Development of a Hybrid Human-AI Personalised Learning Path for VET for Innovation in Agriculture

Persona.

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PERSONA User's Manual

PERSONA User's Manual on the structure and use of the programme.

This document contains the PERSONA user's manual with details on the structure and use of the PERSONA hybrid AI system.

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Introduction

The PERSONA project aims to transform Agricultural Technical and Vocational Education and Training (TVET) by innovating learning processes, products, and services. Its core objectives include improving the quality and relevance of Agricultural TVET education, embedding innovation into institutional strategies, and enhancing the sector's ability to deliver both technical and transversal skills for innovation. Additionally, PERSONA seeks to strengthen the connections between Agricultural TVET institutions and other actors within the Agricultural Knowledge and Innovation Systems (AKIS) at the European level.

This *Manual on the Structure and Use of the Programme* is designed to support both prospective learners and agricultural extension professionals who are interested in advancing their knowledge, skills, and attitudes in innovation process management in agriculture. It provides a detailed guide to the programme's modules, outlines the assessment methods used, and highlights the learning resources available to deepen understanding of key topics.

The manual includes a comprehensive overview of assessment materials and evaluation criteria. It examines the various types of assessment used in the programme, the purposes behind each, and the underlying principles of effective assessment and feedback. Furthermore, it illustrates how the intended learning outcomes of the programme and its modules are aligned with the assessment strategies and teaching and learning activities.

Also included is an in-depth guide on the step-by-step process of using the hybrid ai system. Users will have access to a complete overview of the system and how it can be operated as the learner.

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Section 1: Introduction

1.1 Learning Outcomes

Upon completing this program, students will have developed a comprehensive skill set encompassing digital and technological skills, agronomy and sustainable farming practices, data analysis, communication, problem solving, business management, entrepreneurship, networking, and leadership. Students will also acquire key knowledge in areas such as agricultural innovation, policy and regulatory issues, climate change, and environmental impact.

Additionally, students will gain exposure to attitudes fostering innovation, adaptability, sustainability, entrepreneurial thinking, and a forward-looking mindset. Hands-on learning and collaboration will further enhance their critical thinking, problem-solving abilities, and resilience, all of which will aid in equipping the students with the competencies necessary to implement innovation process management in agriculture.

Upon successful completion of this course students should be able to:

1. Provide solutions to various financial aspects which will increase farm profitability, and efficiency while promoting the use of technology. (Agricultural Financial Management).

2. Demonstrate the role of agricultural software support tools on the environmental and economic front as well understanding the key features and types of support tools available within the Agricultural industry. (Agricultural Software support Tools).

3. Outline the key concepts and processes around sustainability adoption on farms (Agricultural Sustainability).

4. Develop strategies that can be implemented by farmers to future proof farms against uncertainty through embracing entrepreneurial spirit and new technologies (Farm Entrepreneurship).

5. Distinguish key aspects of robotics in Agriculture ranging from its technical application to its economic feasibility (Robotics in Agriculture).

6. Develop skills to adequately interact with others in order to successfully exchange knowledge and information regarding key agricultural topics such as those undertaken in previous modules throughout the program. (The Role of Groups in Agriculture).

1.2 Frameworks for Tailored Learning Pathways

Tailored learning pathways play an important role in all forms of education by providing personalized learning approaches, catering for the unique needs, interests, learning styles and learning strengths of the learner. As opposed to providing a one size fits all approach, a tailored learning pathway allows the learner to access and navigate learning material in a manner that suits their unique styles and goals.

Tailored learning pathways have a role to play in creating an inclusive and modern education platform for students. A number of benefits include:

1. Personalized learning platform and personalized experience.

2. Increased learner/students' engagement and interest.

3. Learning material is of high relevance to career opportunities that learners may be working in or wish to pursue.

4. Learners can acquire competence in different areas at a faster rate when interactive learning materials are implemented in the platform.

5. Learners have the opportunity to develop competencies in areas that align with their career aspirations.

6. Personalised learning pathways create inclusive educational settings in which students from diverse backgrounds can undertake a given educational opportunity.

1.3 Tailored Learning Pathways Components

The PERSONA Hybrid AI System includes a number of different learning methods for the learner. The programme has been designed in a way that complements several different types of learners' needs. Included in the programme are activities such as:

1. Module learning materials.
2. Multiple Choice Questionnaires (MCQs).
3. Interactive exercises.
4. Scenarios.
5. Case study exercises.

To ensure that students get the best experience possible out of the programme the order in which learners will undertake the modules has been thoroughly examined. Learners will undertake six modules in the following order;

1. Agricultural Sustainability.
2. Agricultural Software Support Tools.
3. Robotics in Agriculture.
4. Farm Entrepreneurship.
5. Agricultural Financial Management.
6. The Role of Groups in Agriculture.

1.4 Support and Guidance

To enhance the learning experience, the hybrid AI system will integrate a variety of interactive activities and tasks. These elements are designed to provide learners with practical opportunities to apply the knowledge and concepts introduced in the learning materials. By engaging in these hands-on exercises, learners will be able to reinforce their understanding, develop critical thinking skills, and bridge the gap between theory and real-world knowledge. Content that learners can expect to see on the hybrid AI system includes:

1. Lecture Content.

2. Additional Readings.
3. Additional Videos.
4. Additional Exercises.

1.5 Levels of Credit Recognition

Credit recognition is the process in which education providers acknowledge credits gained through previously undertaken courses. The PERSONA hybrid programme will afford learners the opportunity to gain EQF level 5 credit recognition. Learners will be presented with a digital badge upon successful completion of the programme.

PERSONA Hybrid AI System	
Level of recognition	EQF Level 5
Type of recognition	Digital badge

Programme Completion Certificate				
Programme Name	**Institution**	**Year Completed**	**Credits Achieved**	**Grade**
PERSONA		202..	…	…

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1.6 Course and Programme Contents

PERSONA Modules
Estimated Time Commitment - 20hrs per module

Module 1: Agricultural Financial Management

Agricultural Financial Management
Module Descriptor: This module is designed to build competencies in financial planning, management, and decision-making tailored to the needs of agricultural professionals. Based on sustainable and data-driven practices, learners will investigate innovative financial tools and techniques to help agricultural businesses be resilient and economically growing.

Module 2: Agricultural Software Support Tools

Agricultural Software Support Tools
Module Descriptor: The module on Agricultural Software Support Tools provides a structured approach to understanding, applying, and evaluating digital technologies in precision agriculture. These tools include software for precision farming, Decision Support Systems (DSS), and digital platforms, which are integral to modern agricultural practices. The modules aim to enhance the technical competence of learners in leveraging these technologies to improve productivity, optimize resource use, and support sustainable farming practices. Throughout the modules, learners will explore key functionalities such as satellite positioning systems, variable-rate technology, data-driven decision-making, and platform integration for enhanced farm management. By the end of the module, learners will be equipped to apply these tools in real-world contexts, addressing both

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operational efficiency and environmental stewardship within agricultural systems.

Module 3: Farm Entrepreneurship

Farm Entrepreneurship
Module Descriptor: The module focuses on developing entrepreneurial competencies specific to the agricultural sector. It covers fundamental aspects of farm business management, including strategic planning, marketing, technological innovation, and sustainable practices.

Module 4: Agricultural Sustainability

Agricultural Sustainability
Module Descriptor: The module addresses sustainable agriculture with a focus on innovative approaches. Participants will learn about the key differences between farming practices, the importance of sustainable innovation and the impact of natural processes on environmentally friendly production. Emphasis will be placed on practices that promote a circular economy and enable resource efficiency. The module also includes an overview of European policies such as the Green Deal, as well as innovative business models and financing mechanisms to support sustainable practices. Participants will develop concepts for sustainable agricultural practices that combine environmental, social, and economic aspects.

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Module 5: Robotics in Agriculture

Robotics in Agriculture
Module Descriptor: The module on Robotics in Agriculture provides a focused and practical learning experience designed to equip participants with essential knowledge and skills to integrate robotics into modern farming practices. The course aims to enhance understanding of how robotics, automation, and artificial intelligence (AI) could improve efficiency, precision, and sustainability in agriculture. It addresses key challenges, including labor shortages and environmental concerns, while promoting innovation and technical proficiency in the sector. The module includes frontal lessons, individual study self-assessment tests and problem solving within given scenarios. Learners will gain practical knowledge to identify pros and cons of a robotic system and formulate possible technical procedures.

Module 6: The Role of Groups in Agriculture

The Role of Groups in Agriculture
Module Descriptor: This module aims to equip students with the necessary skills, knowledge, and attitudes to effectively manage group dynamics in agricultural contexts. It will provide students with the tools to integrate information from other modules within the broader program. This module will explore a variety of established theories and practical approaches related to group activities, including Tuckman's stages of group development, Belbin's team roles, and decision-making models. Students will examine key group processes such as communication, leadership, conflict resolution, decision making, and group formation. The module will focus on how these theories and processes can be applied to agricultural settings, such as discussion groups,

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fostering a deep understanding of how groups function in agricultural environments and how effective collaboration can enhance farm management, sustainability practices, as well as enhancing farmers openness to change and innovation at farm level. Upon successful completion, students will demonstrate enhanced communication and collaboration skills, recognizing and applying effective communication strategies. In addition, they will develop competence in areas such as confidence in public speaking and will be able to leverage networking and relationship-building skills in professional settings. Students will also acquire new techniques for collaborative learning and the exchange of information with peers.

