courses, they should be interpreted as subjective learner perspectives and they serve as a complement to the Moodle analytics (e.g., registrations, course/quiz completion and activity data).

The key findings from the 15 respondents in Survey Monkey include:

- Most respondents represented higher education and research organizations (67%), with others from the general public and SMEs.
- The main motivations for enrolling in courses were to **improve professional knowledge (73%)**, gain knowledge relevant to studies (40%), and stay informed about sustainability trends (33%).
- 93% of respondents participated in at least one course, and 85% of those completed a course.
- Courses were most commonly taken in **English**, followed by Slovak, German, and Polish.
- The most tested course was 'E-learning Modules for University & Vocational Education.'
- Respondents reported an **increase in their knowledge after using the platform** (weighted average score improved from 5.5 before to 7.17 after).
- Course content was generally rated as clear and understandable (**average score 8.45/10**), and the level of expertise and structure were seen as appropriate.
- Main strengths identified included learning access, content relevance, and sustainability practices. Suggestions for improvement focused on user interface design and system reliability.

Participant feedback (n = 18) collected through the embedded course forms in Moodle indicates the following:

- On average, respondents rated the courses as useful (avg. 2.11/5), reported a moderate-to-high likelihood of applying the knowledge soon (avg. 2.50/5), and confirmed a measurable improvement in understanding (avg. 2.22/5) (where 1 = *best* and 5 = *worst*).
- Qualitative comments highlighted the courses' **professionalism, research-backed insights, and practical relevance** (e.g., applications in practice, 3D printing,



differences in regulations across countries, and improved awareness of construction and demolition waste management).

- Several improvement needs emerged: some learners found parts of the content **too advanced/scientific or disjointed**, suggested **simplifying text-heavy slides and improving readability**, and noted the value of **shorter, better-edited learning units**.
- A few specific technical/content issues were also flagged, including a quiz ambiguity around LCA vs. LCSA terminology and minor consistency issues.

5.2.2 Feedback by Trainers

Feedback collected from Train-the-Trainer Workshop

Trainers' feedback collected during the September workshop in 2025 focused on improving the future MOOC's **usability, relevance for target groups, and long-term maintainability**. Trainers recommended adding short **video descriptions and metadata** (what the video covers and who it is best suited for). They highlighted the need to better manage **video length** and to clarify which content is most important, proposing guidance for learners based on **target-group motivations and needs** rather than topic-only module structures.

Suggestions also included enriching the courses with **additional curated links** tailored to specific needs, and ensuring content remains up to date—especially for regulatory topics—by enabling **later updates or add-on materials** while retaining original recordings. Finally, trainers noted practical implementation needs, such as clearly **acknowledging content owners** and providing **support materials for trainers and administrators** (e.g., a short Moodle “how-to” video and written instructions).

Structured Feedback by Trainers (via Survey Monkey)

Feedback from trainers (**n = 8**) collected over the pilot testing in February and March 2026 provided an expert validation of the MOOC across the learning tracks, with the **Industry/SMEs + Architects/Investors** course visited by all trainers and the remaining courses (Government/Public Servants, University & Vocational Education, and the Wide Public course) also reviewed by a majority of respondents.



Which of the courses have you tested or visited?

Answered: 8 Skipped: 0

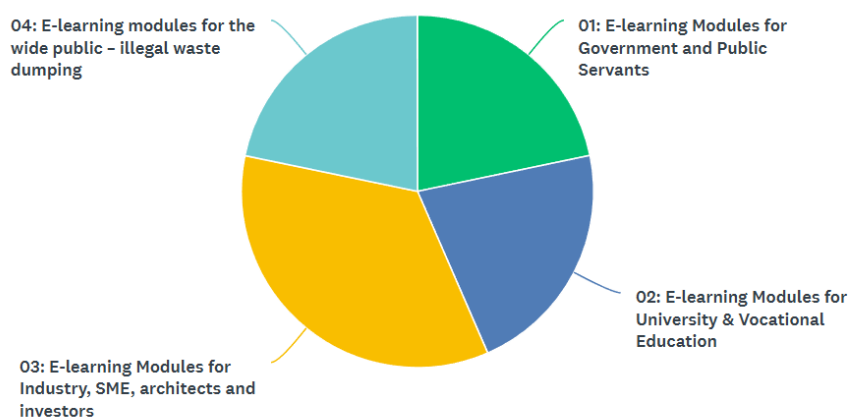


Chart: Proportion of courses tested by trainers in the internal testing (Survey Monkey)

