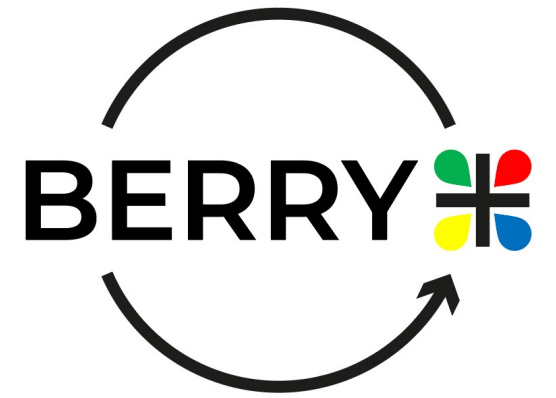


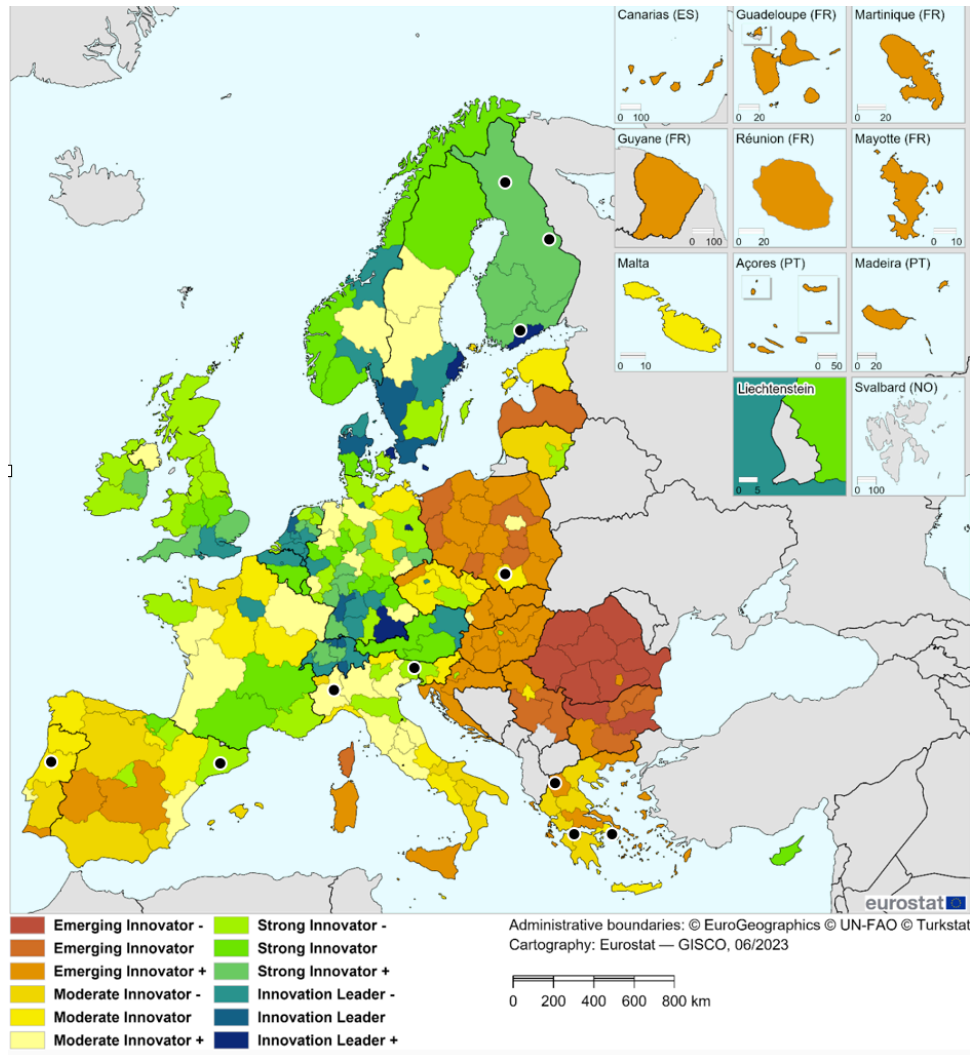
# Service name

BERRY+



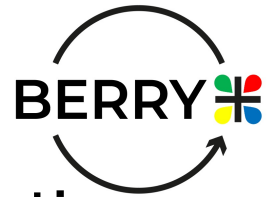


June 2024



# BERRY+ summary

# BERRY+ profile



BERRY+ is a smart specialisation partnership for industrial modernisation.

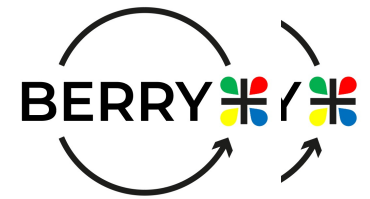
The plan was submitted by the Regional Council of Kainuu to the EC Joint Research Centre on 29.3.2020 and approved on 17.11.2020.

The objective is to develop five value chains in circular bio-economy.

The purpose is to develop regional economies and research through value-chain based collaboration and circular bio-economy specialisation.

Five (5) value chains (VC) in focus: anti-aging & regenerative cosmetics, dairy industry side-streams, forest industry side-streams, functional ingredients of natural resources, recyclable and renewable textiles.

# BERRY+ objectives



**Objective 1:** Strengthen circular economy through value chains innovations and SDG improvement related to partner regions' RIS3. Value-chains are science & innovation based, i.e. towards development or scaling up of existing markets.

**Objective 2:** Value chain governance as an innovation system and policy instrument

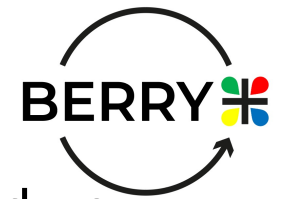
**Sub objective 2.1** Interregional cluster management unit; by building on interregional complementarities identified through value chains to form an interregional cluster management unit; interregional cluster organised and registered; (2.2) Project opportunities ad hoc and / or as a result of (2.1); (2.3) Strategic collaboration linkages and opportunities between and among regions.

**Sub objective 2.2** Linking governance levels; identify funding paths and options ensuring funding continuities and tailored funding approaches depending on the nature of initiatives (public & eventually private funds); aim for multiplier effect.

**Sub objective 2.3** Interregional governance; value chains as a regional policy instruments linked to RIS3; new concepts, capitalisation, diffusion. Interregional policy group.

