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**14 partners from 5 nations begin research in EU-project COALA | 5.7 million Euro grant | Focus: Ethics guidelines for applied Artificial Intelligence**

# A trustworthy voice assistant for future manufacturing

**Brussels, Bremen.** Making the right information immediately available at the workplace without needing to look for it and getting help quickly even for complex problems - in the future, an intelligent voice assistant will support people in manufacturing. The system relies on artificial intelligence and will enable the exchange of knowledge between employees. 14 partners from 5 countries are now researching this topic in the new European R&D project "COALA". In Germany, the institutes BIBA - Bremen Institute for Production and Logistics and Institute Technology and Education (ITB) of the University of Bremen are involved. BIBA is coordinating the 5.7 million Euro project.

## **Diverse challenges**

Knowledge-intensive manufacturing processes require qualified employees. Their training is very time-consuming and cost-intensive for companies. The current shortage of skilled workers also makes this even more critical. Another competitive challenge for the manufacturing industry is the constantly shortening production cycles and the increasing variety of products. The COALA project partners from science and industry want to contribute to a solution. They are based in Italy, the Netherlands, Greece, France and Germany.

## **AI ethics as the top priority**

With the progress of digitalization and the introduction of artificial intelligence (AI) into management and production processes, ethical questions about these new technologies are increasingly arising. This is referred to as "AI ethics". It is under this aspect that research and development in the COALA project is carried out. The focus is therefore – whilst integrating and using all technical possibilities - primarily on transparency as well as the protection of companies, their data and the privacy of all users. Accordingly, COALA will develop a "trustworthy voice assistant", the partners assure.

## **The "COALA" project**

As "Alexa", "Bixby", "Cortana", "Siri" & Co. they answer all kinds of questions. Fearing for their privacy and data, many still do without the services of these intelligent voice assistants, but more and more now appreciate them as extremely useful helpers in everyday life. They save time and effort, immediately provide the desired information as well as helpful suggestions and entertainment. In COALA (COgnitive Assisted agile manufacturing for a LABor force supported by trustworthy Artificial Intelligence), one of the first trustworthy voice assistants for industry is now being created. Its goal is to support production workers and it is usable via smartphone or tablet, for example.

## **Secure with Mycroft and WHY-Engine**

The COALA solution is based on the data protection-focused open assistant Mycroft. Among other things, it enables the rapid generation of data analyses and the provision of information for individual workstations. These tools build on complex, distributed data from the company.

For example, the COALA assistant should be able to answer the question: Why did the yarn in my weaving machine break? A quick, reliable answer on the spot in the running process allows a prompt reaction to production problems and thus saves costs. Answering this requires processing a variety of data, including different databases in multiple departments.

Another core element of COALA is a new type of explanation software, the WHY-Engine. It will allow the assistant to answer “why?” questions. Users can ask these questions any time to understand better why and on what basis the assistant gave a certain answer.

### **AI skills in vocational education**

An important pillar of the successful application of voice assistants in production is the integration of AI into vocational training. ITB will develop a didactic concept for this area using the textile industry as an example. In addition, COALA will develop a change management process to inform skilled workers and management about opportunities, challenges, and risks in the cooperation between humans and AI.

### **Three use cases in view**

The consortium is conducting research and development based on three exemplary use cases from the industrial fields of textiles, chemicals, and household appliances (“white goods”). For this purpose, the project partners Fratelli Piacenza (Italy), Diversey Netherlands Production (Netherlands) and Whirlpool EMEA (Italy) are opening their production facilities and making data available. In addition, the textile academy of Biella (Italy) is involved with its extensive training program for skilled workers.

### **Forecast: considerable time and cost savings**

The project partners say that the COALA system is of considerable economic relevance for the companies using it. It could help reduce the time taken to train employees on machines and avoid quality problems. Based on their preliminary studies, the industrial end-users assume that associated costs could be reduced by up to 60 per cent in specific cases. The accelerated training of employees also has an impact on set-up times. Here they expect a reduction of between 15 and 30 per cent.

*(Sabine Nollmann)*

### **Note to editors:**

Photos relating to the press release can be found at:  
[www.biba.uni-bremen.de/presse/pressemitteilungen/2020/pressemitteilung-vom-17-dezember-2020.html](http://www.biba.uni-bremen.de/presse/pressemitteilungen/2020/pressemitteilung-vom-17-dezember-2020.html)

### **Further information:**

[www.coala-h2020.eu](http://www.coala-h2020.eu)  
[www.biba.uni-bremen.de](http://www.biba.uni-bremen.de)  
[www.itb.uni-bremen.de](http://www.itb.uni-bremen.de)

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### **Scientific publication:**

Wellsandt, Stefan; Rusak, Zoltan; Ruiz Arenas, Santiago; Aschenbrenner, Doris; Hribernik, Karl A.; Thoben, Klaus-Dieter:  
Concept of a Voice-Enabled Digital Assistant for Predictive Maintenance in Manufacturing (2020). TESConf 2020 - 9th International Conference on Through-life Engineering Services  
(<http://dx.doi.org/10.2139/ssrn.3718008>)