

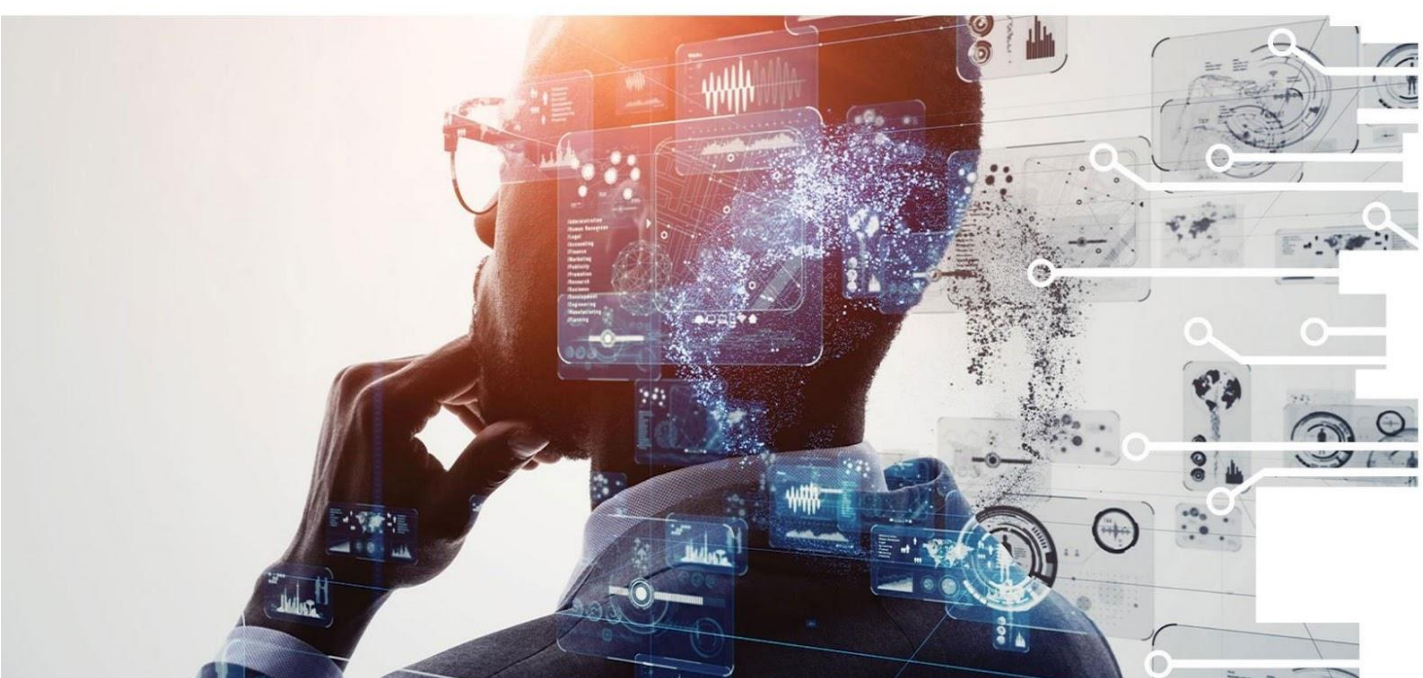


AI4VET4AI

AI-powered Next Generation of VET

AI in Inventory and Logistics

CVET Teacher Training Materials



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Purpose of the document

This document supports CVET teachers, trainers, and instructors in delivering the MOOC effectively in adult learning, professional training, and lifelong learning contexts.

It is designed to:

- Help trainers understand AI-related concepts in a practical, non-technical way
- Support the facilitation of **MOOC-based learning (self-paced and blended)**
- Provide **ready-to-use teaching materials, examples, and activities**
- Enable trainers to connect MOOC content to **real workplace applications**

This document is **not intended to replace institutional teaching or assessment systems**, but rather to **complement and support them flexibly**.

Format:

Self-study friendly, practical, and implementation-oriented.

1. Introduction to the MOOC and Its Relevance for CVET Trainers

1.1 Overview of the MOOC Topic

This MOOC focuses on the practical use of Artificial Intelligence (AI) in inventory management and logistics within the wholesale and retail sectors. It introduces trainers and learners to how AI tools—such as machine learning models, data pipelines, and predictive analytics—can be used to automate processes, optimize stock levels, and improve supply chain efficiency.

The course combines clear explanations with real-world examples, helping learners understand how AI supports tasks such as demand forecasting, logistics planning, and fraud detection in modern business environments.

1.2 Why this Topic Matters in Today's Workforce

AI is rapidly transforming inventory management, logistics, and supply chain operations across industries. Companies increasingly rely on AI-driven systems to automate routine tasks, analyse large volumes of data, and make faster, more accurate decisions.

From predicting demand and managing stock levels to optimizing transport routes and detecting fraud, AI is becoming an essential part of everyday professional practice. As a result, workers need to understand how to use and collaborate with AI systems to remain competitive and adaptable in a digitalised workplace.

1.3 Addressing Uncertainty Around AI

For many trainers and learners, AI may feel new, complex, or even intimidating—especially without a technical background.

This MOOC and its training materials are specifically designed to make AI accessible and practical. Concepts are explained in a clear, step-by-step way, supported by examples, case studies, and hands-on activities. The goal is to build confidence and enable trainers to introduce AI-related topics without requiring advanced programming or technical expertise.