Positives

- **Overall clarity:** The majority found the course content clear and understandable, with **87.5% expressing positive sentiment**. Key strengths mentioned were content accessibility, media quality, and generally well-handled technical terminology.
- **Target-group fit:** **75%** considered the level of expertise appropriate for the intended target groups, highlighting good relevance and an overall suitable depth for professional learning.
- **Interactivity:** **62.5%** gave positive feedback on the quality and usefulness of interactive elements; quizzes and the general interactive set-up were frequently noted as strengths.
- **Structure:** **57%** viewed the course structure and section length positively, appreciating the modular set-up and learning flow.
- **Platform usability:** **All respondents** expressed a positive opinion of the Moodle interface, especially navigation, design, and overall usability (easy to use once basic orientation is understood).
- **Additional strengths:** Self-paced learning and the broad, high-quality expert knowledge base (including university-level lectures) were repeatedly valued.

Improvement needs / “negatives”

- Some technical sections (e.g., LCA/digital topics) may be challenging for less experienced participants or some public-sector learners; trainers recommended short introductions, clearer “who this is for” guidance, and a **glossary of key terms**.
- Several reviewers recommended **shorter, better-edited video units** to better match typical MOOC consumption and increase engagement/completion.
- While quizzes were appreciated, trainers suggested expanding interactive formats and improving quiz labelling and administration/editing (more intuitive for course managers).



- Despite generally positive views, some suggested improvements in content depth, clearer technical segmentation, and stronger module/video metadata (brief descriptions of purpose and expected learner profile).
- Regulatory topics would benefit from clearer contextualisation of national legal differences (e.g., short country notes or modular “national add-on” sections) in future iterations.



6. Analysis: Strengths and Areas for Improvement

6.1 Patterns of participation, engagement and completion

Participation & Enrolment

The pilot attracted 81 registered participants from 13 countries, generating 141 total enrolments across the four learning tracks (over the period of 5-week testing). The SME/Architects course was the most popular (49 enrolments), followed by University (37), Government (29) and Wide Public (26). Geographic reach was broad but heavily concentrated – Czech Republic accounted for nearly 60% of all participants (48 out of 81), with Poland, Slovenia, Germany, France and Austria making up most of the remainder.

Engagement

62% of enrolled learners (88 out of 141) actively engaged with the course content, while 38% (53 learners) never progressed beyond registration – representing a significant passive enrolment rate that points to onboarding and activation challenges. Among those who did engage, the University track showed the highest quiz uptake (89% of enrolled started a quiz), while the Government track recorded the lowest engagement (55%), suggesting that content format or learner motivation may differ across target groups.

Completion

Among active learners, average module completion reached 80%, indicating strong progression once learners were engaged. However, overall quiz completion rate was considerably lower at 38% (103 out of 271 attempts), highlighting a drop-off between content consumption and formal assessment. Quiz completion varied notably by course – SME tracks performed best (50-56%), while Government and University tracks lagged behind (31-32%), suggesting that quiz design, length or difficulty may need recalibration for these audiences.

Overall

The pilot demonstrates solid reach and good content engagement among active learners, but the high passive enrolment rate and uneven quiz completion point to two priority areas for improvement: strengthening early learner activation and re-examining assessment design across target groups.



