

Channeling signals from the ground

## **Disruptions in the European value chains and industrial ecosystems, solutions and setting up of EU Rapid Alert Function**

**2020** May - August

Since the outbreak of the COVID-19 crisis, the European economy has been suffering disruptions in its value and supply chains throughout its different ecosystems. In the virtual morning meetings of the European Alliance Against Coronavirus, its members gave evidence from their ecosystems, shared knowledge, good practices, and proposals for solutions. Thus, the European Clusters Alliance created 14 weekly reports for the European Commission to inform about these disruptions, current challenges, and trends for the future.

This project leverages on the added value that clusters bring in terms of detecting signals of value chain, in order to:

- understand the reality,
- think in needs,
- identify potential solutions and
- transfer to and act in networks.

The challenge was to detect disruptions, explore and develop innovative proposals, which built on the speed of information, detection of secondary regulatory issues and operational rapidity. Clusters have direct relations with market players and are able to detect and deliver the signals of disruptions of supply chains.

The activities took place from May to August 2020.

The working group was composed by:

- European Clusters Alliance that it is the European reference point of the National Association of Clusters as coordinator of Rapid Alert Function activities;
- REI – Reindustria Innovazione, as support in disruptions identification and documents reporting.

The European Clusters Alliance is a bottom-up initiative that gathers 13 National Cluster Associations, representing more than 700 clusters, where 112,000 of our most innovative businesses collaborate with thousands of universities, research centers and public institutions to boost their competitiveness. Its mission is to be their commonvoice, facilitating connections and opportunities to meet the challenges they face.



Antonio Novo Guerrero  
*President*  
antonio.novo@clustersalliance.eu



Nina Hoppmann  
*Project Manager*  
nina.hoppmann@idia.es

# Working group

REI is a dynamic company that facilitate innovation and the implementation of effective activities for local socio-economic development. The value of REI lies in the creation of corporate partnership made up of Local Authorities, Trade-Associations and Territorial Public or Private Law Authorities.  
This approach ensures multi-stakeholders development of projects, aimed at creating group synergies and a collaborative mix of collective benefit.



**Ilaria Massari**  
*General Manager*  
Role: general coordinator  
imassari@reindustria.com



**Davide Boselli**  
*Communication & Marketing Manager*  
Role: daily minutes creator & social media  
dboselli@reindustria.com



**Luca Alessandro Patti**  
*Junior Project Manager*  
Role: daily-weekly reports creator & disruptions analyst  
lpatti@reindustria.com



**Elisabetta Dossena**  
*Junior Marketing Manager*  
Role: Conceptual Framework creator  
edossena@reindustria.com



**Rita Longari**  
*Junior HR Manager*  
Role: invitations management  
rlongari@reindustria.com



**Elisa Carelli**  
*Marketing Manager*  
Role: daily minutes and articles creator  
ecarelli@reindustria.com



**Ilaria Brambillaschi**  
*Secretary & Designer*  
Role: support in creating contact database  
ibrambillaschi@reindustria.com



**Consultant**  
**Roberto Rocca**  
*Researcher of Politecnico di Milano*  
Role: daily-weekly reports creator & disruptions analyst  
roberto.rocca@polimi.it

# Working group

## *GRO/SME/20/F/205B-2 - Report on disruptions in the European value chains and industrial ecosystems, solutions and setting up of EU Rapid Alert Function*

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## 1. Executive summary

In mid-February 2020, Europe registered its first cases of COVID-19. Since then, the outbreak of the coronavirus and the following sanitary and economic crisis has severely impacted our lives and has led to a series of changes that our society and industries are undergoing.

The European economy has been suffering disruptions in its value and supply chains throughout its different ecosystems. To give an example: at the very beginning of the crisis, the main disruptions were related to healthcare (e.g. lack of PPEs) or difficulties to be supplied with raw materials. However, over the last months, the pandemic has continuously interrupted the usual flow of activities for European companies and has brought to light the necessities to adapt and rethink our business models and value chains.

This report summarises the activities of the European Clusters Alliance (ECA) to detect the above-mentioned disruptions in the European ecosystems, to analyse them and to propose solutions. ECA started these activities in mid-March and created the European Alliance Against Coronavirus (EAAC), an open forum joining social and industrial clusters with many other private and public agents and institutions. Some weeks later, ECA was invited to participate in the Rapid Alert Function, guided by the European Commission, with the aim to report evidences, identify needs, suggest corrective actions and try to measure impacts and bottlenecks created by the pandemic. Thus, ECA started then a loop process that improved itself day by day to understand reality, think about needs, identify potential solutions, and transfer these solutions among its networks.

From May 15<sup>th</sup> to August 20<sup>th</sup>, all information was summarized in daily and weekly reports. Altogether, 14 weekly reports were realized. Moreover, the European Alliance Against Coronavirus has grown as an open innovation network which involves more than 1,100 experts. To get a full view of the situation of the European companies, the reports explained the evidence from the ground that indicated a disruption, its geographical scope and time frame, the stages of the value chain affected, ideas for possible solutions and actions taken, as well as the further needs from the European Union or other stakeholders. Overall, the European Clusters Alliance collected 84 disruptions in this way.

The need for digitalization and to close the digital skills gap have been one of the most recurring topics, making the digital ecosystem the most referenced ecosystems in the meetings of the EAAC. Regulations, Supply Chain Disruptions, and Material Availability are further keywords that describe the difficulties European industries were and are facing. The measures to contain the coronavirus, the mobility restrictions of people and goods, and unclear legal frameworks led to shortages of component supplies and raw materials, forced businesses to stop their activities across the different ecosystems, and led to an income reduction and financial uncertainties. The most impacted ecosystems in this sense are the Mobility – Transport – Automotive, Energy-intensive Industries, Tourism, Aerospace & Defence, Agri-food, Renewable Energy, Retail and the Creative and Cultural Ecosystem. The evidence given by the members of the European Alliance Against Coronavirus shows that all stages of the value chains can be and were affected in different manners.

The disruptions analysis represents the starting point for designing efficient and effective solutions to revive the European economy in the post COVID-19 period. To fix the disruptions and make the value and supply chains stronger, the ECA collected proposals for cooperation, regulation and funding for the respective issues. The aim is to work together for a greener, more digital and resilient Europe. Clusters can play an important role in achieving this aim, and they have been fundamental in a quick response to COVID-19. They represent all sectors of the European economy, but they are not strictly sectoral. Due to their network nature, they run many cross-sectoral projects at the same time, between multiple companies and researchers from different Member States.

In fact, clusters represent the compass of economic-industrial contexts, able to support companies and supply chains to be more resilient and addressing endogenous and exogenous problems in a more efficient way. Moreover, ECA's activities in disruption mapping, report and daily sessions show a set of best practices for replication regarding the adopted bottom-up approach adopted. The process put in place in these months represents an

effective tool to address disruptions in the fastest and most secured way, providing legal certainty to stakeholders and fast reaction opportunities.

It is a unique resource for detect weak signals, to have a direct contact with policymakers and to receive fast feedback from the economic players, both local and national.

During the crisis we understood that resilience is a property of the network, the European Network, and not of single entities. Now it is necessary to reinforce European leadership through clusters, which connect actors and implement innovative proposals in order to facilitate the post-COVID economic recovery. Clusters should continue to be a partner of the Commission to solve European economic challenges in a long-lasting corporation.

## 2. How to detect disruptions - the EU Rapid Alert Function

The idea of an EU Rapid Alert Function was mentioned in the EU's roadmap for recovery "Europe's moment: Repair and prepare for the next generation". As part of this function, the European Clusters Alliance, in close collaboration with REI – Reindustria Innovazione, a territorial development agency based in Cremona (Italy), started an iterative process under the umbrella of the European Alliance Against Coronavirus to detect, analyse, and report disruptions in value and supply chains to the European Commission, DG GROW, from May 15<sup>th</sup> to August 20<sup>th</sup> 2020.

### 2.1. An alliance to fight COVID-19

The European Clusters Alliance (ECA) is a bottom-up initiative that gathers 13 National Cluster Associations, representing more than 740 clusters, where 134,000 of our most innovative businesses collaborate with thousands of universities, research centers and public institutions to boost their competitiveness and innovation.

ECA unites industrial clusters across sectors and regions and gives them a common space, facilitating connections and opportunities to meet their short- and long-term challenges at European and global level. The alliance coordinates joint cluster responses, builds recommendations to policymakers, and serve as a bottom-up and top-down channel to connect European institutions and European clusters.

On March 16<sup>th</sup>, ECA contacted DG GROW making itself fully available to fight the effects of COVID-19. In under an hour, ECA received a very specific request: It was imperative to map the resources and capabilities to produce masks identified as critical in the fight against the virus. After spreading that request to their European network, the Commission received a detailed database only four days later - with more than 1,300 companies and entities at a European level that quickly made their resources available.

ECA immediately reached out to their partners, finding some of them participating in several volunteer networks, social movements, such as Frena la Curva in Spain, or the Makers. Together, they coordinated their respective activities on a daily basis, sharing a practical vision: the most urgent needs have to be rapidly solved without losing sight for mid- and long-term solutions.

These activities showed: Coordination was critical and should be scaled up to the European level. ECA convened the first European online meeting on March 26<sup>th</sup>, clearly presenting an open and inclusive spirit with a broad spectrum of crisis related topics, based on shared leadership. The European Alliance Against Coronavirus (EAAC) was born, which has been meeting daily, even on weekends.

Those attendees include representatives from a huge spectrum of entities:

- Purely civic movements, e.g. the Italian MyLifeDesign or the Portuguese Plano de Ação
- Social entities, some grouped into Social Economy clusters
- Companies, research centers and universities grouped into Industrial clusters
- and institutions, such the European Economic and Social Committee, or the European Commission (Directorates-General: Grow, Regio, Santé, the JRC, etc.)

With the daily meetings and its open dialogue, the EAAC has created a new approach to connect European stakeholders across sectors and disciplines among each other and with the public institutions. Through the EAAC clusters, policy makers, universities, companies and social economy stakeholders have created valuable new links of cooperation among each other and across Europe.

The daily morning videoconferences of the group have seen the participation of around 1,100 experts from different sectors, and more than 7,000 attendants overall (summing up the daily participation). Thus, the alliance has created - in a very short time frame - an active network and pool of knowledge, which quickly moved with the development of the crisis.

In the daily meetings, the EAAC aimed at understanding reality, thinking about needs, identifying potential solutions, and transferring and acting among networks through exchanging new information, current experiences, and expertise. The detection of “week signals” that indicate disruptions was possible because of the clusters’ closeness to the market and ecosystems. Over the weeks, this has granted a prompt and reliable identification of disruptive trends through a widespread net of «sensors» at local level, which are cluster themselves.

One element of great added value given by the European Clusters Alliance and the Rapid Alert Function is the direct feedback from industries to the European Commission about policy applications, intervention needed, and the awareness about disruptions of value and supply chains. All information was collected in altogether 14 weekly reports and shared with the European Commission. In this way, European Commission had direct access to information on disruptions and bottlenecks for policymaking.

## 2.2. Making disruptions visible

The European Alliance Against Coronavirus has addressed and identified the main needs and disruptions suffered by European industries after the coronavirus outbreak. The aim was to promptly identify concrete cases of changes in Europe’s ecosystems and to examine actions to be undertaken.

The activities followed the ecosystem approach as introduced by the European Commission for the recovery. Altogether, the Commission defined 14 ecosystems that account for approximately 90 % of the European Single Market to implement the goals of the green and digital transition and resilient value chains. Thus, the EAAC looked at these ecosystems to detect disruptions and propose solutions.

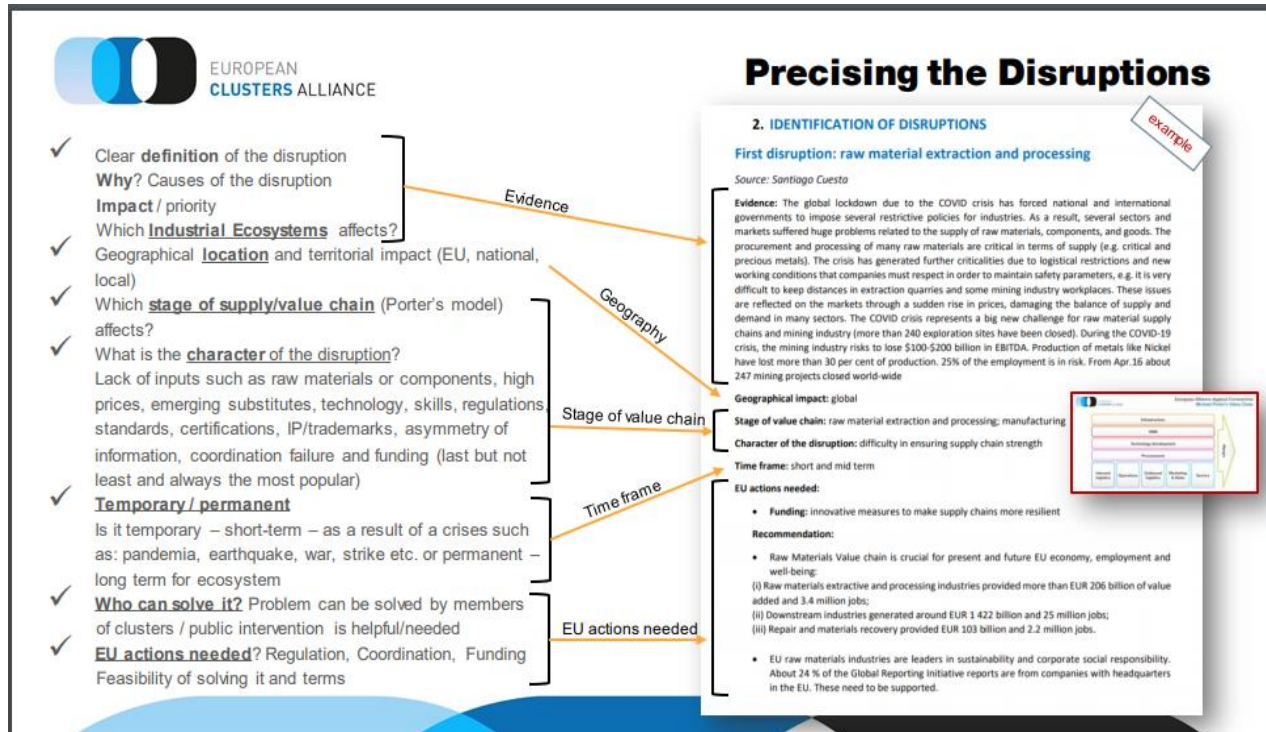
From May 15<sup>th</sup> to August 20<sup>th</sup> all information was summarized in daily and weekly reports. 14 weekly reports were realized. Moreover, the European Alliance Against Coronavirus has grown as an open innovation network which involves more than 1,100 experts.





Tools for the EU Rapid Alert Function

For the daily and weekly reports, the European Clusters Alliance and REI – Reindustria Innovazione elaborated a structure to report all disruptions in the same way. To get a full view of the situation of the European companies, the reports explained the evidence from the ground that indicated a disruption, its geographical scope and time frame, the stages of the value chain affects, ideas for possible solutions and actions taken, as well as the further needs from the European Union or other stakeholders.



Daily minutes to report disruptions

The 84 disruptions<sup>1</sup> were collected in a database, specifying the evidence reported in the daily minutes and weekly reports. This procedure allowed to develop a quantifiable analysis of the challenges encountered, which follows in the upcoming chapter. It needs to be noted that the disruptions from the first two weekly report could not be included since they did not yet follow the adapted structure. In the following analysis, each disruption is characterized by the following features: ecosystem, sector, location, value chain stage, action required and the main keywords.