1.7 Assessment methods and suggested initial learning resources

Assessment	
Multiple Choice Questionnaire (MCQ)	Each module will encompass 15 multiple choice questions in which students will be required to pass before proceeding. MCQ's will be based on lecture content provided and all material will be examinable.
Case Studies	Case studies will challenge the learners to think in a critical and innovative manner to solve a challenge related to a specific topic within the module they are undertaking.
Scenarios	Online interactive scenarios will be used to support student engagement and understanding.
Interactive Exercises	The incorporation of interactive exercises throughout the hybrid AI system ensures that learners are afforded the opportunity to learn in an engaging interactive environment

1.8 Assessment Purpose

Within vocational education and training (VET), including technical vocational education and training (TVET), assessment is key to the learning process. There are many reasons why it is important to assess students. For example, to demonstrate learning achievements at points in time, to receive and give feedback, to empower students to self-regulate their learning, to empower students to critically evaluate their performance, etc. Ultimately, enhancing students' ability to self-regulate, self-monitor, and judge their own work to ensure they graduate with a sense of responsibility for their learning is the ultimate goal. Assessment has the potential to develop these skills; however, a nuanced understanding of the term assessment is required.

Assessment, teaching, and learning are inextricably linked activities and so alignment between these three elements is a key component when planning and implementing curriculum design. Assessment can be both formative and summative and also includes feedback on learning. Different terms can be used to distinguish between assessment and feedback. Summative assessment is also termed assessment OF learning. This type of assessment occurs after the learning period and typically has a letter or number grade associated with it. Where the grade is given a high weighting or has significant consequences for progression, it can be termed a high stakes assessment. Formative assessment on the other hand is related to the concept of feedback on learning and is often termed assessment FOR learning. Many educators think of feedback as something that has an impact on student learning and is only given to the student. However, assessment FOR learning also includes the idea of feedback to staff on their teaching. It highlights the importance of a dialogue between teachers and students (Nicol, 2010). Assessment FOR learning also supports the idea of student self-regulation of their learning, allowing students to critically evaluate their own learning and performance (Carless *et al.,* 2011; Sadler, 2010). However, this concept is often separated by authors and referred to as assessment AS learning (Earl and Katz, 2006). This is a skill that students require support with (Evans, 2013). With summative assessment, the educator is most responsible as they become the decision-maker. However, with formative assessment, particularly assessment AS learning, the student becomes

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most responsible as they become the key decision-maker, taking responsibility for their own learning.

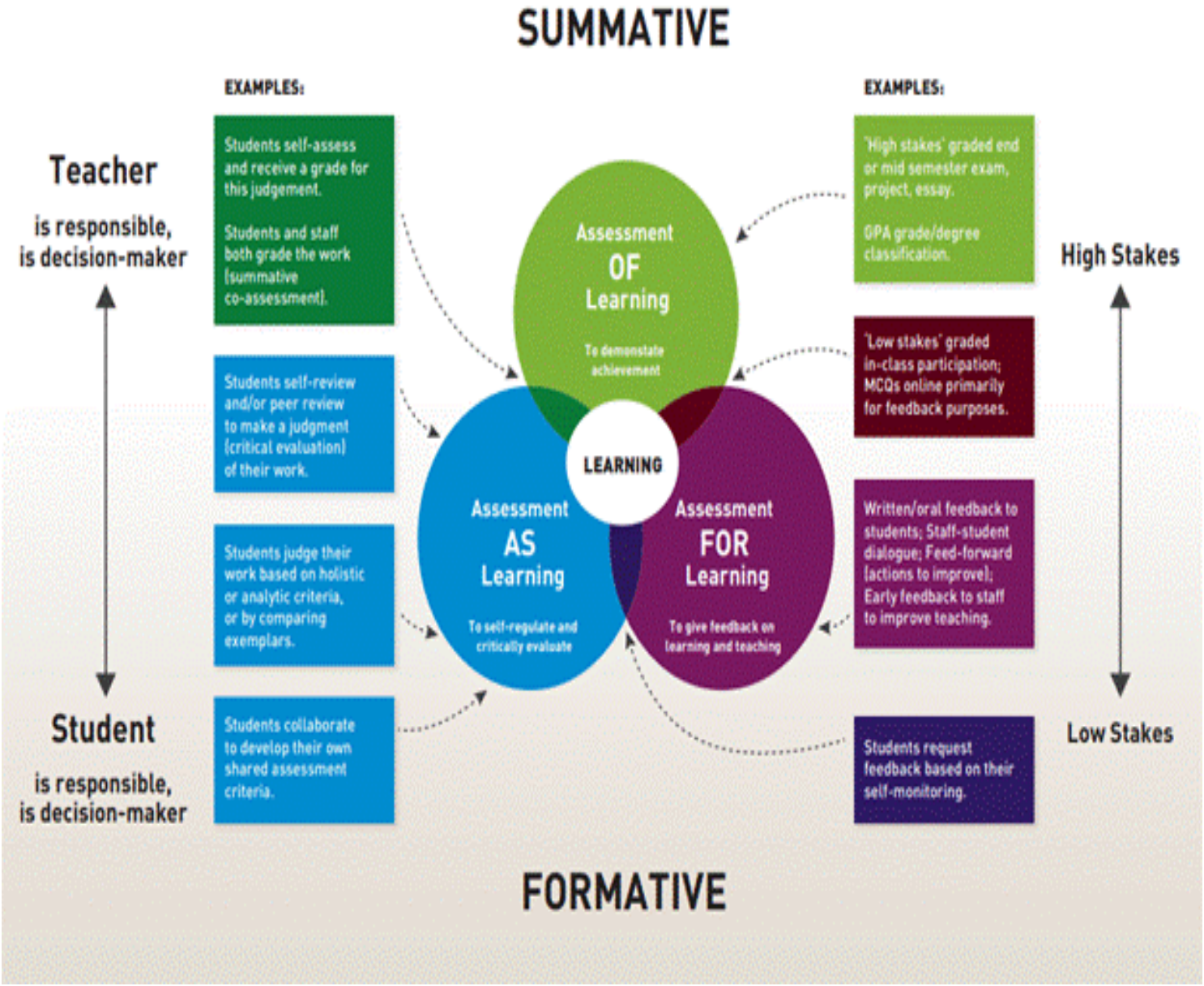

Figure 1: Assessment and feedback terminology and examples (National Forum, 2017)

Assessment OF, FOR, and AS learning are mutually exclusive. The primary purpose of assessment OF learning is the demonstrations of the achievement of student learning. This type of assessment is often a key driver for student learning. Examples of this type of assessment include end of

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semester assessments, essays, projects, etc. The primary purpose of assessment FOR learning is the provision of feedback to both students and educators on the teaching and learning process.

Typically, assessment FOR learning is not graded and is designed to help students in understanding their strengths and challenges in order to plan for future learning (and teaching). Examples include written or oral feedback which can be between learner to educator, educator to learner, learner to learner, etc. Finally, the primary purpose of assessment AS learning is to empower learners to self-regulate their own learning and to also critically evaluate their own learning and performance. Similar to assessment FOR learning, assessment AS learning is typically ungraded, occurs during the learning process, and aims to give learners confidence in their own judgments and assessments of their learning, giving them complete responsibility for their learning. Examples include learners self- and peer- reviewing work against set criteria (e,g Rubric), or exemplars to judge their own work, or through collaboration in developing their own assessment criteria. As mentioned previously, these three types of assessment are mutually exclusive, therefore there is an overlap between them. However, each of these three types of assessment have a shared overlap as they all aim to support and facilitate student learning. Understanding the different types of assessment and feedback, i.e. assessment OF, AS, and FOR learning, allows for more effective and efficient design of learning experiences.

1.9 Underlying Principles of Assessment and Feedback

Key principles that underpin assessment should be taken into consideration in designing assessments. Assessment principles support and guide both programme and module assessment practices. Often, some assessment principles are more relevant at different levels in a programme and require judgement with regard to their balance.

Three sets of principles were considered in the design of assessment and feedback for the PERSONA hybrid-AI system. The three sets of principles considered were those by Bloxham and Boyd (2008), National Forum (2019), and Boud and Associates (2010).

Bloxham and Boyd (2008) outline 7 key principles of assessment:

1. Validity: assessment activities assess the learning outcomes
2. Reliability: assessment activities should generate comparable marks across time

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3. Effectiveness: assessment activities should be designed to encourage good quality deep approaches to student learning
4. Equity: learners benefit from equal opportunities to effectively demonstrate their learning
5. Practicability: assessment activities are practical for both students and educators with regard to time required for completion and grading
6. Transparency: all information, guidance, rules, and regulations on assessment should be clear, accurate, consistent, and accessible to all learners, educators, tutors, external examiners, etc.
7. Attribution: assessment activities should create evidence that work has been produced by the candidate.

