

# WP T3

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Transnational pilot - Work plan / Roadmap.  
Bioeconomy

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Authors:	PP7 – Wroclaw Technology Park (WTP) PP9 – Bioeconomy Cluster (BEC)
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## 1 INTRODUCTION

Transnational pilot on bioeconomy integrates two work plans elaborated by responsible duo partners, namely Wrocław Technology Park and Bioeconomy Cluster. This synthesis composed of two work plans constitutes one of the pilot activities that will be implemented within CHAIN REACTIONS.

The main aim of this pilot work plan is to define collective actions to implement the potentials for value chain innovation processes identified during the value chain analysis of bioeconomy carried out within the project. The actions proposed within this transnational pilot shall durably increase the maturity level of each relevant regional support ecosystem and its capacity to generate value chain innovation processes by using the toolbox developed within CHAIN REACTIONS.

Pilots will enable the project partners and their key regional stakeholders to deepen their knowledge of value chain innovation processes in general and a deep understanding on how they apply specifically in regional businesses and value chains. By using the models and instruments developed they will reach autonomy in the use of models and instruments for supporting and monitoring innovation in their home region and will be able to contribute to transnational innovation processes.

The pilot implementation of value chain innovation tools and models builds on the following project activities:

- Definition of a value chain innovation model and an innovation toolbox.
- Implementation of regional stakeholder groups – Innovation and Growth Alliances (IGAs) in the regions of Wrocław (Poland) and Nitra (Slovakia) – willing to test the models and instruments developed in CHAIN REACTIONS.
- Value chain analysis of bioeconomy with a specific focus on digital bioeconomy in dairy industry.

The elaboration of particular work plans was preceded by the organization of pilot definition workshops, where individual project partners in cooperation with WP leader and BWCON defined and prioritized relevant collective actions within selected sectors and discussed potential ideas to be implemented within their pilot work plans.

Each of the two work plans within this transnational pilot on bioeconomy will be implemented separately by responsible duo partner. However, cross-cutting synergies will be achieved through the mutual involvement of duo partners in selected activities, as well as in the evaluation process. In this way, transnational character of the pilot will be ensured as well. It will be strengthened also through the involvement of other project partners in particular activities within each work plan. A dedicated section was developed in the pilot template to define the specific role of other partners in the implementation of each work plan. In addition to this, BWCON will be involved in all pilots to provide innovation tools support. On the consortium level, all project partners will be involved in exchanging on the pilots.

The results of the pilots will be monitored and evaluated with respect to both the value chain innovation approach as a triple-helix process for improving regional innovation ecosystems and the models and instruments. Feedback shall be used to improve the models and instruments integrated within WP T1.



## 2 TRANSNATIONAL PILOT WORK PLAN – WROCLAW TECHNOLOGY PARK

### 2.1 Scope

Based on an analysis of value chains in the dairy industry in Poland, prepared as part of the CHAIN REACTIONS project, one can conclude:

- the dairy industry and food industry are important elements of Polish exports and are relevant pillars of the Polish economy;
- this sector requires constant improvement of product quality and maintaining competitiveness on the sensitive food market;
- the dairy industry combines comprehensive supply chains and a complex retail network;
- the dairy processing industry requires continuous implementation of innovative solutions, especially from the scope of Industry 4.0 and robotics.

The pilot action is to concern the creation of a platform in the form of a show room of constant dialogue between companies in the dairy processing industry and entities offering advanced technological solutions.

The platform is designed to identify entities in the dairy industry that are looking for innovative solutions in Industry 4.0 and the digitization of production, management and sales processes. In addition, the platform will identify and present technological solutions that meet the needs of the dairy industry. The idea of the pilot action will be to initiate a dialogue of dairy industry companies of various sizes with representatives of technology business and science in order to jointly search for appropriate innovative solutions.

WTP is a member of the consortium creating the Digital Innovation Hub in Wrocław. DIH Wrocław has been operating since September 2019. The members of the DIH consortium are Wrocław University of Technology, University of Economics, Wrocław Technology Park, Balluff and TestArmy companies. The purpose of DIH is to conduct educational, demonstration, consulting and implementation activities in the field of digital Industry 4.0 solutions for business of any size.

WTP will strive to create synergies between the activities of DIH Wrocław and the pilot action.