81

REGISTERED PARTICIPANTS
from 13 countries

141

TOTAL ENROLMENTS
across 4 courses

62%

ACTIVE PARTICIPANTS
88 of 141

80%

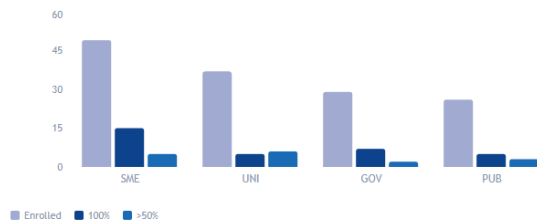
AVG. MODULE COMPLETION
among active learners

38%

QUIZ COMPLETION RATE
103 of 271 attempts

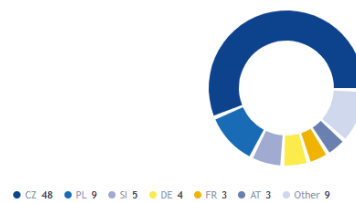
ENROLMENTS & COMPLETION

ENROLMENTS VS. COMPLETION BY COURSE



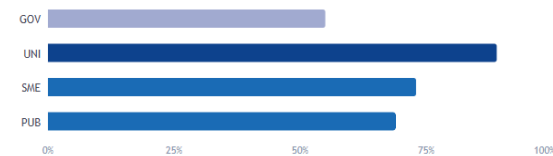
GEOGRAPHY

PARTICIPANTS BY COUNTRY



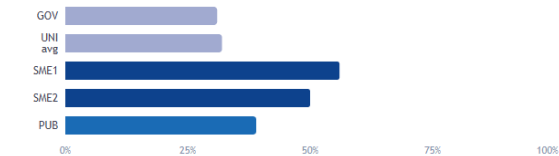
QUIZZES – ENGAGEMENT

% OF ENROLLED WHO STARTED A QUIZ



QUIZZES – COMPLETION

QUIZ COMPLETION RATE



ACTIVITY

ACTIVE VS. PASSIVE ENROLMENTS

38% of enrolled learners never actively engaged with the course – a key challenge for onboarding and retention.



Total enrolments: 141

Active: 88 - Passive: 53

Scheme: Analytical overview of participation, engagement and completion

6.2 Overall summary of feedback (learners & trainers)

Across both learner and trainer feedback streams, the pilot MOOC was assessed as **highly relevant and generally clear**, with strong appreciation for the **breadth of expert knowledge**, the **self-paced format**, and the **practical applicability** of topics (e.g., real-life circular practices, regulatory perspectives, and technology examples such as 3D printing). Learners reported a **perceived increase in knowledge** after using the platform, rated the courses as **useful**, and indicated a **reasonable likelihood of applying** the learning in practice. Trainers similarly confirmed **good target-group fit** in most cases, positively evaluated the **Moodle usability**, and viewed quizzes as a valuable component of the learning design.

At the same time, both groups highlighted consistent improvement needs. The most frequent recommendations concerned **shorter and better-edited video units**, clearer **structure and pacing** (including module introductions and smoother continuity between lectures), and stronger **metadata** (what each video covers and who it is best suited for). Several comments pointed to the need to better manage **differences in prior knowledge**



across audiences—especially for more technical sections—through clearer guidance, introductory explanations, and potentially a **glossary**. Further suggestions included enhancing **interactivity beyond quizzes**, improving quiz labelling and administration, simplifying **text-heavy slides**, and addressing minor content/technical issues (e.g., quiz terminology such as LCA vs. LCSA). Finally, trainers emphasized long-term maintainability: keeping **regulatory content up to date**, acknowledging content owners, and adding curated links and support materials for administrators and trainers, with potential future improvements through modular “national add-ons” for country-specific legal contexts.

6.3 Summary of analysis

6.3.1 Positives

- Strong transnational reach: The pilot engaged 81 registered participants from **13 countries**, confirming cross-border relevance and transferability of the MOOC offer.
- Clear demand by target group: The highest enrolment was in the **SME/Industry/Architects/Investors track** (49), followed by University (37), Government (29) and Wide Public (26), indicating broad interest across stakeholder segments.
- **Multilingual delivery increased accessibility**: Enrolments were dominated by national-language versions (especially Czech), suggesting that localisation effectively reduces language barriers in a technical field.
- Good progression once learners engage: Among active learners, **average module completion was high (80%)**, with particularly strong module completion in Government and SME (84%).
- Quizzes triggered interaction: **Quiz-start engagement was relatively strong** (especially University 89%, SME 73%, Public 69%), indicating that assessment elements can support engagement.
- Positive perceived learning outcomes: Learners reported **increased knowledge** (SurveyMonkey) and rated the courses as **useful**, with intention to apply learning in practice (Moodle embedded feedback).
- **Trainer validation was strongly positive**: Trainers confirmed overall clarity, target-group fit, usability of Moodle, and value of self-paced learning and the expert knowledge base.