2. Who this MOOC is Designed For

This MOOC is designed for a wide range of adult learners involved in or entering the workforce, including:

- Employees working in logistics, retail, or supply chain roles
- Adult learners seeking to upgrade their digital and professional skills
- Job seekers aiming to improve their employability in AI-enhanced sectors

- Professionals who are changing careers or transitioning into digitalised job roles

2.1 How this MOOC Supports CVET Trainers

This MOOC is designed to make teaching AI-related topics easier, more efficient, and more accessible for trainers. It supports CVET trainers by:

- **Reducing preparation time** through structured modules, clearly defined learning outcomes, and ready-made activities
- **Providing ready-to-use materials**, including case studies, practical exercises, and real-world examples aligned with industry practice
- **Supporting teaching confidence** by presenting AI concepts in a simplified and applied way, allowing trainers without a technical background to deliver content effectively

3. Target Learners and Professional Relevance

This MOOC is designed for a diverse group of adult learners engaged in continuing vocational education and training (CVET). It is particularly suitable for:

- **Upskilling professionals** who want to improve their digital competences and learn how to use AI tools in their current roles
- **Reskilling professionals** who are transitioning into logistics, retail, or supply chain-related jobs
- **Learners with diverse professional backgrounds**, including employees in operations, administration, retail, warehousing, and business functions

The course is flexible and relevant for individuals at different stages of their careers who need practical, job-oriented AI knowledge.

3.1 Typical prior knowledge

No prior knowledge of Artificial Intelligence is required to participate in this MOOC.

However, it is recommended that learners have:

- Basic digital skills (e.g. working with computers and standard software tools)
- General familiarity with workplace processes or business environments

The course is structured to gradually introduce AI concepts in a practical and accessible way.

3.2 Workplace relevance

The competences developed in this MOOC are directly applicable to real workplace contexts, particularly in logistics, retail, and supply chain operations.

Key areas of relevance include:

- **Improving efficiency** by using AI tools to optimize inventory levels, streamline logistics processes, and reduce operational costs
- **Supporting decision-making** through data analysis, demand forecasting, and AI-driven insights
- **Automating routine tasks** such as stock monitoring, order management, and basic logistics planning

These skills enable learners to work more effectively in AI-enhanced environments and contribute to innovation and performance improvements within their organisations.

4. Learning objectives and competence development

After completing the MOOC, learners will be able to:

- **Explain** how AI is applied in inventory management, logistics, and supply chain operations
- **Identify** opportunities to use AI tools in their own professional context
- **Apply** AI-driven methods for demand forecasting, stock optimization, and logistics planning
- **Analyse** data from AI systems to support operational and strategic decision-making
- **Evaluate** different AI tools and solutions for inventory and logistics management
- **Design** basic approaches for integrating AI into existing workflows or systems
- **Assess** the benefits and risks of AI use, including issues such as efficiency, cost, and security

4.1 Competences developed

1. Technical competences

Learners develop practical and technical skills related to AI applications in professional environments, including:

- Using machine learning models for demand forecasting and stock optimization
- Working with data pipelines and integrating multiple data sources
- Applying AI tools for logistics planning, route optimization, and inventory control
- Using AI for anomaly detection and fraud prevention in transactions

2. Professional competences

The MOOC strengthens competences required for effective performance in the workplace:

- Making data-driven decisions using AI insights
- Improving operational efficiency and reducing costs
- Managing and optimizing inventory and supply chain processes
- Supporting or leading the integration of AI tools in organisational workflows
- Understanding business implications of AI adoption

3. Transversal competences

Learners also develop key transferable competences:

- Critical thinking and analytical reasoning when working with AI outputs

- Digital literacy and confidence in using advanced digital tools
- Problem-solving in complex and dynamic supply chain environments
- Communication skills for explaining AI-driven insights to different stakeholders
- Adaptability and continuous learning in rapidly evolving technological contexts

4.2 Contribution to employability and career development

The competences gained in this MOOC directly support learners' employability and career progression.

Learners are better prepared to:

- Take on more advanced responsibilities in logistics, retail, and supply chain roles
- Transition into roles that require digital and AI-related competences
- Contribute to innovation and efficiency improvements in their organisations
- Adapt to changing job requirements driven by digital transformation

These skills are increasingly essential for professionals who want to remain competitive and advance in AI-enhanced workplaces.

4.3 Constructive Alignment

Table 1 Constructive Alignment Table

Learning Objective	Module	Activity	Assessment
Explain how AI is used in inventory and logistics	Module 1	Introductory lecture & discussion	Quiz
Identify AI applications in supply chains	Module 1	Case studies	Discussion / short assignment
Apply AI tools for forecasting and stock optimization	Module 2	Hands-on workshops / simulations	Practical assignment
Analyse AI-generated data for decision-making	Module 2	Data analysis exercises	Project work
Evaluate different AI tools and solutions	Module 2	Comparative analysis task	Written assignment
Design basic AI integration approaches	Module 3	Group project	Project presentation
Assess risks and benefits of AI systems	Module 3	Case study debate	Reflection / report

5. Overview of the MOOC structure and content

The MOOC is structured into **three comprehensive modules** that progressively develop learners' ability to apply, analyse, and evaluate AI-driven solutions in inventory and logistics environments:

- **Module 1:** Introduction to AI Systems in Inventory Management
- **Module 2:** Implementing AI Tools for Inventory Management
- **Module 3:** Enhancing Supply Chain Visibility and Efficiency with AI Systems

5.1 Module 1: Introduction to AI Systems in Inventory Management

This module provides a foundation in Artificial Intelligence and its application in inventory and supply chain operations. It focuses on how AI improves decision-making, forecasting, and operational efficiency in professional contexts.

