

## 2.1. Defying the Pandemic – Business Opportunities: From Ideas to Action

Michael Keller<sup>[1]</sup>,  
Dorian Wessely and Ashna Mudaffer<sup>[2]</sup>

The Value Chain Generator was designed as a hands-on, data-driven approach to unearth unexploited business opportunities for bio-based value chains in the framework of the Interreg project AlpLinkBioEco. Its development during the project was characterized by a continuous interplay between conceptual and practical work. On the one hand, project partners teamed up with their stakeholders and trawled the Alpine Space in search of bioeconomy actors and clusters to populate the knowledge base. On the other hand, new functionalities were added to the software on a regular basis.

In spring 2020, the growing knowledge base and the prototype software allowed to enter the piloting phase of the project and to start applying the VCG in practice. The collected data (descriptors) helped to identify existing interactions based on input and output flows between bio-relevant actors. At the core of the model, concrete ideas for mutually beneficial collaborations between actors were documented as business opportunities in the form of biolinks (see Chapter 1.2). Documented biolinks served as the starting point and inspiration for a cross-fertilizing reflection by other users of the VCG tool. Can bio-based inputs replace fossil-fuel-based ones in existing production processes? Can residual outputs and waste streams of actors from the knowledge base become inputs for new innovative bio-based business models? Can an opportunity that works in a neighboring region be implemented at home? Can concrete actors be identified to move from ideas to action? Can suppliers or buyers from overseas be replaced by local alternatives?

Such complex questions have been addressed by the AlpLinkBioEco partnership with the support of the VCG tool. Its newly developed functionalities have

allowed to browse the ever-expanding knowledge base in two dimensions, to scale up the seed of business opportunities by growing branches and roots: horizontally to match complementary inputs with outputs, and vertically, to add alternatives to identified ideas and actors. The value of a business opportunity in real-life however, whether it can commercially succeed in a complex value system made up of technological, ecological and economical parameters, is ultimately and at the empirical level, a question of experience.

Under the lead of Business Upper Austria, the AlpLinkBioEco partners therefore used the piloting phase of the project to take the developed ideas to a real-world setting and confront concrete actors with identified business opportunities. A series of piloting sessions was organized to deepen the reflection and discuss the feasibility of bio-based value chain ideas from a technical, economic and ecological perspective. The frail biolink plants grown under the shelter of the VCG tool were sent out to confront the rough climate of the business world.

And the climate of the year 2020 was not only turbulent, it was tempestuous. The piloting phase of the AlpLinkBioEco project coincided with the outbreak of the COVID-19 pandemic. The participants of the planned piloting sessions – companies, SMEs, cluster managers, researchers, technical experts - came under the strain of the harsh sanitary restrictions and the dim outlook of a slow economic recovery across the partner regions. In times when companies are craving for a return to business as usual, the enthusiasm for innovative new business opportunities can rapidly become a call in the desert. For a project with a focus on cross-regional innovation cooperation, the situation was particularly challenging. The possibility to meet in person, to discuss, debate, convince, to experience innovation with all the senses, to see things with one's own eyes, to touch, handle, manipulate... all of this was dearly missed in the attempt of turning ideas into action and opportunity into value creation.

The year 2020 was definitively different than expected. Hours were spent in front of laptops, enormous energy put into organizing interactive web-meetings, colleagues' living rooms lost all their secrets, and a general feeling of exhaustion became common place. Unexpected developments, radical consequences and a mountain of challenges –

[1] AlpLinkBioEco Lead Partner, Plastics Innovation Competence Center, University of Applied Sciences and Arts Western Switzerland - School of Engineering and Architecture of Fribourg (HES-SO//FR HEIA-FR)

[2] Business Upper Austria

what was formerly euphemized as the perfect opportunity for innovation suddenly lost much of its appeal, buried under piles of unscheduled tasks, hours spent online and a growing longing for social interactions.

On the bright side however, the opportunities for innovation were not just talk. The pandemic triggered inventiveness and adaption to change in ways that will have longstanding positive impacts on innovation cooperation across borders. In complicated situations, the value of cooperation increases drastically. Against the backdrop of a complicated external environment, the AlpLinkBioEco partnership proved to be adaptive, creative and solidary in engaging its stakeholders into piloting sessions on bio-based business opportunities, ceaselessly creating new ideas and opportunities for cross-regional cooperation.