#	Disruption	Ecosystem	Sector	Location	Value Chain Stage	Actions Required	Keywords
1	Lack of financial resources (lack of liquidity)	Real-estate	Construction	ES	Funding	Finance	Financial resources
2	Shortage of critical supply of plastic material	Cross-Industry	ND	EU	Inbound logistics, Procurement	Coordination	Materials availability, PT
3	Certifications, homologation, reliability and quality of products	Healthcare	Machinery	ES, IT	ND	Regulation	Certifications
4	Disruption of supply chain of electronic parts	Electronics	Components	ES	ND	ND	Supply chain disruption
5	Lack of Workforce in construction	Real-estate	Construction	ES, FR, PT	HR	ND	Workforce
6	Upskilling / reskilling in Electronics	Electronics	ND	DE, FR, ES, PT	HR	ND	Skill gap, Digitalisation
7	Lockdowns leading to disrupted supply chains	Automotive	ND	FR, PL, ES	Inbound logistics, Operations, Outbound logistics, HR	Funding, Regulation	Supply chain disruption
8	Uncertainty of automotive business models	Automotive	ND	FR, PL, ES	All	Coordination	Business model disruption
9	Uncertainty of customer behaviours	Automotive	ND	FR, PL, FR, PT	Marketing, Sales	Coordination	Customer behaviour
10	Missing flexibility and resilience in supply chains	Automotive	ND	DE, PL, FR, ES	Procurement, Inbound logistics, Outbound logistics	ND	Supply chain disruption, Flex & resilience
11	Complex policy strategies	Automotive	ND	FR, PL	R&D	ND	Policies, Green economy
12	Certifications for safety	Automotive	Shared Mobility	FR, ES	Operations	Funding	Certifications
13	Closure of borders and export disruptions	Cross-Industry	ND	ES	Inbound logistics	Coordination	Import & export, Materials availability
14	Commerce disruption	Cross-Industry	ND	SK, ES, PT, IT, LT	Marketing, Sales, Technology	ND	Digitalisation, Access to markets
15	Shutdown of construction sites	Real-estate	Construction	FR	Infrastructure & Building	ND	Import & export, Materials availability
16	Collapses of the ecosystem's activities	Space, Creative & cultural, Tourism, Creative & cultural, Renewable	Aviation	EU	Operations, Services	Funding, Coordination, Regulation	Drop in demand & production
17	Strong reduction of cash flows and financial capabilities	Agrifood	ND	EU, DE, LT	Finance	Funding, Coordination	Financial resources, Income decrease
18	Border closures immobilise imports and exports	Agrifood	ND	SK, LT, RO	Sales	Coordination	Import & export, Drop in demand & production
19	Strong reduction of staff	Aerospace	Aviation	EU	HR	Coordination	Staff reduction, Income decrease
20	Lack of workforce	Agrifood	ND	PT, LT	Operations	ND	Workforce, Regulation
21	Strong reduction of supply chain continuity and competitiveness	Aerospace	Aviation	RO, PT, LT	Operations, Inbound Logistics, Outbound logistics	Funding	Supply chain disruption, Flexibility
22	Demand and production reduction of components	Renewable Energy	ND	DE	Manufacturing	Funding	Drop in demand & production, Income decrease
23	Project development slowdown	Renewable Energy	ND	DE	Engineering	Funding	Project development delay
24	Logistics delays	Renewable Energy	ND	DE	Transportation	Coordination	Logistics, Regulations
25	Demand reduction for Operations & Maintenance operators	Renewable Energy	ND	DE	Operations, Maintenance	Funding	Drop in demand & production
26	Unsold stocks	Agrifood	ND	LT, RO	Operations, Sales	Coordination	Import & Export, Regulation
27	Strong reduction in freelancers' activities	Creative & Cultural	ND	BG	HR	Funding	Staff reduction
28	Data analysis and sharing availability	Tourism	ND	FI, ES, BG	Design	Funding	Digitalisation
29	Long-term sustainability	Tourism	ND	ES, PT	Strategy	Funding	Long term sustainability
30	Consumer behaviour	Tourism, Agrifood	ND	FI, IT, PT	Demand	Funding	Customer behaviour
31	Change of sector configuration	Automotive	ND	EU	Product Usage	Coordination	Drop in demand & production
32	Production systems flexibilization	Automotive	ND	EU	Operations	Funding	Digitalisation, Flexibility & resilience
33	Lack of standardisation and common protocols	IoT	ND	EU	Operations	Funding, Regulation	Digitalisation, Lack of standards
34	Adaption to new trends	Automotive, IoT	ND	EU	R&D	Funding, Coordination, Regulation	Green deal, Digitalisation
35	IoT solutions to foster green economy	IoT	ND	EU	Operations	Funding	Digitalisation, Long term
36	Redirection of public funds to meet the needs of crisis	Social Economy	ND	BE, NL	Finance	ND	Regulations
37	Social enterprises excluded from Regional Smart Specialization Projects	Social Economy	ND	EU	Strategy, Finance	Funding, Coordination, Regulation	Exclusion from public
38	Importance of mapping impacts on social economy caused by the COVID crisis	Social Economy	ND	IT	All	Coordination	Social impact, Analysis of impact
39	Need for new skills	Automotive, ICT	ND	EU, ES, PT	HR	Coordination, Funding	Skill gap, Digitalisation, Workforce
40	Income decrease	Social Economy	ND	BE, NL	All	Coordination, Funding	Financial resources, Income decrease
41	Reduction of services	Social Economy	Social Service	BE, NL	Operations	Funding, Regulation	Regulations, Workforce
42	Collapse of Automotive Ecosystem	Automotive	ND	EU	All	Funding, Coordination, Regulation	Drop in demand & production

Database of identified disruptions - part 1

<sup>1</sup> See attachment for complete list of disruptions

40	Income decrease	Social Economy	ND	BE,NL	All	Coordination,Funding	Financial resources,Income decrease
41	Reduction of services	Social Economy	Social Service	BE,NL	Operations	Funding,Regulation	Regulations,Workforce
42	Collapse of Automotive Ecosystem	Automotive	ND	EU	All	ending,Coordination,Regulation	Drop in demand & production,Regulation
43	Shortage of PPE	Industrial & Manufacturing	Social Service	BE,NL	Operations,Procurement	Funding,Coordination	PPE,Materials availability
44	Lack of regulation in secondary materials and resources management	Industrial & Manufacturing	ND	IT	Procurement	Regulation	Availability,Regulations,Circular economy
45	Funding and coordination of circular economy in European economic recovery	Industrial & Manufacturing	ND	IT	Design,Operations,Services	Funding,Coordination	Regulations,Circular economy,Green Deal
46	New sustainable paradigms in the Industrial Ecosystem	Industrial & Manufacturing	ND	DE	Design,Operations	Funding,Coordination	Regulations,Circular economy,Long term sustainability
47	Disruptive trends for industrial partnership	Industrial & Manufacturing	ND	EU,ES	Strategy	Funding,Coordination	Industrial collaborations
48	Raw material extraction and processing	Industrial & Manufacturing	ND	ES	Procurement,Operations	Funding	Supply chain disruption,Forced economy,Digitalisation,Long term sustainability
49	Long-term strategic plan for European Industry	Industrial & Manufacturing	ND	EU	All	Coordination,Regulation	Dependence from foreign countries
50	Regulations and investment in UAVs	Aerospace	Defence	EU	R&D	Coordination,Funding	Supply chain disruption,Materials availability
51	European supply chain weakness and issues in raw materials management process	Healthcare,Automotive	ND	FR	Procurement	Regulation	Supply chain disruption,Materials availability
52	EU dependence from Asian markets and EU know-how as competitive advantage	Cross-Industry	ND	ES	Procurement	Regulation	Supply chain disruption,Materials availability
53	Creation of Euroclusters	Cross-Industry	ND	EU	All	ND	trial collaborations,Cluster collaborations
54	Blockchain technology and application in the sanitary crisis	Digital	ND	EU	All	ND	Digitalisation,Blockchain
55	Artificial Intelligence on the edge of the network	Digital	ND	EU	All	ND	Digitalisation,AI
56	Increase of cyberattacks during Covid-19 pandemic	Digital	Cybersecurity	ES	All	Coordination	Digitalisation,Cybersecurity
57	Strong technology dependence from China and USA	Digital	Cybersecurity	EU	All	ND	Dependence from foreign countries
58	Skill gap in cybersecurity	Digital	Cybersecurity	ES	HR	ND	Skill gap,Digitalisation,Cybersecurity
59	Environmental benefits coming from shared value	Social Economy	Social Housing	IT,ES	HR	Coordination	value,Cluster collaborations,Cybersecurity
60	Rising importance of sustainability paradigm in Social Housing sector	Social Economy	Social Housing	EU	Infrastructure	Regulation,Funding	ocial Impact,Green Deal,Infrastructure
61	Analogy between city network and cluster network for a resilience perspective	Cross-Industry	ND	EU	ND	ND	ter Collaborations,Flexibility & resilience
62	Circular Economy application on biomass lifecycle	Industrial & Manufacturing	Chemical	IT	Waste management,Inbound logistics	ND	al,Circular economy,Long term sustainability
63	Regulation on alcohol usages	Cross-Industry	ND	IT	Procurement	Regulation	is,Flexibility & resilience,Materials availability
64	Raw materials availability & supply chain disruption	Industrial & Manufacturing	Chemical	IT,ES	Procurement	ND	y,Dependence from foreign countries
65	EU Clusters support for creating a common cyberspace protection	Digital	Cybersecurity	EU	Infrastructure	ND	Cybersecurity,Cluster collaborations
66	Skill development for resilience improvement	Cross-Industry	ND	EU	HR	ND	Skill gap,Flexibility & resilience
67	Potentialities of Social Housing for EU	Social Economy	Social Housing	EU	ND	ND	Social housing,Shared value
68	Regulation on material handling to achieve Circular Economy systems	Industrial & Manufacturing	ND	EU	Procurement	ND	Regulations,Materials availability
69	Increase in requests for digital skills due to Covid-19 pandemic	Cross-Industry	ND	EU	HR	ND	Digitalisation,Skill gap
70	Up-/reskilling difficulties for SMEs	Cross-Industry	ND	EU	HR	Coordination	Digitalisation,Skill gap
71	Value of data in smart cities	Digital	Smart cities	EU	ND	ND	Digitalisation
72	Compliance with GDPR policies on data management	Digital	Smart cities	EU	R&D	ND	Digitalisation,Cybersecurity
73	Change in network's infrastructure configuration	Digital	Smart cities	EU	Infrastructure	ND	gitalisation,Regulations,Infrastructure
74	EU and global supply chains dependence from China market	Industrial & Manufacturing	ND	EU	All	Funding	disruption,Dependence from foreign countries
75	Temporarily more local supply chains	Agrifood	ND	EU	All	Coordination	Supply chain disruption,Customer behaviour
76	Misinformation because of fake news	Agrifood	ND	IT	Marketing,Procurement,Export	Coordination	Customer behaviour,Fake news
77	Workplace saturation and restriction	Cross-Industry	ND	EU	HR	ND	orkforce,PPE,Infrastructure,Regulations
78	Post-Covid-19 workplace configuration and management	Cross-Industry	ND	EU	HR	ND	orkforce,PPE,Infrastructure,Regulations
79	Marketing strategies for Business Event Organization sector	Business Event Organization	ND	EU	Marketing	Funding,Regulation	Marketing,Customer behaviour,Digitalisation
80	Rising competition between tourism countries	Tourism	ND	EU	All	Funding	Cluster collaborations
81	Lack of business opportunities fostered by collaborations	Tourism	ND	EU	All	Coordination	Cluster collaborations
82	Innovation in material sectors to support SMEs recovery	Industrial & Manufacturing	Materials	EU	R&D,Design	Funding	isation,Green economy,Circular economy
83	Critical access to raw material supply chains for EU companies	Industrial & Manufacturing	Materials	EU	Procurement	Coordination	availability,Dependence from foreign countries
84	Digital gap in Cultural and Creative Industries	Creative & Cultural	ND	EU	HR	ND	Skill gap,Digitalisation

Database of identified disruptions - part 2

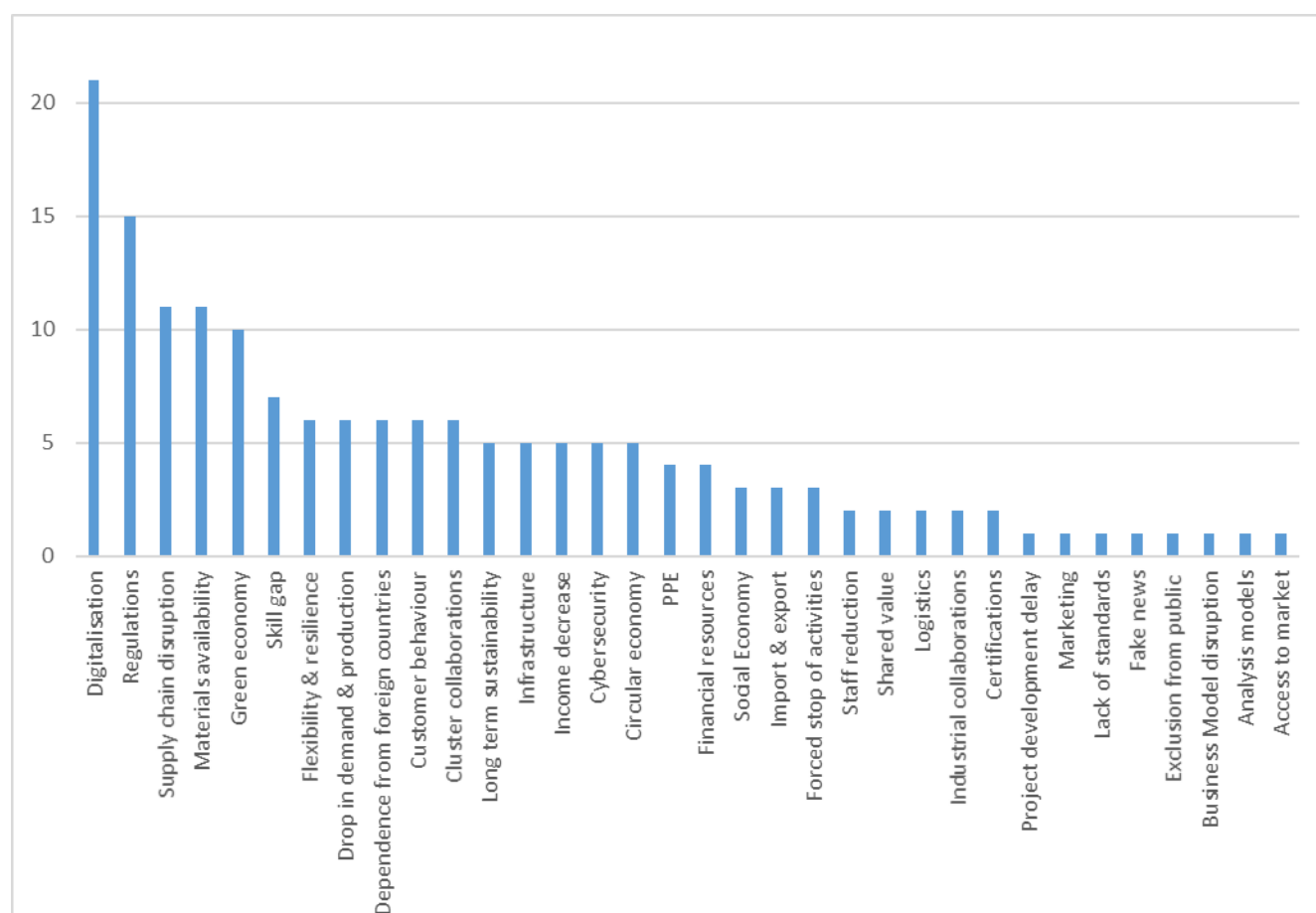
A further source of information was the COVID-19 Response Forum and the website of the European Cluster Collaboration Platform, where all sessions and materials were published for the cluster community. Moreover, the European Clusters Alliance disseminated a survey to all European cluster associations to share knowledge of disrupted supply and value chains across industrial ecosystems, with the aim to find concrete solutions and recovery projects.

### 3. Disruptions in the European industrial ecosystems

The European Alliance Against Coronavirus identified 84 disruptions, referring to either one of the 14 ecosystems or to cross-sectoral discontinuities. The number of reported disruptions in value and supply chains was especially high in May and June. This can be due to the development of the webinars over time and with the pandemic. The topics set for the webinars were decided in close collaboration with DG GROW, European Commission, and evolved with the necessities of the crisis and the policy responses. In general, the first weeks were more focused on the analysis of very well-defined industrial contexts or ecosystems. Different industrial ecosystems were analysed twice, with the aim of investigating multiple aspects and monitoring its evolution over time. Over the course of the EAAC's activities, several sessions looked at cross-sectoral paradigms or specific topics (i.e. super cluster, network resilience, Digital Innovation Hubs). In the last sessions, EAAC took up the national Recovery Plans and territorial and cross-sectoral synergies as main topics, where clusters need to be included as important and strategic agents.