Units:

Unit 1: Understanding AI and its role in supply chain operations: Introduction to key AI concepts and their impact on logistics and inventory processes.

Unit 2: AI systems for inventory forecasting: Use of predictive analytics and AI models to forecast demand and optimise stock levels.

Unit 3: Practical applications of AI in wholesale and retail trade: Overview of real-world AI applications such as automated replenishment and dynamic pricing.

Estimated duration: ~20–25 hours

5.2 Module 2: Implementing AI Tools for Inventory Management

This module focuses on applying AI tools and methods in professional settings. It develops learners' ability to work with data, machine learning models, and system integration.

Units:

Unit 4: Building and using data pipelines in AI-driven inventory systems: Working with data collection, processing, and integration for AI applications.

Unit 5: Machine learning models for stock optimisation: Application of ML techniques (e.g. classification, regression) for inventory decisions.

Unit 6: Integration of AI tools with proprietary and open-source systems: Practical approaches to integrating AI into existing business systems.

Estimated duration: ~25–30 hours

5.3 Module 3: Enhancing Supply Chain Visibility and Efficiency with AI Systems

This module explores advanced applications of AI in logistics, including optimization, real-time decision-making, and digital security.

Units:

Unit 7: AI-driven supply chain optimisation: Use of AI for route optimisation, real-time tracking, and improving logistics efficiency.

Unit 8: Digital security and transaction analysis in the retail sector: Application of AI in fraud detection, cybersecurity, and data protection.

Unit 9: Case studies in AI-enabled supply chain success: Analysis of real-world examples showing successful AI implementation and business impact.

Estimated duration: ~25–30 hours

5.4 Estimated completion time for the full MOOC

Total learning time: approximately **80–90 hours** (including guided learning and independent work)

5.5 Level of difficulty

- **Overall level:** Intermediate
- **Bloom's taxonomy focus:** Apply – Analyse – Evaluate

The MOOC is designed for adult learners and professionals who already have basic digital skills and some familiarity with workplace processes. It focuses on applying AI tools in real-world contexts, analysing data-driven insights, and evaluating AI solutions for business use.

6. Key AI concepts explained for trainers

This section aims to equip CVET trainers with a clear and confident understanding of the key Artificial Intelligence (AI) concepts presented in the MOOC **AI-Driven Inventory and Logistics Automation**. Given the diversity of trainer backgrounds in lifelong learning contexts, the explanations focus on practical understanding rather than technical depth.

Artificial Intelligence refers to the ability of computer systems to perform tasks that typically require human intelligence, such as recognising patterns, making predictions, and supporting decision-making. In the context of inventory and logistics, AI enables organizations to analyse large datasets and optimise operations in real time.

One of the central concepts is **machine learning**. Machine learning can be defined as a method through which systems learn from data and improve their performance without explicit programming. In simple terms, it works like learning from experience: the more data the system processes, the better it becomes at identifying patterns. In practice, machine learning is widely used for demand forecasting in retail, helping businesses anticipate customer needs and adjust inventory levels accordingly. For trainers, this concept is essential to explain how AI supports more informed decision-making in supply chain environments.

Another key concept is **predictive analytics**, which uses historical data to forecast future outcomes. This can be understood as an advanced form of trend analysis, where past patterns are used to anticipate future demand. For example, retailers use predictive analytics to prepare for seasonal sales peaks. Its relevance lies in improving efficiency and reducing waste in inventory systems.

Data pipelines are also fundamental. A data pipeline refers to the process of collecting, processing, and transforming data so that it can be used by AI systems. Trainers may think of this as a workflow where raw data is converted into actionable insights. In logistics, data pipelines connect sources such as sales systems, warehouse management systems, and supplier databases.

Another important concept is **automation**, which involves using technology to perform tasks with minimal human intervention. In logistics, automation can include warehouse robots or automated inventory tracking systems. While automation increases efficiency, it also changes the nature of human work, requiring new skills and roles.

Finally, **anomaly detection** is used to identify unusual patterns in data, such as fraudulent transactions or unexpected inventory changes. This supports operational security and reliability in retail and logistics systems.

To support further learning, trainers are encouraged to explore accessible external resources, such as introductory videos, tutorials, and articles from platforms like IBM AI Learning Hub, Google Cloud training resources, and European Commission digital skills initiatives. These materials provide additional explanations tailored for non-technical audiences.

7. AI tools and practical implementation

This section supports trainers in understanding how AI tools can be practically applied within training and professional contexts. The focus is on accessibility, usability, and relevance to workplace scenarios rather than technical complexity.

A variety of AI tools are available to support inventory management, logistics, and decision-making processes. Trainers may introduce these tools to learners as examples of how AI is applied in real work environments.