Often, validity and reliability are the two most common assessment principles. However, given the context for this PERSONA hybrid-AI system, validity, practicability, and transparency were the key principles the project partners focused on in designing the assessment activities.

In addition to the assessment being valid, practicable, and transparent, the project also took into consideration the following key assessment principles as per the National Forum (2019):

- Both assessment and feedback should be clear and easily understood by educators (and learners)
- Learners should experience a diverse range of assessment methods
- Assessment and feedback approaches should encourage a partnership between educators and learners
- Assessment and feedback should empower learners to self-regulate their own learning
- Assessment and feedback should be manageable for both educators and learners
- Decisions on both assessment and feedback should be guided by a programme-level approach

Finally, Boud and Associates (2010) key assessment principles with regard to ensuring the assessment activities developed are effective were also taken into consideration:

- Assessment is used to engage learners in a productive way
- Feedback is actively used to support and improve student learning

- Assessment FOR learning is positioned at the centre of the programme and module design
- Assessment provides inclusive and trustworthy representation of student achievement

In summary, the PERSONA Hybrid-AI system incorporates both formative and summative assessment and feedback approaches, including assessment OF, FOR, and AS learning in line with each of the key principles as discussed herein.

1.10 Alignment of Assessment with Outcomes and Teaching and Learning Activities

The assessment activities should align with the learning outcomes for a module. The key purpose of an assessment activity should also be considered. For example, is the purpose of the assessment to demonstrate learning achievements at points in time or is it to empower learners to self-regulate their learning? This will guide and inform the assessment activity. Consideration should also be given to motivating learners to engage with the assessment. The assessment needs to be authentic i.e. learners see the assessment to be of value to their current and future life (National Forum, 2017).

Ideally, learners should experience a range of assessment activities across a programme. The assessment activities should be inclusive and play to the strengths of diverse learners within a group. Universal Design for Learning supports the design of assessment activities which are inclusive. Ensuring that assessment is manageable for both educators and learners is an important consideration.

1.11 Key Assessment Types

Below is an overview of some key assessment types. Prior to choosing the key assessment types, it is important to give consideration to the assessment purpose, the underlying principles of assessment and feedback, and alignment of assessment with outcomes and teaching and assessment activities should be inclusive and play to the strengths of diverse learners within a group. Universal Design for Learning supports the design of assessment activities which are inclusive. Ensuring that assessment is manageable for both educators and learners is an important consideration.

1.12 Teaching and Learning activities

Assessment Type	Advantages	Disadvantages
Assignment (including essay)	• Authentic • Deeper investigating of topic • More choice in approach for learner • Familiar to learners • Less stressful than exams	• Time consuming • Term assignment can have different meaning in different contexts/disciplines
Exam (in-person)	• Familiar assessment • Useful re academic integrity • Allows different question types	• Source of anxiety for learners • Relies heavily on memory skills • Poor at assessing critical analysis • Requires good handwriting • Not authentic
Exam (online)	• Offers flexibility • Use of digital tools learners familiar with • More accessible to all students	• Challenge to ensure no internet use or learning materials/resources to assist • Requires learners to have access in remote/off campus environments

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Group Work Assignment	• Opportunity for peer-to-peer learning • Learners develop teamwork skills • Promotes collaboration and communication • Enhances problem solving skills, cultural awareness • Authentic	• Conflict between learners can occur • Risk of unequal contribution • Time consuming
Individual Project	• Student-centred • Supports creativity • Authentic	• Careful design and scaffolding required • Time consuming
Participation in Learning Activities	• Encourages students to be prepared • Interactive peer-to-peer learning opportunities • Builds student confidence • In-class feedback • Learner self-monitoring opportunities	• Challenge to daily and reliably assess participation • Doesn't suit all students (shy/anxious students) • Dominant voices in discussion
Quizzes/Short Exercises	• Engage and motivate learners • Support formative, contextualised, instant feedback • Suitable for larger cohorts • Time saving	• Creating quizzes takes time • Difficult to ensure academic integrity • Rely on access to technology and internet • Challenging for students who struggle with synthesis

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Reflective Assignment	• Personally meaningful • Learners develop ability to reflect • Encourages deep learning	• Often unfamiliar to students, require support and guidance • Challenging to assess and mark • Issues with trust may arise
Report	• Develop ability to gather and synthesis data/information • Develop ability to adhere to briefs • Develop writing/presentation skills • Opportunity to explore areas of interest • Reduced opportunities for plagiarism	• Learners may struggle to understand brief • Time consuming • Additional support and guidance may be required
Student Negotiated or Choice of Assessment	• Allow learners to play to their strengths • Supports concept of UDL • Supports student empowerment • Helps with workload planning	• Learners not accustomed to this approach, need guidance • Requires effort and thought • Staff often unfamiliar with this approach

In line with UDL (Universal Design for Learning) practices, it is important for students learning to ensure they experience a range of assessment types. Variety is important for shaping, engaging, and challenging learners' experiences. Preparing and doing assessments are significant learning

experiences for students. Authentic assessments give learners the opportunity to demonstrate their knowledge and skills in professional ways e.g. group projects, presentations, etc. Variety in assessment activities also supports learners in demonstrating their knowledge and skills through multiple means of representations which ensure the assessment process is inclusive.

The PERSONA Hybrid-AI system developed incorporates a range of assessment types including participative learning activities, quizzes, short exercises, reflective activities, and so on.

1.13 Feedback

Feedback has a role to play in informing learners about how well they are doing in a module or programme. Feedback is most beneficial when the learner has time to action the feedback and make meaningful change/improvements. Feedback is typically known as educators giving feedback to students. However, there is a positive shift towards advocating for improving dialogue between learners and educators offering students the opportunity to provide feedback to staff and also to peers. Providing effective feedback is really important. The individual giving/offering feedback should ensure the feedback is timely, actionable, ongoing, tangible and transparent, and goal referenced (Wiggins, 2012). Overall, the feedback should be user-friendly. Technology provides opportunities for feedback in different forms such as rubrics, audio feedback, video feedback, written feedback, etc. Learners should be encouraged to build on previous feedback received in the programme as this promotes and encourages learner development of the skills to self-regulate and peer review throughout the programme. This supports students graduating with the life-long learning skill of self-monitoring and peer review.

The PERSONA Hybrid-AI system developed incorporates both formative and summative feedback approaches, including assessment OF, AS, and FOR learning. Feedback is provided to learners throughout the teaching and learning process. This supports learners in self-regulating their own learning and identifying strengths and challenges in the learning process.

1.14 Academic Integrity in Assessment

An open dialogue and supportive approach to academic integrity is important and it fosters a sense of shared responsibility and values. It helps in building a common sense of understanding between both educators and students.

Ensuring learners act in a manner that has academic integrity requires assessment design that gives consideration to some general overarching principles. O'Riordan *et al.* (2021) highlights some academic integrity principles that should be considered in assessment design:

- Standards: set high academic standards for the programme and its modules and provide detailed direction and guidelines for learners with regard to academic integrity.
- Assessment Design: use clear marking criteria/rubric and ensure the assessment is designed to motivate learners to do the work themselves. The assessment should be authentic, current, and relevant.
- Student Ownership: including elements which allow students to prepare personalised assessments or co-design elements of assessments e.g. rubrics

In the PERSONA Hybrid-AI system, it was not possible to incorporate all of these elements given the context of the distance learning programme. However, consideration was given to ensuring high academic standards for the modules and the programme overall and designing assessments which are authentic, current, and relevant. Ensuring student ownership was much more challenging given the design of the programme itself in terms of delivery in particular.

1.15 Evaluation Criteria

Evaluation is defined as a "systematic assessment of the design, implementation and outcomes of an intervention" (HM Treasury, 2020, p5). According to the OECD (2002, p21-22), a key aspect of evaluation is the "process of determining the worth or significance of an activity, policy, or programme". Two types of evaluation; process evaluation and programme theory evaluation are considered in this project. Process evaluation aims to assess how a programme was implemented by looking at the administrative processes, systems and governance structures. Programme

theory evaluations aim to explore the programme outcomes/impacts and how or why these outcomes/impacts occurred.

The OECD (2025) defined six evaluation criteria:

1. Relevance (is the intervention doing the right things?)
2. Coherence (how well does the intervention fit?)
3. Effectiveness (is the intervention achieving its objectives?)
4. Efficiency (how well are the resources being used?)
5. Impact (what difference does the intervention make?)
6. Sustainability (will the benefits last?)

These criteria provide a framework for determining the value of a developed intervention, such as a programme. They should be applied in a way that supports high quality, useful evaluation. The criteria provide a lens through which a programme can be analysed and understood. They help in the provision of a holistic picture of the programme, its implementation, and its results (OECD, 2025).