6.3.2 Negatives / gaps

- Uneven geographic distribution: Participation was highly **concentrated in Czechia** (~59%), suggesting reliance on national dissemination and the need to strengthen outreach in other programme countries.
- High passive enrolment: **38% of enrolments were passive** (registered but did not participate), **pointing to onboarding/activation weaknesses** (value proposition, reminders, time expectations, user journey).



- **Moderate quiz completion:** While many learners started quizzes, overall quiz completion was only 38%, with lower completion in Government and University quizzes (typically 27-36%) compared to SME (50-56%). University participants recorded the highest enrollment in quizzes (89%) but still achieved only moderate completion around 30%.
- **Mismatch in content difficulty and format:** **Both learners and trainers flagged that some sections were too advanced/scientific for parts of the audience; learners also noted disjointed flow, text-heavy slides, and preference for shorter learning units.**
- **Platform and maintainability constraints:** Feedback mentioned UI/system reliability, and trainers highlighted the need for clearer metadata, better guidance, and up-to-date regulation content; multilingual management increases effort (updates must be replicated across language versions).
- **Assessment quality control:** Specific issues were reported (e.g., LCA vs. LCSA ambiguity) and requests for more intuitive quiz labelling/administration.

6.3.3 Recommendations

1. Improve activation and retention

Even though the onboarding and the learning path was supported by weekly email notifications through MailChimp, there are several recommendations for improvement in the mailing, e.g. add recommended learning paths, information on estimated time to completion, reminders to test the knowledge in quizzes, or tips on topics to be explored, These targeted communications could reduce passive enrolment.

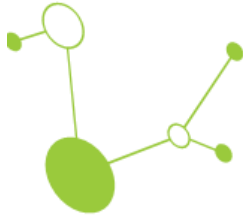
2. Refine learning design

In today's information-saturated environment, where learners are constantly exposed to competing content and limited attention spans, clear structure and visible added value are essential for effective online training. To improve comprehension and retention, future iterations should:

- shorten and segment videos where possible,
- strengthen continuity between lectures, and
- include brief module introductions that clearly communicate what learners will gain and add metadata for each video ("what it covers" + "who it is for")
- learning materials should be easier to follow by **reducing slide density**—using less text, clearer visuals, and **improved readability**
- provide a short glossary for key technical terms.

3. Optimise quizzes through motivation and recognition

Given that quiz formats and designs varied across the courses, the main priority is to strengthen learner motivation to complete them by linking quizzes more clearly to



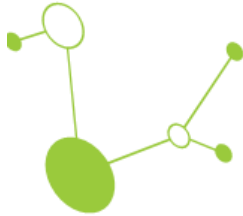
recognition outcomes, such as certificates or micro-credentials. In future iterations, **quiz completion** should be positioned as a meaningful milestone within the learning pathway, i.e. **required for certificate issuance**.

4. Address multilingual and update needs

Prioritise a sustainable **update** workflow for **regulatory or country-specific content** (modular add-ons, update notes) and plan how updates can be rolled out efficiently across language variants.

5. Expand interactivity beyond quizzes

Add decision trees or templates and tools learners can download and reuse: Provide practical assets (checklists, circular procurement clauses, deconstruction audit template, material passport fields, LCA data checklist). When learners get something they can use tomorrow, they stay engaged.



7. Conclusion

The pilot testing of the **Fit for Circular and Digital Construction MOOC** confirms that the jointly developed e-learning solution is **relevant, usable, and ready for long-term deployment**, while also providing clear evidence on where further refinement will maximise impact. During the testing 5-week period starting on **1 February 2026**, the MOOC reached **81 registered participants from 13 countries**, generating **141 enrolments** across four target-group tracks and multiple language variants. The geographic distribution demonstrated strong transnational potential, although participation was concentrated in Czechia, confirming the importance of coordinated partner-led dissemination to strengthen uptake across the wider programme area.