Operation of the pilot will fit into the smart specialization strategy of the Lower Silesia region. One of the key smart specializations of the region is high quality food. It includes activities to improve food quality, support organic production, R&D for food production and transfer of digital technologies for the industry.

#### 2.1.1 Reference of pilot work plan to COVID-19

The implementation of Industry 4.0 solutions helps to manage production processes remotely, which allows to protect employees against the possibility of COVID-19 infection.

During the epidemic, online solutions for sales, supply management, etc. are used to a much greater extent than before due to the need to limit direct people-to-people contacts.



The solutions sought in the framework of the pilot action are therefore relevant in the context of mitigation and protection against pandemics.

## 2.2 Objectives

The main goal of the pilot action is to create a show room with innovative solutions in the field of Industry 4.0 dedicated to the dairy and food industries.

The purpose of the creation of the show room is to identify the potential, actors involved and cooperation models between food and dairy sector SMEs, digital technology providers and science.

Pilot action is intended to improve the efficiency and competitiveness of companies in the food industry. The goal is also to raise awareness of the challenges of Industry 4.0 for the traditional and conservative industry.

The show room will be used as a platform for dialogue, matching needs and solutions among the actors involved.

## 2.3 Partners involved

Project partners and their role:

- *PP9 BEC*: value chain analysis in the dairy and food industries in Slovakia, identification of potential partners for pilot action.
- *PP4 CCE-ZCC*: cross-sectoral approach between the dairy and food sectors and the digital technologies, ICT and electronics sectors, identification of technological solutions dedicated to the food industry.
- *PP6 BWCON*: training, consulting and implementation of tools for analyzing value chains business model.
- *Duo partner*: BEC evaluation of the pilot.
- *Local partners*: IGA members and the members of DIH Wroclaw consortium: mapping and involving SMEs, startups and mature companies, science, experts, the public sector and NGOs in the pilot's activities.

## 2.4 Activities, milestones, timeline and responsibilities

### Activity 1: **Training on business models**

Training conducted by BWCON on innovative value chain business model and tools. Online training addressed to WTP representatives, IGA members and other WTP partners, e.g. members of the DIH consortium.

### Activity 2: **Study visits at pilot action partners**

As part of the pilot action, we plan to organize two study visits (preferred on-site visits, if not possible, online visits). First visit to BEC in order to learn about the value chain in the dairy sector in Slovakia and



explore the possibilities of cooperation with partners from Poland in field of innovation and technology transfer.

Second visit to CCE-ZCC with a view to cross-sectoral approach, innovative ICT solutions and electronics for traditional food industries. Identifying digital solutions, ICT.

#### Activity 3: **Mapping of potential and actors**

Mapping actors – SMEs, startups, large companies, clusters etc. from the food and dairy sector and their needs in the field of innovation regarding Industry 4.0 solutions

Mapping technology providers and currently available on the market technological and digital solutions dedicated to the food industry.

#### Activity 4: **Creating a show room of industry 4.0 solutions**

As part of this activity, an online platform will be created where webinars, innovative solutions, partner matching, b2b meetings etc. will be presented.

WPT partners from the DIH consortium - scientists from the Wrocław University of Technology, as well as business practitioners and experts from VCs funds or managers of public funds financing the innovation sector - will be invited to cooperate on the platform.

The implementation period of the entire pilot action from 08.2020 to 01.2022.

## 2.5 Indicators

We assume the achievement of the following indicators during the pilot operation:

- Number of study visits and trainings for pilot action partners: 3
- Number of identified food industry entities and technology providers: 8
- Number of identified technological solutions for Industry 4.0: 3
- Number of webinars, training sessions and presentations carried out on the online platform: 4

## 2.6 Risk assessment

The risk may be related to the difficulty of identifying food sector SMEs interested in implementing Industry 4.0 solutions. Such solutions require investment, which can be difficult especially after the COVID-19 pandemic.

There is a large supply of online offers on the consulting and training market. Therefore, the challenge will be to attract participants who want to take advantage of the show room offer and the online platform. Hence the challenge for the platform will be to create a current offer, offering practical solutions and meeting the challenges that SMEs face in their daily activities.



### 3 TRANSNATIONAL PILOT WORK PLAN – BIOECONOMY CLUSTER

#### 3.1 Scope

This pilot work plan is related to innovative business practices in enhancing value chains successfully involving primary producers into the creation of added-value through bioeconomy. It is linked to the value chain analysis of bioeconomy conducted within CHAIN REACTIONS. The analysis was focused on a specific topic of “*data driven decisions in dairying supporting bioeconomy*”.

