INAI4SME

MENTOR HANDBOOK

Exeo Lab

Tips for the trainers

INAI4SME

🌐 **www.inai4sme.eu**

TABLE OF
CONTENTS

INAI4SME

"INAI4SME - Interdisciplinary AI training and real-world applications for SMEs" 2022-1-MT01-KA220-VET-000085060 " - is an Erasmus+ project in the field of Vocational Education and Training, selected under the action type KA220-VET - Cooperation partnerships in vocational education and training.

PARTNERSHIP

INAI4SME project provides targeted, interdisciplinary training on artificial intelligence and real word applications for SMEs.

The project partnership, composed of higly specialized organisations in the domain of business consulting and IT technologies with different backgrounds, goals and know-how intends to develop further services, methodologies and tools to foster the development of the SMEs through artificial intelligence technologies. The partnership is composed as follows:

Co-funded by the European Union

LEAD PARTNER: Maltese Italian Chamber of Commerce – Business Associations (MT);

PARTNER: Innomate Ldt. (TR)

PARTNER: CEPROF - CENTROS ESCOLARES DE ENSINO PROFISSIONAL LDA (PT)

PARTNER: Connectus M.IKE - (GR)

PARTNER: ECOSISTEMAS VIRTUALES Y MODULARES SL - ES)

PARTNER: Exeo Lab Srl – Business Consulting (IT);

RELEVANCE

Artificial intelligence technology is rapidly integrating into the lives of companies, increasing their productivity and profits. Keeping up with the global world and keeping a strong bond with technology is very important for companies.

However, neither the public nor the private sector has set sufficient priorities to resolve the existing shortcoming in AI expertise.

The lack of experts with artificial intelligence skills, including research data and company insights, limits the development of companies and thus harms them. To solve this crisis in the workforce, training models within VET and for SMEs by using digital technologies have to be developed both for artificial intelligence and people in SMEs working.

New learning methods: The interdisciplinarity of the modules, reflective methods, interdisciplinary problem-based (IPBL) and interdisciplinary project-based (IPBL) are new methods for intrepreneurship education within VET and SMEs.

INTRODUCTION TO THE GUIDE

The purpose of this Mentor Handbook is to help trainers, organisations and training providers to deliver training courses, as well as to convey to trainers the evaluation methods they will carry out during the training.

The overall objective of this Mentor Handbook is to support trainers in enabling SMEs to act innovatively and resourcefully, especially when it comes to incorporating artificial intelligence technology.

The Mentor Handbook is designed to raise awareness among SMEs and provide them with the knowledge and tools they need to exploit the benefits and potential of AI technologies. This takes place at a specific stage of vocational training, when learners begin to think about their future employment.

Educators participating in the training will be helped to develop their digital skills to improve the quality of teaching and learning.

This training aims to demonstrate the basics of improving production and sales processes within SMEs. Additionally, it seeks to cultivate innovative ideas as a foundational step toward creating innovative enterprises. It helps, early-stage SME managers to fully leverage the potential of proper artificial intelligence management, adequate training in the latest technologies is necessary

OBJECTIVES

> It provides general knowledge on the use of active learning methods, explaining the concepts, principles and techniques of active learning;

> It describes how to use active learning methods to build understanding and improve skills;

> It provides a repository of active learning resources to be used independently of course content;

> It offers examples of active learning methods applied.

THE INAI4SME PROJECT

Artificial intelligence (AI) is one of the most incredible technologies that will change lives in almost all aspects of modern society. It refers to multiple technologies working together to enable machines to perceive, learn, understand and augment human capabilities.

In the near future, individuals who integrate AI into their work seamlessly, adapt to new technologies without difficulty, closely follow innovations, proficiently utilize popular business software, manage multiple tasks concurrently, and achieve swift results will be highly sought after in the business world.

Depending on different scenarios, the qualification angle is estimated to require 420K AI experts within the EU by 2024.

For Europe to remain competitive internationally, all economic sectors must reap the benefits of digital transformation.

Based on the European Network of Digital Innovation Centers, the Commission aims to help companies improve their processes, products and services using digital technologies.

For this purpose, the INAI4SME project aims to **increase the skills in this field.**

Digital technology and infrastructure play a critical role in the private and business environments. AI is now become one of the basic skills required to achieve this goal.

The overall aim of the project is to **develop a Framework** that provides a mechanism for both professionals and nonprofessionals to identify **digital gaps** and other gaps to help VET institutions and companies improve their ability to use and integrate AI into business life.

The project will develop and test e-mentoring supported digital interdisciplinary **training programs for SMEs** and adapt them to VET, taking into account the advantages of interdisciplinary training and mentoring programs, especially in the field of AI tech.

PROJECT RESULTS

> **AI Framework for SMEs: A Methodological Framework for Implementation which provides a mechanism for SMEs and VET.**

> **AI Training Modules (LMS): A digital Interdisciplinary CS training material for SMEs supported by mentoring and an adapted model for a VET.**

> **MENTOR HANBOOK: how to deliver the training course**

> **Open online course platform (OOC):A digital platform to support the training.**

Co-funded by the European Union

TARGET

INAI4SME project will have a significant impact on project participants, partners, target groups and regional and national stakeholders. It is expected that the project target groups will strengthen their AI skills and competences, be prepared for the concrete use of it and be equipped with a innovative and technological culture.