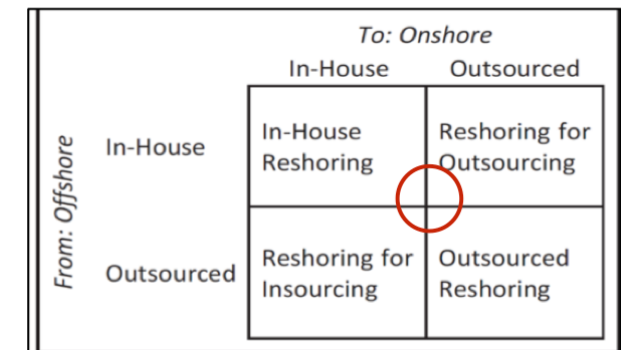
**Objective 3:** Knowledge management, reinforce the iterative approach; knowledge integration, dissemination.

# BERRY+what do we want to achieve?



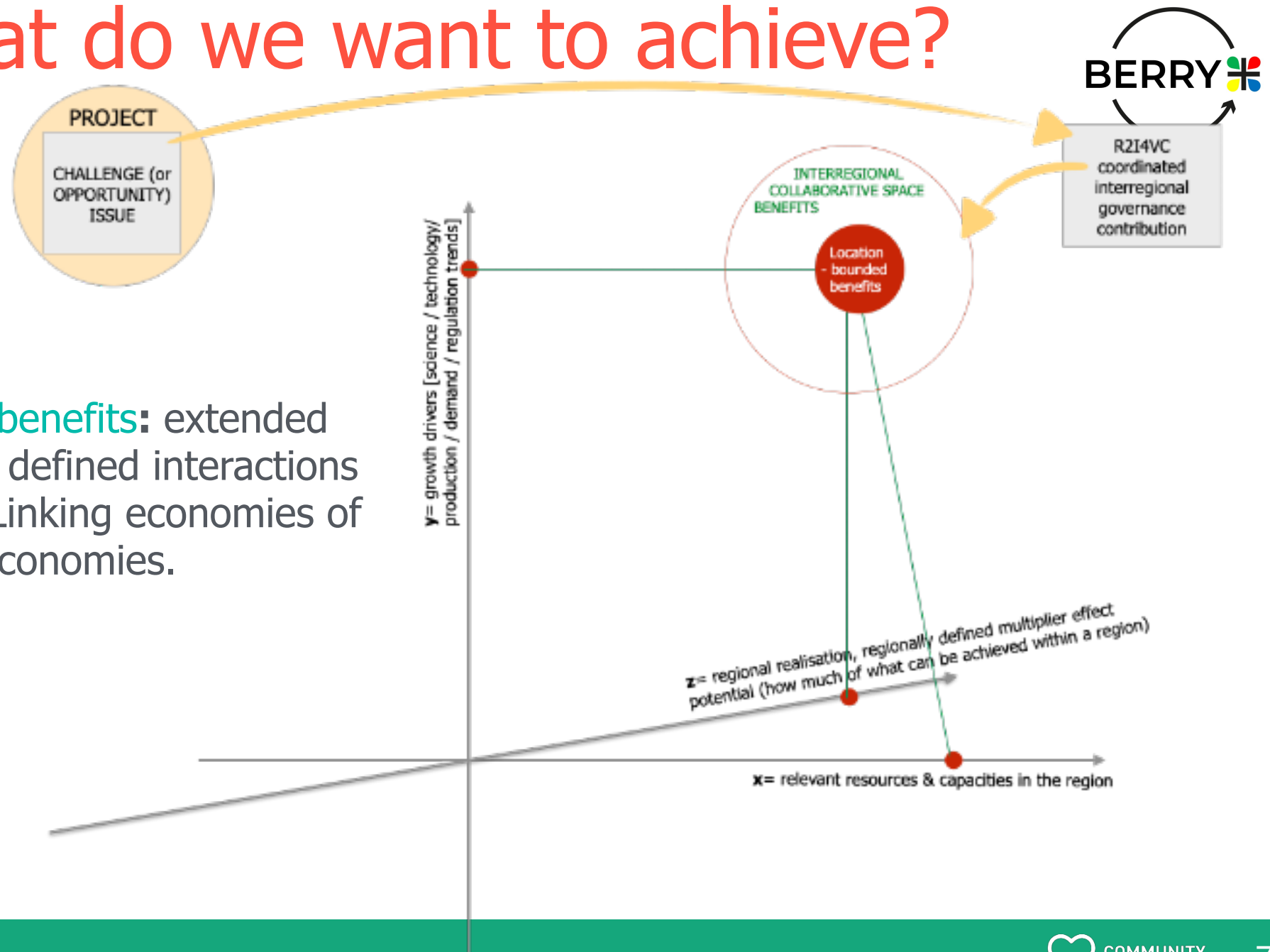
- 1.- **Circular bio economy / functional ingredients** is a multi-sided, very promising, and very demanding domain. In our regions, we have resources and potential but not necessarily all the needed solutions, resources, markets, innovation systems.
- 2.- **We want our industries to have a well defined growth** (upgrading, renewing, diversifying, ...) path, reduce risk, catch new opportunities, adjust our innovation systems, improve policy. For this purpose, we invest in value chains.
- 3.- **Why value chains?** Because on the one hand they focus on products and on the other hand on spatial distribution of activities that make products possible. Moreover, since they form value-paths to products, they allow regions to specialise and through complementarities, i.e. for less strong regions we can aim at economies of scale through collaboration and localised economies of scope; and for stringer regions, we can aim at more specialised economies of scale. This idea is shown in the next slide.

Why value chains are very useful?



Eurofound (2019). Reshoring in Europe [RE]: Overview 2015–2018, Publications Office of the European Union, Luxembourg. <https://www.eurofound.europa.eu/publications/report/2019/reshoring-in-europe-overview-2015-2018> .

