European Software
Skills Alliance.

Piloting ESSA Learning programmes

Pilots implementation and evaluation

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Piloting ESSA Learning Programmes, 2023, Final version.

D.11 Learning programme pilots

This document is a draft version and is subject to change after review coordinated by the European Education and Culture Executive Agency (EACEA).

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About ESSA

The European Software Skills Alliance (ESSA) is a four-year transnational project funded under the EU's Erasmus+ programme. It ensures the skills needs of the rapidly evolving Software sector can be met — today and tomorrow.

ESSA provides current and future software professionals, learning providers and organisations with software needs with the educational and training instruments they need to meet the demand for software skills in Europe.

ESSA will develop a European Software Skills Strategy and learning programmes for Europe. It will address skill mismatches and shortages by analysing the sector in depth and delivering future-proof curricula and mobility solutions; tailored to the European software sector's reality and needs.

Project partners

The ESSA consortium is led by DIGITALEUROPE. It is composed of academic and non-academic partners from the education, training, and software sectors.

View all project partners: ESSA Partners | ESSA Associated Partners

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List of abbreviations and acronyms

Abbreviation or Acronym	Term
EQF	European Qualifications Framework
HE	Higher Education
ICT	Information and Communication Technology
KPI	Key performance indicator
M	Month
PLO	Programme learning outcome
VET	Vocational education and training
WP	Work Package

1 Executive Summary

1.1 Introduction

The rapid advancements in Information and Communication Technology (ICT) present a dual challenge in the software industry. There is a shortage of software professionals to meet the growing demand, and there is a lack of skills needed to adapt to evolving technologies and the changing needs of organisations. The field's dynamic nature is redefining traditional roles and introducing new tools and methodologies. This necessitates the development of new skills and competences, increased collaboration, and a shift towards soft skills. The ESSA Alliance focuses on specific profiles to match market needs that were identified in the first project phase[1], such as Developer, DevOps expert, Solution designer, and Test specialist roles. Harmonised curricula reflecting these roles are being developed based upon commonly agreed educational profiles and curriculum guidelines[2] and piloted to prepare professionals for the evolving ICT landscape.

1.2 Objective

This report addresses three key objectives of the work package (WP) 4, task 4.2. This task involves running pilot learning programmes across diverse target groups in selected partner countries, ensuring a blend of vocational education and training (VET) and higher education (HE), in collaboration with nine learning programme providing partners from public and private sectors, operating on EQF levels 4, 5, 6 and 7. The pilots aim at measure effectiveness, gather feedback and iterate and improve the learning programmes (including the ESSA developed materials) before a rollout across Europe.

The report discusses how these pilot programmes are being carried out in eight European countries (France, Estonia, Greece, Ireland, Italy, Netherlands, Poland, Slovenia), from August 2023 to June 2024, evaluated, and serve as a key tool to experiment and optimise the materials developed by the ESSA Alliance.

1.3 Methodological approach

The pilot phase of the ESSA project serves as a crucial testing ground for the training and pedagogical resources developed by the ESSA Alliance. The pilot phase is structured into three phases, allowing for thorough preparation at each stage to ensure effective implementation and evaluation.

[1] Europe's most needed Software Roles and Skills. ESSA Needs Analysis Report 2021 and A Software Strategy for Europe. Reviewed version. European Software Skills Alliance, 2022.

[2] How to design Software Professionals' Curricula. From ESSA Software Skills Strategy to Educational Profiles to example curricula. European Software Skills Alliance, 2022.

1.3.1 Pilots preparation

The initial phase of the pilot of the learning programmes involved a comprehensive review of the available ESSA materials in collaboration with piloting partners. An allocation plan was devised, considering the expertise and implementation capacity of each partner, and a shared understanding of the working methods was established.

1.3.2 Pilots implementation

The pilot phase of the ESSA project, involving 320 learners[3] and 80 educational professionals across the eight countries, provides an opportunity to engage with learners and teachers. The implementation is flexible, taking place in various learning approaches, including VET providers, and universities. The pilots are structured around commonly agreed programme learning outcomes (PLOs), that were defined in the educational profiles[4], allowing for curricular flexibility.

Monitoring and follow-up of pilot implementation are integral to the process. Partners use tools like an Excel file to track the progress of the pilots, while bi-weekly monitoring meetings facilitate the sharing of experiences, addressing challenges, and refining the pilot implementation strategy as needed. Quantitative and qualitative indicators are defined to measure the impact of the pilot phase, ensuring ongoing analysis and adaptation.

1.3.3 Pilots evaluation

The evaluation process is of paramount importance in developing high-quality curricula and courses. The continuous monitoring and refining the pilot implementation is already an evaluation element and is complemented by post pilot evaluation. It aims to collect feedback from various stakeholders involved in the pilots, including students, trainers, and piloting partners. The goal is to identify and implement necessary improvements in both the curricula and the learning programmes. Despite the limited timeframe of the pilot phase, a defined monitoring and evaluation methodology ensures a continuous and systematic approach to intervention, fostering sustained feedback.

The comprehensive evaluation of the pilots involves various target groups and employs a multiple method approach: interviews and focus groups with trainers (qualitative approach) and surveys with students (quantitative approach). The evaluation criteria of the pilots focus on relevance, consistency, practicality, and effectiveness, and the report outlines the specific procedures and methods used. This evidence-based approach emphasizes the importance of gathering empirical and scientific data to enhance the educational resources developed by the ESSA Alliance.

[3] In the proposal, the key performance indicator (KPI) was 240 learners

[4] How to design Software Professionals Curricula. From ESSA Software Skills Strategy to Educational Profiles to example curricula. European Software Skills Alliance, 2022.

