



**AlpBioEco**

# Replicable Roadmap to analyse bio-based value chains

**Kompetenzzentrum für Ernährung - KErn**

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## 1. Introduction

If you are looking for new business models or opportunities for your company based on bio-based value chains, or if you are planning to found a start-up, or if you want to explore and revalue bio-based untapped potentials for other reasons, this replicable roadmap is worth reading. You'll get impulses

- to think out of the box,
- to find new and/or innovative sustainable business opportunities,
- to find new possibilities for bio-economic applications within existing value chains,
- to promote your bioeconomic and sustainable business philosophy.

This roadmap was developed as a guideline to research and analyse value chains with bioeconomic aspects and potentials. It is based on the experiences from value chain analyses performed on apple, walnut and herbs value chains in European Alpine regions in the EU Interreg AlpBioEco project. The AlpBioEco project partners did a screening for novel raw compounds, compositional potential of selected raw materials, cross-sectional potentials & fields of applications of apples, walnuts & herbs in the Alpine regions.

AlpBioEco is a three-year project aiming at the valorisation of bio-economical potentials along bio-based food & botanical extract value chains in the Alpine Space. It was launched in 2018 and investigates with 13 project partners from Austria, France, Germany, Italy and Slovenia new bioeconomic potentials, focusing on the value chains of apples, walnuts and herbs (including Alpine hay). The aim of AlpBioEco is to promote and implement eco-innovation in practice while applying a cross-sector, multi-level stakeholder approach in the Alpine Space. It contributes to better framework conditions for innovations that will lead to eco-innovative business ideas and concepts for SMEs. If you want to learn more about how the AlpBioEco experiences and results with the replicable roadmap, we recommend you to read our full report "AlpBioEco: Results and Replicable Roadmap – Analysis of the bio-based value-chains apples, walnuts and herbs (2019, 32 p.)". Reading this can also be useful in case you have some questions on the structuring. It can also give a fresh impetus to your own analysis.