# BERRY+what do we want to achieve?

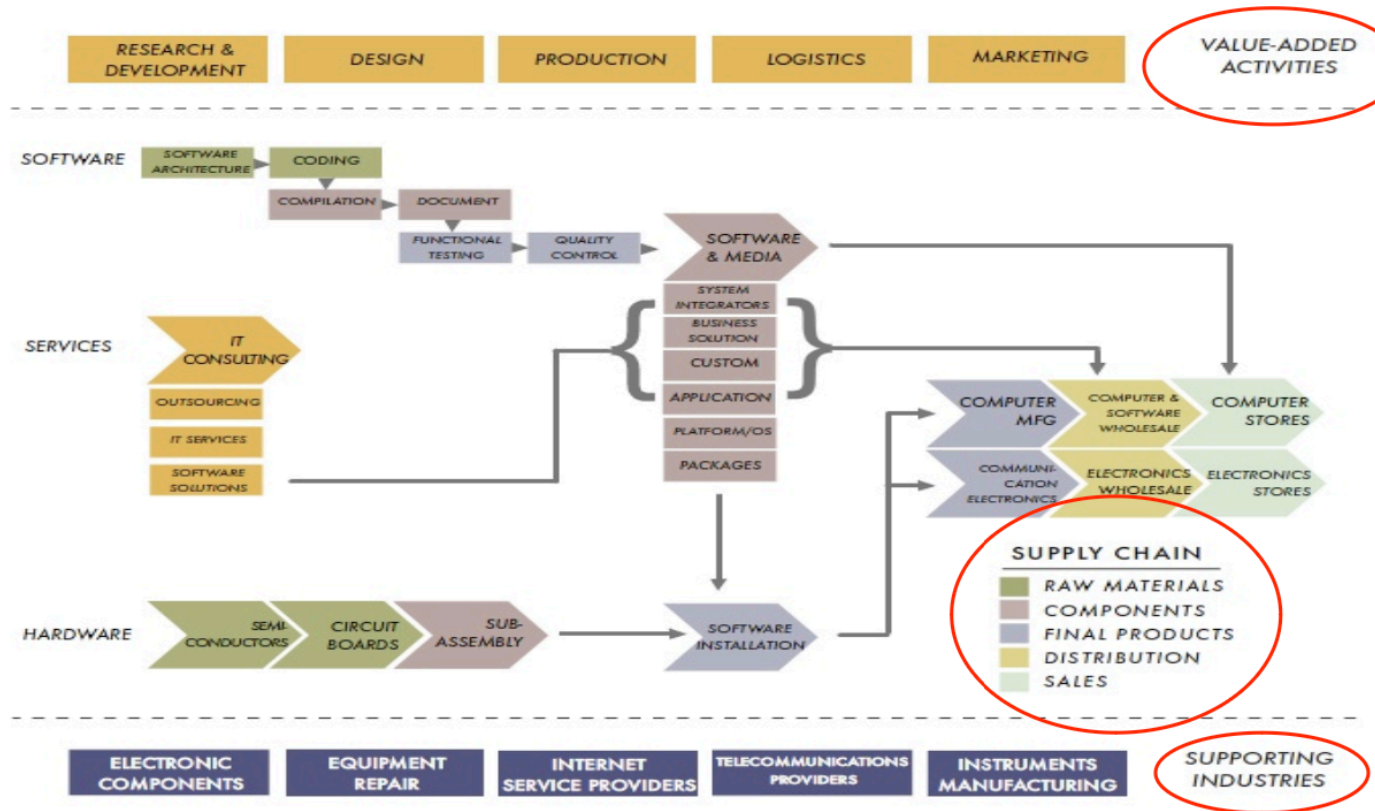


4.- **Target of longer term benefits:** extended innovation base with well defined interactions and collaboration paths. Linking economies of scope to agglomeration economies.

# What is a value chain?



A value chain describes the full range of activities that firms and workers carry out to bring a product from its conception to its end use and beyond.



Source: CGGC (<http://www.cggc.duke.edu>), More Information: Global Value Chains ([www.globalvaluechains.org](http://www.globalvaluechains.org))

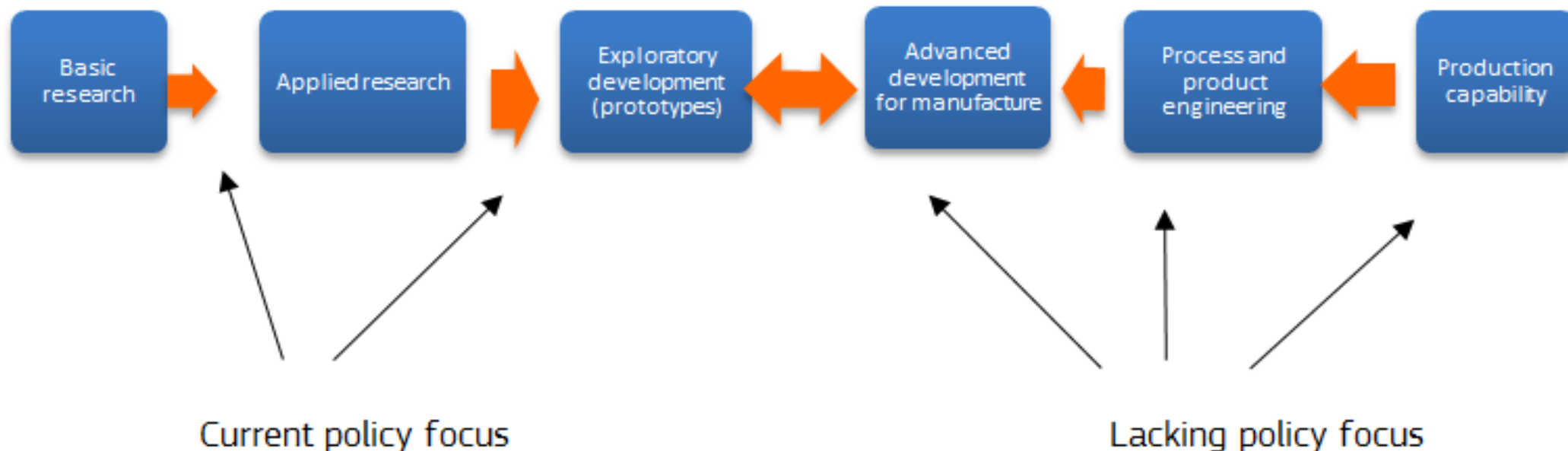
[https://sanford-dcid-files.cloud.duke.edu/sites/default/files/Sample\\_syllabus\\_GVC.pdf](https://sanford-dcid-files.cloud.duke.edu/sites/default/files/Sample_syllabus_GVC.pdf)