The target group will be tasked with delivering AI concepts with the goal of using them concretely in the real-world context of SMEs in order to stay ahead of the curve and achieve a competitive advantage.
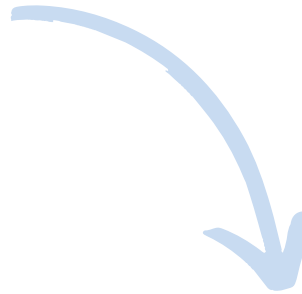
> **Teachers in VET**

> **Educaters in SMEs**

Co-funded by
the European Union

THEORETICAL MODULES

Introduction to AI
- Definition The AI history
- The future of AI
- Different types of AI
- Machine Learning
- Deep learning
- Natural Language Processing
- Computer Vision

Machine Learning
- Supervised Learning Algorithms
- Unsupervised Learning Algorithms
- Reinforcement Learning Algorithms
- Problem Solving Strategies with AI
- Sorting Algorithms
- Searching Algorithms
- Problem Solving Algorithms
- Decision Making Algorithms

Neural Network Concepts
- When should a neural network be used?
- Neural network components
- The Perceptron
- Activation functions
- Loss function
- Gradient
- Backpropagation
- Learning rate
- Batch
- Metrics
- Dropout
- Types of networks

THEORETICAL MODULES

Libraries for Python
- Python standard library
- What is A Library?
- What Are Python Libraries?

Dataset
- Dataset Types
- Features of a Dataset
- Useful Datasets
- Data processing

AI Algorithms
- Supervised Learning Algorithms
- Unsupervised Learning Algorithms
- Reinforcement Learning Algorithms
- Problem Solving Strategies with AI
- 1-Sorting Algorithms
- 2-Learching Algorithms
- 3-Problem Solving Algorithms
- 4-Decision Making Algorithms

Business Use Cases for AI Analytics
Artificial Intelligence Tools for analysis operations

AI Analysis
- What is AI Analytics?
- Business Analytics and AI
- What is Analytics?
- What are AI, Machine Learning and AI Analytics?
- What's the Difference Between AI Analytics and Traditional Analytics

Co-funded by
the European Union

MODULES AND HANDS-ON PARTS

Artificial Neural Networks (ANN):

- Understand the basics of neural networks and their applications.
- Follow step-by-step tutorials on building a simple neural network.
- Implement an ANN using a programming language like Python, and experiment with different architectures.
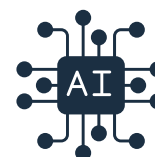
AI into the Carbon Footprint:

- Explore how AI can be applied to reduce carbon footprint and promote sustainability.
- Analyze case studies and real-world examples where AI has been successfully integrated to address environmental concerns.
- Discuss strategies for implementing AI-driven solutions to minimize environmental impact.

Convolutional Neural Network (CNN):

- Learn the fundamentals of CNNs and their use in image processing.
- Work through hands-on exercises to build and train a CNN for image recognition.
- Understand how CNNs can be applied to various domains beyond image processing.

MODULES AND HANDS-ON PARTS

How to Create a Dataset:

- Explore the importance of high-quality datasets in AI.
- Learn data collection techniques, data cleaning, and preprocessing.
- Create a dataset for a specific AI application, considering the requirements and challenges.

KNN (K-Nearest Neighbors):

- Understand the principles of the KNN algorithm for classification and regression.
- Implement KNN in a programming environment, such as Python, and apply it to a real-world dataset.
- Experiment with different values of K and evaluate model performance.
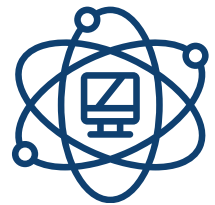
Regression Analysis:

- Learn the basics of regression analysis in the context of AI.
- Implement regression models using relevant tools and frameworks.
- Apply regression analysis to predict outcomes based on input variables.

MODULES AND HANDS-ON PARTS

RNN (Recurrent Neural Network) Model:

- Explore the concept of sequential data and the need for RNNs.
- Build and train an RNN for tasks such as natural language processing or time-series prediction.
- Understand the challenges and advantages of using RNNs in different scenarios.

SVM (Support Vector Machine):

- Understand the principles of SVM for classification and regression.
- Implement SVM using a programming language like Python and apply it to a dataset.
- Explore kernel functions and parameter tuning for optimal performance.

OVERVIEW: HANDS ON MODULES

The hands-on modules are practical approaches of the theoretical modules that are included in the IN4SME's hand book. This interactive method support participants understand the important perceptions of the AI and gain practical insights into their applications.

INTRODUCTION

In this tutorial, we will explore the fascinating world of **Artificial Neural Networks (ANNs)**, which are integral components of deep learning. Our focus will be on building and training an ANN using a synthetic dataset. A synthetic dataset is artificially generated for the purpose of this tutorial and is not derived from real-world observations.

The **synthetic dataset** we will utilize comprises artificially created features and a corresponding target variable. Specifically, we have **1000 samples**, each characterized by **5 synthetic features**. The target variable is derived from a rule stipulating that the sum of the first three features, along with a small amount of random noise, should exceed a certain threshold. The binary target variable, therefore, indicates whether this condition is met.

In the specific hands-on module, participants will begin with essential knowledge, such as exploring the design of neural networks and learning about layers, nodes, and activation functions. The module is also supported by a hands-on section where participants can build and train their own example neural networks. Scenario examples and guided exercises will aid participants in understanding how artificial neural networks (ANNs) can recognize patterns, make predictions, and adapt to new information.

Co-funded by the European Union

OVERVIEW: HANDS ON MODULES

The hands-on module goes beyond theoretical knowledge, providing a comprehensive understanding of the training process, optimization techniques, and the crucial role of data in shaping neural networks. Participants will experiment with different network architectures, fine-tune hyperparameters, and grasp the nuances of model evaluation.

Step-1:

```python
#Let's start by importing the necessary libraries.
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
```

Step-2:

```python
# Create a synthetic dataset
np.random.seed(42)
X = np.random.rand(1000, 5)   # 1000 samples, 5 features
y = (X[:, 0] + X[:, 1] + X[:, 2] + np.random.randn(1000) * 0.1 >
2).astype(int)
```

Here is an example of the content within the hands-on module related to Artificial Neural Networks (ANNs).