Engagement and performance data from Moodle show a typical online learning pattern: while **62% of enrolments** resulted in active participation, **38% remained passive**, indicating that the key challenge is **early learner activation rather than content quality once engagement starts**. Among active learners, completion outcomes were encouraging: average module completion reached 80%, with particularly strong completion in the Government and SME tracks. In total, **32 enrolments achieved 100% module completion**. Quizzes proved effective in prompting interaction (especially in the University track), yet overall quiz completion was moderate (38%), suggesting that completion incentives and clearer **recognition mechanisms (e.g., certificates/ micro-credentials)** will be important to strengthen assessment uptake.

Self-reported feedback from learners and trainers further supports the quantitative results. Learners rated the courses as useful, reported improved understanding, and expressed an intention to apply the acquired knowledge in practice. Trainers validated the overall clarity, target-group relevance, and usability of Moodle, while consistently recommending improvements that align with modern e-learning expectations: shorter and better-edited learning units, clearer structure and metadata (“what this covers” and “who it is for”), stronger support for differing levels of prior knowledge (introductions and a glossary), enhanced interactivity beyond quizzes, and a sustainable approach to keeping regulatory content up to date across multilingual versions.

Overall, the testing phase successfully verified the MOOC as a scalable, cross-national training solution and generated actionable recommendations to improve engagement, completion, and long-term maintainability. The results provide a base for final adjustments and for further exploitation of the MOOC through the ReBuilt ecosystem and Regional Circular and Digital Construction Hubs beyond the project lifetime.



ANNEX 1 - Feedback Form Embedded in Moodle

Feedback

Rate on a scale of 1 to 5, where 1 = excellent, 5 = unsatisfactory.

Mode: Anonymous

How useful was this course for you? (1 = very useful, 5 = not useful at all) (1 - 5)

How likely are you to use the information from this course in the near future? (1 = very likely, 5 = not likely) (1 - 5)

How much did your understanding of the topic improve after completing the course? (1 = improved a lot, 5 = no improvement) (1 - 5)

What is the first thing that comes to your mind when you think about this course?

Do you need anything to be clarified or explained in more detail? Our experts are here to help.

Required

Submit your answers

Cancel





ANNEX 2 - Feedback Form for Trainers

You have reviewed the [ReBuilt e-learning courses](#) on **circular and digital construction** and we are interested to know your opinion!

Please answer the following questions to help us **improve** the course, its usability for learners and practitioners from the industry.

This survey is **anonymous**, don't be afraid to share an honest answer :)

* 1. Which of the courses **have you tested or visited**?

- ☐ 01: E-learning Modules for Government and Public Servants
- ☐ 02: E-learning Modules for University & Vocational Education
- ☐ 03: E-learning Modules for Industry, SME, architects and investors
- ☐ 04: E-learning modules for the wide public - illegal waste dumping
- ☐ Other (please indicate, if you have only general observations)

* 2. How **clear and understandable** was the course content for the target audience in your opinion?

* 3. Was the level of **expertise appropriate** for the target group (e.g. public authorities, professionals, companies, students)?



* 4. How do you assess the quality and usefulness of the **interactive elements**?

* 5. Was the course **structure** (modules/lessons) and the **length** of individual sections appropriate?

* 6. What is your opinion on the **online interface** (Moodle)? (E.g. ease of use, design, etc.)

7. What do you consider to be the main **strengths** of this e-learning?

8. What would you recommend **improving**?



ANNEX 3 - Feedback Form for Learners

You have experienced the [ReBuilt e-learning courses](#) on **circular and digital construction** and we are interested to know your opinion!

Please answer the following questions to help us **improve** the course, its usability for learners and practitioners from the industry.

This survey is **anonymous**, don't be afraid to share an honest answer :)

It will make us **extremely happy**, if you **complete the survey** and on top, you will find out **what the largest passive timber construction in Czechia is!**

STATISTICAL INFO

* 1. Do you represent any of the following **groups**?