# BERRY+what do we want to achieve?

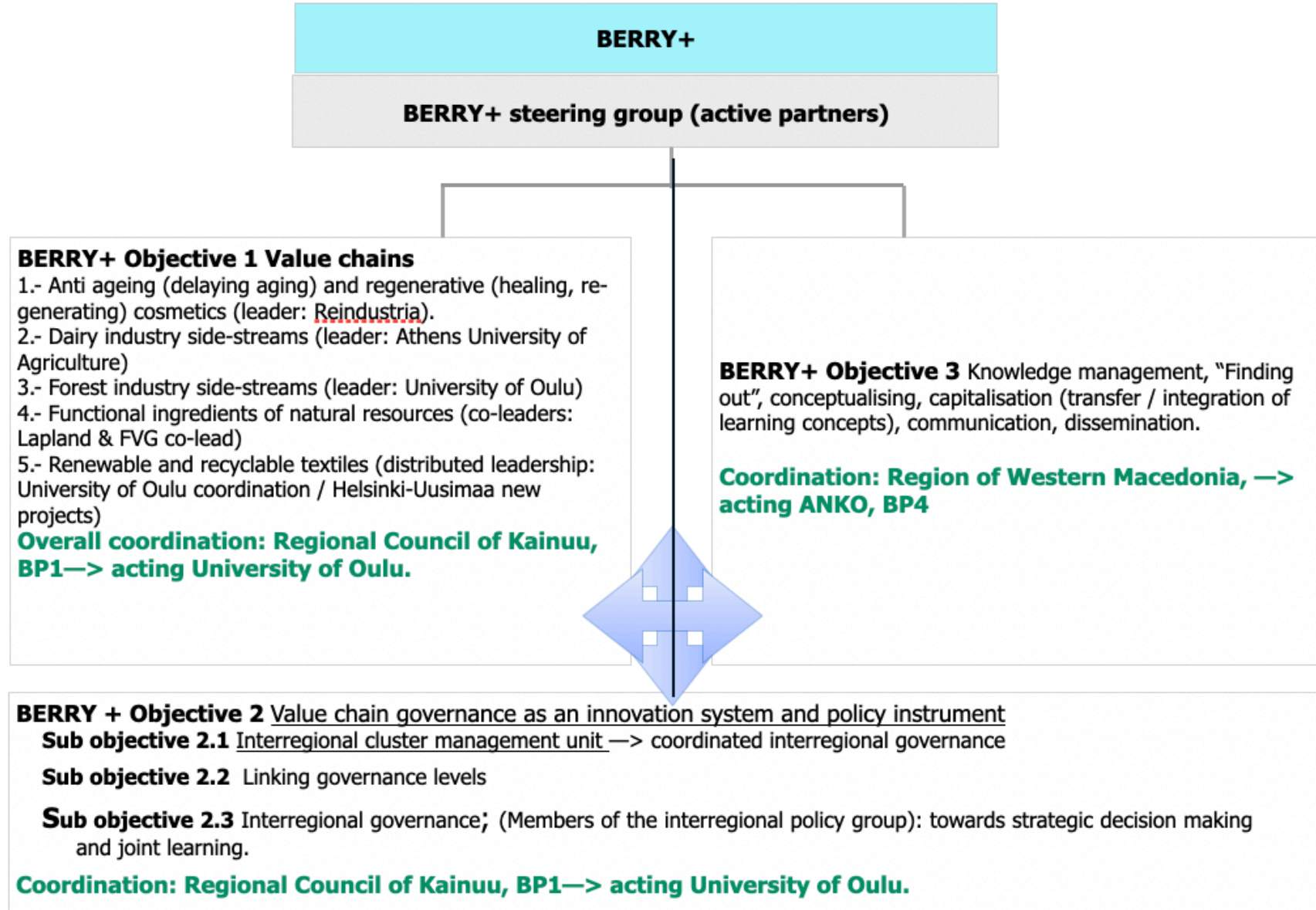


We also involve regional authorities. Why? Because to be able to follow a complete process as the one below, regional policies are needed to review, confirm and enable it.



Radosevic, S., Havas, A., Korosteleva, J., Yoruk, E., Varga, A., Dominguez Lacasa, I., Titze, M., Jindra, B.(2015). Technology Upgrading and Innovation Policy in Central and Eastern Europe. Synthesis report for WP3: Innovation, Entrepreneurship and Industrial Dynamics: Final Report, GRINCOH (Growth-Innovation-Competitiveness. Fostering Cohesion in Central and Eastern Europe) project.

Bettioli, M., Burlina, C., Chiarvesio, M. and Di Maria, E. (2022), "SMEs and the regionalization of global value chains: an untold story from the Italian industrial districts", *Competitiveness Review*, Vol. 32 No. 5, pp. 686-709. <https://doi.org/10.1108/CR-11-2021-0161>



# BERRY+, what was done

# BERRY+, what was done



- We take into account that circular bio-economy might imply radical diversification for certain type of regions.
- Three tree focus areas: (i) submitting project proposals, to ensure practical results; (ii) learning: We worked in depth with the VC coordinators to operationalise the concept of value chain as a development concept with policy, i.e. action plan implications; (iii) action to improve partnership gaps.
  - **Item (i): PROJECT PROPOSALS**
    - One I3 2b proposal, which unfortunately did not pass.
    - One Interreg Europe proposal submitted under the 3rd call (how governance can effectively help implement and benefit from VCs, i.e. how the BERRY+ Objective 2 can best serve the BERRY+ Objective 1).
    - One Horizon Europe WIDENING / WIDERA Talents proposal under preparation.
    - BERRY+ linked to NUTS2 & NUTS 3 intra-regional initiatives ( e.g. MEBIP project)

# BERRY+, what was done



- Item (ii): LEARNING / (Re-activation of value chains)

- We worked in depth with the VC coordinators to operationalise the concept of value chain as a development concept with policy, i.e. action plan implications. Link: see section **BERRY+, (Re) activation of value chains**.
- The restructured the value chain approach, currently tested in VC 1 Anti aging and regenerative cosmetics; VC 2 Dairy industry side streams; VC 3 Forest industry side streams.
- Background tools: Planning documents (several...), VC4 scoping material (FVG + Lapland), 1 article on the multiplier effect of publicly funded research project (Kainuu, Helsinki-Uusimaa, Western Macedonia).

# BERRY+, what was done



- Item (ii): **LEARNING / (Re-activation of value chains)**
  - To build partnerships, we
    - (a) worked on clarifying how to make the VC approach accessible to regions
    - (b) started linking BERRY+ objectives - to- concepts for initiatives and thereof to funding options. We remind that needs & options are not always ex ante aligned.
    - (c) we understood that we needed more regions than those already part of the BERRY+. We decided to ask the S3 CoP to help us with the Smart partnering service. We had applied for our preferred 3 services in 2023: smart partnering, demo cases, and financing.
- Item (iii): **SMART PARTNERING**. Link: see section **BERRY+, Smart partnering**.