OVERVIEW: HANDS ON MODULES

The hands-on module is not only focused on theoretical knowledge; it also offers a comprehensive understanding of the training process, optimization techniques, and the crucial role of data in shaping neural networks. Participants will experiment with various network designs and get into the sense of model evaluation.

```
Output:

7/7 [==============================] - 0s 3ms/step

Accuracy: 0.925
```
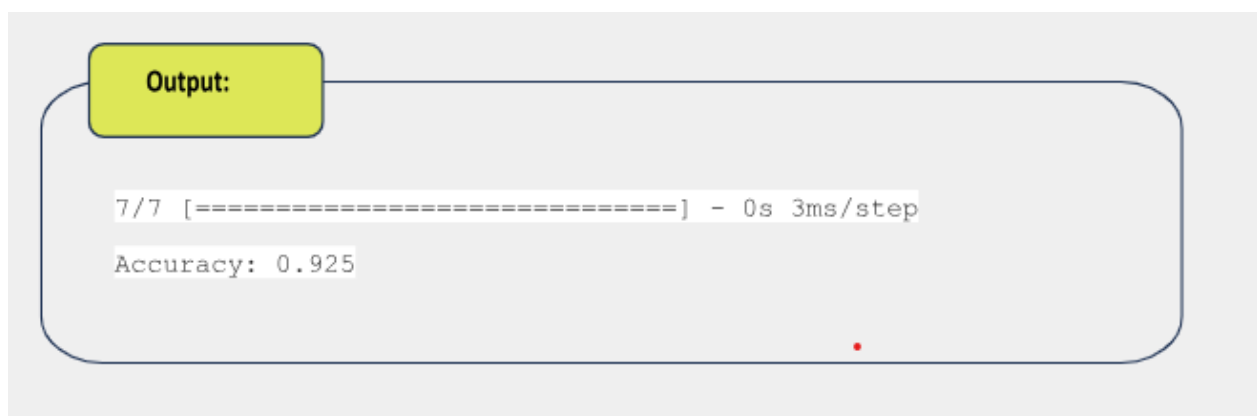
By the end of the module, participants will have a solid understanding of Artificial Neural Networks, enabling them to apply this knowledge to real-world problems. This interactive module provides a useful and interesting introduction to basic AI topics.

THEORETICAL MODULES: VIDEOS

To enhance comprehension of the subjects, all partners have created videos for the theoretical modules. These videos elucidate the concepts of Artificial Intelligence and its various facets through a digital interactive format, seamlessly integrating audiovisual elements.
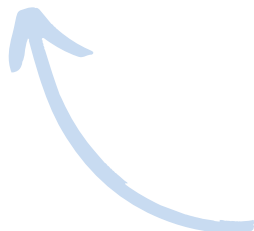
Here you can see a capture from the video for the introductive module to the AI history.
The interaction between the written modules and the videos are really important for the understanding of our target group.

MENTOR HANDBOOK FOR VET PROVIDERS

This Mentor Handbok aims to support VET trainers and educaters in SMEs during the procedure of creating training modules, as an explanation to the educaters about what they are going to approach during the learning process.

The main purpose of the Mentor Handbook is to guide educaters and instructors, enabling them to help SMEs focus on the process of adopting AI technologies in their business processes.

The goal of this handbook is to provide the tools for the introduction of innovative technologies in the digital sector while raising awareness of AI technology among SMEs.

This paper answers the question about "**How to deliver a training course**" and it is designed for the trainers. They will enhance their own digital abilities to elevate the quality of the learning program.

MENTOR HANDBOK FOR VET PROVIDERS

PROVIDES

Information

about active training methods

Explains:

- concepts
- principles
- techniques

DESCRIBES

The use of active training methods:

- Increases loyalty
- Builds understanding
- Improves skills

PROVIDE

Datas

About current learning resources that can be utilized apart from the course material

OFFERS

Examples

Of effective active learning techniques

MENTOR HANDBOOK FOR VET PROVIDERS

The Mentor Handbook for Vocational Education and Training provides trainers with comprehensive **guidelines** for the design, development and training of small and medium-sized enterprises (SMEs) that want to exploit AI technologies in their business.

Digital skills are essential for personal growth in a competitive work environment that continually requires skill development.
Digital skills play a crucial role in the complexity of today's society, of which digitization is the main topic.

The entire manual should be studied and understood by vocational education and training teachers and SME educators.
The main purpose of this handbook is to serve as a resource for SMEs wishing to improve their skills, particularly digital skills, through the use of Artificial Intelligence (AI).

MENTOR HANDBOOK FOR VET PROVIDERS

The handbook describes peer education along with activities that demonstrate its benefits for the trainers. The goal is to support facilitators and educators in creating and implementing high-level active learning initiatives that draw on experiences and best practices.
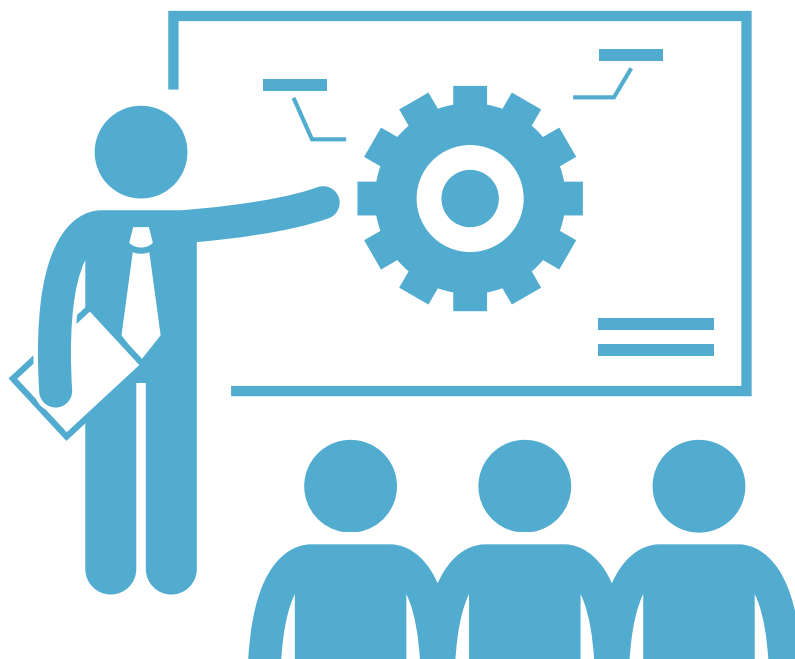
Additionally, the handbook offers a number of active learning exercises that focus on digital skills in the field of AI technologies.