Bioeconomy is a concept, which facilitates the process of agricultural change. Traditional agriculture, which is mostly based on the primary plant and livestock production, needs to turn into the production-processing sector based on knowledge and resource efficiency, leading to high added value. In the context of bioeconomy development - starting from primary agricultural production, the aim is to increase the competitiveness of farms in the agricultural sector by creating greater value from their own products (including by-products) and gaining better position in the value chain, while ensuring food security, sustainable management of natural resources and mitigation of climate change.

In this respect, some farmers are starting to use different business models to increase their efficiency through more efficient use of resources combined with digital tools to manage information about their production. In this respect, the application of bioeconomy principles can be understood as better and more efficient use of natural resources (as well as side-streams) using digital technologies.

The overall ambition of this pilot work plan is to set up a **virtual innovation observatory**, which will act as a virtual one-stop-shop providing innovation support services to target groups through a multi-partner cooperation. Innovations will be introduced to adopt new efficient business models and strategies as well as to avoid value chain disruptions in the agri-food sector. In respect to the ambition of the pilot, models and instruments developed in WPT1 will be tested to further enhance value chain innovation.

##### 3.1.1 Link to national S3

This pilot work plan creates links to the Implementation plan of the Research and Innovation Strategy for Smart Specialization of the Slovak Republic in the domain “*Healthy Food and Environment*”. This domain has a long-term vision of stimulating sustainable development of agri-food industry based on the synergy of excellent R&D with practice on the principles of circular bioeconomy at local and regional level. The activities within the pilot will enhance the competitiveness and sustainability of production while ensuring transition to the new models of production and operation.

##### 3.1.2 Reference of pilot work plan to COVID-19

Due to coronavirus crisis, several disruptions occurred in the agri-food ecosystem. These are related to the whole value chain involving production, processing, wholesale/retail, logistics, etc. On the other hand, different solutions were developed to deal with these disruptions, e.g.:

- various platforms were developed to deal with shortage of employees and access to workforce in agri-food,





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- the number of e-shops for food products increased - local farmers got together to sell through online e-platforms / e-shops and to focus on more distributive systems,
- corona-free certification for food products was launched in certain countries,
- consumption of local products increased – purchase patterns of consumers have changed,
- touchless technologies in food packaging are increasingly being used,
- blockchain solutions for tracking food chain were developed,
- etc.

The agri-food sector is a good example of focus on innovation in the value chain processes, either in the production and logistics or in the marketing and customer experience strategies. It is an example of a sector, where different actors – farmers, industrial producers, retailers, consumers – develop intelligent open innovation strategies with good results in terms of value. Within this pilot work plan, further disruptions will be identified and various innovations will be sought and adopted to deal with these disruptions.

### 3.2 Objectives

The strategic objective of this pilot work plan is **to create a virtual innovation observatory in order to enhance the emergence of new value chains as well as to analyze and monitor relevant disruptions and to facilitate the adoption of innovative business models and strategies.**

The specific objectives of this pilot are:

- To stimulate the exchange of knowledge: 1) between relevant project partners (transnationally) to learn about new business models and value chain innovation processes and disruptions; 2) between SMEs, R&D, advisors and other relevant actors in the agri-food industry to enhance the uptake of innovations.
- To identify the needs of a sector and particular SMEs in respect to innovative business practices and to generate new ideas in the area of data driven decisions in dairying.
- To turn ideas into practice by using the models and tools developed within CHAIN REACTIONS.

Besides the creation of virtual innovation observatory, **mini voucher scheme** will be proposed and developed in order to support innovations of SMEs and transfer of R&D knowledge into practice.

### 3.3 Partners involved

BEC intends to involve the following **project partners** in the implementation of its pilot:

- *PP1 PBN – Pannon Business Network Association* - for ensuring cross-sectoral approach (towards Industry 4.0, advanced manufacturing and other digital technologies). Inspiration will be sought at PBN in order to transform the virtual innovation observatory into future “real” hub. Best practices will be transferred from AM lab and from the implementation of innovative business models at PBN.
- *PP2 STP – Styrian Technology Park* – with its specific competence of Digital Innovation Hub, STP will be involved to exchange on the prerequisites to become DIH, which is one of the follow-up (long-term) objectives of this pilot.



