

European Alliance Against Coronavirus

Tuesday 7th July 2020 at 8:30

Activities and opportunities of cooperation with chemical regions of the S3P industrial partnership

Working format is based on “Gilles Rules”:

1. conceptual framework
2. needs and disruptions
3. solutions

Speakers:

- Monika Banka, European Chemical Regions Network
- Lia Voermans, Chemelot Circular Hub, Limburg Region
- Maria Dolors Nùnez, ACCIÓ
- Mattia Adani, Bi-Rex Project, Lombardy Region

[Link to session's recording](#)

1. CONCEPTUAL FRAMEWORK

Project examples and networks

This morning session was focussed on the role of the chemical industry in Europe. The discussion formed around four **innovative and high-profile projects and networks**:

1. **Interregional Partnership for the Smart Specialization on Chemicals**, European Chemical Regions Networks
2. **Chemelot Circular Hub**, Limburg Region
3. **Bi-Rex Project**, Nowal Chimica, Lombardy Region
4. **Flow Chemistry Interregional Hub**, ACCIÓ, Generalitat de Catalunya

The innovative supply chains created by these projects

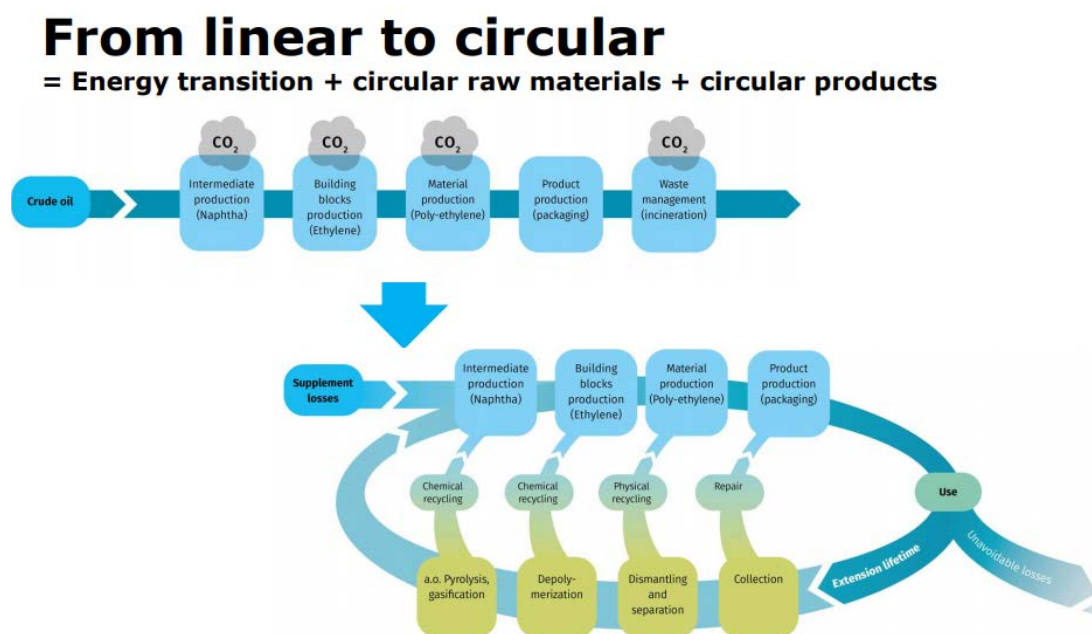
Monica Banka presented the main goal for the Interregional Partnership for the Smart Specialisation on Chemicals, which is the **modernisation of the chemical industry for sustainable, energy and resource efficient sectors** that is globally competitive. **Alternative feedstock, sustainable technology processes, chemical recycling, and plastics recycling** are the four key priorities.

As a next step, the **component 5** will be implemented to achieve these goals. It offers a strengthened support for interregional collaboration in the field of smart specialisation and it gives **an answer to a world-wide trend and shift to global value chains**. It aims to encourage

close-to-market investments involving innovative products and services through the deployment of new technologies or process within European value chains.

Lia Voermans from Chemelot Circular Hub underlined another key aspect which is related to **the investment in talent, technologies, and infrastructure for a sustainable future for the region in order to achieve the Green Deal targets**. She shared her experience in Limburg Region, in which the innovative chemistry industry, in particular the Chemelot Hub, is a growth accelerator for the transformation to a sustainable economy and a socially prosperous future.

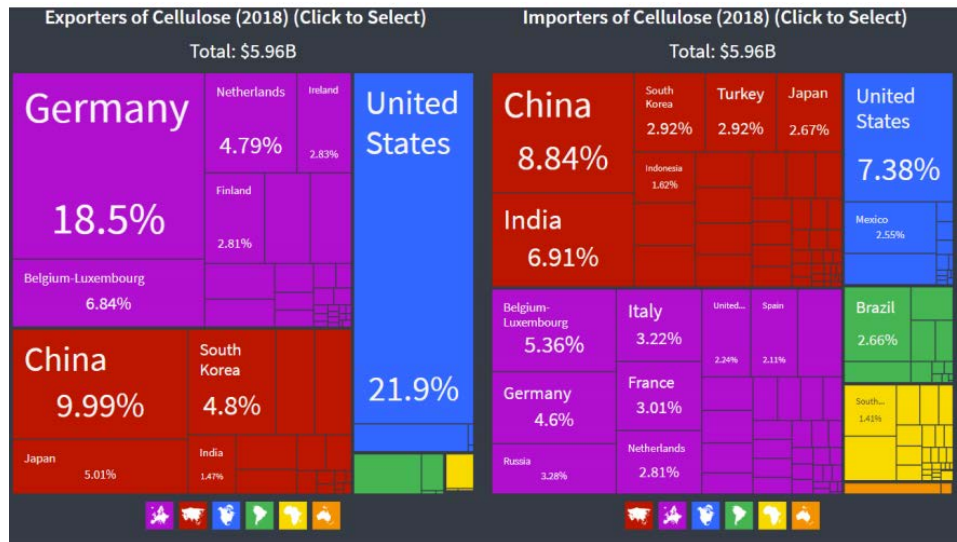
The following picture shows the Chemelot strategy, which explains how natural gas and naphtha are replaced by electricity as an energy source to create a new circular value chain.