It will be critical to consider the group dynamic according to its requirements and the challenges that need to be addressed.

ACTIVE TRAINING METHODOLOGY

Classic methods of frontal teaching and learning in which a trainer delivers a lesson to a passive, uninvolved audience have now become obsolete. Many studies show that engagement and dialogue between trainers and students brings benefits in terms of lesson comprehension and efficiency. These benefits can be trasferred to the SMEs that aim to implement AI technologies in their business.

But, how to do it? To answer this question, this handbook focuses on the concept of active training/learning, which is the new frontier of learning and teaching.

The concept of "active learning" originated in 1991 and obviously it can be transposed to that of "active training" because the same context of application is being talked about.

Strategies that support active learning are defined as "learning activities that involve learners in doing things and thinking about what they are doing" by Bonwell and Eison in their work "Active Learning: Creating Excitement in the Classroom," in 1991.

ACTIVE TRAINING: METHODOLOGY

Active training strategies put more of an emphasis on helping students improve their abilities than on imparting knowledge and call for action from them. Also, they frequently highlight how much students are learning about their own attitudes and values.

Since this definition is so inclusive, Bonwell and Eison acknowledge that a wide range of activities may be included in it. To encourage active learning, they offer a variety of suggestions for exercises, from the simplest to the most complex (Bonwell and Eison, 1991).

"Active learning implies that students are engaged in their own learning. Active teaching strategies have students do something other than taking notes or following directions... they participate in activities... [to] construct new knowledge and build new scientific skills" (Handelsman et al.,2007)

"Active learning engages students in the process of learning through activities and/or discussion in class, as opposed to passively listening to an expert. It emphasizes higher-order thinking and often involves group work" (Freeman et al., 2014)

ACTIVE TRAINING: METHODOLOGY

- Active Learning refers to a broad range of training methods that the learners (together with the trainers) are actively included to the learning process.

- Practically, Active Leaning is a training method that includes the studes actively in the course material through different methods like problem solving, discussions, role-playing, case study.

supports students to get effectively involved in the learning procedures

Active Learning

develops advanced intellectual abilities – knowledge application, analysis, synthesis

- The difference between active and passive methods is that the active learning focus on the learner as a person (altough, it does not replace the instructor as the main coordinator).

ACTIVE TRAINING: FEATURES

FROM ACTIVE LEARNING

TO

LIFELONG LEARNING

Active Learning
is an interactive method where the
Trainees are part of the learning
process. The aim is to
develop critical thinking
and the ability to learn.

ACTIVE LEARNING

AND SUCCESS

Through active participation,
trainees gain more skills and
understating,
It is a fact that analytical skills are
important for solving problems and
applying the acquired knowledge.

ACTIVE LEARNING AND

INTELECTUAL INTEREST

Interactive relationship with knowledge,
Interest in studying for personal
development, not as a duty.
Additionally, for instructors, it is
motivating to have an active and curious
audience.

Co-funded by
the European Union

ACTIVE TRAINING: FEATURES

Engaging in activities such as **critical thinking, writing, discussions, and problem-solving** provides learners with multiple opportunities to process course content, opening up multiple learning opportunities.
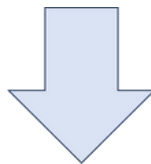
The application of newly acquired knowledge enables students to **store information**, concepts and skills in their memory. This process **connects** new knowledge with already acquired knowledge, organizes their knowledge base and strengthens neural pathways.
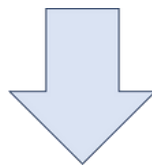
Receiving regular and prompt feedback assists learners in **rectifying misconceptions** and cultivate a deeper understanding of the training material.

Co-funded by
the European Union

ACTIVE TRAINING: FEATURES

Engaging in **activities** fosters personal connections with the content, which boosts learners' enthusiasm for acquiring knowledge.
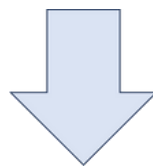
Consistent engagement of both the instructor and learners within the context of collaborative activities and shared objectives fosters a **sense of belonging** within the learning space.
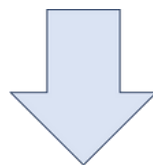
Educators can enhance their understanding of learners' thought processes by **actively observing** and conversing with them while they are engaged in their tasks.

ACTIVE TRAINING: ADAPTATION IN TRAINING COURSE

To enhance Active Training as a method, it is importantto incorporate active learning activities into the training curriculum for the following reasons:

Capture learners' focus and boost their enthusiasm.

Evaluate learners' existing knowledge.

Foster critical thinking, practical application, and enhance learners' comprehension.

Determine whether learners have grasped the content.

Aid learners in revisiting material for an upcoming exam.

Equip learners for a significant assignment.

Investigate how the course content relates to students' professional or daily lives.

ACTIVE LEARNING TECHNIQUES

Active learning techniques are addressed to every trainer who wants to explore new learning methods.
Active Learning aims to engage learners in the learning process. The lesson should be less than half an hour, with a suggested duration of fifteen to twenty minutes to maintain the students' interest in the subject.