Evaluation is the sixth stage in the module design process which supports confirmation of both module design and teaching while also suggesting areas for further development. It is important learners are given the opportunity to provide anonymous, critical, and constructive feedback on a module. In particular, focus is given to the module's relevance, effectiveness, and efficiency. Evaluation supports the educator in making changes and enhancements to the module design in an effort to continuously improve the student experience. Online evaluations are often more convenient for learners while also speeding up real-time analysis of feedback. Module (and programme) evaluation helps to significantly improve the teaching and learning process.

Within this project, module and programme evaluation surveys have been developed to provide opportunities for constructive feedback from learners in an effort to improve the overall module content, design, and its delivery. The Programme Evaluation Survey and Module Evaluation Survey templates are illustrated below. It is important to note the purpose of these two surveys is to communicate the evaluations given by students during the development, testing and/or piloting phase of the project. The surveys will remain active until the end of the project but will not be available thereafter.

1.16 Programme Evaluation Survey

Thank you for completing the online learning programme in agricultural innovation process management. Given that you have now successfully completed all six modules, we would like to invite you to give some feedback on the programme overall. The feedback you give is confidential and will be used to communicate yours and other students' evaluations to improve the programme developed. This feedback will be useful for future participants and finalising the programme design and is only available during the testing/piloting phase of this project.

Please take the time to complete each of the questions below.

1. **Higher Order Learning**

Please rate the following:

	Very Much	Quite A Bit	Some	Very Little
Applying facts, theories, or methods to practical problems or new situations				
Evaluating a point of view, decision, or information source				
Forming an understanding or new idea from various pieces of information				

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2. **Reflective and Integrative Learning**

Please rate the following:

	Very Often	Often	Sometimes	Never
Combined ideas from different modules				
Connected your learning to problems or issues in society				
Examined the strengths or weaknesses of your own views on a topic or issue				
Tried to better understand someone else's views by imagining how an issue looks from their perspective				
Learned something that changed the way you understand an issue or concept				
Connected ideas from your modules to your prior experiences and knowledge				

3. **Learning Strategies**

Please rate the following:

	Very Often	Often	Sometimes	Never

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Identified key information from recommended reading materials				
Reviewed lecture material and resources outside the module in my own time				
Summarised what you learned from the course materials				

4. **Effective Teaching Practices**

Please rate the following:

	Very Much	Quite A Bit	Some	Very Little
Course goals, objectives, and requirements were clearly explained				
Modules/Programme was taught in an organised way				
Examples/illustrations were used to explain difficult points				
Feedback was provided throughout the modules/programme				

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5. Learning, Creative and Social Skills

Please rate the following:

	Very Much	Quite A Bit	Some	Very Little
The programme has encouraged me to think critically and analytically				
The programme has helped me work more effectively with others				
The programme has helped me in solving complex real-world problems				
The programme has encouraged me to be more innovative and creative				
The programme has helped me in acquiring job- or work- related knowledge and skills				
The programme has helped me in exploring how to apply my learning in the workplace				

6. **How would you evaluate your entire educational experience on this programme**?

Excellent	Good	Fair	Poor

7. **If you could start over again, would you still complete this programme?**

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Definitely, yes	Probably Yes	Probably No	Definitely, no

8. **What aspects of the programme helped your learning?**

9. **How do you think this programme could be improved overall?**

Thank you for taking the time to provide your feedback on the programme in agricultural innovation process management. We really appreciate it.

1.17 Module Evaluation Survey

You are invited to take the module feedback survey. The feedback you give is confidential. Module Coordinators/Lecturers/Tutors will use your feedback to improve modules and teaching during the testing/piloting phase of the project only.

1. **Please rate the following:**

	Strongly Agree	Agree	Disagree	Strongly Disagree
The learning outcomes for this module were clear				
The assessments were designed to help me achieve the learning outcomes				
Feedback on my learning was helpful				
Overall, I am satisfied with this module				

Please give your opinion in a constructive and professional manner.

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2. **What aspects of this module helped your learning?**

3. **How do you think this module could be improved?**

4. **Please rate the following:**

	Strongly Agree	Agree	Disagree	Strongly Disagree
I always knew the standard of work that was expected of me in this module				
Module materials were clear and well prepared				
The activities in this module helped me learn				
The delivery of content was engaging				
The workload on this module was manageable				
The module was intellectually stimulating				
Learning materials made available in the module enhanced my learning				
Materials provided in this module were relevant and up to date				
The module is well organised				
The module was intellectually stimulating				

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Thank you for taking the time to provide your feedback on the module. We really appreciate it.

1.18 Conclusion

In summary, both programme and module evaluations were developed for this project to provide opportunities for constructive feedback on both the programme design and module delivery. This will support educators in making required changes and enhancements to module design and teaching to ensure continuous improvement to the student learning experience. Both the programme and module evaluation surveys will only be available during the lifetime of the project. They will not be available thereafter.

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Welcome to the PERSONA Education Platform

Purpose

The PERSONA Education Platform is an online learning environment developed to support innovation in agricultural education and training through the use of microcredentials. Designed for farmers, TVET learners, educators, and training providers, the platform offers a structured, flexible, and user-friendly space where users can access learning materials, assessment tools, and implementation guidelines aligned with the latest European competence frameworks.

The online platform consists of five main sections, each serving a distinct purpose:

- **The European Register of Microcredentials for Innovation in Agriculture** provides a searchable digital database of recognised microcredentials related to agricultural innovation across Europe.

- **The Microcredentials Common System for Agricultural TVET Education** outlines the shared framework and standards for designing and delivering microcredential-based training in agriculture.

- **The Microcredentials Programme in Innovation Process Management in Agriculture** offers an interactive, modular training experience, allowing learners to develop key digital, business, and sustainability skills at their own pace.

- **The Manual for the Joint Microcredentials Programme in Agricultural Innovation Management** supports education providers with practical guidance on how to deliver joint or transnational programmes.

- **The Personalised Training Plan Generator**, based on a self-assessment tool, enables learners to receive an individualised learning plan tailored to their current competence levels and development needs.

Each section of the platform is designed to work both independently and as part of a holistic learning system.

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1. Getting Started

1.1 Creating an Account

To begin using the platform:

1. The user should visit the PERSONA Education Platform homepage.
2. Click on 'Register'.
3. Provide a valid email address and create a secure password.
4. Confirm registration by clicking the verification link sent via email.
5. After confirmation, log in using your credentials.

It is recommended that users create a strong password and store it securely.

1.2 Logging In

If you already have an account, follow these steps to log in:

1. Go to the **PERSONA Education Platform** homepage.
2. Click on the **"Login"** button on the homepage.
3. Enter your registered **email address** and **password**.
4. Click **"Login"** to access your account.

*In case you forget your password, click on **"Forgot Password"** and follow the instructions to reset it via your email.*

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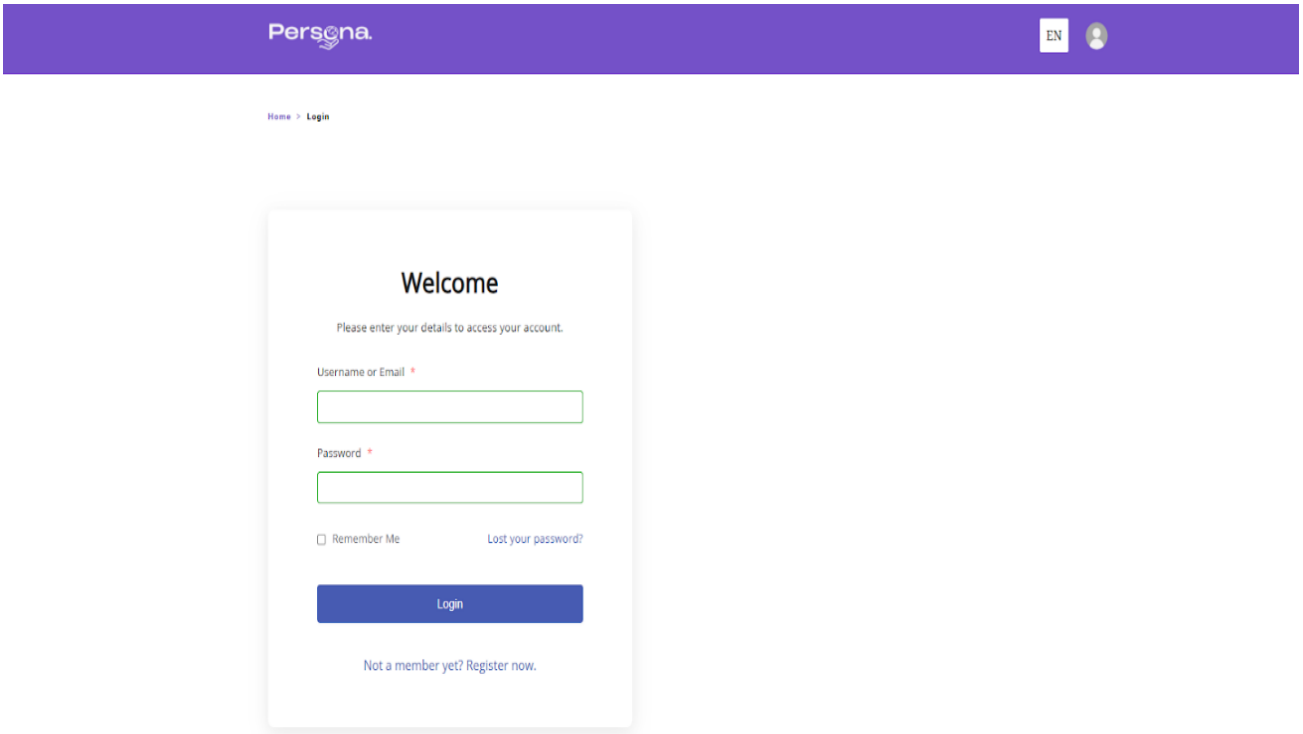