Examples include:

- **ChatGPT (text-based AI assistant)** Used for generating inventory reports, drafting customer communications, creating standard operating procedures (SOPs), or explaining supply chain concepts.
- **Image generation tools (e.g., DALL·E)** Used for creating visual training materials, warehouse layouts, product mock-ups, or instructional infographics.
- **Data analytics tools (e.g., Power BI, Tableau)** Used to visualise inventory data, monitor key performance indicators (KPIs), identify trends, and support operational decision-making.
- **Low-code AI platforms (e.g., Orange, RapidMiner)** Allow learners to experiment with machine learning models for demand forecasting and inventory optimisation without requiring programming skills.
- **Demand forecasting platforms (e.g., Blue Yonder Luminate Planning, SAP Integrated Business Planning)** Used by retailers and manufacturers to predict customer demand, optimise stock levels, and improve supply chain planning through AI-driven forecasting models.
- **Warehouse management and robotics platforms (e.g., AutoStore, GreyOrange)** Used to automate warehouse storage, order picking, inventory tracking, and fulfilment processes through AI-enabled robotics and intelligent warehouse management systems.

Most tools are accessible through:

- Free versions with basic functionality (where available)
- Educational (EDU) licences provided by institutions
- Trial versions offered by software vendors
- Simple online registration processes

Trainers should guide learners on how to access these tools safely and responsibly. They can also integrate tools into learning activities, for example:

- Using ChatGPT to generate inventory management reports or customer service responses.
- Using Power BI to visualise stock levels, inventory turnover, and sales trends.
- Using Orange or RapidMiner to build a simple demand forecasting model from historical sales data.
- Demonstrating how AI forecasting platforms such as SAP Integrated Business Planning or Blue Yonder support inventory planning through videos, case studies, or vendor demonstrations.
- Exploring videos or virtual demonstrations of AI-enabled warehouse automation systems, such as AutoStore or GreyOrange, to illustrate real-world logistics applications.

These activities help learners connect AI concepts with authentic workplace applications.

However, it is important for trainers to address the limitations of AI tools:

- **Bias:** AI systems may reflect biases present in training data.
- **Incorrect outputs:** AI-generated results may be inaccurate, incomplete, or misleading.
- **Data privacy risks:** Sensitive business and customer data must be handled securely and in accordance with relevant regulations.
- **Integration challenges:** Implementing AI solutions often requires compatibility with existing enterprise systems and reliable data quality.
- **Over-reliance on automation:** Human oversight remains essential for validating recommendations, managing exceptions, and making strategic decisions.

By discussing these risks, trainers help learners develop a critical and responsible approach to AI use while understanding both the opportunities and the practical limitations of AI-driven inventory and logistics automation.

8. Guidance for facilitating learning in CVET contexts

This section provides guidance for trainers delivering the MOOC in lifelong learning and professional development settings, where learners often have diverse backgrounds, experiences, and learning goals.

- One common approach is **self-paced learning**, where learners complete the MOOC independently. In this model, trainers may act as facilitators, providing optional support sessions or answering questions when needed. This approach is particularly suitable for adult learners balancing training with work responsibilities.
- Another approach is **trainer-guided learning**, where trainers actively support learners throughout the process. This may include explaining complex concepts, facilitating discussions, and providing feedback on assignments. This approach is especially useful for learners with limited prior exposure to AI.
- A **blended learning approach** combines independent study with structured sessions such as workshops or seminars. For example, learners may complete MOOC units at home and participate in classroom discussions to explore practical applications. This model often leads to higher engagement and better learning outcomes.
- In **workshop-based delivery**, trainers can use MOOC content as a foundation for short, intensive training sessions. These workshops may focus on specific topics such as demand forecasting or inventory optimization and include practical exercises and group discussions.

To facilitate effective learning, trainers should adopt strategies that encourage engagement and inclusivity. This includes fostering open discussions, encouraging learners to share workplace experiences, and connecting theoretical concepts to real professional contexts. Supporting learners with lower confidence in digital skills is particularly important, and can be achieved through clear explanations, step-by-step guidance, and peer support.

Encouraging **peer learning** is especially valuable in CVET contexts, as learners often bring diverse professional experiences. Group discussions and collaborative tasks allow participants to learn from each other and apply AI concepts to different workplace scenarios.

9. AI use cases for professional and workplace contexts

This section presents practical applications of AI in real workplace environments, helping trainers connect theoretical concepts to professional practice.

9.1 Use Case 1: AI-Based Demand Forecasting in Retail

In modern retail environments, AI-driven demand forecasting systems are used to analyse historical sales data, seasonal trends, and external factors such as promotions or economic conditions. These systems enable companies to anticipate future demand with greater accuracy, reducing both stock shortages and overstocking. For professionals working in inventory management, this translates into more efficient planning, reduced waste, and improved customer satisfaction. Trainers can use this example to demonstrate how data-driven decision-making replaces intuition-based approaches. At the same time, it is important to highlight that human expertise remains essential for interpreting unexpected market changes and validating AI-generated predictions, particularly in dynamic retail environments.

Description:

A retail company uses AI to predict customer demand and optimise stock levels.

Trainer Guidance

- Present a simplified dataset or scenario from retail operations
- Ask learners to identify demand patterns
- Facilitate discussion on how AI improves forecasting accuracy

Discussion Questions

- How does AI improve efficiency in this scenario?
- What risks might arise from relying on AI predictions?
- How could this approach be applied in your workplace?