Tips to consider when exploring new techniques:

- **Think** about problems or questions that can challenge and fascinate learners

- **Clarify** activities, purpose and the desired actions

- **Assign** enough time for each activity: (for example, depending on the complexity)

- When dealing with long activities, **consider** divide into parts or steps to facilitate a gradual procedure

- **Conclude** the activity by providing an explanation to the learners

- **Encourage** them to share their feedback and comments, and try offer tips for future solutions.

Co-funded by
the European Union

THE TRAINING COURSE ENVIRONMENT

HOW TO PROVIDE A TRAINING COURSE:

- Participation in business training programs has taught participants that interesting content is essential for the training to be effective. People who feel satisfied with their work and possess the inner drive to pursue it are more likely to focus and spend time on it.

- From the trainer's perspective, it is important to find ways to attract participants' interest and encourage active engagement in the training process. In this way, participants will develop an internal motivation to participate in the training.

Co-funded by
the European Union

TRAINING ENVIRONMENT

Although there is no single universally effective method for successful engagement, a good handbook can succeed in engaging learners in formal training programmes by implementing multiple methods.

This manual is designed to educate trainers on how to actively deliver the training by taking into consideration several aspects:

- **Learning culture**: an effective culture that promotes learning significantly improves company effect;
- **Creative content** is an early stage closer to creating multimedia content that effectively delivers important ideas.
- **Opportunities that are easily accessible**: the lessons should be delivered in a manner that is user-friendly for everyone.
- **Ensure** that the program includes a plan for reinforcing the knowledge or skills acquired beyond the training environment.
- **Needs-based approach**: To guarantee that the goals of the organization and the learners are aligned, it is crucial to understand the needs and competencies of the learners.

TRAINING ENVIRONMENT

Step by step, it is important for trainers to attract company employees to actively participate in training

What are the different steps to follow?

- **Needs and skills analysis**: Analyze the participants' needs and skills to identify gaps.
- **Define specific learning objectives.**
- **Clearly articulate the benefit**s of participating in the training process and its impact on participants' daily tasks and responsibilities.
- **Personalize the training** syllabus based on the participants' interests.
- **Utilize multiple technique**s, such as online courses, in-person courses, case studies, and digital learning.
- **Communication is vital for building a strong community**: Forums and social media provide participants with access to offer feedback, comments, and suggestions for improving the training process.

TRAINING ENVIRONMENT

- **Learning management system**: to make simple providing training to every employee
- Make sure students are **actively involved** in the training to avoid boredom.
- Use **challenging questions** to get people to step outside of their comfort zones.
- Offer participants the opportunity to **continue the course** while encouraging them to accept mistakes and setbacks.
- Instead of creating a simple instructional course, **create an engaging learning experience.**
- Narratives in the material can increase student engagement.

Co-funded by
the European Union

TRAINING ENVIRONMENT

OTHER USEFUL TIPS:

When a trainer allows learners to consolidate their learning by giving them three one-minute breaks every lesson, they learn a lot more information.

Two more simple but effective ways to include students in a lesson are to insert brief demonstrations or brief writing exercises that are not graded, followed by a class discussion.

A few alternatives to the front-of-class instruction raise students' levels of participation even further:

- The first is the **feedback lesson,** which consists of two different mini-lessons from a small group studio session built around a studio guide;
- The second is the **guided lesson**, where students listen to a 20–30 minute presentation without taking notes before writing.

Co-funded by
the European Union

TRAINING ENVIRONMENT

TRAINING ENVIROMENT

A crucial part of the training process is the learning enviroment.

Learning Enviroment: refers to physical location, situations and culture elements that the trainees are involved.

Consequently, a positive learning enviroment will have a positive impact to the trainees.

The material of the Training Environment

Anything that has a relation to the training location is referred to as the material environment.

A hybrid or mixed form of training includes both the virtual learning environment and the learner's natural environment.

Ensuring that there are enough classrooms for their training courses, is the responsibility of the course provider.

It's also beneficial for the instructor to ensure that everything is functional and available before the course begins.

Co-funded by
the European Union

TRAINING ENVIRONMENT

In addition to the physical environment, the learning climate has an important effect on the lessons. This includes: mindset, habits and tone in the classroom. A mutually beneficial relationship between the trainer and the trainees will be promoted by a good training environment, which will improve the trainees' motivation and engagement. By setting specific and realistic goals for both the course and its sections, the trainer can create a sense of achievement in the students. specific, realistic goals for each module and the course as a whole. Together, all of these elements constitute the idea of personal well-being.

Martin Seligman's PERMA Model (Flourishing, a new vision of happiness by Martin Seligman) is a useful orienting model for developing a positive training enviroment. Five elements are identified by PERMA:

Positive emotions

Engangement

Positive **R**elationships

Meaning

Accomplishment

TRAINING ENVIRONMENT

Let's see what the main characteristics are for each element of the PERMA model:

Positive emotions

Gratitude exercises, like journaling about the pleasant things that have happened lately and made you feel good, might help you feel happier.

Engagement

Encouraging students to pay attention in the here and now and creating environments that allow for periods of flow—discussions, creative exercises, or challenges—are two ways to increase student engagement.

Positive Relationships

Icebreakers and routine team-building activities can help foster positive relationships among trainees.

TRAINING ENVIRONMENT

Meaning

Making the learner aware of their own ideals and character qualities might help them find meaning in their training. Whenever feasible, the trainer can craft an engaging story that the student is the main character, and the instructor is the mentor.

Accomplishment

A sense of accomplishment is the result of work and achievement and motivation to complete what one has set out to do. This contributes to well-being because individuals can look back on their lives with a sense of pride. (In our case, SMEs will be able to observe the future benefits they will achieve through the implementation of AI technology in their business activities.)

Accomplishment includes the concepts of perseverance and passion to achieve goals.

TRAINING ENVIRONMENT

A training environment consists, as we have seen, of several elements. However, the most important one, concerns the skills of the trainer, which can be soft or hard.