### 3.1. Which were the main issues for Europe?

The 84 disruptions<sup>2</sup> in value and supply chains relate to different issues that the European companies and ecosystems were and – in some cases – are facing. Through the market closeness of the members of the EAAC, the reports draw a picture for future action plans and recovery activities.



*Absolute frequency of keywords associated with disruptions<sup>3</sup>*

The results show clearly: *Digitalization* was found to be the most recurring topic. First of all, disruptions related to digitalization refer to digital skills. They are important to meet the ad-hoc need for remote work as well as to

<sup>2</sup> The list of disruptions highlighted during the daily sessions, divided by ecosystem, are completely reported in chapter 8. *Attachments*.

<sup>3</sup> To perform the analysis, a single or a set of keywords was assigned to each identified disruption (e.g. digitalization, regulations, etc.). In this way, it was possible to associate the keywords to each disruption regardless of the industrial sector of reference and to analyze how often each keyword is repeated. The overall occurrence of the topics is seen on the y-axis for each keyword on the x-axis.



innovate and transform the value chain in the long term. The *Skill Gap* and the need to train talent was repeated several times. Secondly, digitalization is a “disruptive” trend for the European recovery, digital transition being one of the main catalysts for European independence from external markets and long-term sustainability. In this context, *Cybersecurity* represents a preliminary requisite for digitalization since data must be managed carefully to implement new digital-based projects and companies need to be protected from attacks.

*Regulations, Supply Chain Disruptions, and Material Availability* are further recurring topics. The impacts of restrictive regulations generated logistical problems - both for the workplace management and for material handling. Many manufacturing activities came to a stillstand, a *Forced Stop*, and companies suffered difficulties in managing the workforce (safety distance, workplace saturation etc.). During the pandemic, each ecosystem suffered a contraction in *Demand and Production* as well as *Income Reduction* and *Financial Resources Availability*. These issues are connected, as a strong drop in demand and production inadvertently leads to financial imbalances.

Moreover, regulations on border closures disrupted import and export to, from, and between European countries. The pandemic emphasized the companies’ links to external markets like China, which are basic suppliers for critical materials (metals, microchips, sensors, advanced materials etc.). It exposed a lack of flexibility in the European supply chains and the strong dependence from external nations for these products. Their unavailability inevitably disrupted the value chains across different industries. In this context, *green economy and circular economy* were identified as possible solutions to reduce the need of materials from abroad and regain them from waste. However, *Regulations* on second-hand materials still make an efficient collection of waste difficult in some countries.

For many activities, *Infrastructures* had to be re-adapted to be compliant with these regulations, or even new infrastructures had to be created. *Shortage of PPE* has been identified as a critical issue in the first weeks considered as well as *Lack of Certifications* for mask and safety gear production.

Finally, the keywords *Industrial and Cluster Collaboration* highlight the need to include clusters in the European recovery for their strategic role and, at the same time, the need to include norms and laws at policy-making level that still do not consider these associations as fundamental in the recovery process.

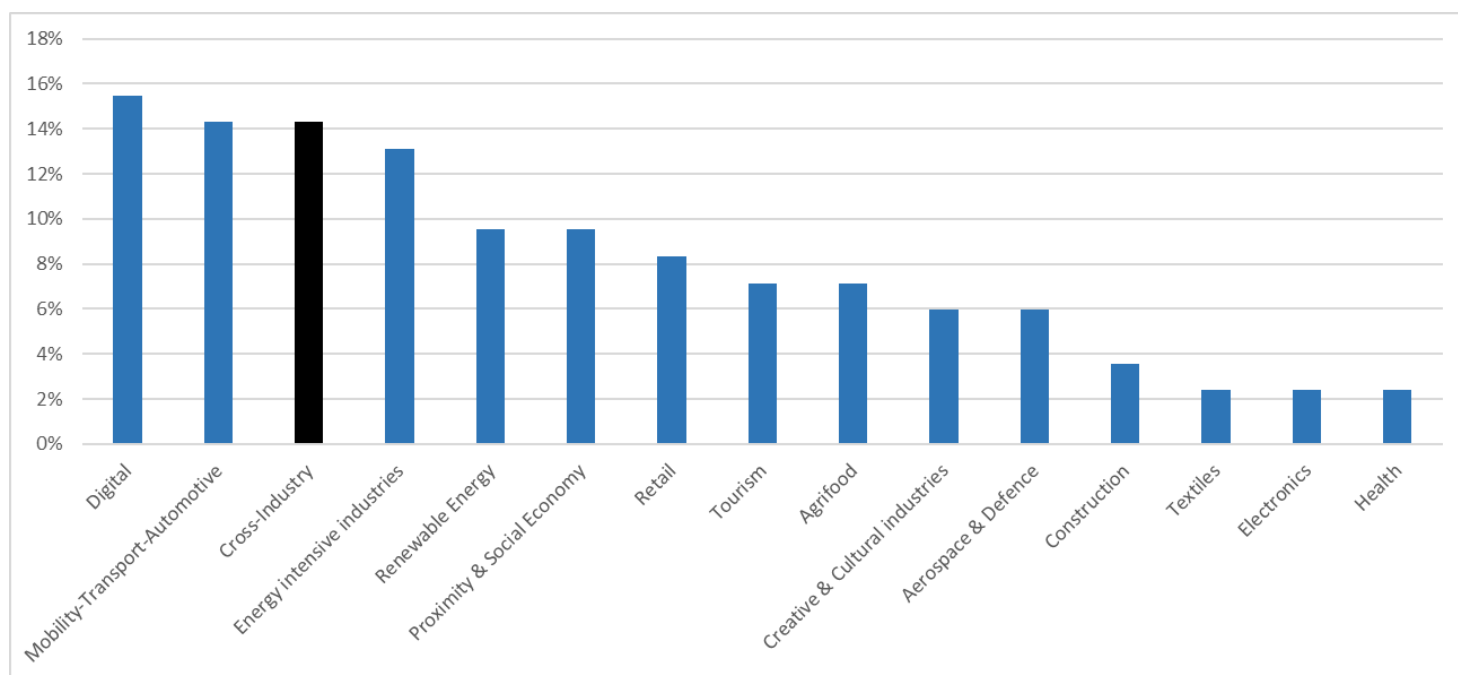
*Social Economy* also represents an important aspect of the recovery because of its multi-impacting nature. Not only does this approach consider the economic aspects of its activities but takes general well-being and fairness for the society into account. It suits the needs that emerged in this pandemic. However, social enterprises and projects are still not in the foreground for European Recovery.

Proceeding session by session, projects based on the above-mentioned concepts of *Green and Circular Economy, Digitalization, Social Economy and Cluster and Industrial Collaboration* were presented to foster *resilience* of the value chains both for a possible second wave of the pandemic and in the long term.

### 3.2. Which ecosystems suffered from disruptions?

In their roadmap to recovery, the European Commission identified 14 ecosystems that were severely impacted by the COVID-19 pandemic. They account for around 90 % of the European Single Market. These ecosystems are: Tourism, Creative & Cultural industries, Aerospace & Defence, Textiles, Electronics, Automotive, transport & Mobility, Energy intensive industries, Renewable Energy, Agri-food, Healthcare, Digital, Construction, Retail and Social Economy. Under the umbrella of the European Alliance Against Coronavirus, ECA analysed all 14 of these ecosystems.





*Percentage frequency of disruptions among the 14 ecosystems<sup>4</sup>*

About 14% of disruption show impact on different sectors equally, impacting the whole European ecosystems. The top three classifications highlight the predominance of the Digital ecosystem (15%), Mobility – Transport – Automotive (14%) and Energy-intensive Industries (like manufacturers of products like steel, plastic and chemicals) (13%).

These three ecosystems were strongly impacted by lockdown measures. In particular for the energy-intensive industries, border closures and import - export disruptions impacted the procurement (materials availability from third countries diminished), the workforce management (safety on the workplace could not be granted instantly and restrictive proximity norms did not allow the complete saturation of the plant in term of workers number) and – in some cases consequently – the demand and production.

In the Mobility – Transport – Automotive ecosystem, the changes in customer behaviour during and after the lockdowns impacted the revenue streams: people were obliged to work from home and limit their mobility, which reduced the transportation needs and demands for new cars. Furthermore, the issue of safety and hygiene on public/shared vehicles strongly impacted the transport services.

<sup>4</sup> The calculations of the disruption distribution among different ecosystems was based on the number of disruptions identified (84). As it is possible to see in chart, the percentages on the y-axis represent the occurrence of the disruptive trend for each industry considered, based on the evidences reported in the daily sessions (e.g. 15.5% Digital, 14% Automotive & mobility, etc.).

New digital skills are required in workers in order to be able to work remotely in emergency periods. Moreover, digitalisation is considered to be one of the main drivers for the recovery and as an opportunity to restart economy after the collapse.

Other relevant ecosystem strongly hit by the coronavirus crisis were and are Tourism, Aerospace & Defence, Agri-food, Renewable Energy, Retail and the Creative and Cultural Ecosystem. Despite differences in percentage values, it needs to be highlighted that some crucial disruptions were shared by all the different ecosystems. These are border closures, restrictive measures for their operations and mobility, lack of raw materials, or lack of common standards.

The following chapters give an overview of the main challenges in each ecosystem that were detected by the EAAC and reported by the ECA. The full descriptions and the implications are provided in the list of disruptions, see attachment.

The following chapters summarize the disruptions in European value and supply chains that were detected by the European Alliance Against Coronavirus, and the needs and proposals to meet these challenges.

### 3.1.1. Cross-industry disruptions during the COVID-19 crisis

Several disruptions belong to more than one ecosystem or have a transversal character. The members of the European Alliance Against Coronavirus reported them repeatedly for different sectors.

#### *Disruptions:*

- EU and global supply chains dependence from China market
- Availability to critical raw materials and supply chain disruption
- Shortage of critical supply of plastic material
- Shortage of PPE
- Missing certifications, homologation, reliability and quality of products
- Regulation on alcohol usages
- Border closures immobilise imports and exports
- Turnover decrease during the pandemic period
- Changes in customer behavior
- Production reconfiguration during lockdown
- Workplace saturation and restriction (60% of the staff works in 100% of the spaces available)
- Increase in requests for digital skills due to Covid-19 pandemic
- Up-/reskilling difficulties for SMEs

#### *Challenges and disruptive trends:*

- Long-term vision for European companies
- creation of Euroclusters
- Analogy between city network and cluster network for a resilience perspective
- Openness to invest within EU Recovery Plan
- Need to correct tax schemes distortions
- Re-invention of clusters
- New sustainable paradigms in the Industrial Ecosystem
- Disruptive trends for industrial partnership

- **Post-Covid-19 workplace configuration and management**

***Coordination needed to meet the challenges:***

- In the mid-term, a stronger support for the development of new / greener / circular processes, materials and alternatives is necessary
- Central material homologation capacity at European level
- Speed up the industrial processes
- Upgrading SME competitiveness in several sectors and ecosystems: role of clusters, digitalization, access to finance, piloting, and technologies
- Promote sustainability: circular economy, industrial symbiosis, recovery-reuse, reduce pollutants, and social licensing
- Digitalization of the industries (smart and digital solution exploitation)
- Creating Shared Value (CSV) policies require a coordinated and long-term effort by EU (but also national and regional authorities)
- Bridging the gap between research and SMEs is a key task for Europe. Clusters are also playing a central role in building circular knowledge bridges between research and businesses
- More coordination among different institutions
- Up- and reskilling can be improved by many cross-sectoral initiatives. The agenda should not only focus on the sectors, but allow cross-sectoral collaboration and support the movement of people between sectors

***Funding needs:***

- Invest in research and innovation projects
- Inter-Regional Business Hubs: potential for public funding/financing of SMEs
- Supporting companies to grow and become international, providing expertise, knowledge and funding

***Regulation needs:***

- Flexibility in the application of the norms related to alcohol usage 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)
- Skill development for resilience improvement

### 3.1.2. Aerospace & Defence

Due to the lockdowns and limitations of mobility, the aerospace & defence ecosystem experienced severe impacts of the COVID-19 crisis.

**Disruptions:**

- Collapse of the ecosystem's activities (-90% of aviation travels)
- Strong reduction of cash flows and financial capabilities (-50/-60% reduction of investments)
- Strong reduction of staff
- Strong reduction of supply chain continuity and competitiveness
- Raw materials and components supply issues

**Challenges and disruptive trends:**

- Exploitation of drones in pandemic situation for Aerospace & Defence Ecosystem

**Coordination needed to meet the challenges:**

- In the short term, a stronger coordination is needed in order to restart the activities; it is also necessary a coordination of the new aviation processes to make the sector adequate to new customers behaviours and safe travel desires
- Support the reactivation of safe travel services
- Cash flow liquidity support through staff retention (salaries and skills), capability protection, supply chain protection
- New European solution for competences development, allowing a competitive advantage for EU in the long term
- Rethink safer workplaces and automation of manufacturing processes

**Funding needed:**

- Funding to help companies restarting activities
- EU can help preventing the aviation sector collapse through: financial support to customer and supplier
- Cash flow liquidity support for SMEs to help them to survive (more attention since they are the most vulnerable; SME represent 90% of Aviation Ecosystem)
- R&D funding to support innovation for recovery and growth
- Incentives for SMEs and for OEMs

**Regulation needed:**

- Support for national and regional agencies to harmonize the different measures: EU can help with Public and Personal Health Protection, shaping new legal framework for this ecosystem.
- Regulations and investment in UAVs
- Current legal situation for drones is a barrier. Each country has its own regulations and flight permission (autonomous decisions are taken; an example is represented by Central European Drone Demonstrator in Poland). A regulation homogenisation and standardisation at European level is needed. In general, European regulation are stronger than non-European ones (but it depends also on drone type).

### 3.1.3. Agri-food

The agri-food ecosystem is closely connected to the tourism ecosystem. Especially the HORECA sector was hit hard by missing customers during the crisis.

#### ***Disruptions:***

- **Border closures immobilise imports and exports**
- **Lack of workforce**
- **Unsold stocks**
- **Consumer behaviour changes**

#### ***Challenges and disruptive trends:***

- **Temporarily more local supply chains**
- **Misinformation because of fake news**

#### ***Coordination needed:***

- Collecting solutions and alternatives to build resilience
- Create a guideline dealing with best practices to be shared with EU members
- Help government and clusters to develop company resilience and share a guideline with best practices
- A transition plan is needed in order to restart with new frameworks based on circular economy, digital transformation and technologies
- Help companies connecting producers and consumers by using new tools and software
- Exchange with European Clusters Alliance and agri-food clusters to make connections with SMEs
- Work together on raising customer awareness and educate customers
- Fighting fake news
- Accelerate digital transformation and promote the use of robots in the harvesting field
- Safety measures implementation for agricultural workforce

### 3.1.4. Mobility – Transport – Automotive

The mobility – transport – automotive ecosystems differed severe disruptions, especially due to the stop of production.

#### ***Disruptions:***

- **Lockdowns leading to disrupted supply chains**
- **Missing flexibility and resilience in supply chains**
- **Certifications for safety measures**
- **Closure of borders and export disruptions**
- **Collapse of Automotive Ecosystem**
- **Need for new skills**



**Challenges and disruptive trends:**

- Uncertainty of automotive business models
- Uncertainty of customer behaviour
- Change of sector configuration
- Production systems flexibilization
- Adaption to new trends
- Spread of new trends (Autonomous Vehicle)
- Complex policy strategies

**Coordination needed:**

- Support urban sustainable mobility and new business models
- Strong effort on European Battery Alliance to foster electrification in Europe, creating a competitive advantage in the long term (R&D, design, production)
- The EU automotive industry must contribute to EU sustainability goals
- Develop a joint vision for the future automotive landscape; imagine and launch (joint) clusters services helping clusters and supply chains members to face the crisis
- Coordination projects for sectoral skills development
- Involve clusters to create joint strategies for recovery
- Find coordinated solutions between supply chain stakeholders in order to foster resilience
- Establish connection with universities and research centres for skill development

**Funding needed:**

- Financial support and measures to unblock as soon as possible the value chains
- Supporting innovative projects, which are determined by the market
- Facilitating the involvement of the public administrations related to this disruption
- R&D project supporting digital transformation of automotive companies
- Incentives for customers to purchase hybrid and electric cars
- R&D funds for electric solution
- R&D funds to develop and design autonomous vehicles solutions

**Regulation needed:**

- Environmental regulations
- Reliability in norms for travel

**3.1.5. Creative & Cultural Industries**

The Creative and Cultural Industries had to adapt their activities rapidly to comply with the measures taken to mitigate the effect of the pandemic.