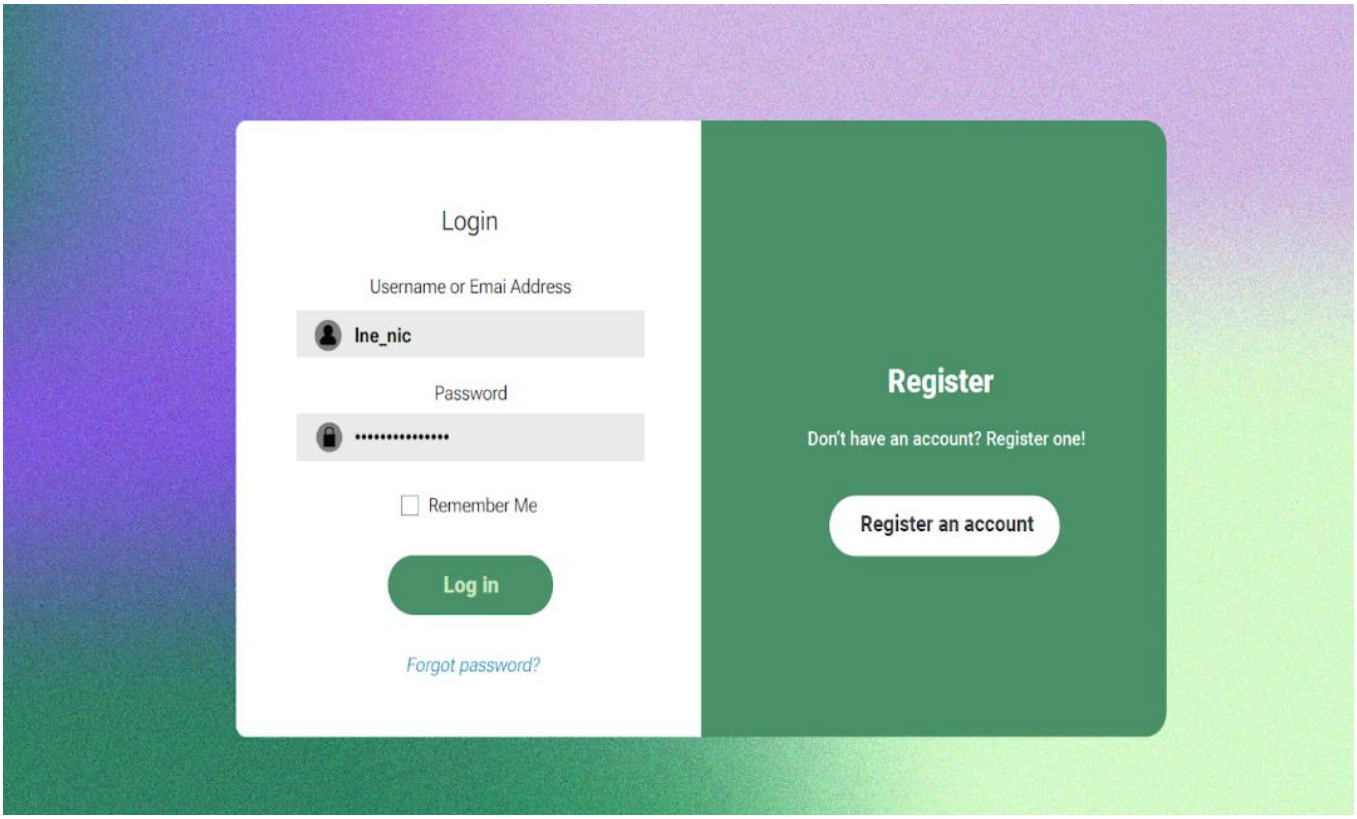

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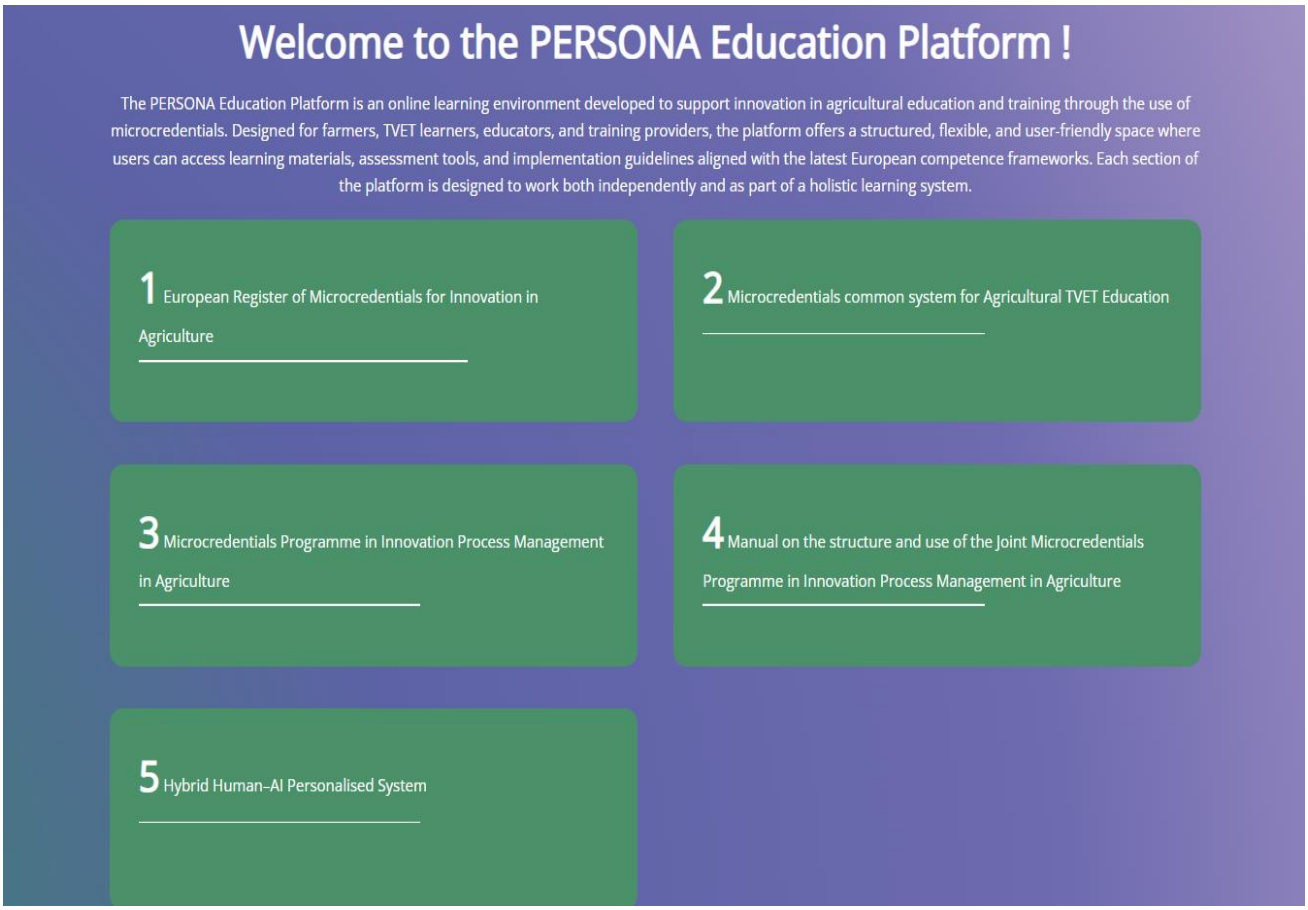
2. Navigating the Dashboard

Once logged in, users are directed to the **main dashboard** — the central hub from which all five platform sections can be accessed. Each section can be explored independently or as part of a complete learning pathway.



