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INNOVATION**

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boosting your competitiveness in plastics



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Conceptual Framework and Background Information for the Presentation on November 9, 2017: Smart Specialisation Strategies for the Circular Bio-Economy: Results from the Entrepreneurial Discovery Workshop in Fribourg

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Biography

Michael Keller is a research Fellow at the School of Engineering and Architecture of Fribourg where he currently works as Lead Partner for an INTERREG Alpine Space project with Jacques Bersier. He graduated at the University of Fribourg in Economics and Social Sciences where he is an Affiliate Member of the Center for Competitiveness. From 2015-2016 he served as Assistant Editor of the Competitiveness Review, an academic journal published by Emerald. Since 2016 he is a Visiting Lecturer in Strategic Management at LIUC - Università Cattaneo, Lombardy. He has published on competitiveness, clusters and innovation and co-authored multiple policy reports for both private and public institutions.



Abstract

The EDW held on July 13 in Fribourg aimed at identifying transformative activities to foster new value chains in the circular bio-economy of the canton of Fribourg. Existing capacities and opportunities were discussed with a broad set of participants including firms, clusters, R&D and cantonal authorities.

Overview and Aim of the Handout

An Entrepreneurial Discovery Workshop (EDW) was organized in Fribourg on July 13 by the School of Engineering and Architecture (HEIA-FR, Lead Partner S3-4AlpClusters) in collaboration with the cantonal Ministry of Economic Affairs. The workshop focused on the potential of the canton of Fribourg to specialize in the field of bio-economy. The workshop was moderated by Prof. Dr. Dominique Foray (EPFL), Jacques Bersier (HEIA-FR) and Michael Keller (HEIA-FR) and brought together local firms (Nespresso, Micarna, Cremo), clusters (Swiss Plastics Cluster, Cluster Food & Nutrition, Cluster Energie & Bâtiment), representatives from the regional research and innovation system (Innosquare, Plastics Innovation Competence Center, Adolphe Merkle Institute) and cantonal authorities (Ministry of Economic Affairs, Development Agency, Department of Agriculture, Department of Energy, Department of Forestry, Institut Agricole Grangeneuve).

The workshop was one in a series of workshops organized within a collaborative INTERREG VB Alpine Space project called S3-4AlpClusters. Its innovative approach combined the concepts of clusters and smart specialization strategies (S3) and directly applied them to the topic of the circular bio-economy in the canton of Fribourg.

In the presence of the cantonal Minister of Economic Affairs, Olivier Curty, and the Director of the cantonal Development Agency, Dr. Jean-Luc Mossier, a report on the “Status of Cluster Development with Focus on Bioeconomy” was presented by its author, Prof. Dr. Philippe Gugler (Center for Competitiveness, University of Fribourg). The participants then discussed opportunities and challenges for new value chains and transformative activities to be developed in the field of bio-economy based on the existing capacities and resources in the canton of Fribourg.

It is the aim of this presentation to introduce the concepts and tools of smart specialization strategies, as developed and applied in the S3-4AlpClusters project, as an effective way to stimulate a debate in the field of circular bio-economy and to illustrate the argument by sharing the experience from Fribourg. This handout summarizes the conceptual framework and background information for the presentation. Results and further details will be provided in the presentation.

The S3-4AlpClusters Project

How to foster innovation processes within clusters? How to increase the impact of Smart Specialization Strategies (S3) implemented by regional authorities? These are the two central questions addressed in our project entitled “Smart Specialization Strategies to build an Innovation Model for Alp Clusters”. Innosquare Clusters affiliated to the School of Engineering and Architecture of Fribourg (HES-SO HEIA-FR) manages this project as part of the INTERREG VB Program. The project brings together 15 partners from 11 Alpine Space Regions (Piedmont, Lombardy, Autonomous Province of Trento, Venetia, Slovenia, Linz, Salzburg, Bavaria, Baden Wurtemberg, Franche-Comté, and the canton of Fribourg), their clusters and 9 observers. It aims to strengthen the impact of the regional economy’s policies on its enterprises by selecting and prioritizing, through an entrepreneurial discovery process, new innovative value chains within each region. The project is divided into 3 work packages: the first, running right now, determines how to support the policy-makers to best implement S3; the second, in its beginning, defines an innovation model at the cluster level; the third will finally test new services in pilot-clusters in order to better impact enterprises and to facilitate trans-regional cooperation.

