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## COALA
### Your Factory Assistant

Cognitive assisted agile manufacturing for a LAbor force supported by trustworthy Artificial Intelligence

A cutting-edge intelligent assistant for manufacturing

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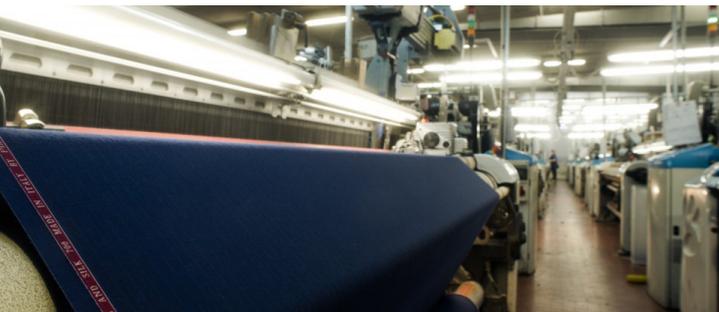
## Background

Europe is currently experiencing a shortage of skilled workers in sectors like textile manufacturing. Moreover, continuous improvement in product quality is necessary for maintaining a competitive advantage on the market. The solution is effective training to upgrade the skills of new workers. However, for many companies, the costs of such training sessions are prohibitive.

The EU-funded COALA project will design and develop a cutting-edge Digital Intelligent Assistant (DIA) for the manufacturing sector. At its core is the privacy-focused, open-source voice assistant, Mycroft.

COALA will integrate, for instance, augmented quality analytics, an experimental mechanism for explainable AI, and features for the assistance of on-the-job training. An AI-focused change management process and guidelines for professional worker education will complement the technical work. The project will significantly decrease the costs of failures in manufacturing and will reduce training time for workers.

## Objectives

• Reduce the number of quality incidents in manufacturing ;

• Reduce the time needed for on-the-job training of workers in manufacturing;

• Overcome barriers and reduce skepticism regarding the use of a voice-enabled DIA in manufacturing environments;

• Improve the competencies of blue-collar workers in managing AI opportunities, challenges, and risks in the shop floor.

## Solution

COALA will provide a solution for cognitive assistance that consists of a composition of trustworthy AI components with a voice-enabled digital intelligent assistant as an interface. The solution will support workers that need to use analytics tools and new workers that perform on-the-job training.

Complementary to the technology, an education and training concept that focuses on building blue-collar worker competencies in human-AI collaboration will be developed. The COALA solution will transform how workers perform their jobs and it allows companies to maintain or increase the quality of their production processes and their products.

## Industry Use Case Scenarios

COALA will demonstrate its solution in three complex and highly dynamic manufacturing domains that are confronted with the megatrend of Industry 4.0, but are characterized by different peculiarities and thus are a perfect fit to demonstrate the full potential of the COALA concept. They include textile, white goods and detergent packaging productions.

## Key Features

**Augmented Manufacturing Analytics**
Enable non-data-scientist workers to utilize and customize data analytics during product quality tests.

**Digital Intelligent Assistant**
Provide evidence that an open digital assistant can support manufacturing.

**Why Engine**
Allow the assistant to answer "why" questions concerning advices and predictions provided by the DIA.

**AI-Assisted On-the-Job New Workers**
Enable machine operators and production line managers to become effective faster, which will speed up changes in manufacturing.

**Didactic concept for new worker education in AI collaboration**
Allow education facilities and companies to better prepare their labor force for human-AI collaboration.

**Change management process for AI-collaboration**
Complements the technology deployment and seeks to prepare middle-managers and other decision-makers for opportunities, challenges, and risks related to using digital assistants in the shop floor.