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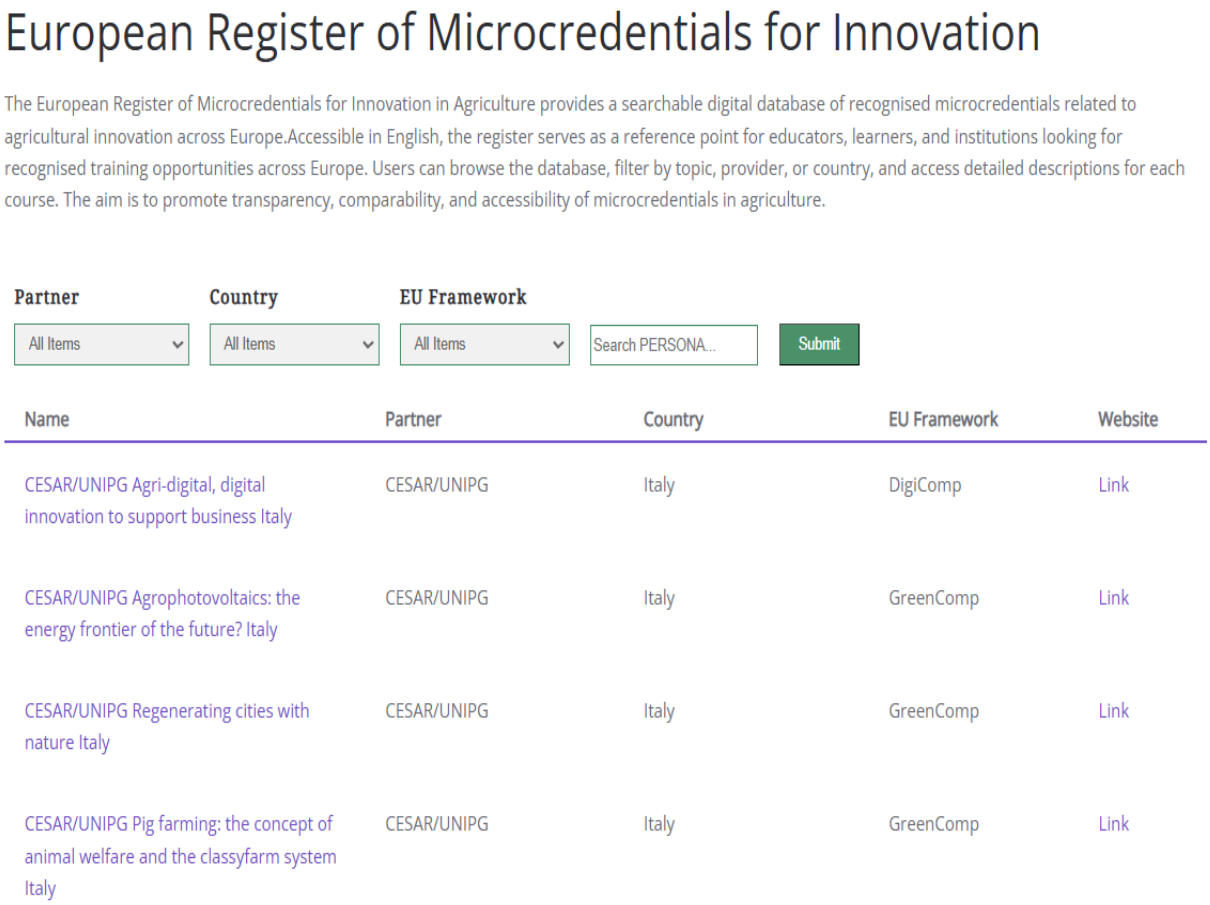
3. Exploring the Platform's Key Sections

3.1 European Register of Microcredentials for Innovation in Agriculture

This section provides a **searchable digital database** of recognised microcredentials related to agricultural innovation across Europe.

- Users should select **'Register of Microcredentials'** from the dashboard.
- Use the **search** and **filtering tools** to browse available training opportunities by topic, country, or provider.
- Click on a course to view its description, learning outcomes, and issuing institution.



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3.2 Microcredentials Common System for Agricultural TVET Education

This section outlines a **shared framework** for designing and delivering agricultural microcredential-based training.

- Navigate to the **'Common System'** section.
- Access the framework as a **downloadable PDF** or **interactive flipbook**.
- Review the core components, including:
    - Curriculum design principles.
    - Certification guidelines.
    - Cross-border recognition mechanisms.

This system is designed for institutional managers, curriculum developers, and education authorities adapting TVET courses to emerging agricultural skill needs.

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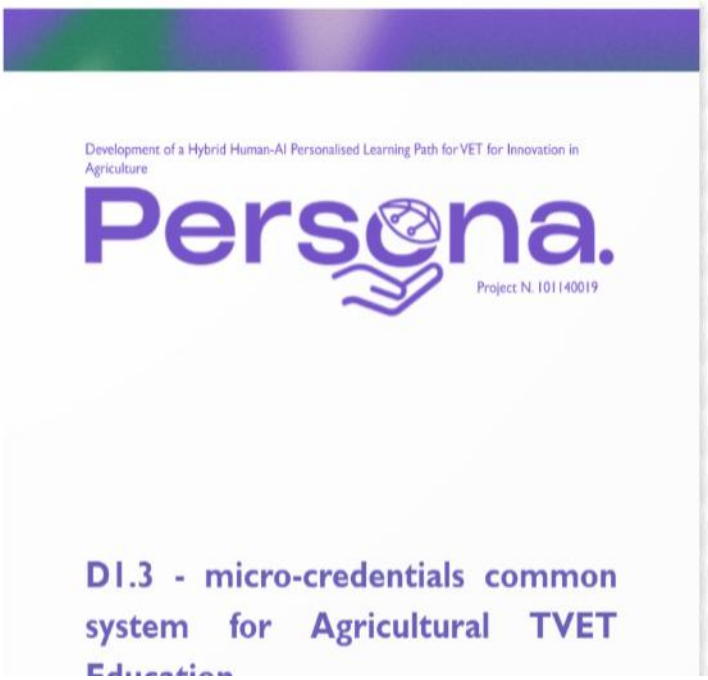
Microcredentials common system for Agricultural TVET Education

The Microcredentials Common System for Agricultural TVET Education outlines the shared framework and standards for designing and delivering microcredential-based training in agriculture. The system incorporates principles for curriculum alignment, digital certification, and recognition across borders. The framework is available in English as a downloadable PDF and an interactive online flipbook, making it suitable for institutional managers, curriculum designers, and education authorities. It is particularly relevant for those developing or adapting TVET courses to address emerging skills needs in agriculture. The document is available via a shared link and is currently being used by the platform's development team.



3.3 Microcredentials Programme in Innovation Process Management in Agriculture

This programme provides a **modular training experience** for both learners and trainers. It is organised into two subsections:

For Trainees:

- Access the **'Trainees'** section to start self-paced learning.
- Work through six interactive modules under three macro-areas:
    - Digital Technology.
    - Business Model Innovation.
    - Sustainable Innovation.
- Each module includes:
    - Overview and learning objectives.
    - Scenario-based activities.
    - Assessment quizzes and exercises.

Learners are encouraged to proceed at their own pace while developing theoretical knowledge and practical competence.

For Trainers:

- Open the **'Trainers'** section to view the same modules in pdf format.
- Downloadable PDFs are also available for offline delivery.
- Trainers are encouraged to adapt the content for:
    - Workshops.
    - Blended learning sessions.
    - Fully online courses.

This section supports educators in delivering structured and flexible training experiences.

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Microcredentials Programme in Innovation Process Management in Agriculture

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Modules

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Module 1: Robotics in Agriculture

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Module Structure

Overview

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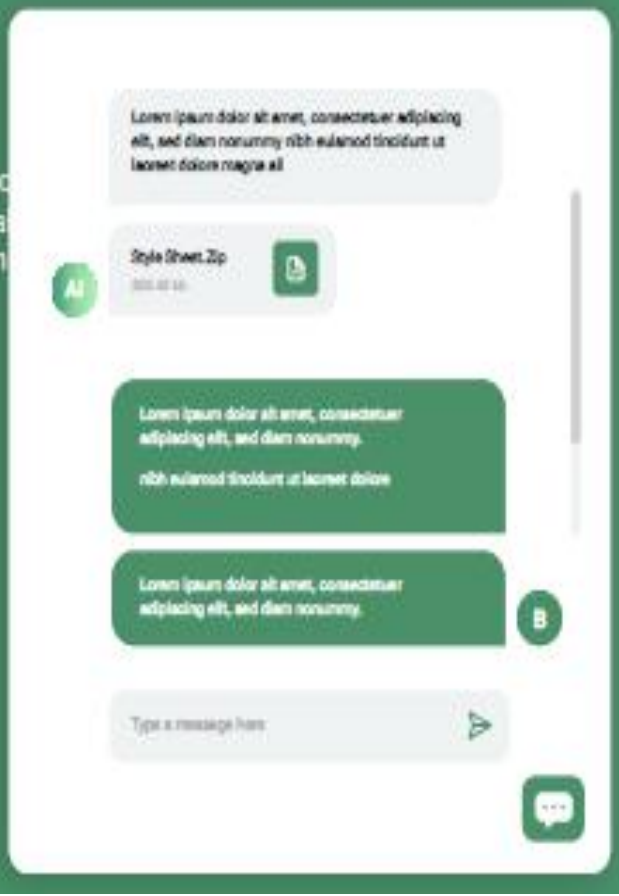
Objectives

Content (scenario + theory)

Assessment (quiz)



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3.4 Manual for the Joint Microcredentials Programme in Agricultural Innovation Management

This section offers practical guidance for institutions implementing joint or transnational microcredential programmes.