To face the **global competitiveness and the sustainable transformation** of the chemical industry, ACCIÓ developed a hub of laboratories and demonstration plants to be able to scale up processes and reactions in continuous flow. This project has an **interregional dimension**. The proposal for the Flow Chemical Interregional Hub is based on three axes distributed in several geographical nodes:

- Pilot plant for process developments
- GMP plants as a demonstrator of process and to carry out clinical batches
- Business Accelerator

Looking at the **global cellulose trade**, Europe is very well positioned, as presented by Marri Adani from the project Bi-Tex.



Bi-Rex aims at manufacturing cellulose using spent agri-food biomasses by using re-usable eco-sustainable solvents called Deep Eutectic Solvents. This project is now in a laboratory status and its goal is to develop an industrial plant in three years. seeking partnerships within the European Chemicals Regions Network.

2. IDENTIFICATION OF DISRUPTIONS

First disruption: Circular Economy application on biomass lifecycle

Source: *Mattia Adani (IT)*

Evidence: Circular Economy represents a cross-sectorial trend for industrial application, showing potentials to open new frontiers of value chain creation and increasing at the same time resource efficiency. Considering the field of chemical industry, its application to biomass recycling shows promising opportunities to reduce resource consumption and fostering the shift towards a Green Industrial Ecosystem (see Bi-Rex project).

Biomasses, which are the waste from farms and agri-food environments, can be exploited to extract materials like cellulose, which has manifold applications (from cellophane to paper production), without the need to cut new trees. In this way, the waste from the first process can be used as input for cellulose production, by treating biomasses with separate water and organic compounds (like sugar) before processing it for cellulose extraction.

Global cellulose proved to be a critical material in the COVID-19 crisis since it can be used to produce sanitizers and has been imported from China with prices increase up to 500%. The cellulose derivatives market is worth globally around 3.7 billion EUR, representing a potential solution for economic recovery and sustainable achievements in the industry. At the same time, it is a market in which Europe is dependent on foreign countries like China and India. Hence, circular economy in cellulose production can improve supply chain resilience and reduce the dependence from foreign suppliers.

Geographical impact: EU

Stage of value chain: waste management, input management

Character of the disruption: new paradigm of biomass application for chemical industries

Time frame: medium – long term

Recommendation:

- **Regulation:** agri-food waste is produced in decentralized local areas in Europe; it is necessary to give clear policy for waste treatment in order to stop its fermentation and use it as input of the recycling process (through solvents treatment at the end of the cycle for example)
- **Coordination:** partnerships with chemical and agri-food clusters are necessary to practically manage the movement and storage of biomasses from local entities to aggregated sites. This is due to the continuous flow necessary for the process to carry on in an economically sustainable way.

Second disruption: Regulation on alcohol usages

Source: Mattia Adani (IT)

Evidence: Italian alcohol availability does not represent a critical issue in terms of production; however, regulations still partially prevent the adaption of alcohol usage for new purposes. This lack of flexibility in regulation application is impacting both on the producer's and customer's side. The alcohol could be used for adaptation of production lines, however it is currently stored to be used for its original purpose.

Geographical impact: Italy

Stage of value chain: raw material procurement

Character of the disruption: regulative norms to limit alcohol consumption

Time frame: medium – long term

EU action needed:

- **Regulation:** flexibility in the application of the norms is needed to timely respond to the environment changes; the results of the unavailability of alcohol might impact both sides of the market in terms of product/material shortage (direct consumer or company's side) and possible customer loss (producer's side).

Third disruption: Raw materials availability & supply chain disruption

Source: Mattia Adani (IT), Maria Dolores Nunez

Evidence: Raw materials treated by chemical industries suffered a disruption in availability, since European industries are not independent; China and India are among the major exporters of raw materials in Europe. The recent pandemic of COVID-19 exposed the lack of resilience in the chemical industry supply chain, since lockdowns have restricted access to products outside the EU.

Geographical impact: EU

Stage of value chain: raw material procurement

Character of the disruption: raw materials access and availability for the chemical European industry

Time frame: medium – long term

Recommendation:

- Green Economy and in particular Circular Economy represent a concrete way to achieve higher flexibility from foreign suppliers, exploiting raw materials already on European field; moreover, resource efficiency goals are present, since input materials are waste from other production processes, allowing cost savings and avoiding natural resources consumption.

IDENTIFICATION OF NEEDS

- Clear regulation on material handling (agri-food wastes, alcohol) to foster Industry recovery
- Partnership through clusters of industries and local entities in order to implement a correct management of the re-usable waste