European Alliance Against Coronavirus

Monday 29th June 2020 at 8:30

Analysis of disruptions in Advanced Materials

Working format is based on "*Gilles Rules*":

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

Speaker:

- Dolors Pla, Cluster MAV

Link to session´s recording

1. CONCEPTUAL FRAMEWORK

Disruptions of value chains

Dolors Pla started her speech with an overview on the global economy, indicating that the **industrial production in China had severely fallen by 13.5% in January and February,** compared with the previous year. She underlines the consequence of this event on all the global supply chains especially for the EU countries, who are very **dependent from China and its raw materials production.**

COVID-19: learning and challenges

Dolors spoke about the consequence of this dependence for different sectors: healthcare, automotive, SMEs (protective plastic components) and pharmaceutical.

Related to the healthcare sector, she asked to important question **"how to retain the know-how and innovation created?".** As she said, in order to react to the slowdown in the Chinese manufacturing production capacity, the 3D printing was a quite efficient solution, but it was not enough for meet the global demand. **3D printing** is probably one of the **key technologies** for the future, but it also needs to be improved.

Moreover, a safe management of waste from health care activities is necessary, as well as increasing recycling for the face masks in order to not create an environmental contamination. If we want to achieve this goal, we have also **to increase the recycling of SME waste.**

Regarding the automotive sector, it is clearly important **rethinking the stock strategy for critical components.** Indeed, during the crisis, this sector registered a bottleneck in raw materials procurement, trading and logistic and as a consequence the manufacturing process was stop all over the word with an huge decrease in the wholesaling and retailing activities.

Vaccine and hypothesis of a possible scenario

Because of the bottleneck in raw materials procurement and logistic, the active ingredients for vaccines were limited, with the consequence of restrictions in production capacity. Now we are aware

that it is necessary **to set up a strategy to promote suitable vaccine in a short time** and find a way to **bring the most part of the active ingredient's production back to Europe.**

In order to monitored all the progress in the vaccine's research, the World Health Organisation drafts a landscape of COVID-19 candidate vaccines.

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2. IDENTIFICATION OF DISRUPTIONS

First disruption: European supply chains weakness and issues in raw materials management processes

Source: Dolors Pla

Evidence: The COVID-19 crisis is generating a widespread vulnerability along entire supply chains, including the raw materials supply. A competitive repositioning is needed which implies a greater coordination among the stakeholders to face the crisis. During the session on advanced materials, raw material criticalities of some supply chains have been discussed:

1. **Healthcare**: supplies for surgical gowns, gloves, masks, respirator protective devices and many others. The reduced availability of materials necessary to manufacture sanitary devices has created a bottleneck in logistics, with a consequent increase of supply delays and good prices. Moreover, reduction in Chinese production capacity (main global producer) and the increase in world demand have aggravated the situation. In fact, China lost 13.5% of productivity in the months of January and February alone. In this emergency context, innovation represented a solution. New solutions, materials and techniques (such as 3D printing) have made it possible in some cases to react quickly. The big issue is the quality and the homologation process. Also, 3D printing cannot alone meet the demand. Furthermore, the high usage of single-use material has generated an increase in infected waste, which could contain pathogens and could pose a risk of disease transmission.

2. **Automotive**: Car usage has suffered a huge drop, generating a demand reduction, that caused issues for all the supply chains. Component manufacturers suffered big problems in raw materials supplies. All the stakeholders have suffered the timeline disruption, creating also a strong cash flows liquidity reduction that leads to difficulties in the management of short- and medium-term financial flows.

3. **Lack of protective plastic components** (e.g. PMMA and PVC): Manufacturing and processing companies have limited production capacity which has been unable to cope with global demand. It has not feasible to increase production capacity in the very short-term.

4. **Vaccine**: 70% of the ingredients comes from China. When the vaccine will become available, there will be a very high global demand and Chinese supplies will not be sufficient. One possible solution is to bring production back to Europe, but it is a choice that must be designed very well from a technological, strategic and political point of view.

Geographical impact: EU

Stage of value chain: Raw materials supply

Character of the disruption: lack of raw materials and strong dependence from Asian markets

Time frame: short-term

EU actions needed:

- **Coordination:** strengthen collaboration and cooperation between European industries
- Incentives for circular economy

Recommendation:

- In general, there is a strong dependence from Chinese markets and supplies within the European sectors and supply chains.
- Innovative technology can be a solution. For example, 3D printing techniques have been represented as a key factor for prototyping of new solutions during the pandemic. However, new solutions are not always easy to homologate and often the main barriers are more political and strategic than technological.
- Furthermore, getting access to materials can be achieved by recycling and thus bringing materials back to the value chain. This needs incentives and sustainable economic conditions, e.g. reducing taxes.

Second disruption: EU dependence from Asian markets and EU know-how as competitive advantage

Source: Manuel Miranda Martinez

Evidence: Supplies of critical materials, steel, mining and in general the heavy industries are very critical and fundamental for a huge number of industrial sectors. It must always be kept in mind that for many of these materials, Europe does not have mines and stocks, so it would be practically impossible to obtain independence from the Asian or South American markets. In contexts where it is not possible to compete, such as in the raw materials supply chains or in production capacity of several sectors, Europe must build its competitive advantage on knowledge and know-how. European excellence can allow Europe to be a leader in terms of innovation and research in many sectors. Also, sustainability and cleaner production represent key pillars for long-term competitiveness, where climate issues and environmental problems will be increasingly restrictive. European value chains have to be always greener, integrating ecology as a main strategy.

Geographical impact: EU

Stage of value chain: strategy

Character of the disruption: dependency on China

Time frame: medium and long term

EU actions needed:

- **Regulation:** improve regulation process for homologation of European innovation, lowering barriers and acting especially from a politics and strategic point of view

Recommendation:

- Intellectual Property (IP) management is essential for the protection of European know-how and must be increasingly managed at European level.

- Although in the founding principles of the European green transition there is the goal of not leaving anyone behind, it is equally true that it is essential to have leading companies in this, to avoid going too slow.

IDENTIFICATION OF NEEDS

Reduce the dependency on many supply chains from China (where possible), placing the main strength on know-how and sustainability strategies.