**Disruptions:**

- **Stop of activities: 80% of companies had to cease operation activities**
- **Strong reduction in freelancers' activities**
- **Strong reduction of cash flows and financial capabilities**

**Challenges and disruptive trends:**

- **Digital gap in Cultural and Creative Industries**
- **New Marketing strategies for Business Event Organization (70% expected decrease in Marketing for event organization)**

**Coordination needed:**

- Coordination of international project to support experienced professional crew
- EU support for professional training program and infrastructure
- Hybrid Meetings can represent a solution to event organization (45.1% of respondents to the survey of Toleranca Marketing chose hybrid as preferred event formula). A mix of virtual meetings and live meetings could be a cost-efficient and time-efficient solution

**Funding needed:**

- Tax reduction and incentives are needed to better face the strong reduction of overall sector income; moreover, targeted measures for creative and cultural companies are also needed, going beyond the measures designed for traditional industries
- Financing for collateral activities and facilitating the reactivation of people movement, in compliance with government restrictions (e.g. support travel and hotel sectors)
- Specific financing to support freelancers
- Financing to facilitate the organization of big creative and cultural events
- Financing to support digital innovation in creative and cultural sectors (e.g. film and music industries)

**3.1.6. Digital**

The digital ecosystem is transversal – digital solutions are essential for all European sectors and companies.

**Disruptions:**

- Increase of cyberattacks during Covid-19 pandemic (10% of attacks use AI and Machine learning technologies)
- Strong technology dependence from China and USA
- Skill gap in cybersecurity
- Lack of standardisation and common protocols
- Lack of workforces and skill gap in the ICT sector

**Challenges and disruptive trends:**

- Companies to implement the digital transition
- Disruptive challenges related to Smart Cities paradigm: Value of data in smart cities, compliance with GDPR policies on data management, Change in network's infrastructure configuration
- Need to strengthen collaboration between Clusters and Digital Innovation Hubs
- Blockchain technology and application in the sanitary crisis
- Artificial Intelligence on the edge of the network
- IoT solutions to foster green economy
- Sectoral implementation of IoT and digital transformation challenge

**Coordination needed:**

- For cybersecurity mechanisms, the European countries need to agree and act together, as web criminality does not know borders. There is a need for a clearly communicated international governance model for cybersecurity.
- EU Clusters support for creating a common cyberspace protection
- Partnerships must be created at European level, but then cross-sectoral and local/regional collaborations must be established. ECA can support in all actions
- Provide programs to cover lack of experts and develop a network with local work agencies

**Funding needed:**

- Research and innovation projects to develop IoT standards
- Local and national funding are needed to help clusters develop and set upskilling programs

**Regulation needed:**

- Creation of guidelines and standard regulation

**3.1.7. Electronics**

The electronics ecosystem suffered minor challenges during the COVID-19 but the clusters and their members were not hit as hard as others, according to the references from the European Alliance Against Coronavirus.

**Disruptions:**

- **Disruption of supply chain of electronic parts**
- **Temporary Covid-19 related reduction or inability of Waste of Electrical and Electronic Equipment (WEEE)**

**Challenges and disruptive trends:**

- **Upskilling / reskilling needed in Electronics**

**Coordination needed:**

- Evaluation and selection of the actual emergency in the pick-up requests for WEEE
- Improve exchanges programs across Europe for upskilling in order to identify key competences

**Funding needed:**

- The ecosystem needs to be funded in different ways in order to achieve more competitiveness (funding in R&D&I projects)

**Regulation needed:**

- Large scale experiences of preparation for reuse of WEEE are missing, need of support from manufacturers and legislation

**3.1.8. Health**

The health ecosystem has come under severe stress during this pandemic. The two main disruptions named had a big impact on our societies and initiated many activities to meet the challenges.

**Disruptions:**

- **Missing certifications, homologations, reliability and quality of products**
- **Shortage of PPE**
- **Plastic material availability and dependence from Chinese suppliers (China loss by 13.5% in productivity of plastic)**

**Funding needed:**

- Invest in the production of PPE

**Regulations needed:**

- Definition of common standards for masks and PPE certifications
- Develop a central homologation authority for PPE and medical devices for all EU Member States

**Coordination needed:**

- Focus on equal distribution of PPE and medical devices rather than on production at national level

**3.1.9. Renewable energies**

Renewable energies are important for a green future of Europe. During the COVID-19, they suffered the following disruptions of value and supply chains.

**Disruptions:**

- Demand and production reduction of components
- Project development slowdown (new order drop estimated by 31-50%)
- Logistics delays
- Strong reduction of cash flows and financial capabilities
- Demand reduction for Operations & Maintenance operators
- Circular Economy application on biomass lifecycle
- Lack of regulation in secondary materials and resources management for circular Economy and Sustainability in the Post-Covid-19 economic recovery
- Strong dependence from Chinese markets (Cellulose market – which is around 3.7 b. EUR market shown prices increase up to 500% for imports from China)

**Coordination needed:**

- Logistics support
- Production process support
- Partnership with chemical and Agri-food clusters to handle waste management from local to centralized areas

**Funding needed:**

- Financial support for companies exploiting renewable energy sources
- Several companies along the value chains will benefit from EU Green Deal programs. This will help companies with funding for new projects, generating an increase in demand for manufacturers and operations and maintenance operators (for example, investigating new floating turbine solutions within wind industry or new materials recycling techniques)
- 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

**Regulation needed:**

- 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.
- Creation of policies for waste treatment to stop their degradation

**3.1.10. Proximity & Social Economy**

Due to the closure of the local retail as well as social activities, the actors in this ecosystem could not do business as usual.

**Disruptions:**

- Income decrease (- 50% income than previous year)
- Reduction of services



**Challenges and disruptive trends:**

- Redirection of public funds to meet the needs of crisis (social economy represents 10% of businesses in EU, 6% of EU employees)
- Social enterprises excluded from Regional Smart Specialization Projects
- Importance of mapping impacts on social economy caused by the COVID crisis
- Social economy as a driver for collaboration in the Industrial Ecosystem
- Rising importance of sustainability paradigm in Social Housing sector
- Potentialities of Social Housing for EU
- Environmental benefits coming from shared value

**Coordination needed:**

- Facilitate coordination and better involve regional government into the understanding of the strategic value of social economy inclusion in RIS3
- The Social Economy lens helps to collect important information through the EU Rapid Alert Function.
- Promotion of collaboration between financial institutes and social enterprises
- Improve the competitiveness of Social Economy companies through the increase of the added value provided, in an interregional cooperation perspective
- Create European value chains of social economy enterprises belonging to different regions in Europe and improve the cooperation between them

**Funding needed:**

- Invest into social impact funds and social investments
- Financial support to social services to company for the crisis period
- Funds for Social Housing investment within Recovery Plan. Grants and Public investments need
- Provide specific funds to help sustain the loss from temporary discontinued services
- Specific funds to grant equal recovery among different markets

**Regulation needed:**

- Include into the calls for proposal rules explicit eligibility for social economy enterprises
- Define clear rules and assets allocation, to sustain and improve online services delivery, adapting to the ecosystem change
- Social Housing is not a European competence. However, Europe can give local authorities a framework. Europe can take the rights of Social Housing and enable better places to live. Local authorities often suffer lack of funds to feed social housing and, even if social housing companies are very innovative, funding is not available

**3.1.11. Tourism**

The actors of the tourism ecosystem suffered an immense breakdown of their businesses and will take longer to recover than other ecosystems.

**Disruptions:**

- Collapse of Tourism Industry through lockdown measures
- Lack of business opportunities fostered by collaborations
- Lack of tourist's trust

**Challenges and disruptive trends:**

- Data analysis and sharing availability
- Long-term sustainability
- Changes in consumer behavior
- Rising competition between tourism countries

**Coordination needed:**

- More clarity on national and international restrictive policies
- Fostering collaboration between clusters and association in order to increase the recovery of the sector (cross-regional cooperation, intra-sectoral cooperation and inter-sectoral cooperation)
- Promotion to boost customer trust for safe and clean places

**Funding needed:**

- Financing and grants to face the lost income of the past months and avoid the closure of activities or staff cuts
- Financing for new projects and services development
- Funding for digital transformation and technology access for tourism companies
- Financing for sustainability projects; grant for the most proactive activities towards sustainability
- Measure for trust recovery, for example, promotions for tourism structure that have readily adapted to safety constraints and sanitation policies
- Support for the tourism sector to soften the repercussions of business losses

**3.1.12. Construction**

The temporary lockdown and the following restrictions affected activities in the construction ecosystem, which needs to redefine itself for the future.

**Disruptions:**

- Lack of workforce in construction
- Commerce disruption
- Shutdown of construction sites (92% of sites shut down during lockdown period, activities have re-started at 80% on average)

**Coordination needed:**

- Support the industrialization of the processes and the upskilling / reskilling of the labour force.

### 3.1.13. Energy-intensive industries

The energy-intensive industries reported problems with raw material supply chains and logistics delays.

#### **Disruptions:**

- Supply chain disruptions
- Raw material extraction and processing
- Critical access to raw material supply chains for EU companies
- Melt-blown disruption
- EU and Global supply chains dependence from China markets
- Logistic delays

#### **Challenges and disruptive trends:**

- Long-term strategic plan for European Industry
- Regulation on material handling to achieve Circular Economy systems

#### **Coordination needs:**

- Launching a study for a shared analysis of the risks and critical points of the complete sectors to identify solutions to improve resilience and security in the medium/long term
- Collaborations have to be pushed at local/regional level

#### **Funding needed:**

- Help SMEs that are in the process of launching innovation projects, but are in financial difficulty due to Covid-19 crisis to go through with projects and not give up for lack of means

#### **Regulation needed:**

- Improve regulation process for homologation of European innovation, lowering barriers and acting especially from a politics and strategic point of view
- Support innovation in material sectors to support SMEs recovery

### 3.1.14. Retail

The retail ecosystem encountered different trends: increase in online purchases, disruption of exports, closure of local shops.

#### **Disruptions:**

- Commerce Disruption (20% increase in purchases)
- Closure of borders and export disruption

**Challenges and disruptive trends:**

- Temporary more local supply chains

**Coordination:**

- Support local retailers to face demand increase
- Digitalization for markets, products and buildings
- Innovate on new products and business models

**Regulation needed:**

- Necessity for clear safety and certification rules regarding import and export of finished goods

**3.1.15. Textile**

The textile ecosystem was deeply involved in the production of masks, development of new designs and finding alternatives.

**Disruptions:**

- Missing certifications, homologations, reliability and quality of products
- Shortage of critical supply of plastics, filtering and advanced materials

**Coordination needs:**

- Enhance Europe's capabilities on production of advanced materials for masks

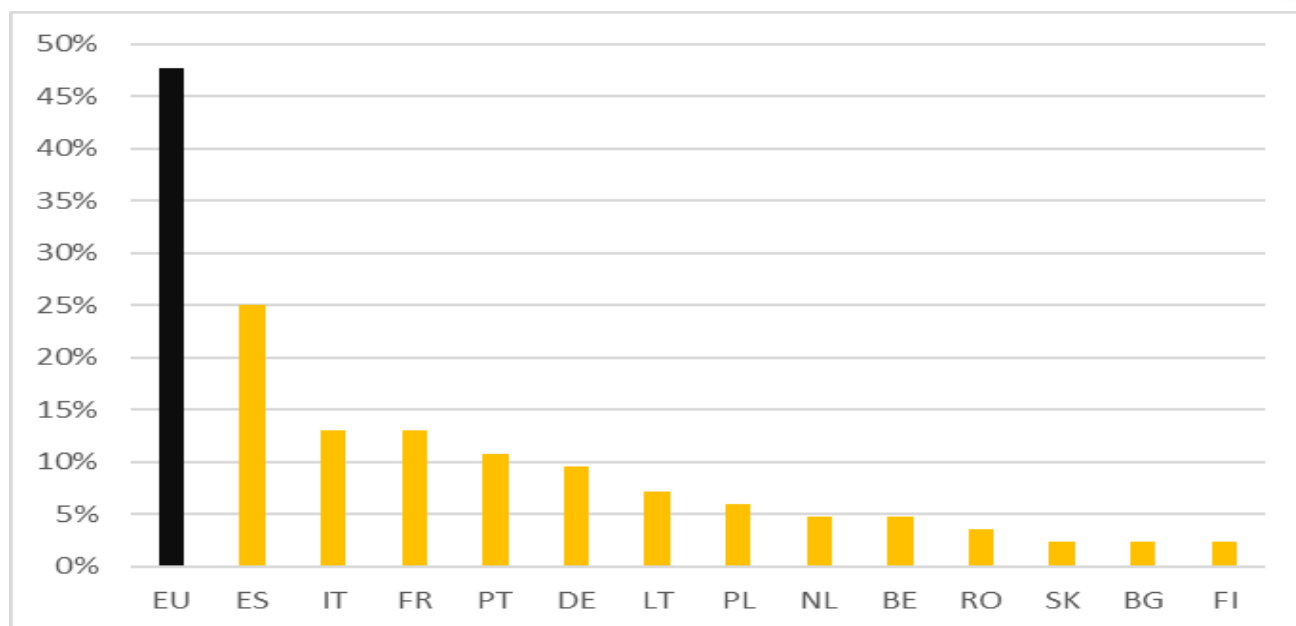
**Regulation needed:**

- Improve regulation process for homologation of European innovation (homologations of tissue masks)

**3.3. Which countries reported disruptions?**

The European Alliance Against Coronavirus is made of actors from different European countries. As it is an open forum, it integrates everyone who wants to participate and share their experiences and needs. Many participants come from Southern and South-Western European countries, including Spain, France, Portugal, and Italy, which is why ECA documented many disruptions from those countries.

Nearly half of the disruptions have been identified at European level, meaning that they have an impact on a European level or can be seen in multiple countries. Spain is the second source in terms of number of disruptions identified (25%), followed by France (13%) and Italy (13%). Even though this analysis does not aim at giving a complete picture but reflects the “week signals” from the group, the analysis is significative in showing the wide-spread geographical distribution of the challenges identified and their impacts, involving all the European Union.



*Country distributions for which disruptions were identified<sup>5</sup>*

### 3.4. Which stages of the value chain were affected?

The members of the European Alliance Against Coronavirus indicated disruptions in all stages of the value chain during the COVID-19 emergency. Next to the geographical impact, this is another indicator that shows the variety of difficulties that the industries had to answer and is related to the character of the disruption.

Looking at the 84 disruptions that were reported by the European Clusters Alliance, the results show that 17% of them had a strong impact on all the stages. The most disrupted areas are Operations (18%), HR (15%), Procurement (14%), Inbound logistics (8%) and R&D (7%). The reason for this data can be the recurring topics of disruptions.

Operations have been disrupted by many factors. First of all, as already pointed out, restrictive measures shut/slowed down manufacturing and industrial activities. Factories found themselves to work with lower numbers of operators, without safety and protection gears (PPE shortage) and with incapability to satisfy the demand also due to logistics delays/stops.