Soft skills:
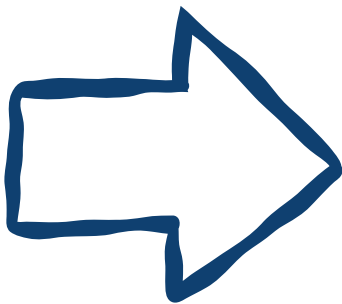
broad category of intra- and interpersonal traits, including self-awareness, self-control, attitude, disposition and personality, which are essential for one's well-being and, by extension, for success in the workplace. There are several categories of soft skills, all of which are important and which the trainer should acquire in order to be able to transfer them to the learners

Hard skills:

knowledge and abilities unique to a particular position that each of us must possess in order to do our duties. These can be developed and enhanced through training and educational programs. Most of the time, these are plainly defined and measurable abilities.
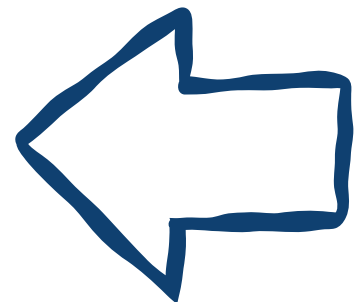
TRAINING ENVIRONMENT

Regarding soft skills, they have reached a high level of importance in the past decade. For this reason, every trainer should be familiar with them, in particular:

Self-awareness

A person who possesses an in-depth awareness of all aspects of his or her personality, including strengths and flaws, motivations and passions, traumas, limitations, dreams and fears, mechanisms and tools, etc., is a person who has a deep understanding of all aspects of his or her personality.

In the business environment, self-awareness is essential because it manifests itself in the work that employees do.

In particular, there is no doubt that an individual's level of confidence and self-esteem affects the caliber of work he or she produces.

Self-reflection is the first essential aspect. It is essential to possess the ability to dig into one's inner self and observe without making judgments. This self-awareness of one's strengths and weaknesses is essential for proactively preparing to meet challenges.

Co-funded by
the European Union

TRAINING ENVIRONMENT

Trust

A sense of security and confidence is called trust. A person who transmits self-confidence is satisfied with his or her own identity, does not perceive himself or herself as superior or inferior to others, and sees himself or herself as an equal.

This type of person talks about himself or herself in kind and optimistic words and inspires others to act.

It is crucial for employees to project confidence in the workplace so that others respect the caliber of their work.

It is critical for entrepreneurs to have confidence in their business concepts and be prepared to make the necessary efforts to carry them out. To help learners feel comfortable, it is critical that trainers are able to convey confidence.

TRAINING ENVIRONMENT

Emotional awareness

The ability to recognize, classify, accept and understand feelings in the present without making judgments about them is known as emotional awareness.

A person with emotional awareness is able to define, describe or communicate emotion and understand what he is feeling and why.

In addition, he is aware of the impact his emotions have on his performance, and there is a clear correlation between thoughts, feelings, and behaviors. The workplace will undoubtedly contain a variety of events with a wide range of individuals, so being able to recognize and understand emotions will be critical to effectively managing and understanding the situation.

Determining and analyzing the reasons for different feelings is essential. In this way, unpleasant emotional reactions can be controlled and avoided.

Emotional control

The ability to effectively deal with, channel, and control emotions in a way that is beneficial to the individual and others around him or her is known as emotional control.

A person with healthy emotional control recognizes the value of every feeling and does not discriminate against any particular emotion.

The ability to control specific emotions is essential in the workplace. For example, sadness, discomfort, or anger. An individual's career can be affected by how he or she responds to these feelings. For this reason, it is essential to understand how to control intense feelings.

Regardless of the strong feelings we may experience, whether happy or unpleasant, it is imperative that trainers maintain a professional attitude and emotionally prepare SMEs individuals for the introduction of new technologies.

TRAINING ENVIRONMENT

Emotional intelligence

The ability to recognize and accept all feelings, to understand how they influence one's thoughts and actions, and to control them is known as emotional intelligence.

In an environment where social interactions abound among colleagues, supervisors, customers, partners, and so on, emotional intelligence is essential to the success of an employee and his or her team.

Being aware of employees' emotions is essential for entrepreneurs because it has a direct impact on the organization's productivity.

Emotional intelligence is the ability to identify, understand, control, and supervise feelings in both personal and professional contexts.

TRAINING ENVIRONMENT

Teamwork

The ability to work well and efficiently in a group, as well as the flexibility and adaptability to set aside disagreements and prioritize group goals, are all necessary elements of teamwork.

Nowadays, working in groups is a requirement for employees in the workplace.

Interact with other people, get feedback, motivate others, be energetic, finish work on time, avoid criticism, lend a hand to others, and ask for assistance when needed.

In this case, when implementing AI technologies in SMEs, there will be those who will understand their use immediately and those who will need more time. For this reason, encourage them to collaborate in teams as if they were trainers themselves, should be a winning path.

TRAINING ENVIRONMENT

Interaction

Interacting with others verbally and nonverbally through gestures, body language is known as communication.

The ability to recognize and use the right resources-words, expressions, intonation and voice modulation-at the right time is the basis of effective communication.

A person must communicate constantly at work, and whether or not communication is appropriate will have an impact, especially if it is a critical or urgent message.

Internal communication (with colleagues) and external communication (with consumers and potential customers) is critical for companies.

For communication to be effective, it must be tailored to both the intended audience and the particular circumstance. In this case, trainers can find the right strategy by first making a preliminary assessment of their audience.

Co-funded by
the European Union

TRAINING ENVIRONMENT

Assertiveness

The appropriate manifestation of desires and emotions in social relationships is defined as assertiveness.

Politely and honestly asking for what one needs or wants in a way that respects others is the definition of assertiveness.

Those who are assertive do not hesitate to stand up for their beliefs, pursue their goals or try to persuade others.

Assertiveness is essential in the workplace, as one must be able to articulate one's demands and opinions in a variety of contexts.