1.4 Conclusions

The pilot phase is currently underway in the eight partner countries, guided by a well-defined implementation plan and monitoring tools. The ESSA Alliance's Educational Profiles and further related qualification resources, based on comprehensive research, aim to address evolving skills and employment needs in the ICT sector. The pilots involve experimentation, evaluation, and validation of these programmes and resources, with a focus on continuous improvement and future utilization. Evaluation, conducted with students, trainers, and partners, will yield a comprehensive analysis, and results will be presented at the end of the pilot phase, contributing to workforce development in the sector.

1.5 Use of this document

This report is a confidential deliverable of the ESSA Alliance which outlines the ongoing pilot phase of the ESSA learning programmes in the eight partner countries on EQF levels 4, 5, 6 and 7 and highlights the structured implementation plan with accompanying monitoring and evaluation tools. This document provides evidence of collaborative efforts in addressing skills gaps in the ICT sector and showcases how the ESSA Alliance's needs analysis-driven educational profiles and related qualification resources are being tested and refined through the pilot phase. It will be used as a guide for analysing and concluding the results obtained by the pilot phase in 2024.

2 Introduction

Rapid advancements in the ICT sector pose a dual challenge in the software industry. The industry faces a growing shortage of professionals to meet demand, alongside a scarcity of adaptive skills for evolving technologies and the changing needs of organisations. The dynamic field is redefining traditional roles with new tools, agile methodologies, and a focus on security and sustainability, necessitating the development of new skills and competences. Increased collaboration across roles is crucial. The demand for software skills fluctuates, requiring an adaptable education system. European ICT Professional Role Profiles are adjusting to market needs, underscoring the imminent need for a significant influx of professionals with skills aligned to market requirements. This shift highlights a move from technical competences to the importance of soft skills and broader profession-related abilities.

This report presents how the pilot training programmes are being carried out within the ESSA project in 8 different countries. These pilots assess the applicability and measure effectiveness, gather feedback, and iterate and improve the learning programmes.

As the pilots are running from August 2023 until June 2024, the evaluations and iterations will run until September 2024. Therefore this report focuses on presenting the methodology and pilots implementation. The final results of the pilots will be presented in the 2024 deliverables.

This deliverable is closely related to other tasks from WP3, WP4 and WP6 (figure 1). These relations and cross-contributions will be further detailed when relevant in this report.

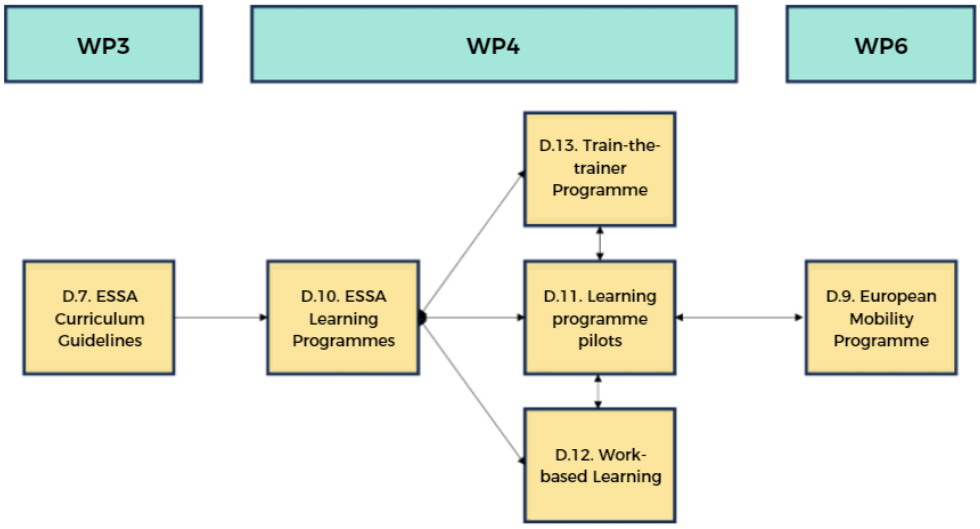


Figure 1. Relations and cross contributions among work packages and tasks

2.1 Deliverable Overview

This document, Piloting ESSA Learning programmes (Deliverable 11 of the ESSA project) is related to the work package 4, task 4.2 which involves the following tasks:

- Run pilot training across different target groups in selected partner countries ensuring a mix of VET and higher VET training in each country and by different partners.
- Collect feedback from partners & identify and implement improvements to the Curriculum and the VET Programme.
- Develop and package an updated set of Training Materials to support the rollout of the programme across Europe.

This report will address each one of these tasks and it is organised into 3 chapters in addition to this introduction.

The first chapter (section 3) is dedicated to presenting the overall structure of the activities and describing the implementation of the pilot phase. The second chapter (section 4) will detail the evaluation procedure of the pilots. The third chapter will conclude this report outlining the next steps.

2.2 Piloting partners and countries

Nine learning providers involved in the ESSA Consortium are currently piloting 14 programmes in 8 European countries (figure 2). The piloting partners include 4 higher education institutions and 5 VET providers, as defined in the ESSA proposal. As can be seen in Table 1, the countries are Estonia, France, Greece, Ireland, Italy, Netherlands, Poland, and Slovenia.