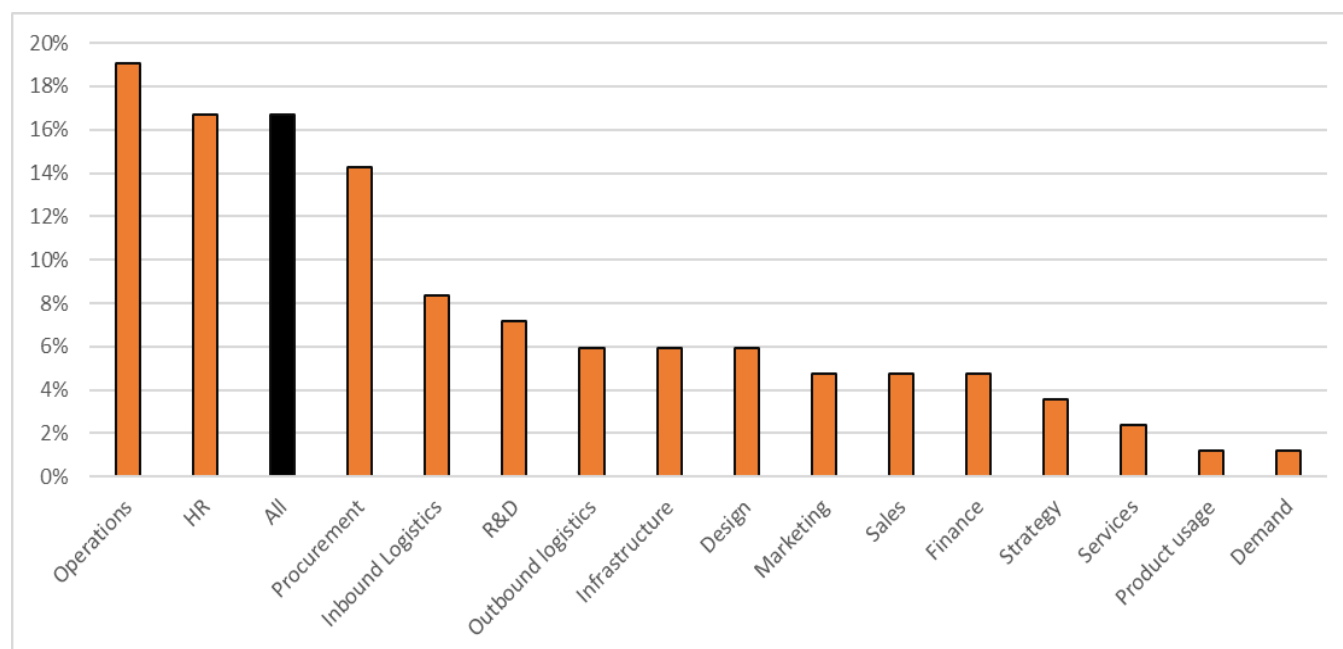
Inbound Logistics and Procurement suffered discontinuities caused by border closures, lack of certifications on materials and difficulty in retrieving and treating second-hand inputs, which overall caused the temporary stillness of their supply chain. Costs to retrieve resources have increased, both in terms of materials and staff.

HR was heavily disrupted, too. During the lockdown period, new types of skills - particularly digital skills - were required to work remotely when possible, due to the inability to grant safety measures on the workplace.

<sup>5</sup> Starting from the daily session, the location of the disruptions was collected in the database. This "location" represents the country or region of identification of a certain trend, considering the association that reported evidence on the disruption (National Cluster Associations, European Associations, etc.).



Finally, R&D efforts and New Product Development were disrupted due to the absence of necessary certification, homologation and regulation of outputs which slowed down or stopped the whole processes.

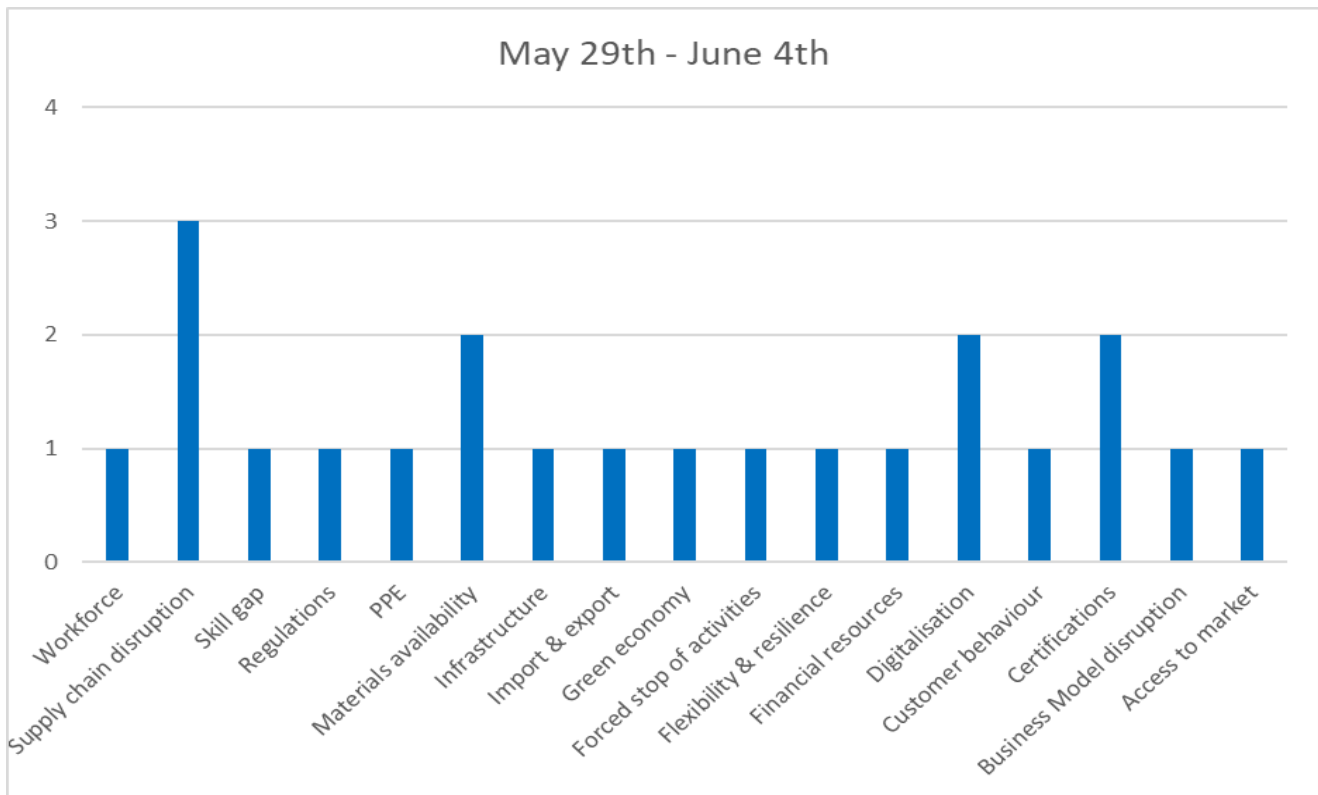


*Percentage of value chain stages impacted by disruptions<sup>6</sup>*

### 3.5. Which were the most recurring disruptions?

The European Alliance Against Coronavirus has been meeting on a daily basis, adjusting their topics of discussion with the development of the crisis. To see the evolution over time of the disruptions, this analysis takes into consideration the recurrence of general issues identified for several ecosystems and areas over the course of the daily meetings. The time horizon considers spans from May 29<sup>th</sup> to July 24<sup>th</sup> 2020. The weekly development is outlined in each chart, showing the most recurring trends for each period.

<sup>6</sup> The identified disruptions were divided on the bases of the value chain stages impacted. The stages of the value chain are shown on the x-axis and the percentages on the y-axis represent the occurrence of these trends calculated on the basis of the total number of disruptions (84).



*Absolute number of recurring disruptions analyzed during Week 17*

In the first week analyzed, the main topics that emerged were **Supply chain disruption, Material availability, Digitalization and Certifications**. In this first period, the sanitary emergency in Europe brought by COVID-19 was still at its peak. The members of the European Alliance Against Coronavirus shared with the group that restrictive norms on the movement of people and materials brought difficulties for many businesses and industries.

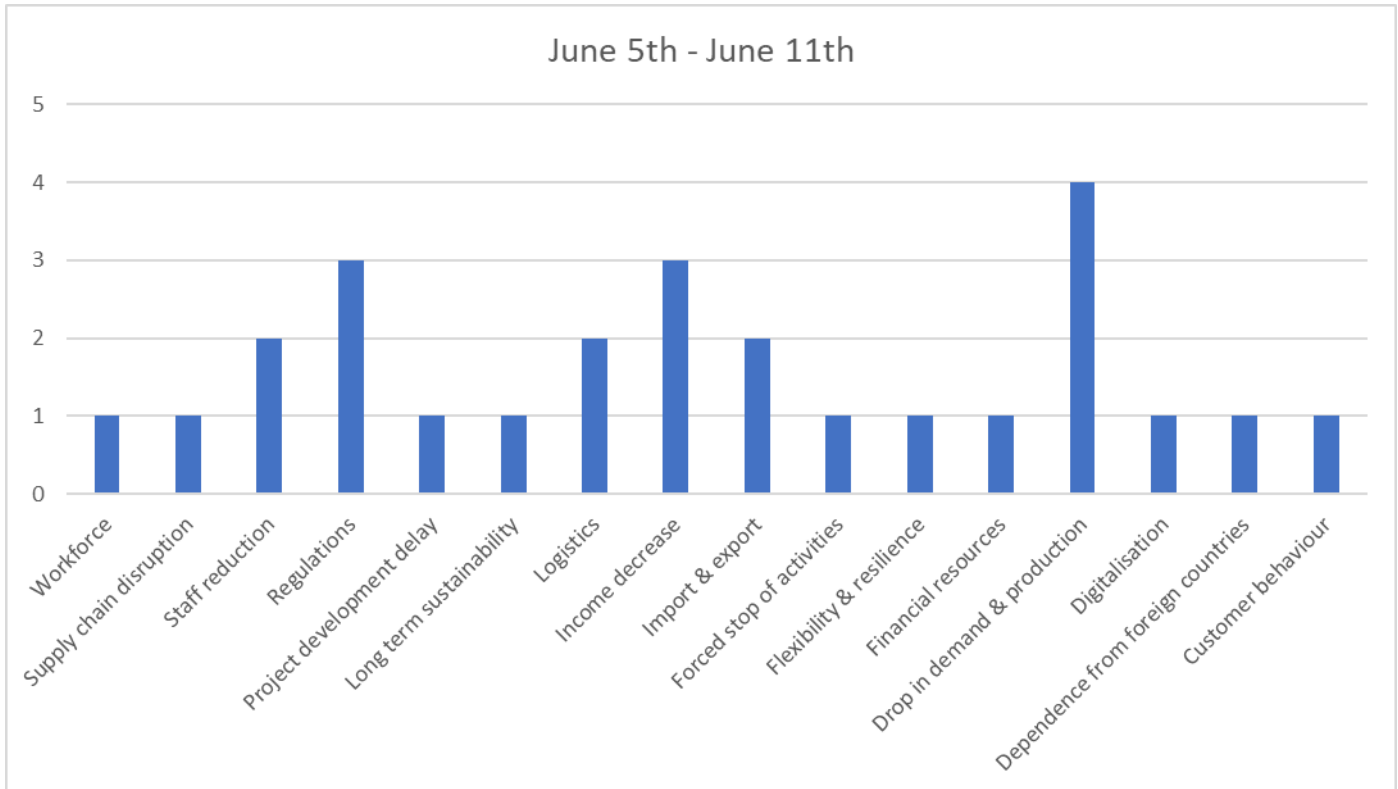
International supply chains were stopped or delayed by border closures and the impossibility to grant safety for imported goods and materials, especially for critical materials like chemical and electronic components, which have always been imported for the most part from suppliers outside the EU, like China.

In addition, the impossibility to grant safety measures in the workplace, given by the shortage of safety gears, slowed down the activities of many industries. The lack of commonly shared certifications and standards for newly produced masks and gear impacted prevented to quickly implement new solutions which were needed, given the enormous demand for these devices in the period.

For the companies able to shift their activities online, change their business models and to quickly implement remote work, the need for more digital skills and further training became another critical aspect.

<sup>7</sup> The numbers on the y-axis represent the occurrence of each topic during the week considered, calculated on the basis of evidences gathered in the daily sessions. The x-axis shows the keywords of the disruptions.

Consequently, many businesses had to close temporary while others had to switch their workplace online, creating a disruption in the skills requested to workers.



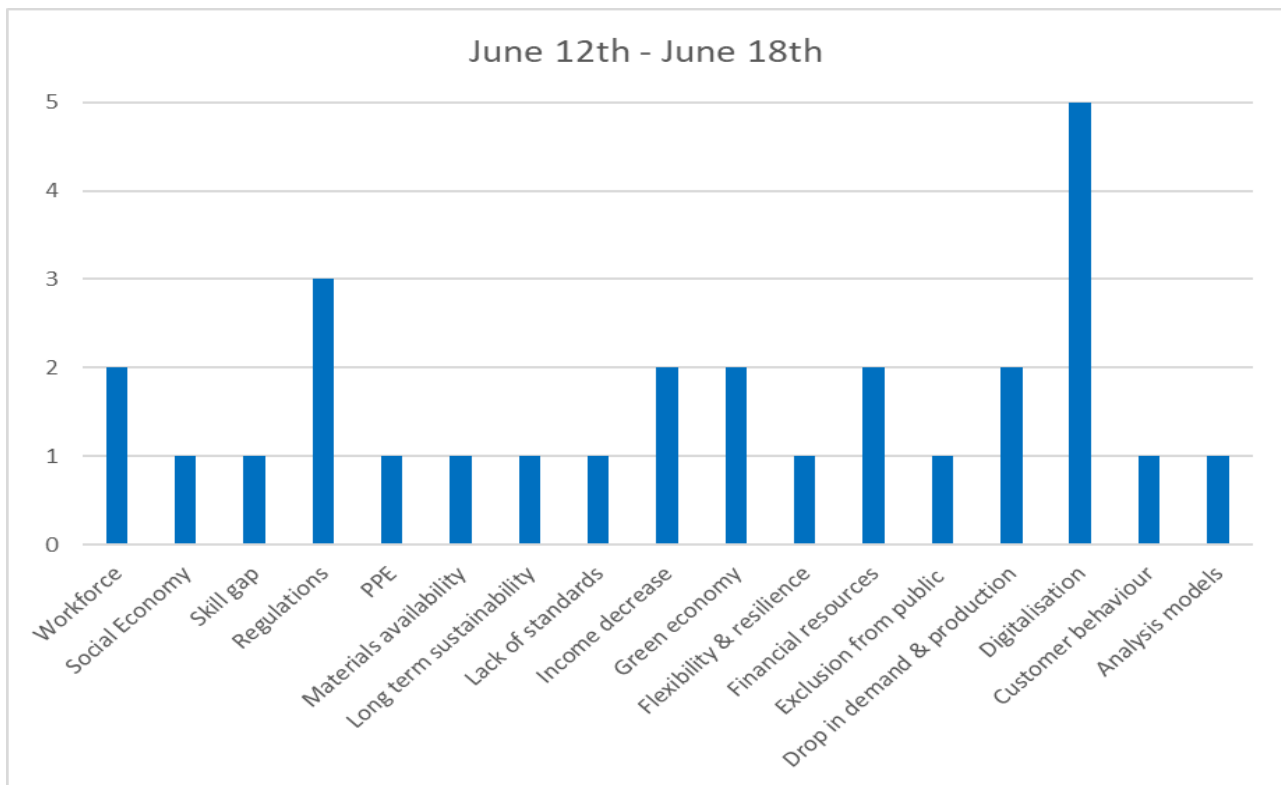
*Absolute number of recurring disruptions analyzed during Week 2*

In the second week, the pressures imposed by **Regulations** showed its impact on European Industry. As seen in the chart, it remained one of the most relevant topics talked about by the European Alliance Against Corona-virus. With the lockdowns and restrictions on mobility, ECA reported a **Drop in demand and Production** for different ecosystems like Tourism, Mobility – Transport - Automotive and Creative and cultural industries.

Both **Availability of workers** and **Customer behavior** have changed due to restrictions. Especially for transportation and seasonal business, this fact led to a general **Income Decrease** by 40% to 80% compared to the previous year.

Considering Human Resources, this critical situation led to the reduction of staff on the one hand to the inability to hire new personnel due to restrictive norms and business insecurities with regard to the future on the other hand.

Finally, **logistic delays** and disruption in **import and export** still persisted in this second period analyzed for the afore-mentioned reasons.