Being assertive ensures that others take the person into account. When it comes to their own business, entrepreneurs must first be able to defend their idea and act assertively.

As a trainer, it is crucial to maintain assertiveness, but also that assertiveness must always include respect for others.

TRAINING ENVIRONMENT

Social skills

When interacting with others, a person can create socially acceptable situations using a set of naturally acquired behaviors known as social skills.

Because they undoubtedly affect work, positively or negatively, communication, assertiveness and teamwork skills are very important in the corporate world.

As a trainer, having strong social skills can also improve the effectiveness of training sessions. However, it is essential to set boundaries and always remember your professional role.

ACTIVE LEARNING DURING A LESSON

INAI4SME

The process of delivering lessons through the methodology of active learning finds its concrete realization in the training environment. From the perspective of trainers, there are also tips designed to achieve maximum understanding and attention, namely:

Think in pairs and share

Ask students to think or write an answer for one minute, then turn to a partner to discuss their answers for two minutes-this process stimulates the newly formed mental connections.

The pause procedure

Take a two-minute break every 12 to 18 minutes, encouraging students to discuss and rework their notes in pairs.
This approach provides an opportunity for questions and clarification and has been shown to significantly increase learning compared to lectures without breaks.

ACTIVE LEARNING DURING A LESSON

Problem Solving

Stop the lesson and ask students to take a minute to write on a sheet of paper the solution to a particular problem.

Collect these sheets when students leave the classroom and use them to assess student learning.

These sheets should not be formally assessed, but it is best to examine them for common misconceptions or ineffective solution strategies.

During the next lesson, offer feedback to the whole class based on the common themes you have noticed.

Reading Summaries

Begin the lesson by asking students to summarize key points from the previous one. After students have presented these points, the trainer should re-explain difficult terms or concepts, answer questions, add details, and provide applications. This summary gives students an opportunity to be involved early in the lesson, to give feedback on students' understanding of the readings, and encourages you to focus on the material students are struggling with.

HOW TO USE THE LEARNING PLATFORM

Website and Learning Platform
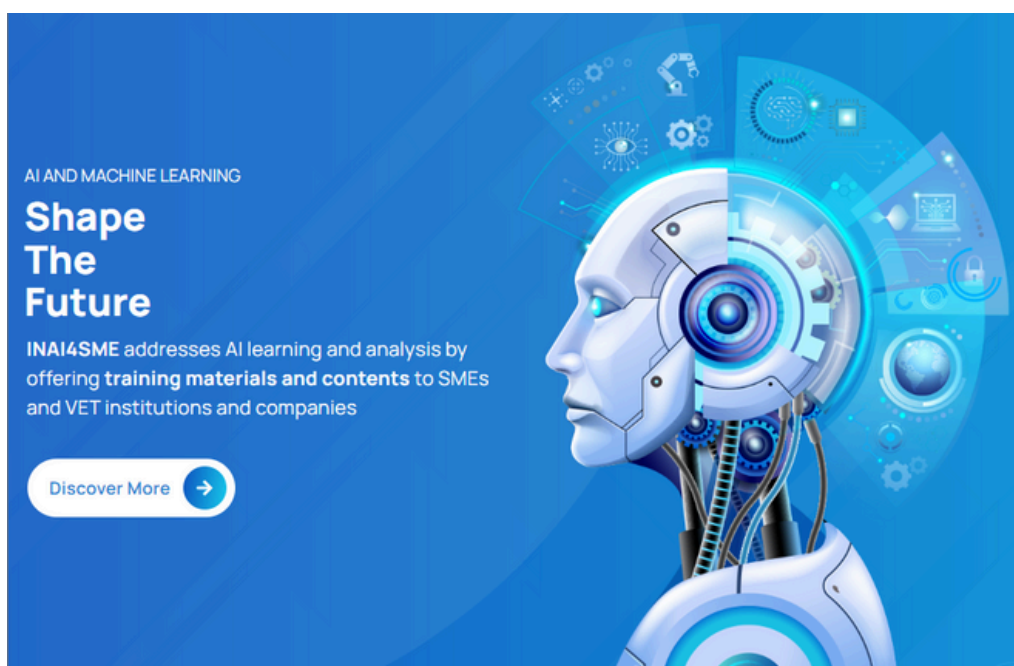
At the project's website, learners can have access to various content, including interdisciplinary training on artificial intelligence and real-world applications for SMEs.

Co-funded by
the European Union

HOW TO USE THE LEARNING PLATFORM

Project's Objective

OUR OBJECTIVES

Making AI training effective and accessible to everyone

INNOVATION IN VET	ADAPTING LABOR MARKET NEEDS	DIGITAL TRANSFORMATION
Learn more	Learn more	Learn more

Questions about AI and new technologies

FAQs

Frequently Asked Questions

What is AI? →	What are the challenges surrounding AI technologies? →
How does AI learn? →	How can we make AI more accessible in the workplace? →
What are the advantages of artificial intelligence? →	Is AI replacing human jobs? →

HANDBOOK'S MODULES

Theoretical Modules

Our theoretical materials for training on AI technologies include 7 modules with in-depth explanations and lessons:

- 📖 Module 1 - Introduction to AI
- 📖 Module 2 - Machine Learning
- 📖 Module 3 - Neural Network Concepts
- 📖 Module 4 - Datasets
- 📖 Module 5 - Libraries for Python
- 📖 Module 6 - Algorithms
- 📖 Module 7 - Analysis

In the theoretical modules, learners have access to seven different theoretical modules, including a fundamental introduction to AI and more specific topics such as Datasets and Algorithms.