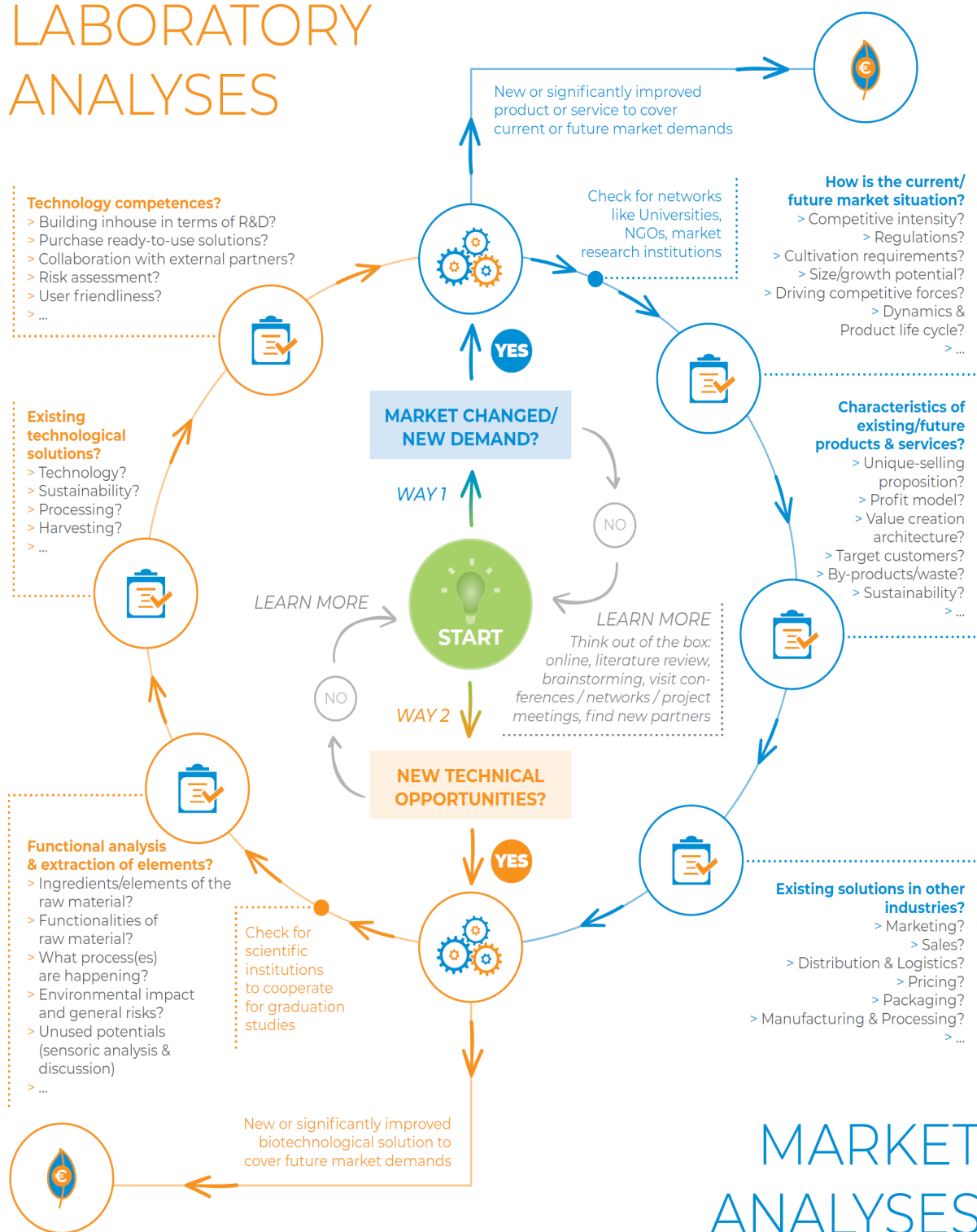
### a) General notes and tips

Our replicable-roadmap-one-pager as a graphical representation of the methodological approach for application in other bioeconomic value chains was created to summarize and visualize the steps and most important elements of a value chain analysis. The roadmap consists of several elements/modules and can be also applied to other value chains and also outside the Alpine Space. First of all, some useful tips and suggestions on how to proceed with the replicable roadmap:

- Have a look at our replicable roadmap illustration (one pager).
- Read through all steps, and then come to a decision what information you might need in addition.
- Use the steps from the roadmap as a basis to build up and conduct your own analysis plan.
- Plan your own analysis steps before you carry out your analysis.
- Keep in mind that this roadmap gives just an orientation of the most important aspects to be considered.
- Track your analysis, note down your research results continuously.
- Brainstorming, mind mapping and working with brown paper can make it easier for you to plan this process and keep an overview of completed and undone tasks.



## b) The replicable roadmap

LABORATORY  
ANALYSES

## 2. Application of the replicable roadmap

### a) How to start

As you can see in the illustration, the value chain analysis is a two-step process consisting of market and laboratory analysis. Both the market and the laboratory analysis again consist of several action points that once completed will provide you with a more comprehensive understanding of the value chain. You can start a value chain analysis with either the laboratory analysis or the market analysis, depending on your situation and the context. We suggest you to start with a market analysis in case you assume that the market has changed or in case you sense a new demand. If you see new technical opportunities in your value chain, we suggest you to start with the laboratory analysis. In either way, if you stick to the roadmap you will have looked at all aspects mentioned in the roadmap by the end of your analysis.

### b) Starting points

Market changes / new demand – what does it mean?

If you recognize a new or changing consumer interest or trends on the market, you can try to create and improve your own idea to serve these demands. Take a step back and look for changes. You can then examine these changes on your own or check for think-tanks, supporters and connect to networks or institutions of research to dive deeper into these changes and your ideas. You'll learn about current and future market situations or at least of the prediction of the future situations. If you are looking for new potentials, search especially for niches and unused potentials. It is recommended to have a look into business models outside the field you are working. This inspiration gives you a new perspective and helps you to think out of your box. And maybe you will get in touch with new partners and new technologies.

New technical opportunities – what does it mean?

Sometimes, there are new developments that lead to new technical opportunities that could be also useful for “your” value chain. Digitalisation, automation and research are advancing rapidly and new technical possibilities are constantly emerging. New technologies might be available that can impact your value chain or business model or also your competition. Thus, being aware of new technical opportunities and screening for those that can benefit your value chain, is crucial.

Are you up to date about the current technical developments?

Try to implement your own research and development (R&D). If you are not into what's new and you haven't got an own R&D-Department – which mostly will be the case – do some desk research first and then look for support from scientific partners and benefit from their findings and developments. Graduation students for instance might be looking for you too – the field studies partner. Search for EU-Interreg-Projects like ours to get in contact. You'll get entrance to technical and research methods and tools, without any big financial risks for your business – maybe it's even free of charge. That could be for example a functional analysis or an extraction of ingredients.