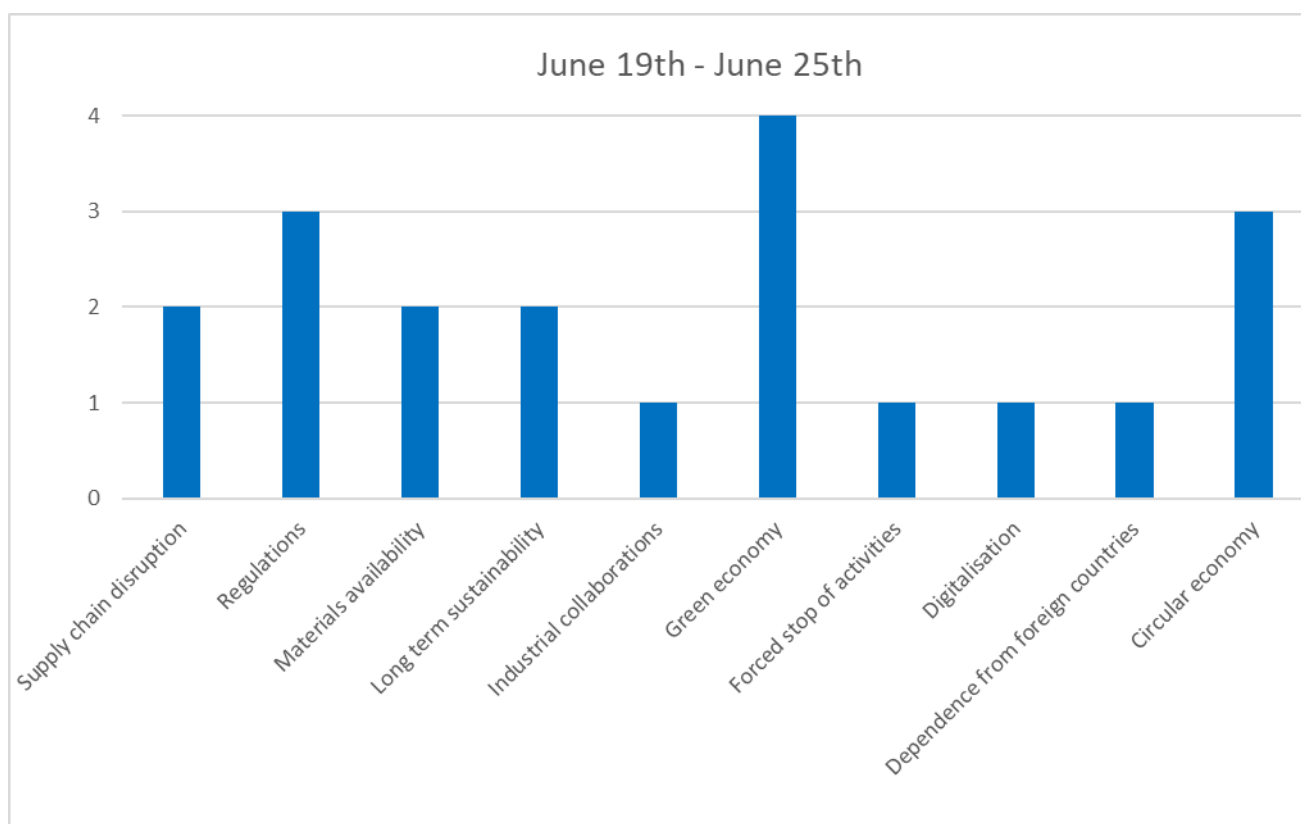


*Absolute number of recurring disruptions analyzed during Week 3*

To contain the spread of COVID-19, many European countries were still under lockdown measures between the first and second half of June. Therefore, restrictive **Regulations** continued to be a discussed topic in the EAAC. The issues of **Workforce Management and Income Decrease** emerged again in the meetings, but in this week, disruptions were also connected to the lack of **Financial Resources** brought by the critical situation of the previous weeks. Supply chain disruptions and stop/delay of operations started to show consequences in financial terms.

In this context, the first hints for the European recovery started to emerge, revolving around the topics of **Digitalization**, especially at manufacturing level, **Social Economy**, and **Green Economy**. These macro-trends have been the pivot for the first proposals gathered this week to proactively respond to the situation, since the long-term scenario for European companies could not tolerate the same criticalities encountered and forced stop of activities.

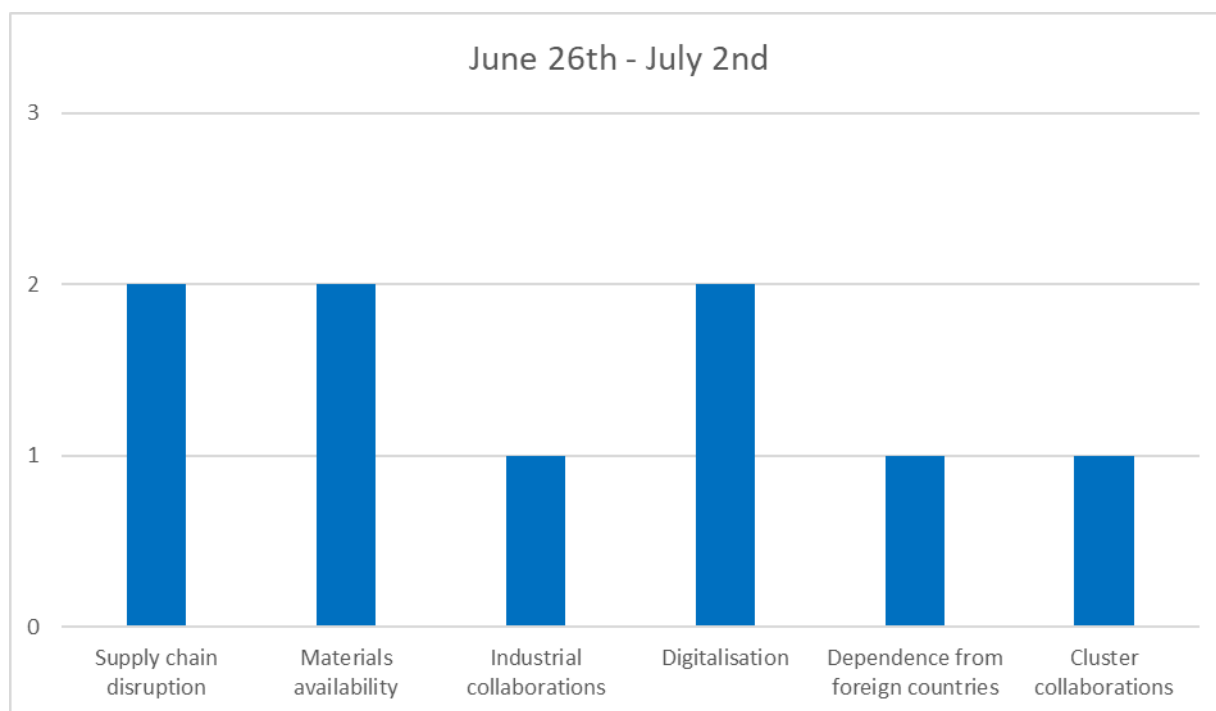
Moreover, these guiding principles follow the aim to obtain **Long-Term Sustainability**, supporting the EU to increase its independency from foreign countries and create resilient supply chains. The aim is not to go back to the pre-COVID situation but enhance our industries.



*Absolute number of recurring disruptions analyzed during Week 4*

Considering the fourth period, the EAAC still referred to **Supply chain disruptions, Material availability and Regulations** in their respective sectors and areas of work as the most recurring topics of the week. However, the group turned to discussing “disruptive opportunities” which were presented with the aim to achieve *Long-term sustainability* of the European Single Market.

In particular, while the previous week was characterized by strong Digitalization proposals, **Circular and Green Economy** were emphasized as drivers in the process of recovery from the sanitary and economical discontinuity imposed by the pandemic. The EAAC shared the view that **Green Economy** is beneficial for the European economy because of its environmental impact and its cross-cutting opportunities for the different sectors. On the other hand, its branch of *Circular economy* would allow to detach the EU to a certain extent from external markets to increase European **Material availability**, a critical aspect that hit hard during the lockdown periods, by collecting and treating waste to transform outputs into valuable inputs, reducing the quantity of imported raw materials.



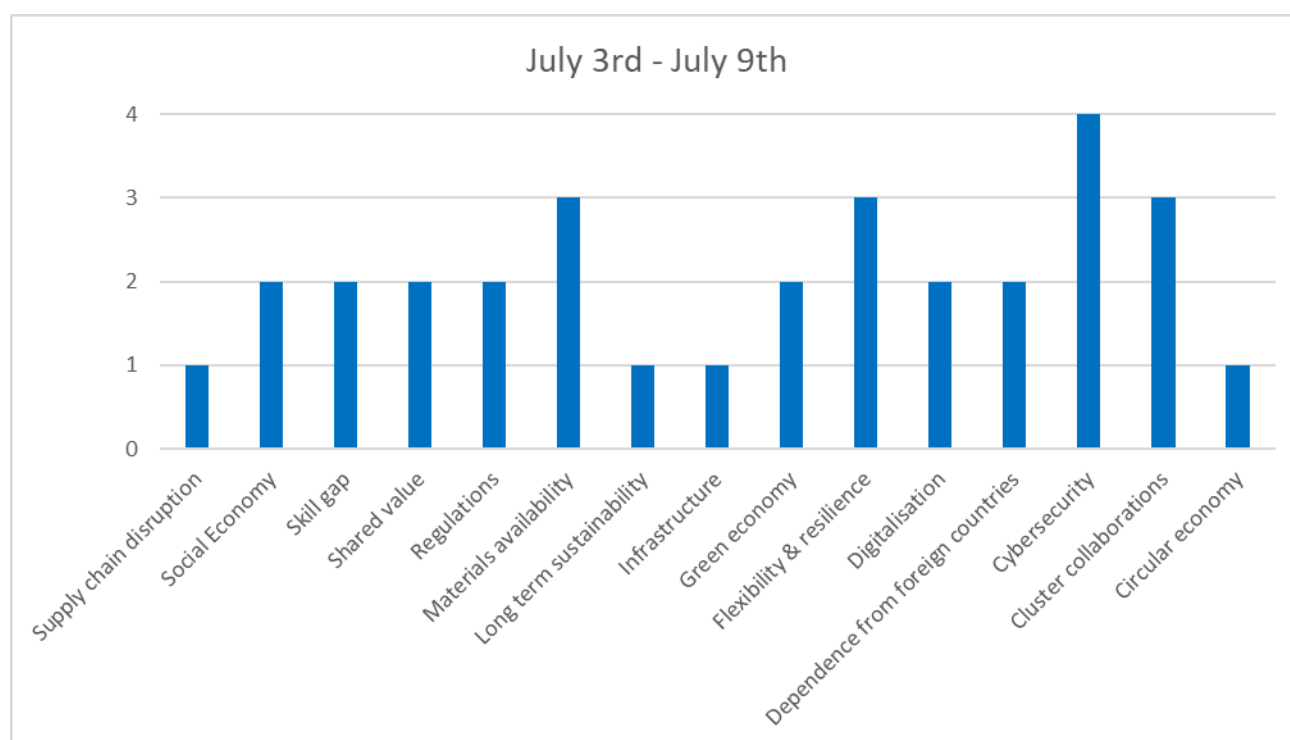
*Absolute number of recurring disruptions analyzed during Week 5*

In the fifth week, the EAAC continued to give evidences of *Supply chain disruption*, **Material availability** and **Dependence from foreign countries**. The strong dependence of EU supply chains on Asian market became visible in the COVID-19 crisis. The sharp contraction of the Chinese market influenced supply chains in all over the world.

The EAAC highlighted the role of **Digitalization** as a driver for the European recovery - in particular for the Industrial and Manufacturing ecosystems. Digitalization has been found to be a key aspect to foster **Industrial and Cluster Collaborations** and to reinforce the strategic role of clusters in the recovery, being the fundamental node of communication between policymakers and local businesses. One possible next step for recovery is a shift from cluster organization based on sectoral or geographical categorization to “Digital Clusters”, building a net for common knowhow, collaboration and mutual help across EU.

This further step, would improve the resilience of both the whole aggregated value chains across different ecosystems through active collaboration on recovery projects beyond geographical and sectoral limits and of the single clusters, making a prompt identification of signals and intervention measures at local level and the exploitation of good practices from other associations in the European ecosystem possible.



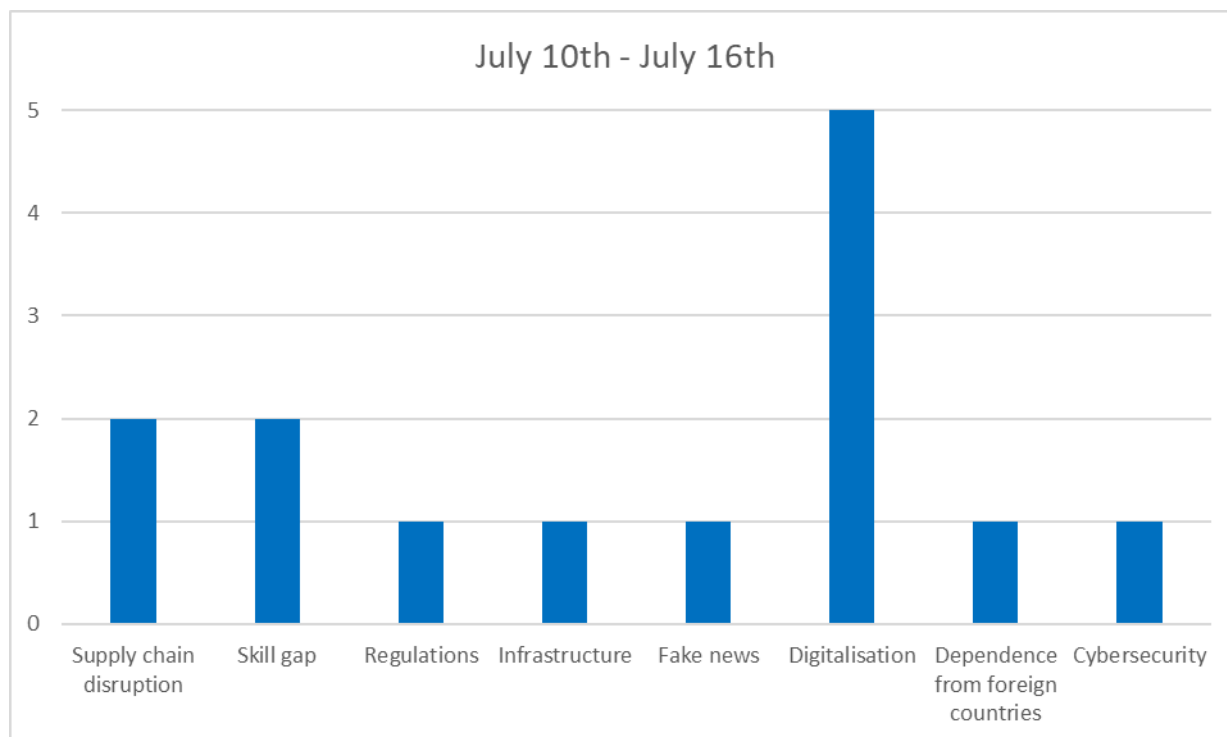


*Absolute number of recurring disruptions analyzed during Week 6*

**Cluster Collaborations** and **Flexibility and Resilience** were key topics in the daily sessions of the first week of July, as well as **Material Availability and Dependence from foreign countries and Regulations**. Linking to the topics of the previous period, the members of the EAAC presented proposals and difficulties for cluster collaboration across EU, underlining the importance of these partnerships to boost resilience and flexibility. **Circular Economy, Green Economy and Digitalization** were once again reinforced as fundamental for recovery projects.

Furthermore, the alliance talked about **Cybersecurity, Skill gaps and Social Economy**. Cybersecurity is crucial for the digital transformation, however, members of the EAAC see the need for a bigger support from public authorities in this field. The number of cyber-attacks increased in the pandemic period, since hackers tried to exploit the emergency to retrieve sensitive data. This was possible because people took their workplaces home, partly using their personal devices for remote working. In addition, a large Digital Skill gap in cybersecurity was identified. Experts in the field tend to accept work opportunities outside the European Union, especially in the US and Japan. This situation leaves the EU with few resources to fight efficiently against cyber-attacks, an activity which is extremely money and time consuming.