Hands-on Modules

Our hands-on materials for training on AI technologies include 12 modules with exercises and activities to facilitate knowledge acquisition:

- 💻 Module 1 - Artificial Neural Networks (ANN)
- 💻 Module 2 - Convolutional Neural Network (CNN)
- 💻 Module 3 - K-nearest Neighbors Algorithm (KNN)
- 💻 Module 4 - Recurrent Neural Networks (RNN)
- 💻 Module 5 - Support Vector Machine (SVM)
- 💻 Module 6 - AI into Accounting
- 💻 Module 7 - AI into Insurance
- 💻 Module 8 - AI into Internet of Things (IoT)
- 💻 Module 9 - AI into Robotics
- 💻 Module 10 - AI into Carbon Footprint
- 💻 Module 11 - AI into Carbon Footprint
- 💻 Module 12 - AI into Green EU

HOW TO ENROLL STUDENTS IN COURSES

In order for students to get access to the courses available on the platform they need first to get access to the Moodle platform - authenticate and afterwards enrol into the courses they wish to take.

For the INAI4SME platform we have enabled 2 types of user authentication and 2 types of enrolment into the course.

User Authentication

Authentication to the Moodle platform

- Manual accounts
- Email-based self-registration

Create an new user manually

1. As manager of the platform you have to go to Administration>Users>Add a new user

2. We recommend for the username to use the name and surname of the student or the email address

HOW TO ENROLL STUDENTS IN COURSES

3. You can choose a new password for the user or you can click Generate password and

notify the user and the user will have to change the password when they first log-in.

4. It is mandatory to fill out the user's name, surname and email address, the rest of the

fields are not mandatory, they can be filled out by the user later on.

5. If you choose to create the password for the user you will have to notify the user of

the new account on the Moodle platform and facilitate the access details.

HOW TO ENROLL STUDENTS IN COURSES

Self-registration on the Moodle platform

1. Email-based self-registration enables a user to create their own account via a 'Create new account' button on the login page.

2. The user then receives an email containing a secure link to a page where they can confirm their account.

3. Future logins just check the username and password against the stored values in the Moodle database.

HOW TO ENROLL STUDENTS IN COURSES

Student Enrollment to courses

There are two options for enrolling students on courses:

- Self-enrollment: This involves for Students to enroll on their own to each course. This is the best enrolment method to use with large classes.

- Manual enrollment: This requires you to search for the student's name in the Moodle user list. It is a useful method for enrolling a small number of students on a course.

When you are enrolling students on your course, regardless of which enrolment method you use, ensure you assign them the student role.

Self-Enrolment

All the courses in our moodle platform are set up for self enrolment for students.

Manual Enrolment

To manually enrol a student on a course:

1. Log in to Moodle and go to the course where you wish to enrol students.

2. On your course page, below the banner image, select the Participants tab.

HOW TO ENROLL STUDENTS IN COURSES

Module 1 - Introduction to AI

Course   Settings   **Participants**   Grades   Reports   More ⌄

Enrolled users ⇕   **Enrol users**

3. Select Enrolled users:

Note: Do not select the Teacher or Non-editing teacher roles; if these roles are assigned, the student would be able to see other students' assignments and have editing permissions on your course.

4. Select Student in the Assign Roles drop-down box.

5. Enter the student's name or email address in the Search box and click Search.

6. Select Enrol beside the student's name (the student name will be indented to show it has been selected for enrollment)

Enrol users   ×

Enrolment options

Select users   No selection

                      Search   ▼

Assign role   Student   ⇕

Show more...

                                   Cancel   **Enrol users**

HOW TO ENROLL STUDENTS IN COURSES

7. If you need to manually enroll another student, enter the student's name and search

and click Enrol selected users and cohorts.

8. If you incorrectly enrolled a student, you can select the Recycling bin icon to the right of the student's name to unenroll them:
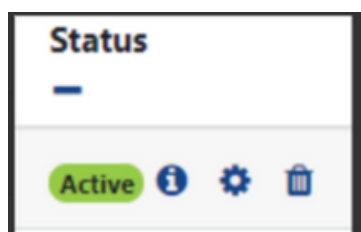
To search for enrolled students on the course:

1. Filter your search to match Any Keyword.

2. Proceed to type in the student's name you wish to search for and select Apply filters.

3. The participants section will then display any enrolled user which matches this keyword.

4. You can also filter the display of your participants using their initials by using the first name and last name filter.

Page 63

CONCLUSIONS

Whenever concepts need to be transferred to a listening audience, there are always many difficulties.

Nowadays, when SMEs have less and less time to update themselves and keep up with the times, there are many barriers to moving to a technology transition in which AI takes the lead. Making the most of the limited time available is the main rule to follow.

For this reason, the Active Training method described in this manual, could really be an effective solution to enable trainers to deliver a training course in the best possible way and enable SMEs to integrate AI technologies into their business processes.

REFERENCES

- Digital Dictionary. (2021, November 9th). Active learning: Formazione aziendale. Retrieved from https://www.digitaldictionary.it/blog/active-learning-formazione-aziendale

- Arlo. (2022, July 21st). Overview of the learning pyramid for training providers. Retrieved from; https://www.arlo.co/blog/overview-of-the-learning-pyramid-for-training-providers

- YouTube. (2013, November 16th).Revisiting Teaching & Active Learning [Video]. https://www.youtube.com/watch?v=XbYXeIoVMQs

- Center for Research on Learning and Teaching, University of Michigan. (n.d.). How can you incorporate active learning in a class? Retrieved from

  https://crlt.umich.edu/sites/default/files/instructor_resources/how_can_you_incorporate_active_learning.pdf

- Ajax Scientific. (2019, September 16th). Active learning examples. Retrieved from https://ajaxscientific.com/active-learning-examples/?v=cd32106bcb6d

- Positive Psychology. (2017, February 24th). PERMA model. Retrieved from https://positivepsychology.com/perma-model/

- University of Guelph. (n.d.). Active Learning Strategies. Retrieved from https://otl.uoguelph.ca/system/files/Active%20Learning%20Strategies_0.pdf