Interplay between S3 and Clusters

The project’s innovative approach is its focus on the interplay between the concepts of clusters and Smart Specialization Strategies (S3). For the regions of the European Union the elaboration of a Smart Specialization Strategy (S3) is an ex-ante condition for their participation in the funding program of the European Regional Development Fund (ERDF). S3 are regional strategies fostering innovation by defining strategic priorities and transformative activities based on a reflection about existing regional resources and opportunities for new promising value chains aligned with current and future technological, economical and societal developments. It is the main objective of S3 to establish and collectively explore on new areas of opportunity and to establish structural transformations, “which will possibly form the basis for new local resource concentrations” (Foray, 2015, p.15). As such, S3 do not only feature potentials for development for existing clusters, but especially opportunities for transforming and newly emerging clusters. In other terms, “smart specialization is about the genetic causal moment”, the spark of entrepreneurship which will create spillovers and foster the clustering process of new activities, and stimulate innovation processes and value chains (Foray, 2015, p.59).

First Results

The first period of the S3-4AlpClusters has been completed this summer with the publication of its first results. The first activities of the project aimed at getting a

deeper understanding of the regional S3 and related policymaking within the partner regions and initiating mutual policy learning. Led by the lead partner HES-SO//FR HEIA-FR, Fribourg and the work package leaders VDI/VDE GmbH, Berlin and Anteja ECG, Ljubljana, the existing S3 documents of all participating regions have been thoroughly analyzed and opportunities represented by synergies in the regional S3 summarized in a report on strategic Alpine Space topics for interregional cooperation. A StressTest report on the role of clusters in the implementation process of S3 was produced for each participating region based on an online survey of the regional stakeholders, consisting inter alia of regional clusters and policymakers concerned with regional development and innovation policy. Drawing on these results, the policy implications were summarized in an additional policy report. All achieved results can be downloaded from the project website and will be a keystone for the elaboration of a joint transnational cluster action plan and a fully synchronized scheme, scheduled to be published at the end of the year.

Series of Entrepreneurial Discovery Workshops

In parallel, and drawing on the results from the first project activities, notably the identified synergy potentials in regional S3, a series of Entrepreneurial Discovery Workshops was launched under the lead of Dominique Foray (EPFL), Gerd Meier zu Köcker (VDI/VDE GmbH) and Michael Keller (HES-SO//FR HEIA-FR), where new ideas for smart specialization in new value chains have been discussed in the participating regions in a bottom-up approach involving participants from regional firms, clusters, policymakers and representatives of the regional research and innovation-system. The workshops aimed at defining strategic priorities in new innovative value chains based on the entrepreneurial resources and capacities already existing in the regions and the opportunities represented by developments in technology, R&D and innovation and relevant technological, economical and societal trends.

For each region, a specific topic has emerged in this process - circular bio-economy in the case of Fribourg.

Smart Specialization Strategies - The Case of Fribourg

Smart Specialization Strategies (S3) are generally implemented within a national or regional research, development and innovation policy framework. In Switzerland, a similar concept promoting regional innovation systems (RIS) is implemented within the framework of the Nouvelle Politique Régionale (NPR).

In the canton of Fribourg, the implementation of the NPR is defined by the Programme de mise en œuvre de la NPR 2016-2019, aiming at enhancing the competitiveness of the region and generating added value by fostering regional innovation systems in the following three fields:

- Business Innovation: promotion of clusters and start-ups (Innosquare, Fri-Up), collaborative projects, SME coaching.
- Territorial Innovation: valorization of industrial zones.
- Tourism Innovation: valorization of Fribourg's singularities, relaunch and development of its touristic infrastructure.

Within the topic of Business Innovation, the definition of supported clusters and competence centers further specifies the strategic priorities:

- Clusters: IT Valley, Cluster Energie & Bâtiment, Swiss Plastics Cluster, Cluster Food & Nutrition.
- Competence Centers: Robust and Safe Systems (ROSAS), Plastics Innovation Competence Center (PICC), iPrint Center.

Overall, an analysis of the Programme de mise en œuvre de la NPR 2016-2019 in the light of the S3 concept allows to identify five strategic priorities: Agrofood, Materials,

Energy / Construction, IT and Tourism.