Figure 2 – Geographical representation of the pilots

Institution	Type	Country
Addeco Formazione SRL	VET provider	Italy
BCS Koolitus	VET provider	Estonia
DTSL	VET provider	Ireland
Global Knowledge France	VET provider	France
Global Knowledge Netherlands	VET provider	Netherlands
Hellenic Open University	Higher education	Greece
HU University of Applied Sciences Utrecht	Higher education	Netherlands
University of Ljubljana	Higher education	Slovenia
Warsaw School of Computer Science	Higher education	Poland

Table 1- Overview of the piloting partners

The pilot phase of the ESSA project corresponds to the testing of the training and pedagogical resources developed by the ESSA Alliance. Although the pilot stage is being carried out on a limited scale and for a pre-defined time of 12 months in total, it seeks to represent a broad coverage of target groups and learning environments across Europe and

presents therefore an ideal tool for analysis before a wider roll-out of the ESSA developed educational resources across EU countries.

3 Stepwise approach for piloting ESSA training programmes

The pilot phase was designed in 4 phases, so that it was possible to realise a sustained and real preparation at each stage, in order to achieve an effective implementation and evaluation (please refer to table 2).

Phase A	***Phase B***	***Phase C***	***Phase D***
Pilots preparation (related to WP3 and WP4 task 4.1) (M31 – M33)	Implementation and testing (M34-43) – running the pilots	Evaluation of the pilots implementation (M34-46)	Update set of materials (M34-M46) Iterate the curricula based on the evaluation of the pilots
Pilots preparation	**Pilots implementation**	**Pilots evaluation**	**Update curricula, programmes and materials[5]**

Table 2 - Pilots programme methodology – step by step

3.1 Pilots preparation

The preparation of the pilot programme involved 1) analysing the ESSA materials available together with the piloting partners, 2) defining an allocation plan across the partners according to each expertise and implementation capacity, and finally 3), sharing and aligning with partners on the ways of working.

3.1.1 Available resources for piloting

The main goal of the piloting was to test the materials developed in the ESSA project. The curricula, and materials were developed for ESSA's educational profiles covering five software roles at different qualification levels (EQF 4-7).

For each profile, we collected pedagogical resources: all WP involved partners not only collected adequate existing materials but also developed new online and offline learning materials. Each partner also identified appropriate delivery methods for the materials

[5] Not addressed in this report since the pilots are still in progress and this phase has not started.

developed. Thus, each of the educational profiles is divided into programme learning outcomes (PLO). To ensure flexibility, learning units were developed connected to these groups of learning outcomes. These learning units we refer to as lessons. For each of the lessons, training material was produced, composed of supporting slides, assessments, and bibliographic references. The ESSA materials produced for the project and available for Europe-wide free exploitation and use can be accessed in the dedicated platform: https://learn.softwareskills.eu. For more details, please refer to D.10 Learning programmes and materials.

3.1.2 Preparing for implementation

3.1.2.1 Allocation plan

In the context of pilot preparation, an allocation plan has been devised to specify the roles and associated materials assigned to each of the nine partners for their respective piloting activities. The division of the implementation among the nine partners is shown in Table 3. This division was done according to the level of expertise and implementation capacity of each partner.

Institution	Country	Programme piloted	EQF
Addeco Formazione SRL (VET)	Italy	Developer	EQF4/5
		Test specialist	EQF4/5
BCS Koolitus (VET)	Estonia	Developer	EQF4/5
DTSL (VET)	Ireland	Developer	EQF4/5
Global knowledge France (VET)	France	DevOps Expert	EQF 6
		Developer	EQF 6
Global knowledge Netherlands (VET)	Netherlands	Developer	EQF4/5
Hellenic Open University (HE)	Greece	Solution Designer DevOps Expert	EQF7
		DevOps Expert	EQF7
HU University of Applied Sciences Utrecht (HE)	Netherlands	Developer	EQF6
		DevOps Expert	EQF6
		Solution Designer	EQF6
University of Ljubljana (HE)	Slovenia	DevOps Expert	EQF6
Warsaw School of Computer Science (HE)	Poland	Developer	EQF7

Table 3- Allocation plan per partner

Once the allocation plan was defined, each partner completed a template (see annex 6.1) to detail all the characteristics of the pilot (from learning outcomes to assessment as well as practicalities such as start and end dates).

3.1.2.2 Harmonising implementation across partners

Harmonising and aligning efforts among partners are paramount to ensure the successful implementation of pilot projects. To secure the harmonisation, we conducted a working

session with the partners to share and align on the ways of working and created a comprehensive folder that contained methodological guidance, templates, materials, evaluation instruments, and a FAQ document. This folder acts as a common thread that gathers the diverse components of the project, facilitating a coordinated and cohesive approach.

In essence, this harmonization ensures that the piloting partners work in synergy towards the overarching goal of quality implementation. This collaborative approach helps partners understand each other's roles, responsibilities, and ways of working, ultimately minimizing misunderstandings and discrepancies.

The harmonisation and alignment among partners not only safeguards the quality of pilot implementations but also set the stage for effective communication, and efficient coordination.

3.2 Pilots implementation

The pilot phase was implemented by nine partners, corresponding to eight countries in the Alliance. Piloting allows to have contact with learners and trainers which is an opportunity to gather in-depth evaluation of the developed resources before a full pan-EU rollout. The implementation involves not only running the pilots but also monitoring and following up closely to guarantee that the Alliance captures all the learnings and optimisation needed to improve the curricula and materials.

3.2.1 Organising pilot sessions

The pilot sessions were implemented in the following learning approaches: on-premise at VET providers and universities, in online environments or combining this in a blended learning approach (as can be seen in Figure 3).

The implementation followed a modular logic on programme learning outcomes level, guarantying curricular flexibility and adaptation. Partners had the freedom to choose how to implement the pilot:

- Training integrated into ongoing training offers (e.g., Hellenic Open University, HU University of Applied Sciences Utrecht)
- New offer - design of flexible training/testing pathways (e.g., Adecco, BCS Koolitus, University of Ljubljana, and Warsaw School of Computer Science).