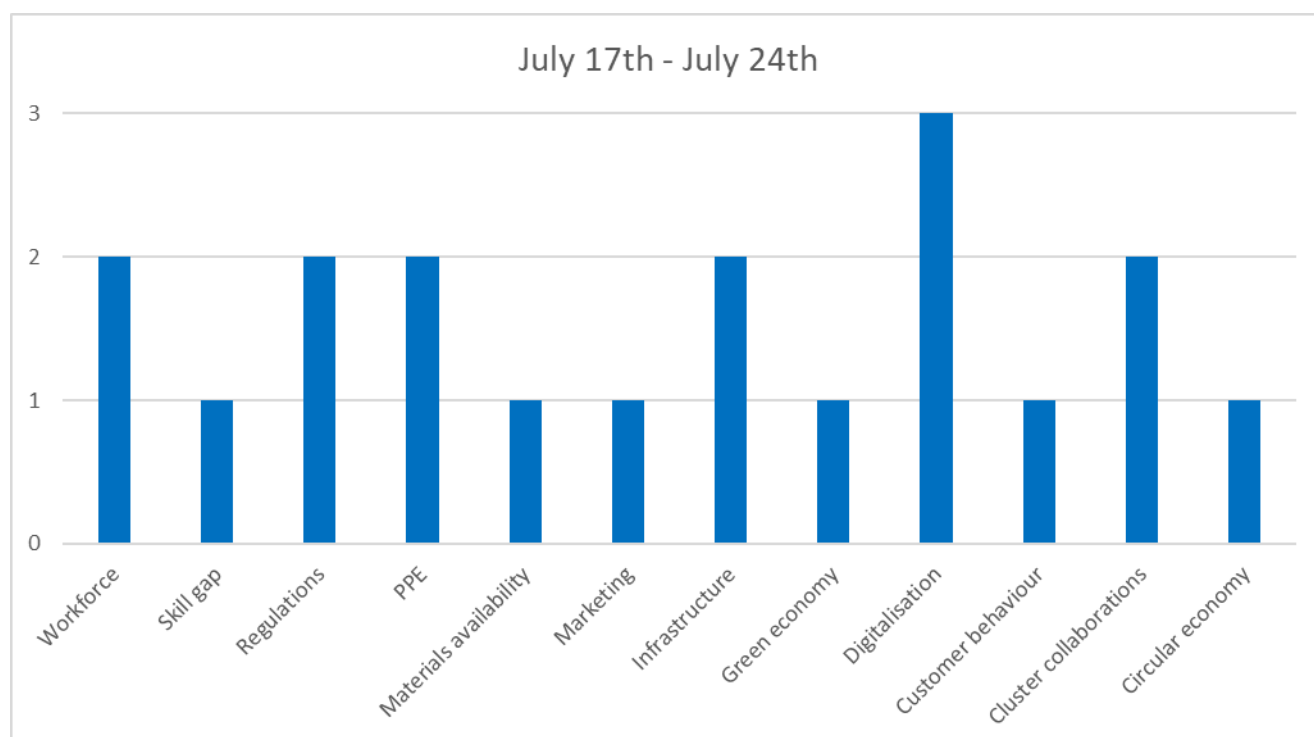
The EAAC looked moreover at the **Social Economy**. Its importance stems from the cross-cutting impact both on the economy and social well-being and inclusion. In the context of the pandemic, social enterprises can address crisis-related unemployment, re-evaluate structures and buildings through social housing initiatives and generally grant a local economic and social reboot after the pandemic (concept of **Shared Value**). Social Economy can also be a catalyst for collaborations between public entities, NGOs and private companies.



*Absolute number of recurring disruptions analyzed during Week 7*

In the seventh week, the European Alliance Against Coronavirus often returned to the topic of **Digitalization** as one of the core challenges for building a resilient economy. **Cybersecurity, Infrastructure and Regulations** are keywords for future projects in the European Recovery. These technologies involve a large amount of data to be processed and stored, making them a subject for privacy issues and restriction on exploitation (GDPR). Regulations can present a barrier in this aspect, since there are not clear or common rules for data applications to wide and pervasive nets (for example smart cities).

In addition, the group foresees infrastructural problems related to the application of sensors, antennas and controllers for these proposals to create a net which includes not only “traditional” application (for example application to the manufacturing process) but also to Mobility, Transportation, Energy and Retail. The feasibility of installing and connecting this hardware is subject to specific rules and norms about privacy issues and interference creation with other transmitters/receivers.



*Absolute frequency of disruptions analyzed during Week 8*

Business and event organization are usually part of a cluster's activity. Therefore, the EAAC discussed how to deal with event planning and gatherings after the pandemic; social distancing measures are still in place in many European countries. Because of the new challenges through **Regulations and Infrastructure**, the EAAC underlines the opportunity to organize in the future hybrid events (partly digital and partly presential) as possible solutions to safety risks.

In addition, previous topics like **PPE shortage, Workforce and Workplace management, Skill gaps and Materials Availability** came up again.

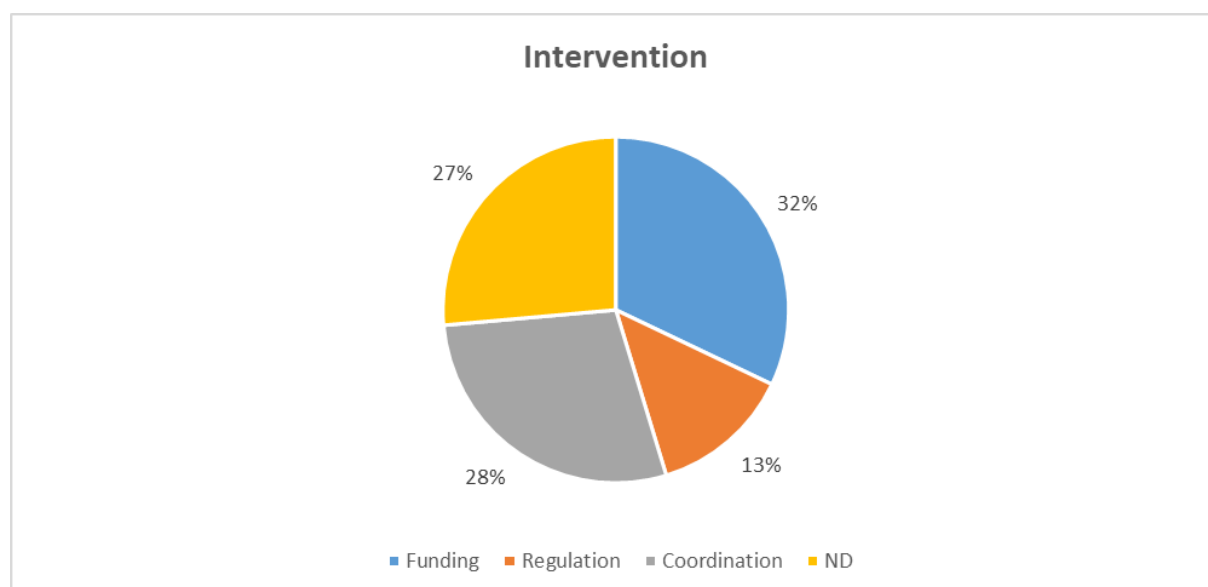
### 3.6. How can we fix disruptions and learn for the future?

The European Alliance Against Coronavirus unites stakeholders from different entities – from clusters to universities to companies to policymakers to other associations. While looking at the disruptions in the European value chains, everyone brought their particular needs for their areas of work on the table. To get an overview, this analysis divides them into funding, coordination and regulation. Most of them require or would benefit from the involvement of European bodies – to be implemented properly, receive the necessary resources, or reach a European scale.

**Funding** actions summarize all the possible financial supports that the European community can allocate to alleviate the situations of economic or financial difficulty and to accelerate the recovery. Some examples are non-repayable loans, business funds, funding for research and development projects, financial aid and many others.

**Coordination** actions encompass the decisions between different stakeholders to facilitate collaboration across countries, regions, and ecosystems. This can affect businesses, supply chains, industrial networks or entire sectors. Single and poorly coordinated economic activities do not allow the efficient growth of a single European market. For this reason, a stronger bridge between the EU level, national levels and regional levels is needed. Finally, **Regulations** actions mean all the possible decisions that can be undertaken to improve laws and regulations within different contexts.

**Funding** actions are recommended in 32% of cases in order to financially support the recovery, **Coordination** activities in 28% of the cases and **Regulation** in 13%. 27% of the challenges did not allow the identification of direct actions by the EU, as their either described disruptive trends on which the actors are currently working, or they were already tackled by cluster interventions, e.g. with a specific regional or national projects.



Percentage distribution of EU action identified<sup>8</sup>

<sup>8</sup> These interventions have been divided following the daily minutes structure in *Coordination*, *Funding* and *Regulation*. Data and calculation have been based on the total number of necessary actions identified. Through the analysis of the disruptions for each daily session, corrective actions have been suggested for each problem identified and to summarize their distribution, a pie chart has been reported here.

## Examples for coordination

The actions identified emerged as suggestions proposed by speakers and participants of the daily meetings; here are listed significant examples for coordinative actions. The specific EU action needed related to the different disruptions are reported in the attachment of this report.

### ***Reduction of staff in the Aviation Ecosystem***

- Increase cash flow liquidity to support industries through staff retention (salaries and skills), capability protection, supply chain protection
- New European solution for competence development, allowing to achieve competitive advantages for EU in the long term

### ***Changes in consumer behaviour in the Agri-food Ecosystem***

- Development of a transition plan in order to restart with new frameworks based on circular economy, digital transformation and technologies development
- Help companies connecting producers and consumers by using new tools and software
- Accelerate the digital transformation by using e-commerce to deliver local food to local markets
- Addressing the urgency to find solutions both in the short, to be quickly responsive, and in the medium term, in order to rethink and redesign the whole value chain
- Deeply analyse the disruption in a specific session, in order to stress the topic more, keep the opportunities and influence the policy makers

### ***Importance of mapping COVID-19 impacts on social economy***

- The Social Economy lens help to collect important information through the EU Rapid Alert Function. This Function, recalled into the Recovery strategy, is connected to the possibility to collect weak signals. The mapping of relationships between stakeholders should become a standard for all types of businesses, not only for Social Economy.

### ***Social economy as a driver for collaboration in the Industrial Ecosystems***

- Improve the competitiveness of Social Enterprises through the increase of the added value provided, from an interregional cooperation perspective
- Creation of European value chains of social enterprises belonging to different regions in Europe and improve the cooperation between them. Actors may not have enough resources, so it happens that collaborations are always established between those actors with more resources, creating in this way an unbalanced network respect to the ecosystem. In this sense, Social Economy could be the solution.

### ***Long-term vision for European companies***

Especially for Small and Medium Enterprises:

- Upgrade SME competitiveness in several sectors and ecosystems through redefining the role of clusters, support digitalization, promote access to finance, piloting, and technology developments
- Adopt sustainability means for of concepts of circular economy, industrial symbiosis, recovery-reuse, reduce pollutants, and social licensing
- Inter-Regional Business Hubs development, having a great potential for public funding/financing of SMEs

- Social and industrial related value chains require highly synergic raw materials procurement and distribution through value chains
- Value chain elements such as digitalization of the industry, stronger exploitation of smart and digital solutions.

## Examples for Regulation

The EAAC touched on various topics that require a regulatory action to advance. The following examples show some of the issues – the attached complete list of disruptions contains all proposed actions for each issue.

### ***European drone industry fragmentation for Aerospace & Defense Ecosystem (UAV)***

- The actual legal situation for drones represents a barrier. Each country has its own regulations and flight permission (autonomous decisions are taken; an example is represented by Central European Drone Demonstrator in Poland). A regulation homogenisation and standardisation at European level is needed since, in general, European regulations are stronger than non-European ones (but it depends also on drone type).

### ***Rising importance of sustainability paradigm in Social Housing sector***

- Social Housing is not only a European competence. However, Europe can give local authorities a framework. Europe can take the rights of Social Housing and enable better locations for living. Local authorities often lack funds to feed social housing and, even if social housing companies are very innovative, funding is not available.

### ***Regulation on alcohol usages***

- Flexibility in the application of regulation is needed to timely respond to the environment changes. Alcoholic based products are available in Italy at production level, but regulations limit their consumption. 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).

## Examples for Funding

Funding is important – without funding, there are neither innovation projects nor resources to main business activities. The funding needs have been explicit for several disruptive trends, as seen in the following examples. The complete list for which disruptions funding is needed can be found in the attachment.

### ***Stop of Creative & Cultural Ecosystem***

- Tax reduction and incentives are needed to better face the strong reduction of overall sectors income; moreover, targeted measures for creative and cultural companies are also needed, going beyond the measures designed for traditional industries
- Financing for collateral activities and facilitating the reactivation of people movement, in compliance with government restrictions (e.g. support travel and hotel sectors)



- Financing to support digital innovation in creative and cultural sectors (e.g. film and music industries); digitization can greatly help the sector recovery and attract new investments, especially for the creation of cultural digital contents.

#### *Project development slowdown in Renewable Energy Ecosystem*

- Several companies along the value chains will benefit from EU Green Deal programs. This will help companies with funding for new projects, generating an increase in demand for manufacturers and operations and maintenance operators (for example investigating new floating turbine solutions within wind industry or new materials recycling techniques).

#### *Adaption to new trends for Industrial Ecosystem*

- Process flexibility and intelligent data management enabled by IoT and digital solutions are characteristics that can generate a great competitive advantage for Europe in the long term. The COVID crisis represents a further barrier to digital transformation since many companies had to close and stop their operations and activities for several weeks. This is a strong brake against digitalization. However, it also generated the further need to “reinvent” the structure of the factories to face the crisis, which must now be even more digital, automated, agile and safe.

## **4. Good practices and strategic proposals for cluster activities**

The European Alliance Against Coronavirus has shared many good practices in their daily meetings, which inspired concrete actions to mitigate the effects of the crisis and served as an example to build strategic plans for cluster policies and activities. The following examples were presented by speakers during various EAAC daily sessions, giving evidence of concrete actions adopted at regional or national level and providing useful hints for replication at European level.

### **4.1. France: Cluster proposals for the national recovery plan**

EuraMaterials, a materials cluster with 260 members and 1,000 associated partners, participated in drafting a **proposal submitted by 7 clusters and led by AFPC to the French Government for the national recovery plan**. The Covid-19 crisis has highlighted the key role of the materials processing industries (examples: plastics for respirators, masks and visors) in the value chains and the absence of certain key technologies on the French territory. Their proposal is based on the concept: **“everything is material”**. Materials serve all strategic markets, but their transversal and upstream positions mean that their roles are often misunderstood or even forgotten. It is clear there can be no recovery plan without a special consideration of materials. In addition, the materials processing industries are characterized by a **driving role of manufacturing SMEs/SMIs** scattered throughout the national territory.

First of all, it is necessary to **perpetuate the sovereignty of production chains in the materials processing industry** because the disappearance of links in these value chains is a critical factor with significant risks. **It is recommended that the CSFs (Strategic Committees for the application sectors) integrate the materials dimension in the actions**. It is also important to encourage a **mutually supportive interaction** between large industrial groups as suppliers and SMEs to develop a national commercial strategy aimed at securing the import of critical raw materials into the national territory.

For the recovery, it is vital to:

- help SMEs that are in the process of launching **innovations projects** since innovation should be the key to SME recovery;

- facilitate the **access of start-ups to innovation projects**, by revising the equity rules that limit their participation in collaborative projects;
- in the medium/long term, it is necessary to **rethink the industrial value chain to ensure self-sufficiency** for Europe's and France's raw material production.

The French clusters submitted these recommendations to be considered for the national recovery plans. Thus, they were actively involved in giving concrete ideas and representing the needs from the industry.

#### 4.2. Belgium/Flanders: Regional expert groups to give advice

In federal Belgium, drafting the recovery plan is carried out by the regional government. In Flanders, the government installed two expert group to advise the government in the creation of the plans: the economic advisory expert group and the societal advisory expert group. The innovation clusters will **be part of the economic advisory expert group**. As foreseen in the recovery plan, clusters will need to continue working in the **smart specialisation strategies**.

Furthermore, they will increase their activities in:

- Connecting more in **regional transformation priorities**;
- Play a greater role in **international R&D&I on sustainability** (whereby sustainability is understood in a broad sense);
- Deeper connections between 6 spearhead clusters in Flanders;
- Be more active on **internationalisation**.