Agrofood

Materials

Energy /
Construction

IT

Tourism

S3 Synergies within the Alpine Space

A particular focus of the project has been put on the identification of synergies and complementarities between the strategies of the regions of the Alpine Space. Therefore, the project has analyzed the regional S3 documents in detail and specifically identified strategic priorities, which are mentioned in the strategies of multiple regions, which represent a substantial potential for interregional collaboration, and which offer, when combined, opportunities for transformative activities (new innovative value chains). The results from this analysis have been summarized in four « Synergy Diamonds », representing on their edges the global strategic priorities and on the axes, potential transformative activities for new value chains identified in the regional strategies. One diamond is of particular interest for the canton of Fribourg since it includes multiple priorities identified in the *Programme de mise en œuvre de la NPR 2016-2019*, namely Agrofood, Materials and Energy / Construction. Between these strongpoints, shared by the Canton of Fribourg with other regions of the Alpine Space, opens a field of opportunities for transformative activities and new value chains (represented on the axes) related to bio-economy, notably biopolymers and bio-energy. The results from this analysis have been summarized through four «Synergy Diamonds», representing at their edges the global strategic priorities and on their



axes potential transformative activities identified in the different regional strategies. One diamond is of particular interest for the canton of Fribourg, since it includes several of the priorities identified in the *Programme de mise en œuvre de la NPR 2016-2019* (above), namely Agrofood, materials and Energy / Construction. Between these regional strength, shared by the canton of Fribourg with other Alpine Space regions, opens up a field of opportunities for new transformative activities (represented on the axes) related to bio-economy, notably biopolymers and bio-energy.

S3 Fribourg:

Agrofood

Energy /
Construction

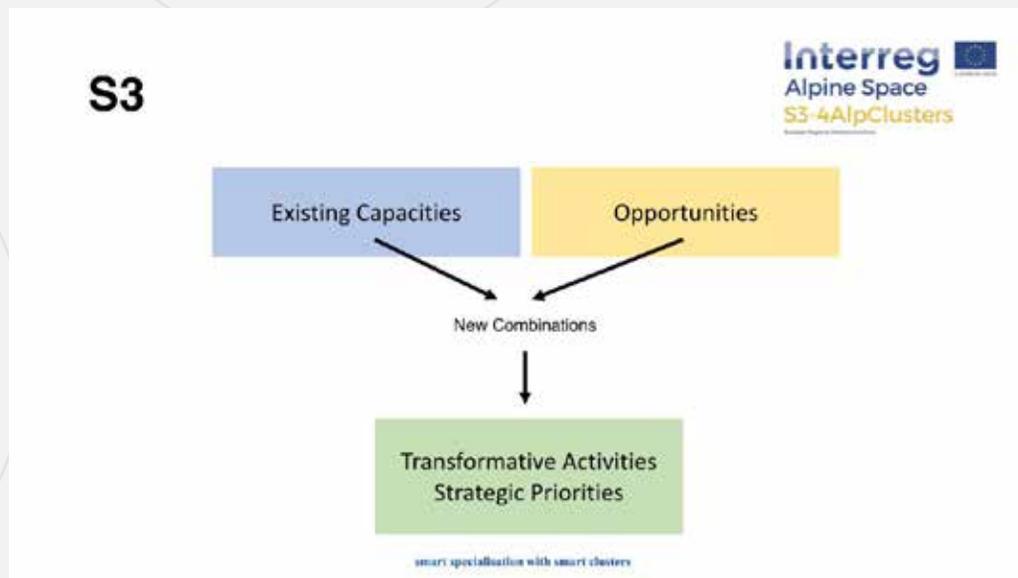
Materials

Circular Bio-Economy in the Canton of Fribourg

Based on the framework and first project results presented above, the Entrepreneurial Discovery Workshop organized in Fribourg on July 13 addressed the following questions with respect to circular bio-economy: Which entrepreneurial resources and capacities

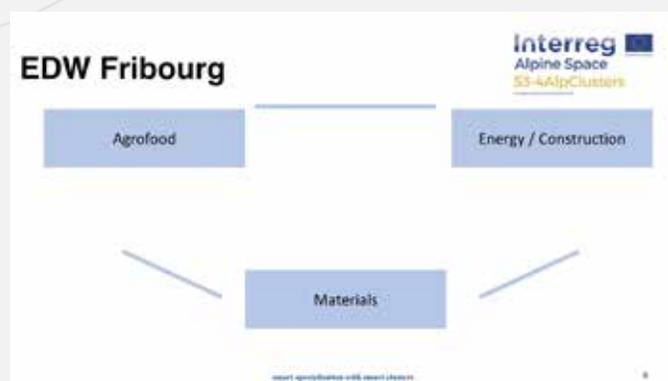
do already exist in the region? Which opportunities can be identified for new transformative activities leading to new value chains aligned with current and future developments and innovations? Which transformative activities and value chains should be prioritized according to the logic of Smart Specialization?