### 3. Laboratory analysis

#### a) Functional analysis & extraction of elements

When you are analyzing your value chain, it is important that you analyse the chemical characteristics and compounds of your product(s). You need to research and learn more about the ingredients and elements of the raw material. Try for instance to answer the following questions:

Which functionalities are within those ingredients and also in your raw materials?  
What do these functionalities bring with them?

You also need to research and get an overview over the processes that are happening in your value chain and with your products and materials. It can be useful to visualize your processes with the help of a sketch/graphic. Only if you know the processes, you can search for untapped potentials within. In addition, you should also look at the environmental impacts and risks, as well as general risks that are carried in your value chain (internal) and that your value chain is also exposed to (external).

It is useful to review scientific literature and online publications to search for scientific institutions that already have experience with your product. Sometimes higher education institutions such as universities are cooperating for graduation or course studies with businesses like yours.

#### b) Existing technological solutions and technological competences

In addition to the analysis of your product and its compounds, you should check the existing technological solutions. Step back and have a look at the technology you are using and then research what technology is available on the market, and if there's a need to update your machinery. Check solutions that allow you to make your production process more efficient and sustainable.

What side-streams and by-products are you producing with this technology?  
Does your partner network include technical experts? Do you maybe even have experts from other branches in your network?

Check your capacities when you think of your level of development and your further development potential.

Are there lacks in terms of user friendliness?  
Is it possible to build an in-house R&D section?  
Could it be useful to purchase ready-to-use solutions, which might be easy to implement?  
Have you been already searching for external collaboration partners?

Example: In AlpBioEco we experimented with extruder machinery, typically used in noodles industries, snack and chewing gum branch and cereals/muesli sector to do product tests with walnut press cake.



## 4. Market analysis

### a) Desk research

In brief, this point needs no explanation. Use the internet to get access to new ideas, literature, studies and persons that have the potential to accelerate your plans. Use reputable online networks. If you are widely networked, you have a good insight into the market – both, current and future.

### b) Current/future market situation

To understand the market, you need to understand the characteristics of existing products and services. Important characteristics are the unique selling proposition<sup>1</sup>, the profit model, but also the value creation architecture<sup>2</sup> or the target customers. Especially important are also by-products, side streams or waste that is created along the production, without any existing value for the moment. Trend scouting is the connection between current and future markets.

### c) Trends

This point is connected to the market situation and to desk research. To get in touch or to get a feeling for trends within the food economy sector it's recommended to do brainstorming with others (find also new partners to communicate with), visit conferences, fairs, network and project meetings. Look for funding institutions in your region or country dealing with innovation and bioeconomy topics. Do interviews or ask for advice. Sometimes it is useful to look at trends in supposedly completely different industries.

### d) Existing solutions in other branches

Once you have identified critical aspects that you need a solution for, it can be helpful to research for existing solutions for similar or even the same critical aspects in other industries. This works for all areas, whether it is marketing, sales, distribution or logistics, pricing, packaging, manufacturing and/or processing. In that way, you can learn how others deal with the problem and see if you can transfer the solution to your value chain and your challenge.

<sup>1</sup> Unique Selling Proposition (USP): an outstanding performance feature that clearly distinguishes an offer from the others of competition - the key to effective selling (advertising and marketing language). Kippenberger, T.(2000), "Remember the USP? (Unique selling proposition)", The Antidote, Vol. 5 No. 6, pp. 6-8.

<sup>2</sup> Value creation architecture: a strategic space, strategic postures and business orientations, which refers to "the right things to do" for the consumers. "Value creation architecture and engineering: A business model encompassing the firm - customer dyad", European Business Review, Vol. 22 No. 5, pp. 496-514.



## 5. Have you thought about...?

### a) SWOT Analysis

The SWOT analysis is a helpful method to prepare, structure and present information. The result is a clear overall description of the current status, from which actions can be derived. To evaluate internal and external influencing factors: internal factors are divided into strengths (S) and weaknesses (W) looking at processes, structures and preconditions. External factors are opportunities (O) and threats (T) occurring through the market and the surrounding environment (see chapter 1.3, 2.3, 3.3, 3.4.2 in our AlpBioEco Results and Replicable Roadmap – Analysis of the bio-based value-chains apples, walnuts and herbs, 2019).

It is worthwhile to seek university support for the SWOT. Institutions that deal with regional development, market situations, innovation potential, entrepreneurship or infrastructure are good contacts here. The more input you receive from different stakeholders, the more comprehensive your analysis and evaluation will be.

