SUSTAINABILITY AND INNOVATION: D4PACK PROJECT TACKLES FUTURE PACKAGING CHALLENGES IN THE AGRI-FOOD SECTOR

November 12, 2024 – The European D4Pack project, co-financed by Interreg Central Europe, presented the results of its study on the packaging challenges that the agri-food sector faces, with particular attention to the meat, dairy and fruit and vegetable sectors. The study, conducted in four pilot countries – Italy, Slovenia, Hungary and the Czech Republic – reveals a complex landscape of technical needs and technological availability to implement sustainable and innovative packaging solutions.

The analysis involved about forty SMEs and identified the needs of agri-food companies toward the next generation packaging, understood the most frequently used packaging solutions, the decisions mechanism and the criteria behind them and got a picture of the awareness of the next gen packaging solutions.

The key takeaway from the study, presented at a recent online event organized by Innoskart Digital Cluster, is that while the industry is keen to transition to more sustainable packaging, significant barriers remain. These include challenges in maintaining product quality and safety, extending shelf life and efficiently managing packaging, all while meeting increasingly stringent regulatory requirements.

The **meat industry** relies heavily on modified atmosphere packaging (MAP) and vacuum packaging technologies, which replace oxygen with gases such as carbon dioxide or nitrogen. These solutions help slow bacterial growth and preserve freshness and flavor during transportation. However, challenges persist, such as the need to reduce plastic use and find packaging materials that align with sustainability goals without compromising product safety.

For **dairy products**, food and transport safety are critical, particularly when delivering to regions with less reliable cold chain infrastructure, such as North Africa. Packaging must not only maintain the integrity of the product, but also be tamper-proof, extend shelf life and be easy to handle. Companies are also exploring new materials, such as recyclable polycarbonate trays, as they work to reduce the weight of plastic packaging.

In the **fruit and vegetable sector** it is essential to maintain freshness through correct ventilation. Packaging materials must prevent rotting by allowing products to "breathe" through perforations. Beyond food safety, companies are addressing the need for packaging that can withstand long transit times while meeting demand for more sustainable solutions.

The ongoing challenge is to balance cost, material efficiency and packaging integrity to ensure it meets both consumer expectations and regulatory standards.

There are **many challenges common** to all sectors towards the sustainable transition. First, many companies contend with the high costs of sustainable materials; secondly, available solutions are often not fully optimized for their specific needs. Third, regulations and legal barriers, finding reliable suppliers of sustainable packaging materials that meet both quality and regulatory standards is another challenge identified by industry leaders.

Furthermore, during the presentation of the results, six companies shared their experiences in managing packaging, the transition towards greener choices, and the challenges still to be faced.

B&B FRUTTA S.r.l. from Italy, talked about packaging for apples to be delivered all over the world, AGROMERKUR from Slovenia, presented a way to use monomeric materials, SEACON Ltd. from Hungary showed a new dimension of electronic labels, ISAP PACKAGING FLO Group from 'Italy described the recyclable packaging of eco-friendly yogurt cups and materials, DS SMITH from Slovenia highlighted the implementation of cardboard in the meat-based food sector and SYBA Czech Packaging Institute from the Czech Republic illustrated the use of new packaging generation in the food industry of the Czech Republic.

D4PACK is a European project funded by the Interreg Central Europe program, aimed at identifying innovative solutions for sustainable food packaging.
It will have a budget of nearly two million euros to study a method for selecting the best packaging for food SMEs from a sustainability perspective.
The project involves 8 partners from five European countries: Cevi Srl, a company of Confindustria Verona, Lukasiewicz Research Network – Lódz Institute of Technology, Campden BRI Hungary Ltd, Chamber of Commerce and Industry of Slovenia – Chamber of Agricultural and Food Enterprises, Krakow University of Economics, Innoskart Business Development Nonprofit Ltd, PROMA-PACK Ltd, Federation of the Food and Drink Industries of the Czech Republic.
D4PACK is a collaborative project, lasting two and a half years, which aims to support food SMEs in transitioning towards sustainable packaging solutions through the development of a transnational technology transfer service (TTS) to assess the impact of next-generation packaging.