# BERRY+, Smart partnering

# BERRY+, Smart partnering



- We had applied for our preferred 3 services in 2023: smart partnering, demo cases, and financing.
- A smart partnering meeting with the S3 CoP expert was organised on 23.11.2023. All partners were invited, those attending were: BP1 Kainuu, BP2 Helsinki-Uusimaa, BP4 Western Macedonia, BP5 Friuli Venezia Giulia, BP7 Lombardia, BP9 Athens University of Agriculture, BP10 Malopolska.
- OUTPUTS: 1) The introductory meeting summarised the BERRY+ interests and path (available, finalised 24.1.2024). 2) Smart partnering recommendations (available, April 2024).



## ● PROCESS

- Two experts were assigned to BERRY+ and we explained the needs. We had two types of needs in effect: identifying relevant organisations for our planned initiatives and, associated to them, regions that might eventually wish to join BERRY+.
- We collaborated throughout February 2024 and identified several suitable organisations, based on the review of the Cordis data base the S3 CoP made.
- The secretariat successfully identified potential partners in food processing, regenerative cosmetics, and the forestry sector, specifically those specializing in market applicable technologies that tackle industrial side streams and raw materials with a circular economy approach. These collaborations align with BERRY+ commitment to the circular economy as a driver for growth, investments, and exports. The projects align with the understanding and utilisation of renewable natural resources as scarce goods, as well as the maximisation of sustainable growth for the partner-regions.
- We are step-by step starting to communicate with the identified organisations.

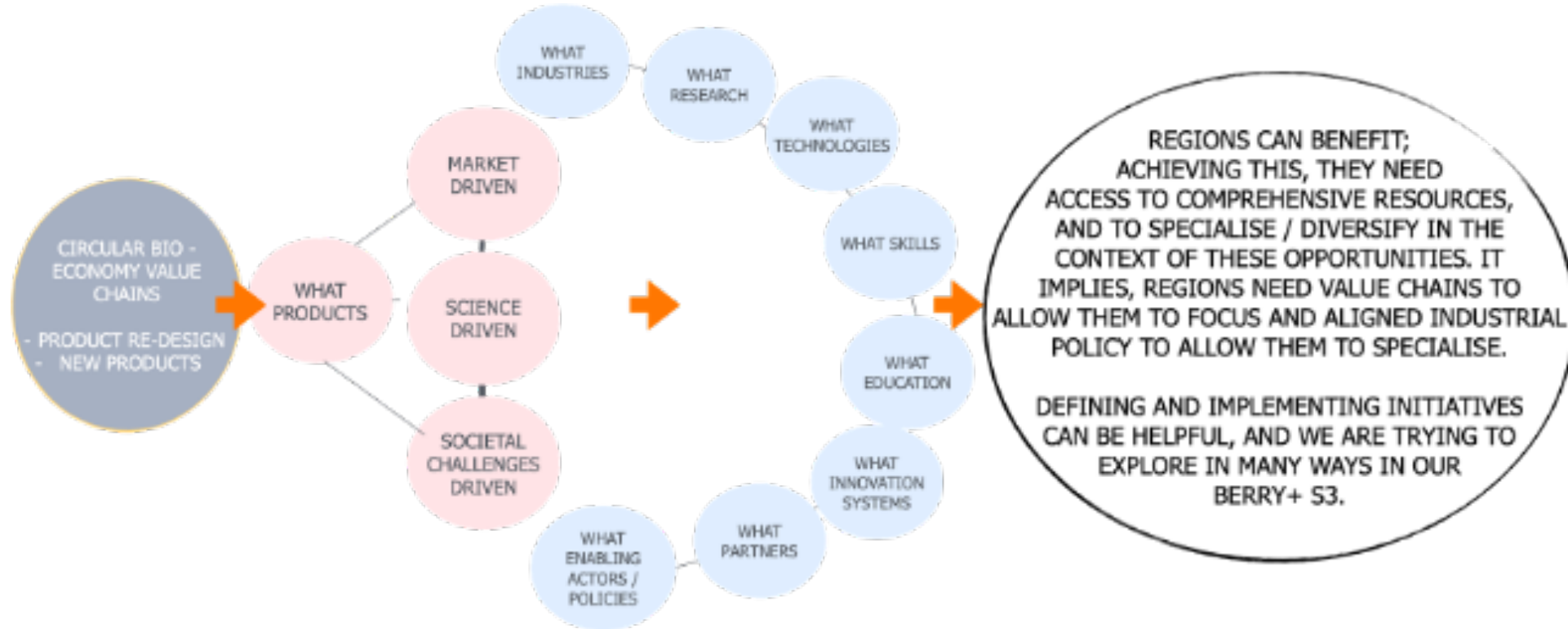
- OUR EXPERIENCE, SOME INSIGHTS

- The smart partnering discussion and service is very important for both, awareness raising as well as identifying new partners.
- We hope it continues and becomes a kind of long-term support during the evolution of the partnerships, as a competitive advantage of S3 partnerships, and can relate also to regional policy makers. We think this is big help for all concerned.
- In parallel, however, we are trying to re-shape our BERRY+ partnership also through own initiatives. Especially, we build on relevant, contacts, that we develop into trust-based exchanges through project participation (for example).
- Trust cannot be overestimated.

