**DAVO JOINS A NEW EUROPEAN CIRCULAR ECONOMY PROJECT CALLED SYMTESTES**

“ECOSTES IMPLEMENTATION FOR INDUSTRIAL-URBAN SYMBIOSIS THROUGH SOCIAL AND TECHNOLOGICAL SOLUTIONS”

- The project, with a duration of 4 years, began on June 1.
- SYMTESTES outputs will accelerate the green and digital twin transition of Europe to a circular economy, one of the main scopes defined by the European Commission on March 2020.
- Bucharest, 29 November 2022. DAVO has joined AITEX, the research and innovation center and 28 other partners from 9 different countries in a new international project named SYMTESTES. Members include universities, research centers, private companies, wastewater management plants and local government associations, from Spain, Denmark, Austria, Greece, Germany, Belgium, Italy, Romania and Israel.

**SYMTESTES PROJECT**

The processes and products to be developed will be dedicated to recycling. The usual process of waste disposal is usually based on selective collection using containers. The municipal company relocates it to the urban waste treatment center. There, it is classified and sorted for material recovery, incineration, or landfill. The recovered materials are sold as secondary materials to companies and industries, which use them for new manufacturing processes. Ultimately, new products that are made up from a percentage of recycled materials reach citizens through marketing channels. All these links shape the circular economy chain. However, each one sequentially is incapable of closing material cycles, since it requires the functions that the rest fulfills.

Here comes SYMTESTES project awarded within the European call: HORIZON-CL4-2021-TWIN-TRANSITION/01-14/1 whose objective is to develop new technologies and stakeholders engagement methodologies to prove the concept of regional Industrial-Urban Symbiosis (Figure 1), which proves cooperation between the different organizations for the proper functioning of the circular economy. Far from the competition paradigm, cooperation and collaboration between citizens, municipalities and companies is needed. In this case, each entity involved in waste management is a link within the waste management chain.

![Figure 1: Symbiotes concept](image1)

The role played by the Symbiotes is very simple. They are based on wastewater treatment plants, industries or agriculture companies in the region forming a hub that will collect wastewater, bio-wastes, and non-recyclable waste generated by both the urban and industrial environment. A novel co-treatment will be established at the regional wastewater treatment plants to generate clean water, energy, several upscale-value-added products (biogases, biogels) and high added-value products (platform molecules, fertilizers, PMAs), etc. for reuse by the industries in the specific region.

![Figure 2: EcoStes](image2)

**Funding Program:** NUCLEUS Program PN 19 17 „Textile and Leather Industry at 2022 Horizon – from Tradition to Sustainability and Multidisciplinarity through Research-Development-Inovation – TEX-PEL-VISION”

**Project Title:** Advanced multifunctional logistics, communication and protection systems to improve the safety, operability and effectiveness of emergency workers – acronym SIMaLogPro

**Contract No.: 19 17 ➔ Project code: 19 17 02 01**

**Starting date:** January 2019 ➔ **Ending date:** December 2022

**Project Objective:** The design and development of integrated modular systems of multi-risk protective clothing and UAV platforms for observation-monitoring-communication-logistics with the purpose of operational and response capacity increase in emergency situations missions.

**Main results:**

- The multi-risk protective clothing (PPE) system for emergency intervention is using a multi-layer structure:
  - Inner layer, in contact with the skin/undergarment PPE - which mainly takes over the functions of sensory and thermophysiological comfort, ensures thermal protection;
    - Composition: knit > 93% meta-aramid / 5% para-aramid / 2% antistatic fibers.
  - Intermediate (base) layer: Service uniform - with the function of a barrier against the risk factors with the highest probability of occurrence in the event of an intervention action (thermal risks: convection heat, flame; risks from the external environment: splashes with liquids; mechanical risks: cutting, abrasion, etc.); on this layer is mounted a small electronic transponder;
    - Composition: woven fabric > 29% aramid/ 59% FR viscose / 10% PA / 2% antistatic fibers;
  - Outer layer: modular protective layers - specialized PPE for intervention missions in case of: fires, dangerous materials, weapons of mass destruction, firearms, extreme weather conditions, etc.; Composition (four different variants):
    - woven fabric: 78% para-aramid/ 20% meta-aramid/2% antistatic fibers (with fire protection role)
    - 3D spunlace non-woven: para-aramidic / meta-aramidic fibers + ePTFE / PU bicomponent membrane
    - laminate: PES fabric + PTFE film + PES knit

The UAV platform for observation-monitoring-communication-logistics is using a paraglider flexible wing UAV (PPG-UAV) and electronics for PPE tracking. It can operate with two types of wings, single-sail type and double-sail type. This type of UAV has major cost advantages over a fixed-wing UAV.