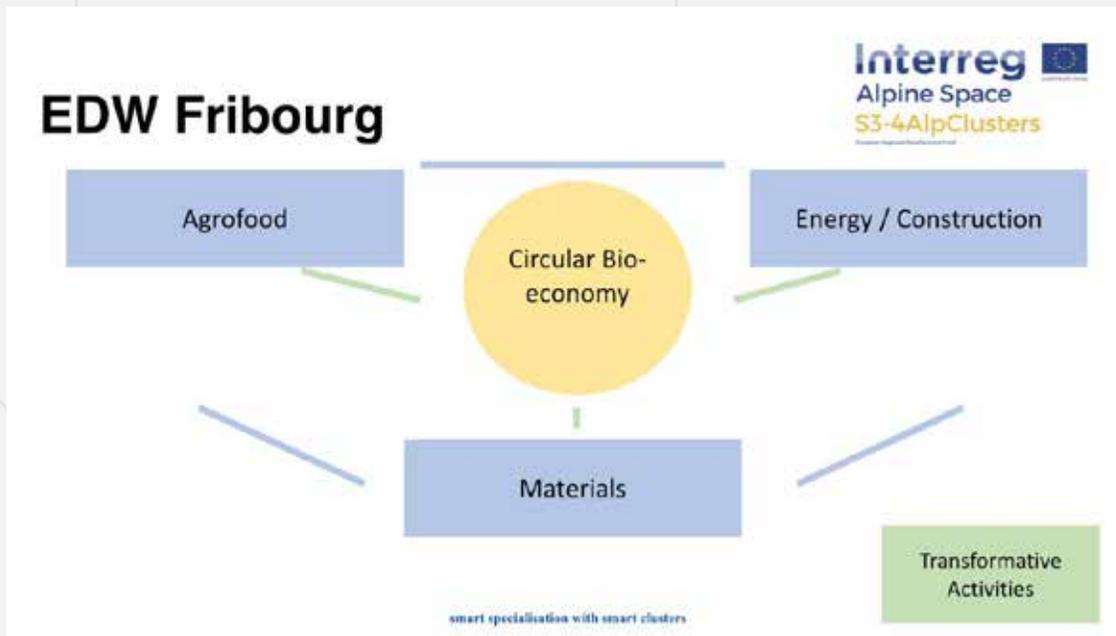
A short overview of the workshop with some selected slides from the presentation follows below. Further details and results, will be provided during the presentation.



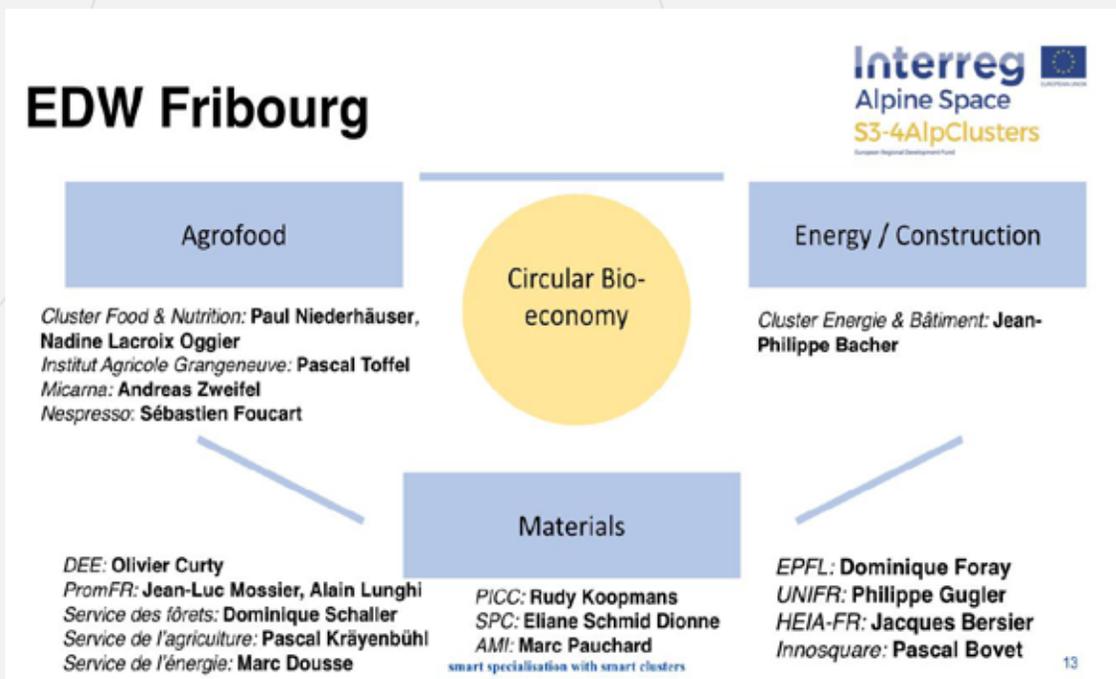
Existing Capacities and Opportunities in the Canton of Fribourg