# BERRY+, (Re) activation of value chains

# BERRY+, (re) activation of value chains

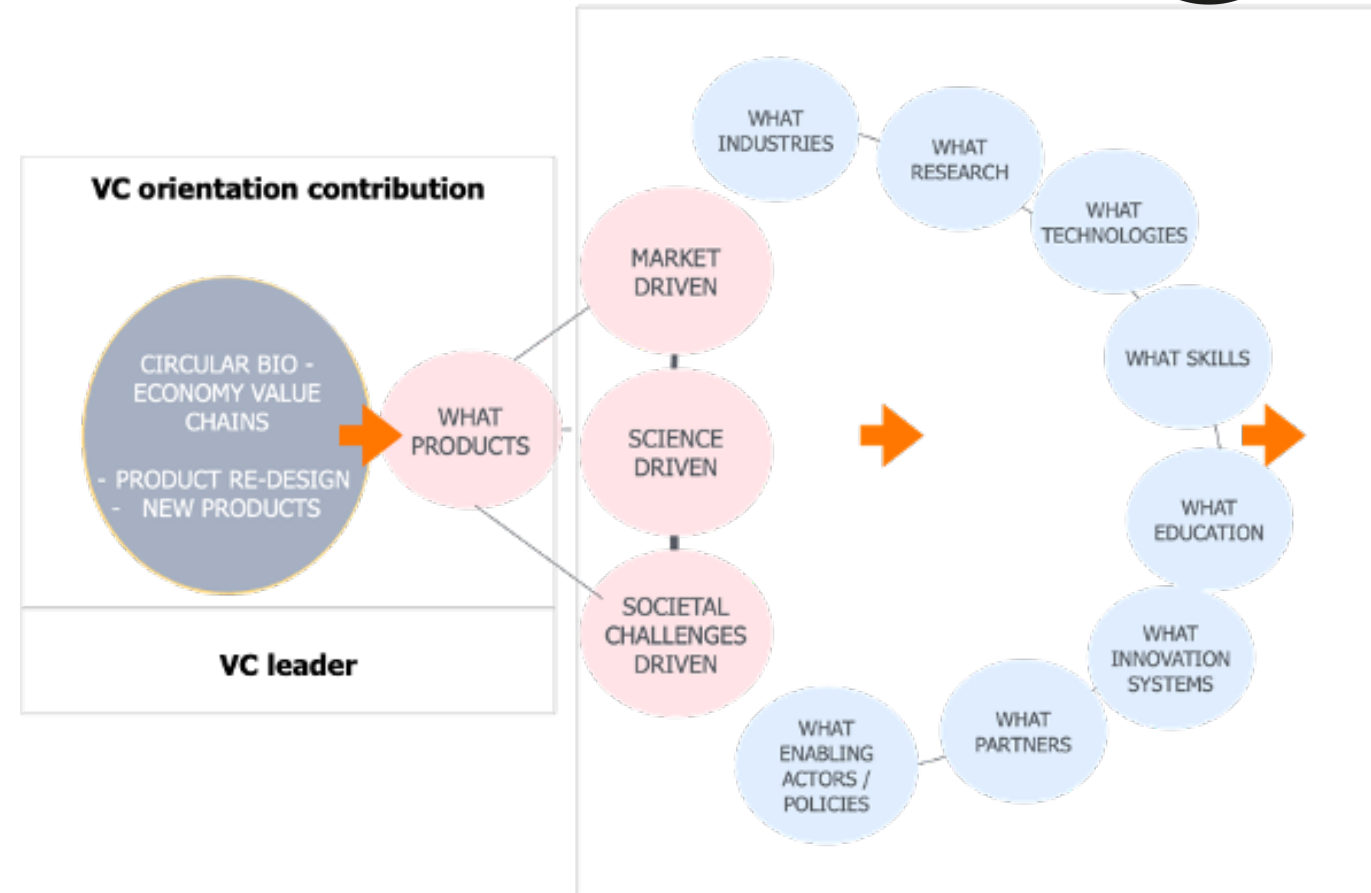
- We take into account that circular bio-economy might imply radical diversification for certain type of regions.
- That is also one reason we need valid, industry-based or science based approach to answer the question “what products” not only “what industries”.



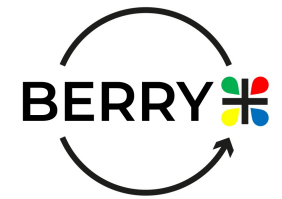
# BERRY+, (re) activation of value chains



- FOCUSING THE VALUE CHAIN APPROACH
  - We expect the VC coordinators to make the 'VC orientation' contribution. The precondition is to involve the right stakeholders, usually advanced research.
  - Then, we build the VC around this contribution and partners are expected to contribute, to set up regional and integional initiatives, to share risk and benefits.



# BERRY+, (re) activation of value chains; VC1



- **Value chain 1, anti aging and regenerative cosmetics;** profiling the orientation contribution

Partners involved in VC1: Lombardy Region, Kainuu Region, Maloposka Region, Western Greece, Western Macedonia, Catalonia Region, Vidzeme Region, Moldova.

## An example from Lombardy Region:

- **IDENTIFIED DEMAND & FAST EMERGING TRENDS**

- Sustainability focus, for example, substitution of micro-plastics in existing anti-ageing products
- New vegetable polymers (rheological modifiers, emulsifiers, conditioners, film-forming agents, fixative agents, foam stabilisers, moisturisers and antimicrobials)
- Diversification of the economic base and circular bioeconomy: raw materials and their byproducts (for example, in Lombardy grapes & wine)
- Development of technologies for transformation/extraction/valorisation purpose of functional ingredients (i.e. algae)

- **IDENTIFIED RESEARCH COMPETENCES:** we start from a basic knowledge of what the public research in our area could do in driving innovations and new product lines for the VC1.

- Knowledge from Pharmacopeia – the traditional use of plants in pharmacology.
- Preliminary study - Mass spectrometry – Characterisation of plants – chemical & biological analysis – extraction & fermentation - security and efficacy testing

- **NEXT STEPS:** VC 1 to discuss and agree initiatives.

# BERRY+, (re) activation of value chains; VC1

- **Value chain 1, anti aging and regenerative cosmetics**

- Spin offs and added value: COSMEND project

- Programme: private funding

- Profile

The COSMEND project aims at increasing the sustainability of the sector, in particular with regard to the circular economy, in order to overcome barriers and difficulties in its application. The purpose is to improve the sustainability on the territory and on the entire supply chain. COSMEND brings together 5 companies in the cosmetics sector, 3 universities, 1 waste treatment company, and REI as leader of the Lombardy Cosmetic Cluster, with the role of coordinator of the activities and partnership.

In the first instance, the project will focus on carrying out a technical-economic feasibility study for the optimisation of the management and valorisation of by-product waste deriving from cosmetic production, in order to encourage a virtuous circular economy and the related positive economic effects.

In addition, it tries to identify new treatments for the recycling of by-products and the development of secondary raw materials (end of waste) in order to introduce new circular business models for the actors involved.

- Linkages to BERRY+: results will be, inter alia, part of the base of the planned VC1 interregional project (Horizon/I3 or LIFE according to the TRL in which we are).