- *PP7 WTP – Wroclaw Technology Park* – partner responsible for the evaluation of this pilot work plan during the preparation and implementation phase.
- *PP6 BWCON* – partner providing innovation tools support through on-site training at bwcon's premises.

On the consortium level, all other partners will be involved in exchanging on the pilots during teleconferences and project meetings.

In addition, BEC will involve its **regional IGA members** during the implementation of its pilot. IGA in the Nitra Region involves triple helix stakeholders, who will act to support regional value chain innovation processes and thus, to strengthen the regional innovation ecosystem.

**SMEs** will be involved directly in individual pilot activities. BEC will map the innovation potential of SMEs in dairy sector, main needs, obstacles of innovation processes as well as disruptions in their respective value chains and based on the challenges identified in innovation audit process, tailored solutions will be proposed to move to innovative business models bringing higher efficiency and added value.

### 3.4 Activities, milestones, timeline and responsibilities

The pilot will be implemented through the following set of activities:

#### Activity 1: **Training on business models**

BEC will be trained by BWCON on value chain innovation models and instruments. The plan is to have one 2-day training for 2 people. The aim is to get deeper knowledge on the value chain innovation processes and on the support related to the emergence of new value chains.

#### Activity 2: **Organization of two study visits**

Two study visits are planned – one to PBN to learn about innovative business models and one to STP to exchange on Digital Innovation Hubs. The aim is to learn from the best practice examples of professional facilities providing practical support and services to SMEs. Through this exchange of knowledge, the transnational dimension of the pilot will be ensured as well.

#### Activity 3: **Identification of needs**

BEC will identify the needs of the agri-food sector in respect to uptake of innovations and new business models involving digital technologies. Primary focus will be SMEs in dairy sector. This will be done through field visits and innovation audits, which will be performed with relevant SMEs and will help to identify the main challenges, as well as strengths and weaknesses in respect to innovation processes.

#### Activity 4: **Testing of business models**

New ideas will be generated in the process of identification of needs and challenges faced by SMEs in respect to innovation processes / value chains and their disruptions. These ideas will be turned into the proposals for new business models, which will be tested during the pilot implementation.



### Activity 5: **Creation of mini voucher scheme**

In order to further support the uptake of innovations, mini voucher scheme will be developed. It will prepare the ground for future support of innovations through linking of R&D with practice (using matchmaking techniques). Within the pilot, the content and conditions of the scheme will be set. The scheme will include:

- Identification of needs through innovation audits
- Launching a call for innovation proposals
- Setting the evaluation criteria (history/ performance, objective and activities of innovation idea, impact, etc.) and selection of experts for evaluation
- Matchmaking of relevant stakeholders (technology requests and technology offers)
- Selection of ideas for funding (ca 1 000 € per innovation idea, e.g. for feasibility study, design of technological solution, etc.).

The planned duration of the pilot is from 07.2020 to 01.2022, i.e. 19 months including the time for reporting the implementation.

### 3.5 Indicators

The performance of proposed activities will be measured through the following indicators:

- *Number of exchanges with relevant project partners* – these include study visits and trainings in order to ensure cross-sectoral approach and transfer of knowledge – 3
- *Number of innovation audits conducted* – identification of innovation needs, challenges, strengths - 2
- *Pilot testing of business models* – testing directly on the field / in specific companies – 2
- *Number of tools developed* – own mini voucher scheme to support innovations – 1

### 3.6 Risk assessment

One of the main risks is related to low number of innovative companies in Slovakia. This is especially the case of agriculture, where conventional business models prevail. In general, agriculture is considered to have low innovation potential in comparison to other sectors, since it is a traditional sector. Therefore, the main challenge will be related to finding the companies, which are interested in innovative approaches in their production and integration in the value chains.

Another risk will be related to the identification of value chain disruptions and to proposition of tailored solutions to improve their performance or to induce the emergence of new value chains, which may occur even as a result of these disruptions. BEC will identify various threats to which agri-food value chains are exposed and will adopt various tools and instruments (incl. those developed within WPT1) to overcome these threats and to enhance the development of new value chains.

Finally, the risks will be related to short timeframe for the implementation of pilot work plan, since it contains very complex set of activities, which need to be done in order to come to satisfactory outcomes. In this respect, BEC is expecting to continue in the proposed activities even after the project



end. Therefore, with this pilot work plan BEC will prepare a ground for the future progress and uptake of results.