Implementation in the classroom

- **Practical setup:**
 - Use a simple, familiar dataset (e.g. monthly sales of 8–10 products) drawn from a generic retail scenario or, where possible, anonymised workplace data from participants. Ask learners to work in small groups to identify trends, seasonality, and anomalies before introducing how an AI tool or dashboard would support this process. This helps bridge existing knowledge with the AI application.
- **Facilitated application:**
 - Guide learners through a short exercise where they compare a manual forecast (based on judgement) with an AI-generated forecast (provided as a prepared output or visual). The emphasis should be on interpretation—what the forecast suggests, where it may be limited, and what additional information a practitioner would consider before making decisions.
- **Link to professional practice:**

- Encourage participants to relate the exercise to their own roles—stock planning, purchasing, or sales coordination. A short reflection or discussion can focus on how improved forecasting would impact service levels, waste reduction, or workload in their organisation.

9.2 Use Case 2: AI-Supported Warehouse Automation

Warehouse automation is one of the most visible applications of AI in logistics and supply chain operations. AI-powered systems, including robotics and intelligent sorting technologies, are used to automate tasks such as picking, packing, and inventory tracking. This significantly increases operational speed and reduces human error, allowing companies to process orders more efficiently. In professional contexts, this transformation requires workers to shift from manual tasks to supervisory and technical roles, such as monitoring system performance and managing exceptions. Trainers can use this use case to encourage discussion about the evolving nature of work, the benefits of increased efficiency, and the challenges associated with implementation costs, system reliability, and workforce adaptation.

Description:

A logistics company uses AI and robotics to manage warehouse operations.

Trainer Guidance

- Show a visual example of warehouse automation
- Ask learners to identify which tasks are automated
- Encourage reflection on changing job roles
- **Discussion Questions**
- What are the benefits of automation for efficiency and productivity?
- What risks are associated with automation?
- What role do human workers continue to play?

Implementation in the classroom

- **Visual and task-based introduction:**
 - Begin with a short video clip or schematic of a warehouse using automated picking or sorting systems. Ask learners to map out the workflow (receiving, storage, picking, dispatch) and identify which activities are automated versus human-led. This provides a structured entry point for mixed-experience groups.
- **Role-based activity:**
 - Assign learners different roles (e.g. warehouse operative, supervisor, operations manager) and present a scenario where an automated system is introduced. Each group considers how their role changes, what new skills are required, and where human intervention is still needed. This works well in CVET settings where learners bring varied occupational perspectives.
- **Reflection on implementation challenges:**

- Facilitate a short discussion on practical constraints such as cost, training requirements, and system reliability. Learners can compare high-level concepts with the realities of their own workplaces, reinforcing that adoption is gradual and context-dependent rather than purely technical.

9.3 Use Case 3: AI for Fraud Detection in Retail Transactions

AI systems are increasingly used in retail and e-commerce to detect fraudulent transactions and anomalies in purchasing behaviour. By analysing large volumes of transaction data in real time, these systems can identify unusual patterns that may indicate fraud, such as abnormal purchasing frequency or inconsistencies in payment behaviour. This enhances operational security and reduces financial losses for businesses. In workplace settings, professionals are responsible for reviewing flagged transactions, ensuring that decisions are fair and accurate, and maintaining customer trust. Trainers can use this example to highlight both the efficiency gains and the ethical considerations of AI use, including the risks of false positives and the importance of data privacy and responsible data handling.

Description:

Retailers use AI systems to detect unusual transaction patterns and prevent fraud.

Trainer Guidance

- Provide examples of normal vs suspicious transactions
- Ask learners to analyse patterns
- Discuss how AI supports decision-making

Discussion Questions

- How does AI improve operational security?
- What are the risks of false positives or data misuse?
- How can human judgement complement AI systems?

Implementation in the classroom

- **Scenario-based analysis:**
 - Provide a small set of example transactions (normal and suspicious) in a simple table format. Ask learners to identify patterns that might indicate fraud before introducing how an AI system flags similar anomalies. This keeps the focus on reasoning rather than technical detail.
- **Decision-making exercise:**
 - Present learners with AI “alerts” (pre-prepared) and ask them to decide what action to take—approve, block, or escalate. The discussion should centre on balancing efficiency with customer experience, particularly in cases where the system may be overly cautious.
- **Ethical and workplace considerations:**

- Facilitate a short guided discussion on data privacy, false positives, and accountability. In CVET contexts, it is useful to connect this to organisational policies and customer trust, encouraging learners to think beyond the system and consider wider operational implications.

10. Practical training activities and workshop exercises

The following activities are designed to support trainers in facilitating applied, workplace-relevant learning experiences for adult participants. The focus is on practical application, reflection, and decision-making in real professional contexts. Activities encourage learners to connect AI concepts to their own roles, share experiences, and explore how AI can improve operational performance.

Activity 1: Diagnosing Inventory Challenges in Your Organisation

Objective

To enable participants to identify inefficiencies or challenges in their current inventory or logistics processes.

Description

Participants reflect on their own work environment and identify areas where processes could be improved, particularly in relation to stock management, forecasting, or operational coordination.