# BERRY+, (re) activation of value chains; VC2

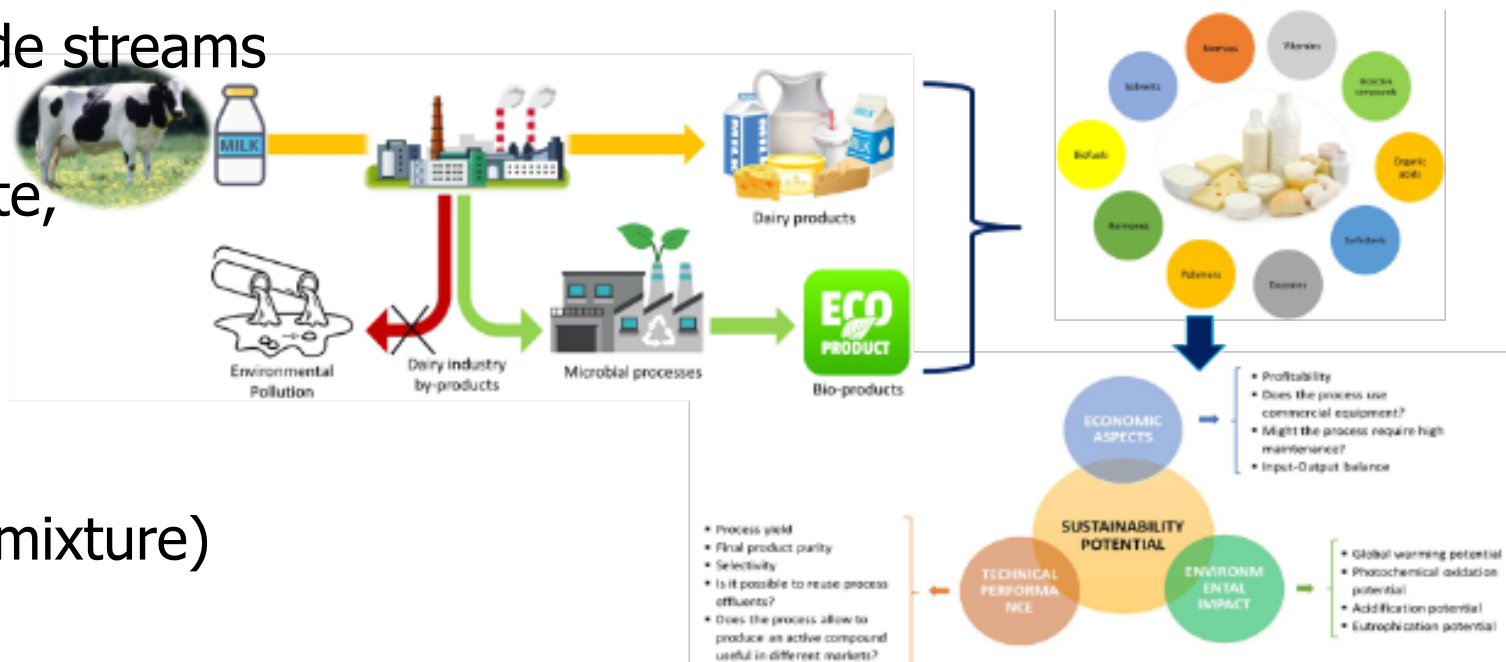


- Value chain 2, dairy industry side-streams; profiling the orientation contribution

Partners involved in VC2: Athens University of Agriculture, Friuli Venezia Giulia Region, Kainuu Region, Western Macedonia, Lapland Region, Vidzeme Region, Moldova.

- Functional ingredients from dairy side streams worth exploring and exploiting:

- whey (whey concentrate, permeate, delactosed)
- brine waste
- waste water
- sludge (microbial mass & protein mixture)



- NEXT STEPS VC2 meeting to map competences, economic base and research available in the regions, and jointly define project concept to proceed.



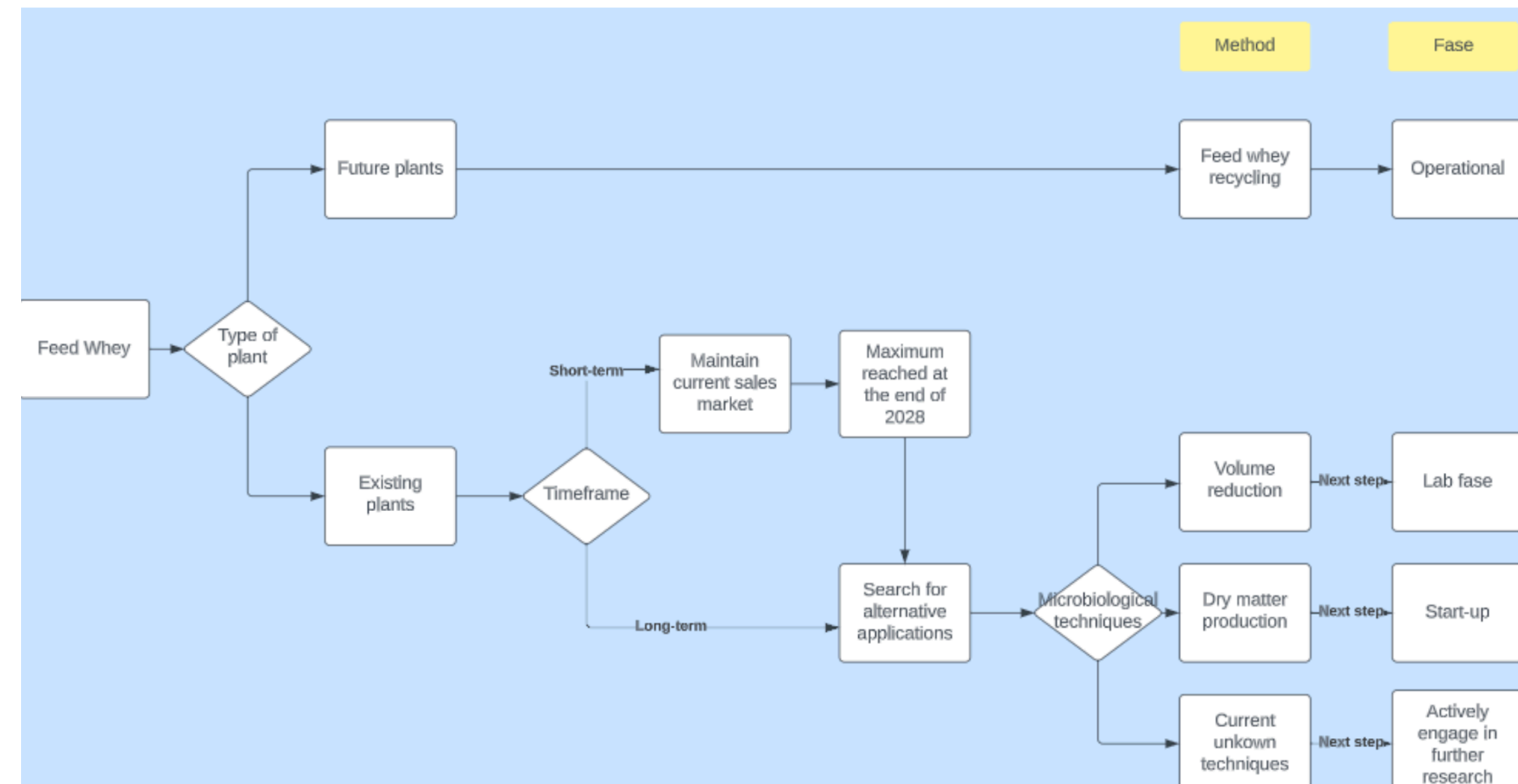
# BERRY+, (re) activation of value chains; VC2