- Navigate to the 'Manual' section.
- Read or download the implementation manual.
- Use it for:
    - Designing joint programme curricula.
    - Managing institutional partnerships.
    - Aligning national courses with European frameworks.

This guide is especially useful for cross-border cooperation and curriculum harmonisation in the agriculture sector.

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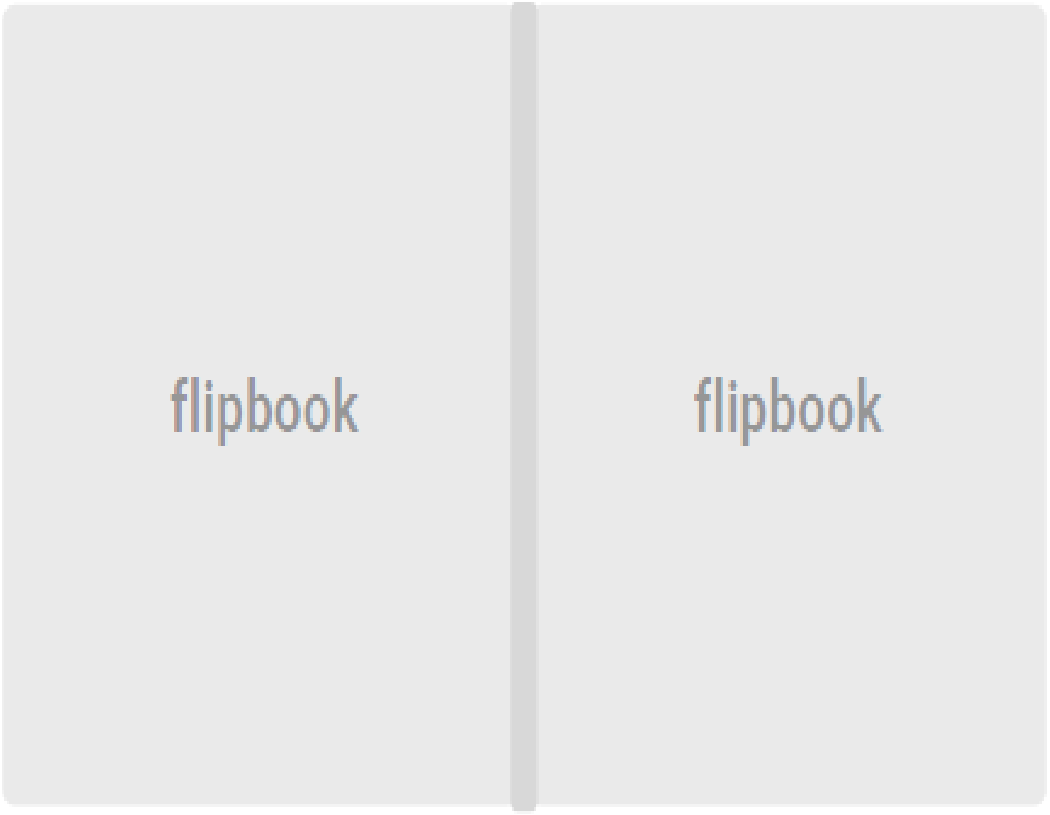
Manual on the structure and use of the Joint Microcredentials Programme in Innovation Process Management in Agriculture



Manual

Download manual pdf

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3.5 Hybrid Human–AI Personalised System

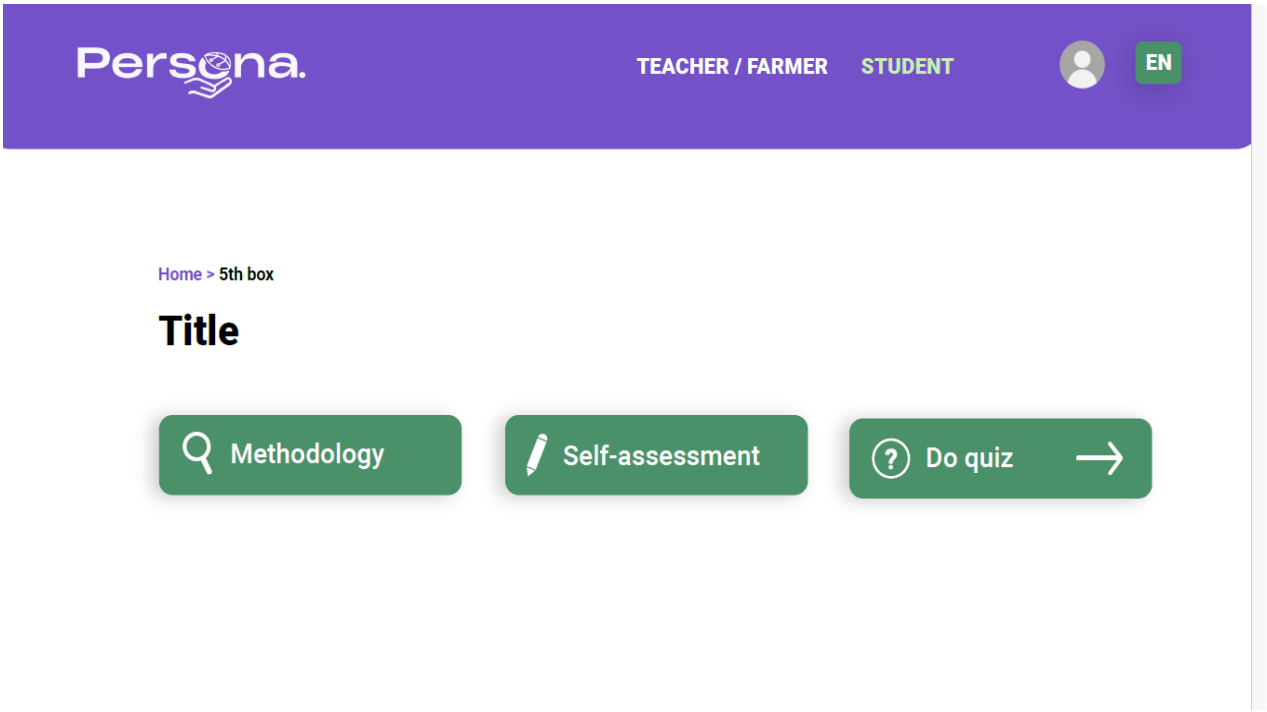
This intelligent system provides personalised learning journey based on the user's self-assessment and platform content.

Components:

- AI Chatbot trained with the platform's content using Natural Language Processing (NLP)
- Structured Self-Assessment Tool aligned with:
    - DigComp (Digital Competence).
    - EntreComp (Entrepreneurial Competence).
    - GreenComp (Sustainability Competence).

Step 1: Complete the Self-Assessment questionnaire

- Go to the 'Self-Assessment questionnaire' section.
- Begin the assessment (approx. 15–20 minutes).
- Reflect on your competence levels across the three frameworks.



Methodology

This section outlines the process of identifying and mapping relevant sub-competences from three key European competence frameworks—DigComp 2.2, EntreComp, and GreenComp—to the six core modules of an agricultural training programme. The overarching objective was to develop a structured self-assessment questionnaire to measure learners' transversal competences in digital skills, entrepreneurship, and sustainability within agricultural contexts.

Framework Selection

The selection of frameworks was based on their strategic alignment with EU education and training priorities, as well as their relevance to the skills needed in the agricultural sector:

- DigComp 2.2 (Digital Competence Framework for Citizens): Provides a comprehensive model for assessing digital skills across various domains, including problem-solving, communication, and content creation.
- EntreComp (Entrepreneurship Competence Framework): Defines key entrepreneurial behaviours, attitudes, and skills needed for innovation, resilience, and value creation.
- GreenComp (European Sustainability Competence Framework): Outlines the competences required for sustainability learning and transformative action in response to environmental and societal challenges.

These frameworks were selected due to their policy relevance, structured design, and transferability to vocational education and training (VET) in agriculture.

Sub-competence Selection

Mapping and Questionnaire Development Process

Purpose and Application of the Questionnaire

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Self-assessment

Introduction

Welcome to the Self-Assessment Questionnaire on key competences for sustainable and future-ready work in agriculture and rural development.
Taking this self-assessment helps you understand which competences are most relevant today and where you may need to grow in order to stay aligned with the evolving demands of the labour market, as it reflects current trends and tools in the agricultural sector.