Instructions for trainers

Ask participants to briefly outline a current challenge in their organisation (e.g. stockouts, excess inventory, delays). Facilitate small group discussions where participants:

- describe the issue
- explore possible root causes
- compare approaches across different organisations

Encourage participants to consider where data or AI tools could support improved decision-making.

Duration

30–45 minutes

Expected learning outcomes

Participants will be able to:

- identify operational inefficiencies in their own context
- connect workplace challenges to AI-supported solutions
- learn from peer experiences across sectors

Activity 2: Interpreting AI Outputs in Decision-Making

Objective

To develop confidence in interpreting AI-generated outputs and applying them in practice.

Description

Participants review simplified examples of AI-generated outputs (e.g. demand forecasts, alerts, dashboards) and consider how they would use this information to make decisions.

Instructions for trainers

Provide sample outputs (charts, reports, or dashboards).

Ask participants to:

- interpret what the data is indicating
- decide what action they would take
- explain their reasoning

Introduce variation by presenting outputs that are not entirely clear or include conflicting signals.

Facilitate discussion on the importance of judgement alongside automated recommendations.

Duration

45–60 minutes

Expected learning outcomes

Participants will be able to:

- interpret data-driven insights
- apply AI outputs in decision-making contexts
- recognise limitations and potential misinterpretations

Activity 3: AI vs Human Judgement – Practical Scenarios

Objective

To explore the balance between AI recommendations and professional experience.

Description

Participants are presented with realistic scenarios where AI recommendations may conflict with human expectations or contextual knowledge.

Instructions for trainers

Provide a short scenario (e.g. system recommends reducing stock, but demand is expected to increase due to external factors).

Ask participants to:

- decide whether to follow or override the recommendation
- justify their decision
- discuss implications

Encourage participants to compare how decisions might differ across roles or industries.

Duration

45 minutes

Expected learning outcomes

Participants will be able to:

- evaluate the strengths and limitations of AI recommendations
- apply professional judgement in data-driven environments

- understand the importance of human oversight

Activity 4: Identifying AI Opportunities in the Workplace

Objective

To help participants recognise potential applications of AI within their own professional context.

Description

Participants analyse their organisation or a familiar business process and identify where AI tools could improve efficiency or decision-making.

Instructions for trainers

Ask participants to map a simple process from their workplace (e.g. order processing, stock control, logistics coordination).

Then ask them to:

- identify bottlenecks or repetitive tasks
- suggest where AI could be applied
- outline expected benefits and potential risks

Facilitate sharing of ideas across the group.

Duration

45–60 minutes

Expected learning outcomes

Participants will be able to:

- identify realistic AI use opportunities
- link AI tools to operational processes
- evaluate benefits and risks in a professional context

Activity 5: Designing an AI-Enabled Improvement Plan

Objective

To support participants in developing a simple, practical approach to integrating AI into their work environment.

Description

Participants develop a basic improvement plan that outlines how an AI-supported solution could be introduced to address a specific operational challenge.

Instructions for trainers

Ask participants to select one challenge identified earlier in the session.

Guide them through developing a short plan including:

- the problem to be addressed
- the proposed AI-supported solution
- required data or tools

- expected outcomes
- potential risks or constraints

Encourage participants to present their ideas and receive feedback from peers.

Duration

60 minutes

Expected learning outcomes

Participants will be able to:

- design a realistic, AI-supported solution
- connect theory to workplace implementation
- assess feasibility and impact of AI adoption

11. Assessment and competence validation

Assessment in CVET contexts plays a crucial role in ensuring that learners are able to apply knowledge effectively in real professional environments. Unlike traditional academic settings, the focus is not on theoretical examination but on demonstrating practical competence, critical thinking, and the ability to transfer learning into workplace situations.

A variety of assessment approaches can be used to support this objective.

1. Practical assignments are particularly effective, as they allow learners to engage directly with realistic scenarios, such as analysing inventory challenges or proposing AI-based improvements.
2. Case study analysis further strengthens this approach by encouraging learners to evaluate real or simulated business situations, identify problems, and suggest solutions based on AI concepts introduced in the MOOC.
3. Group discussions and collaborative tasks are also valuable, especially in lifelong learning contexts where participants bring diverse professional experiences. These activities foster peer learning and help learners explore multiple perspectives on AI implementation.
4. Presentations represent another important assessment method, enabling learners to communicate their ideas clearly and demonstrate their understanding of AI applications. By presenting solutions to inventory or logistics challenges, learners develop both technical awareness and professional communication skills. Reflection activities can also be incorporated, allowing learners to critically assess their own learning process and consider how AI may impact their specific professional context.