- Value chain 2, dairy industry side-streams; profiling the orientation contribution

- Example of a roadmap for feed whey valorisation.
- Each step of the roadmap, with the associated technologies and knowledge, is a potential collaboration unit.

Source: Jeurissen, S.G.(2023). Dairy side-stream valorisation through the application of microbiological processes. University of Twente, Bachelor Thesis.



# BERRY+, (re) activation of value chains; VC3



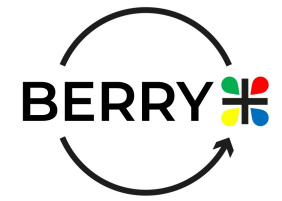
- Value chain 3 forest industry side-streams; profiling the orientation contribution
- Partners involved in VC3: Friuli Venezia Giulia Region, Centro Region, Maloposka Region, Western Macedonia, Kainuu. BERRY+ in-coming regions: Vidzeme Region LV, Moldova; Potential interest: Athens University of Agriculture.
- Functional ingredients from forest industry side streams worth exploring and exploiting:
  - Increase the value of forest industry side-streams to replace fossil fuel-based products (e.g. paints, glues, bio-ethanol, bio-methanol, ...).
  - We are seeking new applications and associated partnerships (e.g. medical, cosmetics).
  - We are seeking holistic solutions to implement the Carbon Neutral Europe strategy, and avoid burning of side-streams.
  - VC 3 meeting on 20.6.2024.

# BERRY+, (re) activation of value chains; VC3



- Value chain 3 forest industry side-streams;
- Spin offs and added value: MEBIP - Processing of the side streams of forest bio-economy into value added products
- Programme: Over-regional JUST TRANSITION FUND [JTF]
- Profile: 3 regions of North East Finland are participating (Kainuu, Lapland and Oulu). MEBIP is aligned and supports the RIS3 of the 3 participating regions.
- The project develops four different separation methods for the utilisation of forest bio-economy side streams. These methods are supercritical carbon dioxide extraction as batch extraction, the solvent extraction process for extracting tannins from softwood bark, the lignin separation method from sawdust and continuous supercritical carbon dioxide extraction. The project researches the chemical composition of the extracts obtained by the above-mentioned separation methods and the bio-activities of the extracts. The project also develops a logistics chain for side streams that are used as raw material, taking into account the preservability of the raw material. In addition, the project surveys the utilisation targets of the technologies being developed and outline possible value chains that can be used in the planning of company-led follow-up projects. During the project, a cooperation network between R&D operators in northern Finland supporting the growth of the forest bio-economy will be built. Interlinkages with BERRY+ are foreseen.
- The project produces generally usable results on processing technologies, utilisation possibilities and value chains of the side streams of forest bio-economy.
- The project is based on current advanced research potential and designed by acknowledging the needs of companies, so it is completely business oriented.
- Processes, results and operating methods are fully transferable and open for further joint development and interregional collaboration, in the context of similar or even different side-streams. Collaborative efforts through BERRY+ are included.
- Budget: 1,1m€.
- Started on 1.6.2024.

# BERRY+, (re) activation of value chains; VC4



- Value chain 4 Functional ingredients of natural resources
- Partners involved in VC4: Friuli Venezia Giulia Region & Lapland (co-leaders), Maloposka Region, Western Macedonia, Kainuu, Western Greece. BERRY+ in-coming regions: Vidzeme Region LV, Moldova; Potential interest: Athens University of Agriculture.
- Focus area: plant based proteins and improvement of foodstuffs through functional ingredients.
- Mapping of functional ingredients and interests done by both col-leaders.
- Interest in pure research, as well as RIA and CSA actions.

# BERRY+, what is needed

# BERRY+, what is needed



- **Conditio sine qua non**
  - 1) COMMITMENT, COMMITMENT, COMMITMENT
  - 2) A systematic approach for evaluating, accessing and negotiating with potential partners.
  - 3) Availability of data at regional level.
  - 4) Coordination resources from the involved regions, to be able to prepare for and also implement the coordination approach.
  - 5) Commitment in depth of regional policy makers. Activation and engagement of relevant and co-production stakeholders.

# BERRY+, what is needed



- Differentiation of initiatives

- 5) Four types of initiatives: we have distinguished our planned initiatives into
  - i) pure, higher level research
  - ii) into research close to market and ensuring diffusion feasibility, benefits for local communities.
  - iii) BERRY+ objectives, concerns, linked to regional initiatives and consciously providing options for interregional collaborations (1 example from Lombardy, 2 from North East Finland).
  - iv) initiatives options to match very very VERY specific policy priorities, i.e. to initiatives that regional policy makers are ready to support and with envisaged multiplier effect.

# BERRY+, what is needed



- Differentiation of reference resources
  - 6) To benefit from regional actors (such as research actors for example) who, through their involvement in and results from, for example, Horizon projects, could lead to interregional alliances.



# Thank you

## Questions welcome

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Photograph by Jyrki Haataja, Metsäkeskus.

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BERRY+ is led by the Regional Council of Kainuu, FI.  
The University of Oulu is coordinating the day to day work.