

## 13.a / 13.b Identify and utilize the main Artificial Intelligence tools

Functional Area: R&D/Op&Log

### Assessment criteria

LO13ab.1. Selects and applies different techniques of Artificial Intelligence and has criteria to select one for each problem.

Starting from a selected method/model:

- describe how it works, pros and cons, use cases and applications.

Starting from given application describe:

- How AI could be used and the related advantages
- Select a method and describe motivations of the choice
- Describe how to train the model

Starting from a given aim of AI usage and a data set the student has to select different models and by means of provided tools (prepared executable files or codes for AI applications) it has to train the model and perform some simple analysis commenting the results.

### Knowledge

- Fundamentals on unsupervised methods
- (Autoregressive model, Hoteling Distance T2, others)
- Fundamentals on supervised methods (Neural network, Support Vector Machines, Envelope Analysis)
- Training datasets and class definitions
- Main tools and software for AI algorithms application
- Main applications of AI in industrial use cases
- Main applications of AI for data managing, signals analysis, image tracking and voice-controlled application for data analytics

### Skills

- Understand the difference between a supervised and unsupervised method
- Decision making on the correct method to apply
- Describe pros and cons of the different methods
- Selection and integration in a given process of different AI tools (commercial HW and /or SW ready to use)

	<ul style="list-style-type: none"><li>• Use in a simple way AI algorithms inside already known programming software (using ready AI libraries)</li></ul>
	<b>Transferable skills</b>