When evaluating learner performance, trainers should focus on key criteria such as the clarity of understanding of AI concepts, the relevance of proposed solutions to real workplace challenges, and the ability to think critically about both the benefits and limitations of AI. Communication skills and the practical applicability of ideas should also be considered, as these are essential competencies in professional environments. Examples of assessment tasks can be found below:

- Analyse a workplace inventory problem and propose an AI-based solution
- Compare traditional and AI-driven forecasting approaches
- Design a simple workflow for AI-supported inventory management
- Evaluate risks and benefits of AI implementation in a specific sector

As well as the some evaluation criteria that should be considered:

- Understanding of AI concepts
- Ability to apply knowledge to professional contexts
- Clarity and coherence of explanations
- Critical thinking and awareness of risks
- Practical relevance of proposed solutions

Providing constructive and actionable feedback is essential in CVET settings. Feedback should guide learners towards improvement, highlight strengths, and suggest concrete ways to enhance their work. It should also

encourage learners to reflect on how AI tools can be applied responsibly and effectively in their own professional contexts. Rubrics are always a useful tool for assessing objectively, an example can be found below:

Table 2 Rubrics table

Criteria	Excellent	Good	Satisfactory	Needs Improvement
Understanding of AI concepts	Clear and accurate	Mostly accurate	Basic understanding	Limited understanding
Application to workplace	Highly relevant	Relevant	Some relevance	Weak relevance
Problem-solving	Insightful and structured	Clear but limited	Basic approach	Poorly defined
Communication	Clear and professional	Mostly clear	Some issues	Unclear
Critical thinking	Strong evaluation of risks	Some evaluation	Limited reflection	No reflection

It is important to emphasise that assessment within this MOOC is flexible and should be adapted to the institutional or organisational context in which it is delivered. As the MOOC is intended to complement existing training programmes, assessment activities are not mandatory but serve as a valuable tool to reinforce learning, support competence development, and bridge the gap between theory and practice.

12. Adapting the MOOC for different CVET settings

Training centres

In training centres, the MOOC can be used as part of structured training programmes focused on upskilling or reskilling. Trainers can:

- Integrate selected modules into **formal training courses in logistics, business, or digital skills**
- Combine MOOC content with **in-person workshops and guided discussions**
- Use case studies and exercises to connect AI concepts with **real industry practices**

This setting allows a balance between guided instruction and independent learning.

Workplace training

In company-based training, the MOOC can be directly linked to real organisational needs. Trainers (or HR departments) can:

- Assign specific modules aligned with **job roles (e.g. inventory management, operations, procurement)**
- Use workplace data and processes as **examples for applying AI concepts**
- Encourage learners to develop **practical solutions to company-specific challenges**

This approach supports immediate application of learning and improves organisational performance.

Online training

The MOOC can be delivered fully online for flexible, self-paced learning. Trainers can:

- Assign modules as **independent learning tasks**
- Facilitate **online discussions, forums, or virtual meetings** to support learners
- Use quizzes and assignments to monitor progress

This format is particularly suitable for adult learners who need to balance learning with work and other responsibilities.

Blended learning

Blended learning combines the strengths of online and face-to-face approaches. Trainers can:

- Use the MOOC for **self-paced theoretical learning**
- Organise **in-person or virtual workshops** to practice skills and discuss real cases
- Provide mentoring and feedback during practical activities or projects

This model enhances engagement and allows deeper understanding through guided practice.

Practical adaptation examples

- **Example 1: Training centre programme** A logistics training centre uses Module 1 as an introduction to AI, followed by classroom discussions and a group project analysing a supply chain case.
- **Example 2: Workplace training** A retail company assigns Module 2 to employees and asks them to identify opportunities to improve their **inventory management processes using AI tools**.
- **Example 3: Fully online course** Learners complete all modules independently, supported by weekly online meetings where trainers clarify concepts and discuss real-world applications.
- **Example 4: Blended learning course** Learners complete MOOC modules at home and participate in workshops where they **apply AI tools to simulated inventory and logistics scenarios**.

13. Supporting learners with different backgrounds and needs

CVET learners often come from highly diverse backgrounds. Some participants may have extensive experience using digital tools, while others may be encountering Artificial Intelligence concepts for the first time. Trainers should take this into account and adopt an inclusive and flexible approach that ensures all learners can participate equally.

The AI4VET4AI methodology emphasizes the development of critical thinking alongside technical competence. AI should be presented as a practical tool that supports professional decision-making rather than as a complex technological system accessible only to specialists.

Supporting Learners with Low Digital Skills

Lack of confidence is the main characteristic of adult learners with low digital skills concerning online platforms, AI tools, or data-driven applications. Structured support must be provided by the trainers. Some examples that could be considered are demonstrations, guided practice, and clear step-by-step instructions. Complex tasks should be broken down into smaller activities that allow learners to build confidence gradually.

In terms of practical support, the use cases provided or alternative options could be optional introductory sessions, peer support, and in some cases additional time for task completion. Where possible, learners should be given opportunities to practice using AI tools in low-risk environments before applying them to workplace scenarios.

No Prior AI Knowledge

In no case previous experience with AI must be assumed. Trainers should introduce concepts gradually, using familiar examples. Technical terminology should be explained in plain language and linked to practical applications.

By focusing on practical outcomes rather than technical complexity, trainers can reduce anxiety and increase engagement.

Addressing Fear and Uncertainty About AI

Many learners' express concerns about automation. Trainers should create opportunities for open discussion and critical reflection on both the benefits and challenges.

Learners should be encouraged to analyse ethical considerations, risks and biases with AI systems. At the same time, trainers should highlight the importance of human decision-making, reinforcing the idea that AI complements rather than replaces human expertise.

Supporting Different Learning Speeds

Learning speed is also an issue concerning every training program. Trainers may offer optional enrichment activities for advanced learners while providing additional support and guidance to those requiring more time. The additional resources are a good starting point for those that would like to enrich their knowledge.