The analysis of synergies between the regions of the Alpine Space within the S3-4AlpClusters project identified some of the strategic priorities of the Programme de mise en œuvre de la NPR 2016-2019 of the canton of Fribourg to be of interest for the development of new value chains in the field of circular bio-economy. Two in-depth reports elaborated by the Center for Competitiveness of the University of Fribourg (Prof. Dr Philippe Gugler) shed further light on the existing cantonal capacities, entrepreneurial resources and opportunities in this field. A first report on the performance, structure and competitiveness of the economy of the canton of Fribourg numeralized these capacities (notably in the sectors related to Agrofood and Materials) inter alia in terms of relative specialization and employment numbers. A second report on the status of cluster development with focus on bio-economy identified strong opportunities on all three levels of a circular conception of bio-economy, namely biomass production, biomass transformation and production of final products based on biomass.





Within this framework, the opportunities and challenges for new value chains and transformative activities to be developed in the field of bio-economy, based on the existing capacities and resources in the canton of Fribourg, were discussed by the panel of participants from local firms (Nespresso, Micarna, Cremo), clusters (Swiss Plastics Cluster, Cluster Food & Nutrition, Cluster Energie & Bâtiment), representatives from the regional research and innovation system (Innosquare, Plastics Innovation Competence Center, Adolphe Merkle Institute) and cantonal authorities (Ministry of Economic Affairs, Development Agency, Department of Agriculture, Department of Energy, Department of Forestry, Institut Agricole Grangeneuve).



Example for a Value Chain in Nutritional Packaging

Opportunities for Transformation / New Value Chains

Interreg Alpine Space S3-4AlpClusters

Bio-sourced Nutritional Packaging Bio-degradable
Properties: O2 barrier/ tracability / local production

Biomass	Transformation	Production	Distribution	Consumption	Recycling
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Opportunities for Transformation / New Value Chains
Transformative Activities

Interreg Alpine Space S3-4AlpClusters

Bio-sourced Nutritional Packaging Bio-degradable
Properties: O2 barrier/ tracability / local production

Biomass	Transformation	Production	Distribution	Consumption	Recycling
Wood Whey Animal Waste Bio-degradables ...	Direct Use Extraction ...	Production of Packaging ...	Distribution Activities ...	Waste Collection ...	Production of Bio-degradables ...

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Opportunities for Transformation / New Value Chains
Transformative Activities
Capacities? Collaboration?

Interreg Alpine Space S3-4AlpClusters

Bio-sourced Nutritional Packaging Bio-degradable
Properties: O2 barrier/ tracability / local production

Biomass	Transformation	Production	Distribution	Consumption	Recycling
Wood Whey Animal Waste Bio-degradables ...	Direct Use Extraction ...	Production of Packaging ...	Distribution Activities ...	Waste Collection ...	Production of Bio-degradables ...

Existing Capacities?

Interregional Collaboration?

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Swiss Plastics Cluster (SPC)

The Swiss Plastics Cluster exists since 2005. Its mission is to enhance the competitiveness and productivity of its members by actively promoting plastic engineering technologies, fostering public private partnerships, offering tailored continuous staff training, creating exchange, networking and business opportunities between its members and value-adding services. The cluster has over 100 members: swiss industries, academic institutes and national and international partners.



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Plastics Innovation Competence Center (PICC)

Since 1st September 2016 the Plastics Innovation Competence Center (PICC) aims to innovate the world of plastics by providing support and partnership to the Plastics industry. The PICC as part of the University of Applied Science Western Switzerland and the School of Engineering and Architecture (HEIA-FR) brings together the skills and knowledge of the Fribourg Science and Technology Hub to address plastics material science, processing, and product design in support of a circular nature-inspired economy. Immediate practical problem solving and long term applied research form the core of the PICC. The PICC is associated to the SPC as supports its members with technical consulting and specialized trainings.



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