Throughout the summer and autumn of 2020, the project partners have indeed been able to take the developed biolink ideas to the (virtual) field and use the VCG knowledge base and software to initiate real-world business opportunities with companies across the Alpine Space. Real-world actors could be convinced to use the opportunity of piloting sessions as a possibility to elaborate on new ecologically acceptable processes and product lines and an opportunity to associate and network with other actors and interest groups from the bio-based industry. Encouragingly, many of the participating actors were SMEs, whose availability was initially feared to be less likely since, even without the complicated sanitary situation, their daily core business is often characterized by a workforce who has to slip into many roles simultaneously.

The organization of the piloting sessions was paralleled by coaching support from Business Upper Austria and the AlpLinkBioEco Advisory Board. The sessions intended to unite key actors from the VCG knowledge base and served as a platform to pitch biolink ideas as concrete business opportunities. Project partners prepared their role in the piloting sessions in a series of virtual coaching meetings organized to jointly discuss and discover ways and strategies to approach the relevant actors with a biolink idea from an economic, ecological and technological perspective. The piloting sessions were not designed as a one-off occasion, but as the starting point for an ongoing discussion of bio-based

business opportunities within a network of relevant stakeholders. Table 1 gives a general overview on the conducted piloting sessions. In the next section, a series of case studies presents the experience from the participating regions in further detail.

Overall, the outcome of the piloting sessions was encouraging. Naturally, some of the identified business opportunities turned out to be illusional or at least difficult to implement under the given circumstances. On the whole however, many interesting approaches have been generated with a promising outlook for successful implementation, both intra- and cross-regionally, by a network of actors that could be continuously enlarged throughout the project. The pilot experience with the VCG tool can certainly be considered a positive signal for future developments of meaningful and sustainable bio-based value chains in the Alpine Space.

## CHAPTER 2

### “The Pilot Experience – Business Opportunities in Practice”

















 <b>TOPIC</b>	 <b>INVOLVED REGIONS</b>	 <b>RESULT</b>
 <p>Wood-based biorefinery - sawdust and wood chips as basis for chemical intermediates.</p>	Trentino, Bavaria, Upper Austria, South Tyrol.	Further investigations are planned within a more detailed feasibility study related to the forest-wood chain.
 <p>Mushroom cultivation on brewer's Grains Substrate.</p>	Upper Austria.	Technical feasibility confirmed. Funding opportunities identified to support the implementation of the suggested cooperation financially.
 <p>From ligno-cellulosic biomaterial and residues from food production to biodegradable or recyclable end products.</p>	Baden-Württemberg.	Technical feasibility confirmed. USP has already been protected as intellectual property.
 <p>Replacement of castor oil in polyurethanes</p>	Switzerland.	Specifications and price range of potential replacements for castor oil have been defined in detail in order to be technically and economically feasible.
 <p>Cultivation, harvesting, cellulose, extraction, spinning, knitting or weaving of hemp fabrics.</p>	South Tyrol, Upper Austria	Best practices and existing examples identified. Technical feasibility for small production capacities confirmed.
 <p>Biopolymers from viticultural waste for fashion, design and automotive sectors.</p>	Lombardy.	Technical feasibility confirmed. Logistical considerations on the procurement of the raw material addressed.
 <p>Antioxidants from wine derivatives for cosmetics products.</p>	Trentino.	Commercially successful example. Can be used as an example for other regions.
 <p>Miscanthus in the building industry.</p>	Lombardy.	Further research and tests should be carried out to verify technical and economic feasibility.
 <p>Biorefinery from wet dredges of aromatic plants.</p>	Provence-Alpes-Côte d'Azur, Lombardy.	Real potential for a cross-regional cooperation confirmed. Interested actors identified.
 <p>Valorization of bird feathers.</p>	Auvergne-Rhône-Alpes.	Interest confirmed. Price range of the by-product proved to be prohibitive for further discussions.
 <p>By-products of the paper industry for high-value consumer goods.</p>	Bavaria.	Set-up of a joint R&D project on the topic, including a start-up company and a multinational group in consumer products.
 <p>Keratin from chicken plumage for bio-based plastics.</p>	Switzerland.	Applied R&D project for scale-up under way.
 <p>Technology for extraction of algal biomass from wastewater.</p>	Slovenia.	The described value chain is technically feasible and there are ongoing pilots to increase economies of scale and support small farmers to enter this value chain successfully,

Table 1: Piloting Sessions within the AlpLinkBioEco project, 2020.