This tool is designed to help you:

- Reflect on your current skills and knowledge
- Identify areas of strength and areas for improvement
- Receive guidance for developing a personal learning pathway

It is based on three official European competence frameworks, adapted for agricultural learners and professionals:

- DigComp 2.2 – Digital Competence Framework for Citizens
- EntreComp – Entrepreneurship Competence Framework
- GreenComp – European Sustainability Competence Framework

A total of **18 sub-competences** have been selected for inclusion, based on their direct relevance to the six programme modules:

1. Agricultural Financial Management
2. Agricultural Software Support Tools
3. Agricultural Sustainability
4. Farm Entrepreneurship
5. Groups in Agricultural Extension
6. Robotics in Agriculture

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DigComp Framework

Evaluating data, information and digital content: I can assess the reliability and usefulness of financial data and digital information when making decisions for farm planning. Example: checking online sources to compare prices of fertilizers or validating yield forecasts from farm software

- ○ No, I cannot do it at all
- ○ Yes, I can do it with help
- ◉ Yes, I can do it on my own
- ○ Yes, I can do it and help others

Identifying needs and technological responses: I can identify specific agricultural problems and select appropriate digital tools or software to solve them. Example: choosing a weather app or irrigation software to address crop water needs

- ○ No, I cannot do it at all
- ○ Yes, I can do it with help
- ◉ Yes, I can do it on my own
- ○ Yes, I can do it and help others

Identifying digital competence gaps: I can reflect on my digital skills and identify what I need to learn to use technology effectively for sustainability. Example: realizing you need training in using Excel or GPS tools for tracking farm data

- ○ No, I cannot do it at all
- ○ Yes, I can do it with help
- ◉ Yes, I can do it on my own
- ○ Yes, I can do it and help others

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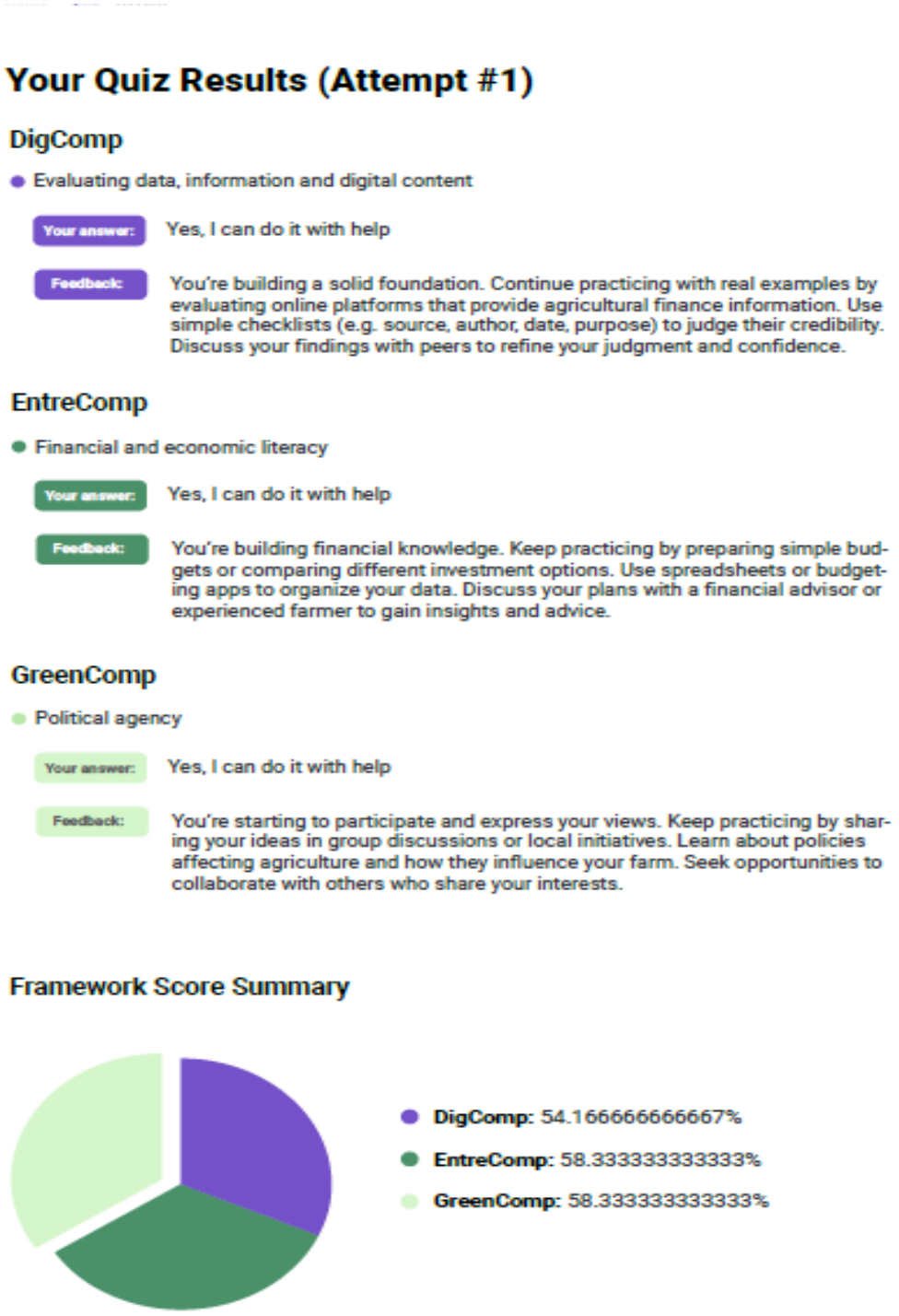
Step 2: Review Results

- Upon completion, users receive a **competency snapshot** and a **weekly personalised learning plan** tailored to their needs.



Your Quiz Results (Attempt #1)

DigComp

- Evaluating data, information and digital content

Your answer: Yes, I can do it with help

Feedback: You're building a solid foundation. Continue practicing with real examples by evaluating online platforms that provide agricultural finance information. Use simple checklists (e.g. source, author, date, purpose) to judge their credibility. Discuss your findings with peers to refine your judgment and confidence.

EntreComp

- Financial and economic literacy

Your answer: Yes, I can do it with help

Feedback: You're building financial knowledge. Keep practicing by preparing simple budgets or comparing different investment options. Use spreadsheets or budgeting apps to organize your data. Discuss your plans with a financial advisor or experienced farmer to gain insights and advice.

GreenComp

- Political agency

Your answer: Yes, I can do it with help

Feedback: You're starting to participate and express your views. Keep practicing by sharing your ideas in group discussions or local initiatives. Learn about policies affecting agriculture and how they influence your farm. Seek opportunities to collaborate with others who share your interests.

Framework Score Summary

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4. Using the AI Chatbot

As you navigate the platform, you are encouraged to use the AI chatbot at any time. It serves as your personal assistant, available throughout your learning journey.

To make the most of it:

- **Ask for clarification** – Use the chatbot to get explanations about modules or other materials on the platform. You can also request summaries, quick answers, and easy access to information.
- **Request resources** – If you would like additional learning materials, the chatbot can suggest articles, videos, or exercises tailored to your needs.
- **Use it for navigation** – Ask the chatbot where to find a module, how to continue a course, or what your next step should be.
- **Access it anytime** – The chatbot is always available, whether you are registering, logging in, exploring lessons, or completing activities.

5. Account and Support Features

- To update personal details or reset a password, users should visit the **'Profile'** section from the top menu.
- If login credentials are forgotten, use the **'Forgot Password'** link on the login page.
- For platform assistance, click the **support chat icon** in the bottom-right corner.

6. Additional Tips and Notes

- The platform is accessible on desktop devices; however, a larger screen is recommended for optimal experience.

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Conclusion and Summary

The above manual on the structure and use of the joint micro credential programme was developed to provide an in-depth overview of what students can expect to see on the PERSONA platform as well as instructions to aid in their navigation of the online hybrid-AI system.

Section 1 of the manual looks at key components of the PERSONA programme including;

- Learning outcomes.
- Tailored learning pathways.
- Levels of credit recognition.
- Course and programme contents.
- Assessment methods and suggested initial learning resources.

Section 2 considers the programme from a technical perspective providing a step-by-step guide on the navigation of the hybrid-AI system. This section aims to ensure that students on the PERSONA programme are clear on how the system works so that they can navigate it with confidence. Should learners encounter any issues they can refer back to the user's manual for further information, instructions and clarification.

Thank you for taking the time to read the PERSONA User's Manual. Understanding the contents of the manual will be useful to learners as they engage with the material and navigate their way through the PERSONA Hybrid AI System. Learners may refer back to this manual for support should they encounter any issues.

For more information about the PERSONA project please visit the project social media accounts by the following QR code below.

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Version and Editing History

Version	Date	Author	Institution	Status
0.1	07/07/2025	Aiden Brady & Sinead Flannery	UCD	Template
0.2	18/08/2025	Aiden Brady	UCD	Draft
1.0	02/09/2025	Aiden Brady	UCD	(Finalized)
1.1	26/09/2025	Vesna Gačnik	BC Naklo	Formatting and quality check
1.2	30/09/2025	Tibor Brvar	BC Naklo	Final overview

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