

## METADATA (\*)

### TOPIC B – Training Unit 1: Digital Retrofitting

#### Source

Project: TRINEFLEX - Transformation of energy intensive process industries through integration of energy, process, and feedstock flexibility, Grant agreement ID: 101058174

Partner: **DGS** - Lessons 1: What is digital retrofitting? (lay audience)

The contents of this lesson were developed using the following sources:

- <https://www.rawpixel.com/image/433826/free-photo-image-manufacturing-production-plant>
- <https://www.rawpixel.com/image/3370633/free-photo-image-hydraulic-pipes-pipeline>  
<https://unsplash.com/it/foto/un-primo-piano-di-una-macchina-che-lavora-su-un-pezzo-di-tessuto-IYhFK0bne7Y>
- <https://unsplash.com/it/foto/grafici-di-analisi-delle-prestazioni-sullo-schermo-di-un-laptop- JKUTrJ4vK00>
- <https://www.pickpik.com/tablet-ipad-read-screen-swipe-touch-8382>

Partner: **LCM** - Lesson 2: Digital retrofitting using Smart Sensors

#### Ownership

Lesson 1: Kelly Burke, Project Manager, DGS

Lesson 2 : Leander Hörmann, Team Leader IIoT, Linz Center of Mechatronics GmbH (LCM)

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For lesson 2:

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#### Abstract

Digital retrofitting is an essential first step in the development phase of the TRINEFLEX project. It is key to eventually creating the digital twins, which is why it is important to explain what this means and what it offers. Generally speaking, digital retrofitting is the upgrading of legacy machines with sensors, including the integration of the machines into an IoT network, to enable data acquisition and the transfer of this data in a digitalized format.

#### Structure

- Lesson 1: What is digital retrofitting? (lay audience)  
This lesson is a brief introduction aimed at a lay audience. This includes the definition of digital retrofitting and generally giving ideas of different approaches that can be used for it, including its benefits and objectives. This will be general and not specific to one sector.
- Lesson 2: Digital retrofitting using Smart Sensors  
As industries face the challenges of global competition, lot-size-one production, and sustainability goals, the need to improve the efficiency and flexibility of machinery and equipment is becoming increasingly important. These optimizations require additional information and knowledge about processes and production. This can be achieved through intelligent data collection through digital retrofitting by using smart sensors combined with intelligent and powerful algorithms.

**Learning Outcomes**

After completing this training unit, the trainees will be able to define what digital retrofitting is, understand how it can be accomplished, and what its benefits are. They will also understand how we did this, through a variety of approaches, within TRINEFLEX and ultimately what the advantages are from an energy perspective.

**Intended Audience**

The intended audience for this training unit is anyone and everyone potentially involved in an industrial process, meaning any activity related to processing raw materials and manufacturing goods. These could be stakeholders of any kind: researchers, operators, policymakers, etc.

**Pre-requisites** : There are no prerequisites for this training unit.

**Language:** English

**Format:** Video mp4, PDF

**Expected workload:** a half-hour of time and attention.

(\*) The structure of the Metadata for the Training Units derives from the training Metadata model developed within the Leonardo da Vinci project LINKVIT (2013-15, GA N. 2013-IT1-LEO05-04046)