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BIOVALLEY FINLAND: CIRCULAR ECONOMY IN CENTRAL OSTROBOTHNIA

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Biovalley Finland (BF) Living Lab is based on the focal question "How can digital technologies contribute to advancing bioeconomy and circular economy in Central Ostrobothnia in 2030?".

Usually, people see that rural areas are homogeneous and change very slowly. Central Ostrobothnia (CO) does not fit the framework as it is in the middle of energy transformation (from using peat into renewable energy). Local biogas is used to make carbon neutral hydrogen and highly valued active carbon (material for batteries). Wind power creates cheap electricity that can be used to advance digitalisation.

Living Lab
Biovalley Finland
Key Digital Technologies
Match-making tools, videoconferences, platforms
Keywords
Bioeconomy, circular economy, managing large networks
More info: https://desira2020.eu/central-ostrobothnia-finland/

CO is full of paradoxes. CO is the smallest region in mainland Finland, but we are – with a high margin - the biggest exporter of goods per capita. We have multinational companies in Kokkola Industrial Park (KIP) that are connected to global value chains. KIP will take into use private 5G network that helps sharing information in the factory area. In the zinc factory, robots (that are equipped with computer vision) are now automatically cleaning all the 38 000 anode plates that are used in the electrolysis process. We also have remote rural areas that are suitable for forestry and nature tourism. In-between is agricultural zone, which is highly specialised in dairy farming. We have manure to make biogas and bio-based fertilizers, but milk and manure robots are needed to make farm systems sustainable.

Scientists talk about social-cyber-physical systems (SCPs). Basically, they mean that cyber connects social actors (humans) with physical entities. BF is a system of systems which makes it even more difficult to understand. BF connects RDI actors, companies, SMEs, farms, regulators, and education institutes. Digital technologies (like videoconferencing) make working together easier and more efficient. Common efforts (like yearly hybrid conference Kokkola Material Week) showcase, how digital technologies can used to enhance the local face-to-face meeting tradition into next level. Internationalisation and interregional connections open opportunities for new ideas to enrich the local doing.

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BF is a network and a concept that organises the experiences of different actors and the resources of the region into a common reality. All the parts of BF are known before but only putting them together makes the process to start to create something useful. BF is a catalyst that makes things happen. Keeping things apart leads either to regional path dependency or to scientific silos. Combining different knowledge bases (analytical, synthetic, and symbolic) is usually advantageous even if in practise new ideas are found by experimenting. Random events or infrequent formal meeting are not enough to make disruptive breakthroughs as development efforts also need commitment from stakeholders. Absorptive capacity develops slowly.

Circular economy (CE) is the future way of doing things. The main barriers to CE are related to informational problems. Actors rarely have good knowledge of the quantity and quality of the biomasses, side streams and second-hand materials that are available. Digitalisation helps to remove informational barriers by using programs and platforms that do matchmaking for actors and materials.