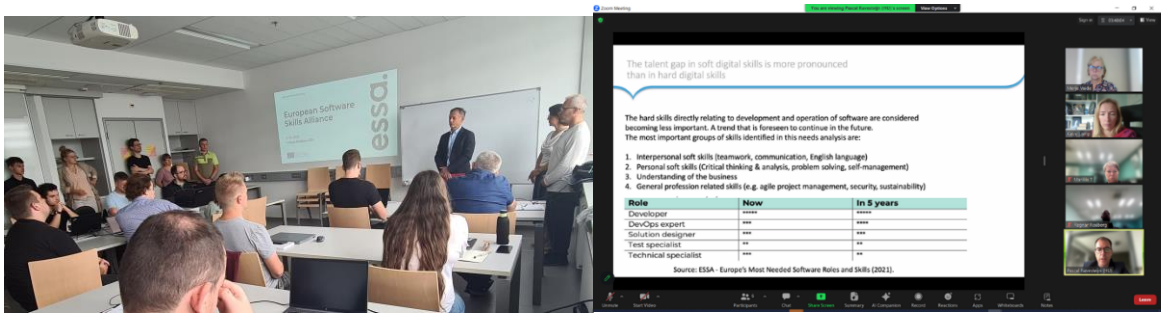


Figure 3 - Pilot courses in action (off-line and on-line)

In line with the partners' commitment from the submitted proposal (see also Table 2), the pilots must take place between August 2023 and June 2024. The figure below presents the pilot's calendar, and the current plans show that the pilots will be concluded within the timeframe set.

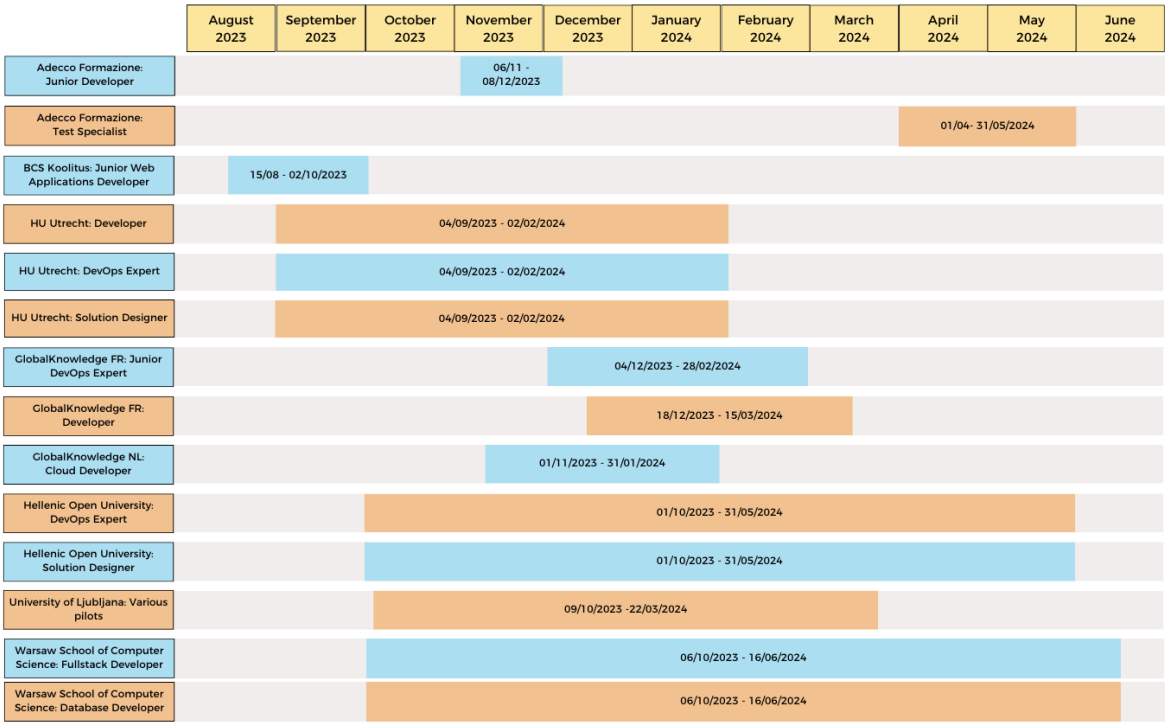


Figure 4. Pilots calendar as of January 2024

At this stage, we can confirm that we have met the criteria outlined in the proposal since we will be running 14 pilot training programmes across different target groups in selected eight partner countries.

3.2.2 Monitoring and follow-up of pilots implementation

The pilot implementation phase also involves close monitoring and follow-up. In order to successfully perform these tasks, we have created a few tools that will be detailed below.

To have visibility on the status of the pilot and visibility on what the partners are piloting, an Excel file was created containing all information regarding the pilots and a calendar of the pilots (see annex 6.4). This file is being updated as the pilot's progress.

Additionally, bi-weekly monitoring meetings are organised to gather the partners in order to share the progress of the pilots and address the partners' questions and eventual challenges on the pilots. More precisely, the monitoring meeting: (1) helps to clarify aspects of the pilot phase, (2) collects, in a participative way, reflections on how the test phase is going, sharing experiences and analysis of progress, (3) definition and/or redefinition of the implementation strategy, in cases where constraints impede the planned development of the activity, (4) quality orientation.