Supporting Learners with Disabilities

Inclusive practice requires that learning materials be accessible to all participants. Trainers should ensure compatibility with assistive technologies, provide alternative formats for visual materials, use captions for video content, and follow accessibility principles in all learning resources.

Accessibility is not an additional requirement but as an integral part of quality education. An accessible learning environment benefits all learners by improving clarity, usability, and participation.

14. Teaching material and resources

Effective teaching materials enable trainers to deliver AI-related content confidently and consistently while reducing preparation time. The AI4VET4AI methodology recommends the use of practical resources that promote active participation.

Presentation Materials

Presentation slides should introduce key concepts through concise explanations, diagrams, examples, and visual representations. Visual materials should support understanding rather than overwhelm learners with excessive information.

Recommended visual resources include:

1. Process diagrams
2. Workflow charts
3. Supply chain visualisations
4. Infographics explaining AI concepts

Scenario-Based Learning Resources

Scenario-based learning can be really facilitating for the AI4VET4AI methodology. In this way, learners will analyse problems, evaluate solutions, and reflect on AI implementation.

Possible components to include in scenarios are the context, the description benefits and risks. Using these components, the learners consider AI from all perspectives.

Case Studies and Practical Examples

There are a lot of case studies in the program that can be used as an example for implementing AI. Each case study can showcase how to use theory in real world applications.

The methodology document can be a valuable tool for implementing the use cases.

Discussion and Reflection Resources

Finally, critical thinking is an important learning outcome of the MOOC. Reflection questions must be present in all the aspects of the program.

Some examples can be based on the benefits, the risks, the ethical aspect or the human aspect of a situation and the influence of technology in a certain situation.

Using the reflection resources responsible AI use is encouraged.

15. Additional resources for trainers

As Artificial Intelligence is constantly evolving, trainers must always remain informed about technological developments and possible ethical considerations.

The AI4VET4AI methodology encourages trainers to engage in continuous professional development and remain informed about developments in Artificial Intelligence, digital transformation, and responsible AI use. Trainers are encouraged to consult European and national guidance documents on AI, digital skills development, data protection, and ethical AI implementation.

In addition, learning activities and use-case scenarios may be aligned with recognised competence frameworks such as DigComp, LifeComp, EntreComp, or sector-specific competence frameworks where appropriate. Some of them are:

DigComp

The Digital Competence Framework (DigComp) supports the development of digital literacy, information management, communication, problem-solving, and responsible technology use.

LifeComp

LifeComp focuses on personal, social, and learning-to-learn competences. It promotes adaptability, self-regulation, collaboration, and resilience.

EntreComp

The Entrepreneurship Competence Framework (EntreComp) encourages innovation, opportunity recognition, creativity, and initiative-taking.

Recommended Learning Resources

Additional resources can be found in:

DigComp https://joint-research-centre.ec.europa.eu/digcomp_en

LifeComp https://joint-research-centre.ec.europa.eu/lifecomp_en

EntreComp https://joint-research-centre.ec.europa.eu/entrecomp_en

15.1 Optional reading

- Vasiliki, S., & Apostolos, P. (2023). AI Technology in the Field of Logistics. 2023 18th International Workshop on Semantic and Social Media Adaptation & Personalization (SMAP)18th International Workshop on Semantic and Social Media Adaptation & Personalization (SMAP 2023), 1-
<https://doi.org/10.1109/SMAP59435.2023.10255203>.
- Foster, M., & Rhoden, S. (2020) The integration of automation and artificial intelligence into the logistics sector. Worldwide

- Hospitality and Tourism Themes. <https://doi.org/10.1108/whatt-10-2019-0070>.
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Themes. <https://doi.org/10.1108/whatt-10-2019-0070>.

Zdravković, M., Panetto, H., & Weichhart, G. (2021). AI-enabled Enterprise Information

- Systems for Manufacturing. Enterprise Information Systems, 16, 668 - 720. <https://doi.org/10.1080/17517575.2021.1941275>.

16. Self-study guidance for CVET trainers

The MOOC is intended not only for learner development but also as a professional development opportunity. Before facilitating learning activities, trainers are encouraged to complete the MOOC themselves and engage in structured reflection.

A Reflective Approach to Learning AI

The AI4VET4AI methodology encourages educators to examine AI applications from multiple perspectives, considering all the possible dimensions. Trainers should develop a broader understanding of how AI affects professional practice and decision-making.

Recommended Self-Study Process

1: Complete the MOOC as a Learner

Trainers should work through all modules, activities, and assessments to experience the learning journey from a participant perspective.

2: Analyse AI Use Cases

For each AI application presented, trainers should consider the stakeholders that must be involved, the benefits that are expected and the risks that may emerge.

This analysis helps trainers facilitate richer classroom discussions.

3: Experiment with AI Tools

Trainers are encouraged to explore selected AI tools, data visualisation platforms, and low-code AI applications relevant to the MOOC content.

The objective is practical familiarity with how AI systems operate.

4: Reflect on Educational Practice

After delivering training sessions, trainers should evaluate their own practice by considering the following five questions:

1. Which activities generated the highest engagement?
2. Which concepts were most challenging for learners?
3. What misconceptions emerged?
4. How effectively were ethical issues discussed?
5. What adaptations would improve future delivery?

Continuous Professional Development

Finally, a mindset of continuous learning must be adopted for the learner to continually update their knowledge.