- ☐ Local Public authority
- ☐ Regional public authority
- ☐ National public authority
- ☐ Sectoral agency
- ☐ Infrastructure and (public) service provider
- ☐ Interest group including NGOs
- ☐ Higher education and research organisation (universities)
- ☐ Enterprise, except SME
- ☐ SME
- ☐ Business support organisation
- ☐ EGTC
- ☐ **General Public**
- ☐ Other (please indicate)



* 2. Does your **organisation** belong to any of these target groups?

- ☐ Manufacturers and suppliers of materials and technologies
- ☐ Architects, Designers, Specialist Consultants
- ☐ Investors, Building Owners, Real estate companies
- ☐ Developers
- ☐ Construction, demolition and recycling companies
- ☐ Financial Institutions
- ☐ Professional and trade organisations
- ☐ **None of the above (for wide public)**
- ☐ Other (please indicate)

TESTING: YES/NO?

* 3. **Before** taking the courses how would you describe your current **knowledge** of circular construction principles in your field of expertise (e.g. legal, scientific, governmental)

No knowledge	Basic awareness	Intermediate / Working knowledge	Advanced	Expert
☐	☐	☐	☐	☐

* 4. What was your **motivation** to enroll in any of the courses?

- ☐ To improve my **professional** knowledge.
- ☐ To gain knowledge relevant to my **studies**.
- ☐ To apply **circular** economy principles in my **company**.
- ☐ To better understand current **regulations and policies**.
- ☐ To support sustainable decision-making in **public administration**.
- ☐ To use the content in my **teaching or training** activities.
- ☐ To stay **informed** about sustainability trends in the construction sector.
- ☐ Other (please specify)

* 5. Have you participated in any of the courses?

- ☐ Yes
- ☐ No



COMPLETION

* 6. In what **language** have you taken any course?

- ☐ Croatian
- ☐ Czech
- ☐ English
- ☐ German
- ☐ Hungarian
- ☐ Italian
- ☐ Polish
- ☐ Slovak
- ☐ Slovenian

* 7. Which of the courses **have you tested or visited**?

- ☐ 01: E-learning Modules for Government and Public Servants
- ☐ 02: E-learning Modules for University & Vocational Education
- ☐ 03: E-learning Modules for Industry, SME, architects and investors
- ☐ 04: E-learning modules for the wide public - illegal waste dumping
- ☐ None of the above

* 8. Have you **completed** any of the course? (including the quizzes)

- ☐ Yes
- ☐ No

9. If **not**, what were the **reasons** for not completing the course?

- ☐ I did not have time.
- ☐ It was not engaging enough.
- ☐ I forgot about it.
- ☐ I did not receive any reminder email.
- ☐ I did not notice any reminder email.
- ☐ Other (please specify)

* 10. How would you describe your **knowledge** level **after** visiting the content of this e-learning platform?

No knowledge		Basic awareness		Intermediate / Working knowledge		Advanced		Expert
☐	☐	☐	☐	☐	☐	☐	☐	☐



* 11. How **clear** and **understandable** was the course content for you?

Unclear										Understandable, very clear
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

* 12. Was the level of **expertise appropriate** for you?

I felt unqualified to understand										I felt very comfortable with the level of expertise
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

* 13. Was the the **course structure** (modules/lessons) appropriate?

Too little structured										Perfectly balanced
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

* 14. Was the **length** of individual sections appropriate?

Too long										Perfectly balanced
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

* 15. How do you assess the quality and usefulness of the **interactive elements**?

Not useful										Very useful
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

* 16. What is your opinion on the **online interface** (Moodle)? (E.g. ease of use, design, etc.)

Very difficult to use and navigate										Very easy to use and navigate
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

17. What do you consider to be the main **strengths** of this e-learning?

18. What would you recommend **improving**?



REASONS FOR NOT TAKING THE COURSE

* 19. You have **not taken** any of the courses, what was the **reason** for that?

- ☐ I did not have enough **time**.
- ☐ The topic was **not** directly **relevant** to my current work/studies.
- ☐ I had already covered similar content **elsewhere**.
- ☐ **Technical or access** issues prevented me from enrolling.
- ☐ I did **not** find the courses **engaging** enough.
- ☐ Other (please specify)

Thank you for your feedback.

After submitting the answer, you will find out **what the largest passive timber construction in Czechia is.**