3.3 Evaluation of the pilots

In order to develop high-quality curricula and courses, evaluation is of great importance. The goal of the evaluation is to collect feedback from all targets involved in the pilots, assess its impact, and identify and implement improvements to both the Curriculum and the VET Programme as needed.

The importance of evidence-based education is increasingly taking root and the need to gather empirical and scientific data is stressed by many (Thijs & Akker, 2009). Therefore, even in case of pilot phases which were limited in time, with short periods of involvement with the trainees, the development of a sustained feedback was ensured through the defined monitoring and evaluation methodology, and the process of continuous and systematic intervention.

Involvement of different target groups is necessary to ensure a comprehensive evaluation of learning programmes and courses (Thijs & Akker, 2009). Therefore, students and trainers are included in the evaluation process (Huizinga et al., 2014).

The evaluation of the quality of the design and its implementation will be assessed based on the following criteria: relevance, consistency, practicality, and effectiveness (Thijs & Akker, 2009) (see table 4). The evaluation will mobilize different methods (depending on the target audience). The details of the procedures and methods will be described in the upcoming sections of this report.

Criterion	Details
Relevance	• What? There is a need for the curricula / course and its design is based on state-of-the art (scientific) knowledge.

	• How to assess? Partners feedback (refer also to D.4 - Europe's Most Needed Software Roles and Skills - Needs Analysis).
Consistency	• What? The structure of the curriculum is logical and cohesive. • How to assess? Trainer's and student's evaluations at the end of the course can confirm this.
Practicality	• What? The course is usable in the settings for which it has been designed. • How to assess? Both lecturers (interviews) and students (survey).
Effectiveness	• What? The implementation of the intervention leads to the desired outcomes. How to assess? Students (survey), trainers, and companies (via the partners).

Table 4 – Quality criteria and how to *evaluate* it

Additionally, based on the data that will be collected, quantitative and qualitative indicators have also been defined to track and measure the impact in the pilot phase. These key performance indicators (KPIs) are presented in section 3.3.4.

3.3.1 Students evaluation

Collecting student feedback provides insights into the effectiveness of teaching, course structure, the relevance and quality of the used materials, the delivery method(s), and the overall learning experience during the course and programme. Students feedback represent a crucial component of the pilot evaluation and will help the partners to make data-driven decisions for ongoing improvement in the ESSA training programme, course structure and materials.

The student evaluation will be carried out via a questionnaire (see the questionnaire in appendix 6.2). This questionnaire was developed in collaboration with all the piloting partners.

The distribution of the questionnaire will be online[6]. This procedure allows us to centralise the data collection and make sure that we have similar feedback content in all partner countries.

The trainers will be advised to inform the students about the evaluation process, share the survey link, and dedicate time during a session for the students to fill in the evaluation. The ideal time to distribute the evaluation questionnaire is towards the end of the course, preferably during the last week of classes but before the final exam or major project submission. This timing ensures that students have had enough exposure to the course content and methods to provide thoughtful feedback. It is important that the evaluation

[6] Link to the survey: https://q.crowdtech.com/DfZGpnGNiE-7MTptK1gerw

does not take place too late so that there is still time to share/discuss the results with the students. The trainer should also plan to share with students the instructions and questionnaire link in other channels available (MSTeams, email, or any other course management system available) for the students who had missed the class.

In order to ensure that the feedback process is constructive and that students have a confidential and safe way to provide their opinions, the students will be informed about:

- Anonymity: Assure students that the responses are anonymous and confidential. This encourages the students to provide honest feedback without fear of repercussions.
- Impact: Emphasize the importance of student feedback in shaping the course's future. Explain that student input can influence changes that enhance the learning experience for themselves and future students (even across countries since this course is a pilot for ESSA – European project).

A report will be produced with the main results and conclusions (assessing for instance the achievement of the KPIs).

3.3.2 Trainers evaluation

When evaluating a course, it's important to use a combination of trainer and student feedback to create a well-rounded assessment of the educational experience. This holistic approach can lead to more effective teaching and improved student learning outcomes. Additionally, by considering both perspectives, institutions can better support trainers in their professional development and ensure that courses are engaging and effective for students.

For ESSA, the partners will therefore collect feedback from trainers following a two-step approach (see figure 5).

Figure 5 - 2 Step approach to collect feedback from trainers

3.3.2.1 Step 1 - Individual interview with the trainer

This qualitative approach allows lecturers to provide detailed feedback specific to their teaching style, on the course structure, ESSA material, the challenges they faced, and the successes they observed. The goal of the individual interview is to encourage open and honest conversations about both strengths and areas for improvement.

These individual interviews will be conducted by the piloting partners themselves. An interview guide is provided that support the partners to structure the interview (see table 5 and appendix 6.3) and ensure comparability of the results between pilots. The partners will record and summarize the key learnings from the interviews so the data can be compiled.

Topics	Details
1. Course Content and Structure	How well did the course materials and topics resonate with the students? Were there any sections that seemed particularly engaging or challenging?
2. Teaching Methods and Engagement	Which teaching methods did the trainers find most effective in conveying the concepts? Were there any innovative approaches used that they believe had a positive impact on student engagement? How useful was the train the trainer documentation?
3. Student Interaction and Support	Were there any notable interactions or challenges they encountered while interacting with students?
4. Work based learning component	Which WBL components were included (real-life problem centred tasks, projects, assignments)? How was the overall experience? Were there challenges related to WBL?
5. Assessment	How were the students / learners assessed? How did the lecturer / trainer measure the achievement on the LO?
6. Suggestions for Improvement	Based on the experience, do they have any specific suggestions or recommendations to enhance the course's overall effectiveness? Or other suggestions or ideas?