#### 4.3. Portugal: Stronger cluster collaboration for more impact

The Portuguese Agency for Competitiveness and Innovation recognized that the success of public policies depends on the capacity of the civil society to define a common strategy and mission, in particular on the ecosystem structures associated with the dynamics of clustering. It was important to establish close relationships of cooperation and collaboration that favour the development of concerted initiatives in several areas of intervention to achieve common objectives. Therefore, they signed **sixteen Sectorial Pacts for Competitiveness and Internationalisation** with the Ministry for Economic and Digital Transition.

The main outputs include:

- a closer dialogue between the Cluster Managing Entity and the members of the Monitoring Committee and other organisations whenever necessary;
- better understanding of the cluster needs;
- more intra- and inter-cluster activities and networking;
- clusters studies aiming at identifying solutions;
- working groups between cluster, representatives of the government and representative of private and public entities.

The recovery plans actions are the domain of the single EU Member States: it is important to take advantage of the strategic local spread of clusters and effective role in identifying weak signal to stimulate interventions at national level.

#### 4.4. Italy: Monitoring Smart Specialization Strategies for more synergies

Smart specialisation in Italy has a regional and national dimension. There is one national S3 plan with 5 thematic areas and 21 regional S3s with different objectives, timing and approaches as the Italian regions are characterized by different levels of administrative abilities and experience in managing and monitoring R&I policies. Moreover, each Italian region has its own monitoring system following EC regulation. Therefore, it is possible to find different skills and monitoring capabilities as well as different degrees of stakeholder engagement in S3 monitoring.

In June 2016, the Italian Cohesion Agency conducted a survey and the results showed that the regions would like to receive support in the national coordination activities. This is the reason why the Monitoring Unit of the Agency for Territorial Cohesion gives methodological support to regions for S3 monitoring. They developed a monitoring system at central level containing information on the 21 regional S3s.

Furthermore, the National Agency for Territorial Cohesion and State General Account Department launched an activity with regions: identifying S3 projects in the National Monitoring System in order to identify the projects contributing to regional and national strategies by priority.

#### 4.5. Romania: Clusters as the backbone for S3

The Regional Development North East of Romania's vision is based on these main ideas:

- Clusters can promote sectorial collaborative leadership
- Clusters can consolidate capacity to:
  - support start-ups and scale-up;
  - simulate international cooperation;
  - encourage digital transformation.

In Romania, clusters become a backbone for change strategy for smart specialisation, by contributing to RIS3 NORTH-EAST, engaging in the entrepreneur discovery process, and promoting leadership and collaboration. The main instrument 2021-2027 ROP North-East will include investments in clusters, including investments in start-ups and SMEs to develop competitiveness in specific areas, R&I projects, internationalisation and networking.

#### 4.6. Green, digital, resilient: Proposals for the recovery

The European Cluster Collaboration Platform organized on July 23<sup>rd</sup> – in collaboration with the European Clusters Alliance – a webinar on the industrial cluster response to COVID-19 and the role of European clusters in the recovery strategies. The participants discussed these main challenges and lessons learned during the COVID-19 outbreak:

- Shortage of strategic and protection gear (masks and alcoholic products)
- Supply chain disruption in all stages
- Digitalization of local shops
- Re-orientation of the production
- Funding initiatives
- Industrial network creation for strategic gear supply
- Intensification of contacts with industrial ecosystem and SMEs
- Improving collaboration among clusters of the region for Covid-19 related projects

According to Orkestra, cluster associations took on different roles in the last months. They acted with a supportive role to the running businesses in the so called “**re-establish phase**” after the shock caused by the virus. Until May, European industries were immersed in the “**resistance phase**” with initiatives to cope with the shock. Then, we moved to the “**reflection phase**” and will soon enter the “**re-orientation phase**” with reconceive and reinforce actions.

Now clusters need to be included in the national recovery plan. ECA presented ideas for the three leading concepts:

- **Greening:** introducing the **Integrated Value Chain Pilot**, which emerged from an interregional project focused on the bio-based industry. The project covered three value chains: eco-construction, bio-based packaging and phytopharmaceuticals. First, gaps were identified and ranked. Then, a roadmap and an action plan were produced. The project ended before implementing the action plan. In this context, clusters should be responsible for integrating the whole value chain and coordinating the action plan due to their complete vision on the whole ecosystem (source: *Union of Slovak Clusters*).
- **Digital:** supporting **digital transformation** and assisting SMEs, including training sessions, economic rescue kits, and the digitalisation of local administration and non-IT companies. When the pandemic hit, the cluster promptly reacted, shifting these services online overnight. They also increased the dialogue with public administrations to share the concerns of the cluster members, and shared information about support initiatives for SMEs. Also, at country level, they worked with regional development agencies and promoted clusters as drivers of innovation having increased the dialogue with the Ministry of Research and Innovation and the Ministry of European Funds. Cluster members also developed innovative solutions during the pandemic (e.g. a start-up that receives EU funding designed a detector inside public spaces that would alert if someone is not wearing a mask properly) (source: *Transilvania IT Cluster*).
- **Resilience:** clusters represent the **backbone of the industrial ecosystem** and can act as catalysts because they bring together various actors from different ecosystems. Linked to this is the concept of resilience, defined by the United Nations as:

*“The ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions”.*

Opportunistic approaches disrupt value chains, which leads to the conclusion that actors cannot be resilient unless they work together. The cluster approach is collective, working on holistic strategies for behavioural, social, economic, and environmental impacts (source: *Aerosol & Particle Technology Laboratory, CETH*).

The greening and digitalisation pillars can facilitate new approaches such as circular economy, local sourcing, and sustainable technology. These changes cannot be done by one company or society alone: they need to be done at EU level and with the support from clusters.

#### 4.7. Dialogue with European Commissioner Thierry Breton: Next steps for clusters

The role of clusters in the European economy was furthermore addressed in a dialogue between European Commissioner Thierry Breton and the European Clusters Alliance during the videoconference on June 30<sup>th</sup> 2020. They agreed that clusters play a critical role in the economic recovery of the European markets towards a green, digital, and resilient future.

European Commissioner Thierry Breton highlighted the next steps for the clusters and the collaboration:

- **Include Cluster Associations in European recovery plan:** representing a vibrant economical sector, cluster associations must be part of the recovery plans of the EU Member States, which the Member States will present to the Commission in the last quarter of this year. Commissioner Breton will inform the Ministers of the State members about this meeting.
- **Shift from physical clusters to digital clusters:** geographical and industrial constraints in cluster organization and management can be overcome through digital channels, which have been proved to be very effective during the last few months of emergency. Creating digital clusters allows to synergistically act as whole entity representative of different clusters and needs across the territory and to improve promptness in reactivity and decision making.
- **Apply digital technologies and IT technologies in the cluster ecosystem:** aligning industrial ecosystem with best practices and infrastructure to improve recovery and sustainability in the long term.
- **Act as bridge and pivot for communication:** acting as a connection point between decisional spheres and local entities and actors, given the deep roots in the local industrial ecosystems that clusters have as key feature.
- **Adopt Digitalization and Sustainability Goals (Green Economy, SDG, etc.):** with the aim to recover from the sanitary crisis of Covid-19 and to increase resilience of the value/supply chains in the European Industrial Ecosystem.

Clusters have shown their potential since the beginning of the COVID-19 crisis, managing large groups of companies from different sectors at the same time and across different countries, in close and continuous collaboration with DG GROW, to help in this time of crisis and to look for ways and solutions for the recovery.

### 5. Recommendations for a green, digital, and resilient Europe

During the ECA activity, recommendations and suggestions to fight the immediate impacts of the crisis as well as to reinforce and reinvent European value and supply chains came from clusters, companies, research organisations, development agencies, policymakers, DIHs, networks, and other entities. They exchanged information and suggestions on:

1. Needs in the ecosystems
2. Best practices and actions at local/regional/national level
3. Examples of collaboration and projects
4. European policies and funding schemes
5. National/regional policies and programmes
6. Blueprints for cross-sectorial solutions

The specific recommendations to the disruptions are included in the list of disruptions (see attachment).

In general, the COVID-19 pandemic has highlighted more than ever that the probability of survival of an industrial system is directly proportional to its **resilience**. It means that the ability to absorb and react to external and internal changes represents a must-have skill for long-term sustainability. The crisis has shaken several sectors, generating economic losses, reductions in cash flows, staff cuts, changes in consumer behaviour and business models, undermining the survival of different business activities. Having more robust value/supply chains is vital to resist the backlash brought by COVID-19 to our economy.

In this paragraph, the report will regard the role of clusters for the European recovery and project recommendations at regional/national level, and Smart Specialization Strategies.

### 5.1. The potential of clusters for the national recovery plans

The role of clusters is crucial in identifying the needs of European industries and where to invest. For these reasons, clusters will play a key role supporting the recovery plan for Europe. Clusters can lead the transformation and the recovery by improving resilience, identifying bottlenecks, collecting needs, sharing solutions and best practices, enabling green and digital solutions.

Clusters are probably the most effective framework of supporting SMEs' development because they are physically close and present in SMEs' daily activities. They represent all sectors of the European economy, but they are not strictly sectoral. Due to their network nature, they run many cross-sectoral projects at the same time, between multiple companies and researchers from different Member States. Clusters are probably the best tool for integrating science with economy, operating not only at the interface of these two environments, but "incorporating" these environments inside the movement.

Clusters should continue to be a partner of the Commission to solve European economic challenges in a long-lasting corporation. NextGenerationEU foresees 750 billion EUR for the period 2021-2024, divided into several packages. Harnessing these funds, clusters can make suggestions for national recovery plans and generate more locally driven actions. Since the recovery plans will be managed at national level, it is necessary to build a connection and put in place dialogue spaces between clusters and national governments, organizing adequate meeting moments to support the allocation of the funds towards the areas most in need. Clusters can help in identifying these areas as they have a widespread net of "sensors" on the European territory.

In order to generate a profitable coordination between the national recovery plans, strong coordination between the clusters of the different Member States is necessary, fostering green and digital transitions within the Innovation, Digital and Sustainability packages.

### 5.2. Bridging administrative levels

The main recommendations that should be considered related to the recovery plans and to the bridge that clusters can build bridges between EU level and local level. Therefore, their ability to connect should be used to reinforce collaboration for the recovery:

1. To have a stronger national vision and coordination activities, it is important to improve the governance with a national vision on what is happening at territorial level. This includes (i) providing comparable information across regions by priority area; (ii) supporting the monitoring and implementation of **S3 (Smart Specialization Strategies)** strategies through capacity building initiatives; (iii) providing a space for peer-exchange and sharing experiences between regions.



2. It is helpful to document S3 projects in the National Monitoring System, harmonizing priorities across the regions. The main scope is to identify the projects contributing to regional and national strategies by priority (project financed by national and EU cohesion policies). The main need is to share information with regions, supporting, monitoring and evaluation activities, revision processes, cooperation between administration and stakeholders, comparison and benchmarking with other national and EU regions, defining synergies with the national S3.
3. Clusters offer entrepreneurial support, fostering collaboration between companies and taking care about new needs and challenges. The challenge is to increase international cooperation to consolidate the collaboration between similar clusters from different countries. At the same time, clusters need more support from regional authorities.
4. The connection between clusters and regional challenges allows to reinforce the link between EU strategies, leadership and territorial needs. In this sense, S3 has to be an integrated part of the Recovery Plan, rather than a separate solution. In this way, clusters can become (i) the backbone for territorial change strategy, promoting sectorial collaborative leadership and can (ii) consolidate capacity to support start-up and scale-up, stimulate international cooperation, encourage digital transformation.
5. Investment in clusters can be done through: (i) investments in start-up and SMEs for developing new industrial activities, according to the needs identified in their value chain; (ii) R&I projects; (iii) support for the internationalization and networking.
6. Administrative capacities can be improved by: (i) development of skills for smart specialization and industrial transition; (ii) access to one stop-shop for R&I projects preparation; (iii) access to the regional Digital Innovation Hub.
7. The Article 27 of the General Model Grant Agreement (General MGA - regulating EU funding actions) treats the protection of results and visibility of EU funding. Currently restrictions are in place on this article, which are limiting clusters innovation initiatives, imposing a limit on grants by 50% for public financing and a five-year limit for the time horizon in which funds will be delivered. Given the special period of recovery that EU is going through, and the role of clusters as instruments for government actions, more flexibility in funding restriction are needed in order to effectively support industries.

## 6. Learnings and achievements

The European Clusters Alliance reported the disruptions in value and supply chains, disruptive trends, and possible solutions to the European Commission through:

- Daily minutes of the webinars with experts from all over Europe
- Publication of minutes, recording of webinar and presentations of the speakers on the European Cluster Collaboration Platform ([LINK](#))
- Weekly reports from ECA to the EC

The shared experiences allowed to rapidly map the situations of European industries geographically and at sectoral level, identifying solutions and posing suggestions in the meetings to face the difficult situation.

Under the umbrella of the European Alliance Against Coronavirus, the European Clusters Alliance achieved remarkable results in this sense:

1. **Mutual knowledge:** The daily sessions allowed to exchange information on relevant topics during and post lockdown (masks, respirators, demands of materials, digital matchmaking solutions are just some examples). Moreover, these meetings allowed each participant to get a clear overview over the situation of other countries or ecosystems. ECA managed to create a network through the participants including representatives of European clusters. A valuable set of shared knowledge about COVID-19 related disruptions and best practices has been created. In addition, attendants from *DG Grow* and other European institutions participated actively during the sessions, creating a dialogue between clusters and institutions, including the special session with European Commissioner Thierry Breton.
2. **Mutual help:** Participation and shared experience not only provided a good understanding of the European situation in crisis time, but the gathering of signals from the ground became a point for collaboration in developing solutions for the crisis. This happened in two ways. Firstly, mutual knowledge allowed to create national/international collaborations between cluster associations and, secondly, shared initiatives implemented at national/local level could be adapted to other European ecosystems (e.g. French standards development for masks certifications).
3. **Identification of possible solutions:** During the daily meetings, several trends impacting different ecosystems emerged. These trends have been recurring in local and national recovery projects but also have been discussed at policy making levels for the European recovery. Hence, digitalization, green and circular economy, international collaboration, flexibility in the supply chain and resilience have been at the base of many proposals discussed in the meetings to allow a sustainable development of the countries in the recovery.
4. **Increasing the role of clusters in the recovery:** Since the recovery plans will be managed at national level, it is necessary to develop a connection and transparent dialogue between clusters and national governments. Due to their strategic position, clusters represent the best source of information to understand priorities and areas of intervention. Clusters should be able to support national governments in funds allocation and guidance over recovery projects
5. **Detection of week signals:** Due to their market and ecosystem closeness, clusters and ECA act as the best “sensors” in identifying signals from the industries. These “week signals” are collected through a bottom-up approach which strengths lies in the rapidity of identification and in the direct experiences shared by cluster associations. These information - coherently with the dynamics of European industries – helped to find promptly disruptive trends, areas of intervention and proposals with the changes of the market reconfiguration.
6. **Direct involvement of policymakers:** Finally, ECA’s activities represent a bi-directional node of communication between industries and policymakers. ECA has been able to directly raise awareness on the European situation every week through its reports and daily publications on the ECCP platform, giving useful information to the European Commission about the main needs for intervention. Moreover, ECA directly reported **feedbacks from industries** to the European Commission about policies application and intervention, creating a cycle for continuous improvement.

## 7. What next – Long-term planning for future activities

### Economic sustainability of the actions

Building bridges between universities and companies has been the main goal and achievement of cluster organisations for a long time, helping to stimulate innovation at different scale of action. In some countries, science parks are depending on EU funds, creating artificial economy, creating demand and offer, generating some benefit but with a non-sense meaning, as it is not 100% sustainable and not connected with market roots. Similarly, the disruption mapping and the solutions search need to find ways for long-term sustainability, new business models and market innovation, without creating a dependence on public funding.

### Challenge practice

One possible way is to build frameworks that focus on creating favourable environments for private investment to reach problems and solutions, evidencing business opportunities.

The good practice of organising a “Challenge” is the way to attract good ideas of business and let the private investors drive the concrete implementation in market environment.

## 8. Attachments

This Final Report has the following attachments:

- List of all reported disruptions of value and supply chains
- Database of disruptions with keywords

### Disclaimer

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