You can use the SWOT analysis to categorize:

- Strategy "expand": Use strengths to profit from opportunities
  - Which services you should increasingly emphasize to your customers in the future?
  - Which competences you should enhance by focusing our attention and resources there?
- Strategy "catch up": Use opportunities to overcome weaknesses
  - How can you use your strengths to successfully develop new business fields?
- Strategy "secure": Use strengths to avoid risks
  - In which sectors/sections do you need to improve in order to prevent developments from becoming a risk?
- Strategy "avoid": Minimize risks and overcome weaknesses
  - From which markets should you exit? Which offers should be removed, because opportunities or potentials show up nor special competences are available?

### b) Limits

What are limits to our guideline "replicable roadmap"? Of course there are some limits. Theory and practice often are not the same. Not every region has the same conditions. Every raw material and every value chain has its own characteristics and differences.

It was possible to develop a replicable roadmap for the analysis of bio-based value chains based on the learnings in the project, although the investigated value chains in AlpBioEco have their specific peculiarities. The roadmap delivers a basic standard approach to analyse value chains regarding bioeconomic aspects and potentials.





### c) Overview about steps, criteria and important questions

The following table (tab 1) gives you a brief overview about different steps, criteria and useful questions to be answered when starting your value chain analysis.

**Table 1 Overview about steps, criteria and important questions**

Value chain steps, criteria and FAQs	Information access
<b>general:</b> What seems to be the <b>bioeconomic potential</b> ?	<ul style="list-style-type: none"> <li>&gt; lab analysis</li> <li>&gt; market analysis</li> </ul>
<b>raw material:</b> Which <b>ingredients</b> are <b>purchasable or easy to access</b> ? Which ingredients are <b>already used</b> for what?	<ul style="list-style-type: none"> <li>&gt; literature review</li> <li>&gt; market analysis</li> <li>&gt; online research</li> </ul>
<b>processing:</b> Which <b>by-products or leftovers</b> in the value chain can be identified?	<ul style="list-style-type: none"> <li>&gt; expert interviews</li> <li>&gt; lab analysis</li> </ul>
<b>processing:</b> What are product and process <b>innovations</b> ?	<ul style="list-style-type: none"> <li>&gt; literature review</li> <li>&gt; online research</li> </ul>
<b>economic/comparative advantage:</b> Can local products <b>substitute imports</b> ?	<ul style="list-style-type: none"> <li>&gt; experts-questionnaires/ literature review</li> </ul>
<b>enterprises:</b> What are the <b>involved companies</b> ?	<ul style="list-style-type: none"> <li>&gt; expert interviews</li> <li>&gt; market analysis</li> <li>&gt; online research</li> </ul>
<b>environmental:</b> Which <b>type of energy</b> is consumed in the VC, at what level?	<ul style="list-style-type: none"> <li>&gt; stakeholder involvement</li> </ul>
<b>external</b> – public funding and interest, subsidies: Are there ways to <b>finance innovative approaches</b> (coming up)? Are there <b>institutes of the education</b> sector which can cooperate (with low financial risks)?	<ul style="list-style-type: none"> <li>&gt; expert interviews</li> <li>&gt; online research</li> </ul>
<b>risks</b> – environmental/economic/social/legal/regulatory: What are strengths or weaknesses? What are <b>accelerators and brakes</b> ?	<ul style="list-style-type: none"> <li>&gt; SWOT</li> </ul>
<b>social:</b> Is there a risk of the VC <b>causing conflicts/tensions in society</b> ?	<ul style="list-style-type: none"> <li>&gt; expert interviews</li> <li>&gt; literature review</li> <li>&gt; online research/social media</li> </ul>

## 6. Summary

This roadmap presents a standardized approach to analyse bio-based value chains, based on the AlpBioEco value chain analyses conducted in the course of the project. To apply the roadmap to your value chain, you need to specify the questions of the elements of this roadmap. Also check all of the elements in the two-stepped process for comprehensiveness: Do they give you all the information you need? Or do you have additional questions that are not covered by our roadmap? Then just add these new, individual elements to the standard elements to get this information. Make yourself a plan and then start with the two-stepped process!

We hope that this roadmap provides you with new insights and impulses for new business ideas and/or opportunities. If you have any question regarding the application of the roadmap, feel free to reach out to project partner KERN.

In addition, you may also contact the other project partners, if you have questions or need inputs.





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