Table 5 – Topics for the interview with trainers

3.3.2.2 Online group discussions with trainers

The online group discussions will complement the feedback collected during the individual interviews since these two methods may bring different perspectives on the pilots results – for instance, peer environment (on a focus group) may encourage disclosures differently than the interviewer-researcher relationship (Guest et al., 2017). More specifically, In the context of the pilots evaluation, our goal with the focus groups is to gather the trainers to discuss and brainstorm on the strengths to be further leveraged and priorities in terms of areas for improvement.

The WP lead will organise and facilitate the sessions with the contribution of the local partners. Piloting partners are expected to support the sessions organisation by inviting the trainers (and confirming their participation). Partners will also be encouraged to join the session during the session.

As the pilots run in different periods, 3 rounds will be organized (1st round in January 2024, 2nd round in March 2024, and 3rd round in July 2024). Each session will last around 1,5 hour via MS Teams. The sessions will be recorded and notes will be taken during the session.

These data will be coded and analysed. A report will be produced with the main results and conclusions (including the data from individual interviews). It will be shared with the trainers and lecturers who joined the sessions or/and participated in the interviews. The report will offer valuable insights on the course materials and methods supporting the optimization of training materials as well as aiding in trainer improvement (see also train the trainer program – D.13).

3.3.3 Feedback from piloting partners

Each piloting partner will be asked to produce a report with an overall analysis of what has been learnt from the pilot implementation, from the preparatory measures, the pilot itself, and the pilot evaluation.

3.3.4 30Key performance indicators

The Alliance will also track the success of pilots implementation and measure their impact monitoring the achievement of defined indicators below (table 6).

Type of indicator	KPI	Baseline (*from proposal)	Method to measure
Quantitative indicators	Number of countries involved	7*	Partners feedback
	Number of partners involved	8*	Partners feedback
	Number students enrolled for phase of pilot	240*	Partners feedback
	Local employers engaged to offer internships, apprenticeships, job placement for the graduates	50-100*	Partners feedback
	Number of materials piloted	130	Partners feedback
	Number of hours of training	2800	Partners feedback
Qualitative indicators	Students and learners acquired skills and competences for jobs in software services sector	Positive feedback from students and trainers	Evaluation with students and trainers (see section 3.3.1 and 3.3.2)
	Employers access to new pool of talents and skills	Positive feedback from companies	Partners feedbacks (link their own network of partner companies)

Table 6 – Quantitative and qualitative indicators to measure impact of pilot implementation

4 Conclusions

The pilot phase is currently underway in 8 countries of our partnership, performed by 9 ESSA partners on EQF levels 4-7 and with 14 programmes in total, and it is following an implementation plan with clear guidelines and monitoring tools.

The pilots involve experimenting, evaluating, and validating the learning programmes and materials. Piloting is an essential process for continuous improvement and reflection on the best possibilities for future utilisation. The evaluation, being conducted with students, trainers, and piloting partners, will provide us with a thorough analysis and reflection on the resources developed. The results will be presented upon the conclusion of the pilots.

5 References

Guest, G., Namey, E., Taylor, J., Eley, N., & McKenna, K. (2017). Comparing focus groups and individual interviews: findings from a randomized study. *International Journal of Social Research Methodology*, *20*(6), 693–708. https://doi.org/10.1080/13645579.2017.1281601

Huizinga, T., Handelzalts, A., Nieveen, N., & Voogt, J. M. (2014). Teacher involvement in curriculum design: need for support to enhance teachers' design expertise. *Journal of Curriculum Studies*, *46*(1), 33–57. https://doi.org/10.1080/00220272.2013.834077

Thijs, A., & Akker, J. van den. (2009). *Curriculum in Development*.

6 Annexes

6.1 Template pilot details - Example

ESSA LEARNING PROGRAMME PILOTING
Collection of information

Organisations involved in the piloting should complete the below tables. The information provided will be used for different purposes (e.g. on the ESSA website to promote the piloting).

Practical information for 4.2

This information is mainly relevant and used within 4.2.

General	
Name(s) of the organisation(s) involved in the piloting:	
Name of the programme/course	
Main objective(s) of the programme/course for learners	
Target group (e.g., professional / full time)	
No. of students (intended)	
Language	
Open to external learners (yes/no)	
Credits (No. ECTS)	
Study load (with details on how many hours of "contact" and "study" hours)	
Will there be a kind of recognition (e.g. certificate) participants get after successful completion of the pilot (please specify if so)	
Schedule	
Start date	

End date	
Please provide a timetable of the lessons (can be indicative)	
Content, delivery and assessment	
Educational profile and EQF level	
Entry requirements (i.e., What do learners need to be eligible to apply?)	
List of the learning outcomes of the chosen educational profile that are addressed in the pilot (see WP3)	
List of subjects or topics that are covered	
List of the key work-based learning (WBL) components included in piloting (like internships, real-life customer projects, “real-life" like practical projects or tasks integrated into learning)	
Delivery method(s) (e.g., online, blended, on-site)	
Assessment	
Assessment criteria (e.g., rubric)	

2. Information for the website

This is additional information for the ESSA website.

Short description on the relevance of the programme /course	
Enrolment process (with registration link or info)	
Contact person responsible for the piloting in the piloting organisation (contact for potential learners) - Name, Surname, email address	
Start date of registrations (if not available, please indicate tentative month)	
End date of registrations (if not available, please indicate tentative month)	

3. Information on mobility aspects (possibilities)

Short-term mobility: collaboration between piloting partners on level of learning activities
Long-term mobility: collaboration on level of learning units, programme learning outcomes

Teacher short-term mobility in the pilot (e.g., guest lecturers)	
Student short-term mobility in the pilot (e.g., joint project)	
Teacher long-term mobility after the pilot	

Student long-term mobility in the pilot	

4. Accreditation

Is the pilot training programme (or modules part of it) accredited? If yes, by whom (please detail the institution(s) and until when?	
Please add other relevant information on accreditation (e.g. what kind of accreditation).	

