

European Alliance Against Coronavirus

Tuesday 23th June 2020 at 8:30

Sustainable manufacturing based on circular economy

Working format is based on “Gilles Rules”:

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

Speakers:

- Giacomo Copani, [AFIL](#)

[Link to session's recording](#)

1. CONCEPTUAL FRAMEWORK

About AFIL- Associazione Fabbrica Intelligente Lombardia

AFIL is the regional cluster of the Lombardy Region on Advanced Manufacturing. One of its main objectives is to set up a **stable community** by connecting companies, universities, research institutions and associations in order to favour cooperation and the **development of international networks** through the participation of national intelligent factory clusters (*Cluster Fabbrica Intelligente, CFI*). AFIL is a partner of the Lombardy Region for the **definition of research and innovative policies** and is involved on national level through the **participation as board members in Fabbrica Intelligente** cluster.

Lombardy Roadmap for Research and Innovative Circular Economy

The Lombardy manufacturing sector is placed first in Italy and the third in Europe for its economic relevance and for its potential in **circular economy, which represents one of the Lombardy Region's priorities**.

AFIL strategic communities are composed by a group of clusters, and their members are jointly committed in strategic challenges for regional manufacturing sectors. The members contributed to the development of the Circular Economy Roadmap by expressing the real needs of the territory and the new priorities in accordance with the state of art of this paradigm.

The roadmap follows a both a **top-down** and **bottom-up approach**. From the top-down point of view, the roadmap allows **synergies within EU and national policies**. From the bottom-up point of view, it is the result of the long-lasting effort of the Lombardy Region to cooperate with other Italian and European Regions in the definition of cooperation strategies, which reinforce regional competitiveness by exploiting synergies and complementarities to achieve wider critical mass for global competition.

The roadmap sets the future framework for **secure and sustainable food manufacturing, artificial intelligence, and circular economy** with **strategic research and innovative priorities**, which include the design of a circular economy and the pricing strategies to increase the willingness to buy of sustainable products. You can download the document via this [LINK](#).

During the session, several international projects and initiatives on CE in Lombardy Region, where AFIL is involved, were presented:



- **ESM** in the S3 Industrial Modernisation Platform, which **developed 5 demo-cases** mobilising more than 300 stakeholders in 20 EU Regions. Lombardy is mainly involved in the **de- & re-manufacturing phase**, with the goal to exploit the regional smart specialization in a synergic way to offer services to the European end-user (mainly manufacturing companies).
- **FiberEUse** project is a large-scale demonstration of the new Circular Economy value chain based on the refusal of end-of-life fiber-reinforced composites. It started in June 2017 and involves 21 partners from 7 EU countries.
- **CarE-Service** is an innovative action which offers circular economy service for re-using and manufacturing hybrid and electric vehicles. It started in 2018 and involves 15 partners from UE countries.
- **DigiPrime Project** is a digital platform for circular economy in cross-sectoral sustainable value networks developed in order to unlock new circular business models based on the data-enhanced recovery and re-use of functions and materials from high value-added post-use products with a cross-sectoral approach. It started in January 2020 and now involves 36 partners from EU members.

2. IDENTIFICATION OF DISRUPTIONS

First disruption: lack of regulation in secondary materials and resources management

Source: Giacomo Copani (IT)

Evidence: The circular economy (CE) systems provide for a more efficient and more effective use of resources, where the flows are not static and bound by one-directionality, but they fall circularly in the upstream phases of the production system or within other production systems. The possibility of reusing natural resources several times increases the efficiency and effectiveness of economic systems, with the consequent possibility of reducing the exploitation of natural resources and the consequent environmental impacts. However, when materials are discarded from economic processes, they must follow waste management rules. In fact, when waste is reusable, it could be a clash of regulations, because waste reuse rules are regulated at the national level and often, each country has their own. The European Community has drawn up guidelines, but their application is made on a national basis. In this context, some Member States show more flexibility and agility to act than other. Because of this regulation barriers, some companies and value chains are ready to operate fostering circular economy paradigm: they own the technologies and processes, but production is blocked by national regulations.

Geographical impact: EU

Stage of value chain: Raw materials management

Character of the disruption: Regulation

Time frame: short and medium terms

EU actions needed:

- **Regulation:** some companies are not able to act in view of circular economy because of the national difference in terms of regulation. A homologation and standardization processes are required.

Recommendation:

- The potential of circular economy is present in all value chains. Companies need to be supported to implement and adopt circular economy actions.
- Research and development of new products and processes that follow circular economy concept arise, but also regulations and bureaucracy must keep up.

Second disruption: Circular economy to foster European Economic Recovery

Source: Giacomo Copani (IT)

Evidence: In the recovery from the economic crisis generated by the pandemic, implementing circular economy activities can help already in the transition phase. The Covid-19 crisis has given a strong

shock to many sectors: some companies have postponed their circular transition projects, but the transition has not been cancelled.

As it was reported in the minutes of June 22, the transition phase can be supported in terms of green, digitisation and resilience development. Technology as a tool to support the circular economy can help in the conversion of production processes. Digital technologies, such as the use of VR or robotics, can help companies recover and maintain safe distances.

Geographical impact: EU

Stage of value chain: design, manufacturing and products/services lifecycle management

Character of the disruption: CE strategies and best practices to support the post-crisis EU economy restoration

Time frame: mid and long term

EU actions needed:

- **Coordination:** in order to speed up the process
- **Funding:** The transition of linear production to a more circular one can be complicated and costly, especially for SMEs. Funding are necessary to support the transition.

Recommendation:

- In this transition phase, it is possible to resort to both a top-down and bottom-up approach. The first is the issue of regulations and proceeds from the EU to the Member States. The second moves from companies and their production processes.

IDENTIFICATION OF NEEDS

- Speeding up the regulation processes on national levels, in order to restart the activities

Source: *Giacomo Copani (IT)*

- Create a Roadmap to support companies in adopting and implementing Circular Economy paradigms

Source: *Giacomo Copani (IT)*

SOLUTIONS

- Consider both top-down (regulations) and bottom-up (industrial opportunities and needs) approaches to restart and to foster sustainable manufacturing, circular economy and industrial symbiosis actions
- Use advanced and digital technologies (e.g. Robot or VR) to help companies resume their business in full compliance with security regulations, acting within a green transition economy