6.2 Student / learner Course Evaluation Questionnaire

Dear student,
Your feedback is essential for us to continuously improve the quality of this course. Please take a few minutes to complete this evaluation questionnaire honestly and thoughtfully. Your responses will remain anonymous.

Course Information:
1. Institution: _____
2. Program title: _____
3. Course Title: _____
3. Instructor's Name: _____
4. Semester/Year / Date: _____

Section 1: Course Content and Structure
Please rate the following aspects of the course content and structure, using the following scale 1-5 where 1 indicates "Strongly Disagree" and 5 indicates "Strongly Agree.":

1. The learning outcomes were clear from the start
2. I was very interested in this topic even before the start of the course
3. I became more interested in this topic during the course
4. The course was organised and structured in a way that helped me learn
5. The knowledge, skills and competences that I have acquired in this course are relevant to my professional career
6. Do you have any additional remarks related to content and structure? (open questions)

Section 2: Learning experience
Please rate the course learning experience:

7. I was encouraged to participate actively in this course
8. I was challenged/encouraged to engage with the content
9. This course inspired me to actively participate in the programme
10. The workload of the course was realistic (credit points allocated to the course do adequately reflect the actual workload/study hours)
11. The workload was balanced throughout the course
12. The level of complexity of this course was... [**scale to be used**: too low... too high]
13. Do you have any additional remarks related to learning experience? (open question)

Section 3: Course Materials and Methods

Please rate the course materials provided [1 – totally disagree; 5 – totally agree]

14. The course materials (e.g., articles, books, videos, presentations, etc.) were useful
15. The course materials suited the course learning outcomes
16. I could find and access the course materials easily
17. The teaching methods (lectures, discussions, practical exercises, etc.) were appropriate and varied
18. The course presented a good balance between theory and practical activities (business case, exercises)
19. Do you have any additional remarks related to course materials and methods? [open question]

Section 4 - Professional contribution

20. Are you currently working / looking for a job on the area related to the course ?

Yes/ No (the participant will re-directed to the next block of questions)

21. The knowledge I acquired is totally applicable to my daily work
22. This training will have an impact on my performance at work
23. Do you find some constraints on transferring what you have learned to the work context? Yes/ No
24. If so, what kind of constraints? [open question]
25. Could you please give some examples of knowledge that you will be able to apply in your work (fill only if applicable)? [Open question]

Overall Experience. Please rate your overall experience in the course:

26. Overall, how satisfied were you with the course? [1 – not satisfied at all; 5 – very satisfied]
27. Overall, this course fits well with my expectations [1 – totally disagree; 5 – totally agree]
28. How likely are you to recommend this course to other students? [1 – not very likely; 5 – very likely]
29. What do you consider the strength(s)/ most appealing aspects of this course? [open question]
30. What do you like less? Do you have any suggestions or ideas for improvement? [open question]

Before we conclude, 2 questions about you:

31. How would you describe your gender?

[ ] Male
[ ] Female
[ ] Other option describes me
[ ] Prefer not to say

32. How old are you? (open question): _____

Thank you for taking the time to complete this evaluation questionnaire. Your feedback is greatly appreciated!

6.3 Interview guide – evaluation with trainers / lecturers

NB. Questions within this document are intended to serve as guidance for the interviewers. The partner conducting the interviews may tailor them to suit the specific local context

Introduction

- If needed: summarise the context of the ESSA project and share on the importance of collecting the feedback to improve the training programmes and materials
- Inform the respondent that the data will be treated anonymously. The recording and transcription will be used only for analysis purposes.

Course Content and Materials:

1. Were the course learning outcomes and/or objectives clearly defined and achievable?
2. Did the course content and materials align with the stated learning outcomes and/or objectives?
3. Were the ESSA course materials effective in supporting student learning?
4. Were there gaps in the content that you think should be addressed? Did you adapt the material received? How? Can you give specific examples?
5. Were there any additional resources, references, or tools that you used and if so, which ones and how did they enhance the learning experience?

Teaching Methods and Delivery:

6. What teaching methods and strategies did you employ to engage the students and facilitate their learning?
7. Did you encounter any challenges in delivering the course content, and how did you address them?
8. Did the pacing of the course feel appropriate? Was it too fast or too slow?
9. Were there opportunities for students to work on work-based-learning activities?

Student Engagement:

10. How did you promote student engagement and participation in the course, both in-class and outside of class?
11. Did you notice any trends or patterns in student performance or participation throughout the course?

Assessment:

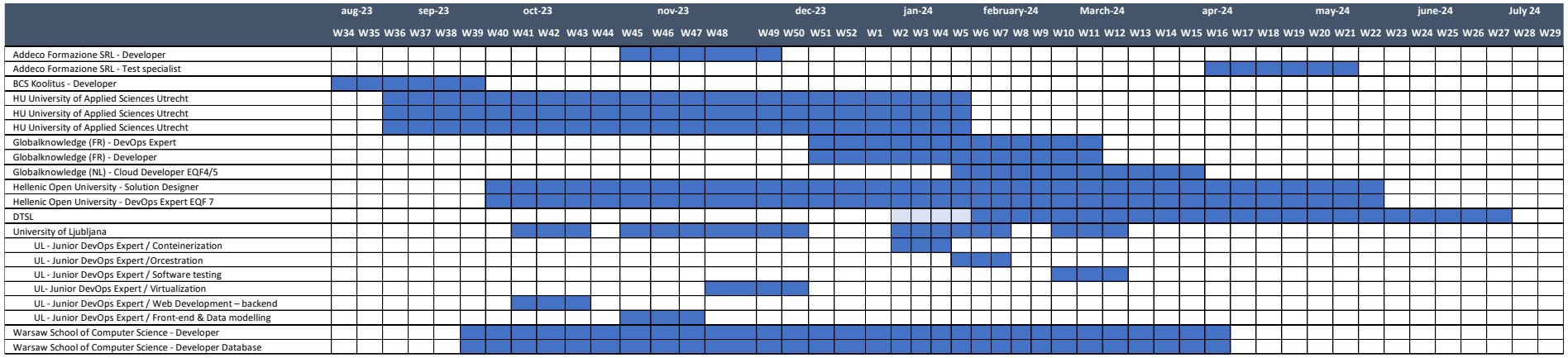
12. How did you assess student learning in this course?
13. Were the assessment methods aligned with the course learning outcomes and/or objectives?
14. Did the assessment(s) cover the topics and learning materials of the course adequately?

Overall Feedback and Suggestions:

15. On a scale of 1 to 10, how would you rate your overall experience teaching this course? (1 being the lowest and 10 being the highest)
16. Was there any notable feedback or suggestions from the students during the course that you found valuable or acted upon?
17. What are the main positive aspects of this course?
18. What were the biggest challenges you faced while teaching this course?
19. In retrospect, are there any aspects of the course or your teaching approach that you would change or improve?
20. Is there anything else you would like to share or discuss regarding your experience teaching this course?

6.4 Pilots overview

Organisation	Type	Country	Role (e-CF)	EQF Level	# of programs	# of hours	Credits (ECTS)	# of involved students	# of involved trainers	Start date	End date	Delivery method	Assessment
Addeco Formazione SRL	Co-lead	Italy	Developer	EQF4/5	1	200	8	23	4	2023-11-06	2023-12-08	Online	Practical tasks and exercises
Addeco Formazione SRL	Co-lead	Italy	Test specialist	EQF4/5	1	120	4,8	15	4	2024-04-01	May 2024	Online	Practical tasks and exercises
BCS Koolitus	Co-lead	Estonia	Developer	EQF4/5	1	112	7	10	5	2023-08-15	2023-10-02	Blended	Practical tasks and exercises Creating a simple web application
HU University of Applied Sciences Utre	Co-lead	Netherlands	Developer	EQF6	1	200	30	tbc	12	2023-09-04	2024-02-02	On-site	Portfolio assessment
HU University of Applied Sciences Utre	Co-lead	Netherlands	DevOps Expert	EQF6	1	200	30	tbc	12	2023-09-04	2024-02-02	On-site	Portfolio assessment
HU University of Applied Sciences Utre	Co-lead	Netherlands	Solution Designer	EQF6	1	200	30	tbc	12	2023-09-04	2024-02-02	On-site	Portfolio assessment
Globalknowledge	Substantial contributor	France	DevOps Expert	EQF6	1	406	16	12	4	2023-12-04	2024-02-28	Blended	Practical assignments, exams
Globalknowledge	Substantial contributor	France	Developer	EQF6	1	406	16	12	4	2023-12-18	2024-03-15	Blended	Practical assignments, exams
Globalknowledge (Cloud developer)	Substantial contributor	NL	Developer	EQF4/5	1	168	6	60	4	2023-11-01	2024-01-31	Blended	Assignment
Hellenic Open University	Substantial contributor	Greece	Solution Designer	EQF7	1	104	8	12	4	2023-10-01	2024-05-31	Blended	Project based
Hellenic Open University	Substantial contributor	Greece	DevOps Expert	EQF7	1	116	8	12	4	2023-10-01	2024-05-31	Blended	Project based
DTSL	Substantial contributor	Ireland	Developer	EQF4/5	1	200	8	15-20	4-6	2024-02-06	2024-06-28	Blended	Project based / Assignements
University of Ljubljana	Substantial contributor	Slovenia	DevOps Expert	EQF6	1	220	11	15	1	2023-10-09	2024-03-22	On-site	Practical assignments
			Junior DevOps Expert / Conteinerization	EQF6	1	40	2	15	1	2024-01-08	2024-01-26	On-site	Practical assignment
			Junior DevOps Expert /Orcestration	EQF6	1	40	2	15	1	2024-01-29	2024-02-16	On-site	Practical assignment, report
			Junior DevOps Expert / Software testing	EQF6	1	40	2	15	1	2024-03-04	2024-03-22	On-site	Practical assignment
			Junior DevOps Expert / Virtualization	EQF6	1	20	1	15	1	2023-11-13	2023-11-24	On-site	Practical assignment
			Junior DevOps Expert / Web Development – backend	EQF6	1	40	2	15	1	2023-10-09	2023-10-27	On-site	Practical assignment
			Junior DevOps Expert / fontend Data modelling	EQF6	1	40	2	15	1	2023-11-06	2023-11-24	On-site	Practical assignment
Warsaw School of Computer Science	Substantial contributor	Poland	Developer	EQF7	1	192	20	11	3	2023-10-06	2024-06-16	Blended	Practical, exam, project, diplor
Warsaw School of Computer Science -	Substantial contributor	Poland	Developer	EQF7	1	192	20	11	3	2023-10-06	2024-06-16	Blended	Practical projects and tasks int



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