



# The Concept of Industrial Ecosystems

Overview of the general approach

*BusinessEurope workshop 16.07.2020*

# The ecosystem approach to Community industrial policy

- The communication “[A new industrial strategy for Europe](#)”:

*“ecosystems encompass all players operating in a value chain: from the smallest start-ups to the largest companies, from academia to research, service providers to suppliers”.*

- The communication “[Europe's moment: Repair and Prepare for the Next Generation](#)”:

*“The pandemic has served to reaffirm the interdependence of our economies and the importance of a fully functioning Single Market. [...] Our industrial ecosystems are increasingly integrated and connected. Research, engineering, manufacturing, assembly and servicing often take place in different parts of Europe, and allow businesses to be more competitive and focus on what they do best. This will be exactly what is needed for Europe’s recovery”.*

# The ecosystem approach to Community industrial policy

- The Commission staff working document [Identifying Europe's Recovery Needs](#)

*“The notion of Ecosystems captures the complex set of interlinkages among sectors and firms spreading across countries in the Single Market [...]. The Ecosystems encompass all players operating along a value chain: the smallest start-ups and the largest companies, the research activities, the services providers and suppliers. They allow for a bottom-up approach that takes into account specificities of business models, high percentage of vulnerable players (SMEs and micro) and interdependencies.”*

# Why the ecosystem lens?

- Highlights **interdependencies** between Member States.
- Identifies efficiency bottlenecks and **Single Market** shortcomings.
- Takes into account the **regulatory context**.
- **Dynamic** concept and (attempted) real time measurement.

# Industrial Ecosystems in Europe

- Social enterprises, associations and cooperatives aiming at generating a social impact, often proximity based

- Retail sales
- Wholesale connected to consumers

- Building of residential and non-residential estates
- Building of roads and railways,
- Building of utilities and civil engineering
- Associated activities

- Telecommunications
- Software publishing, computer programming and consultancy
- Data processing, hosting, web portals
- Manufacturing of computers, communication equipment and consumer electronics

- Pharmaceuticals and other medical products
- Personal protective equipment
- Medical services, hospitals, nursing homes, residential care

- Plant and animal production
- Processing of food

- Passenger transport and travel
- Hotels, short term accommodation
- Restaurants and catering
- Events, theme parks

- Newspapers, books and periodicals
- Motion picture, video and television
- Radio and music

- Aircraft production
- Space manufacturing and services
- Defense products and technologies

- Production of textiles, wearing apparel, footwear, leather and, jewellery

- Raw starting materials (semiconductor wafers)
- Semiconductor manufacturing tools
- Design and manufacturing of semiconductor components

- Production of motor vehicles, ships and trains, and accessories
- Their repair and maintenance
- Transport

- Raw materials
- Manufacturing of products with high environmental impact: chemicals, iron and steel, forest-based products, plastics, refining, cement, rubber, non-ferrous metals, fertilisers, etc.

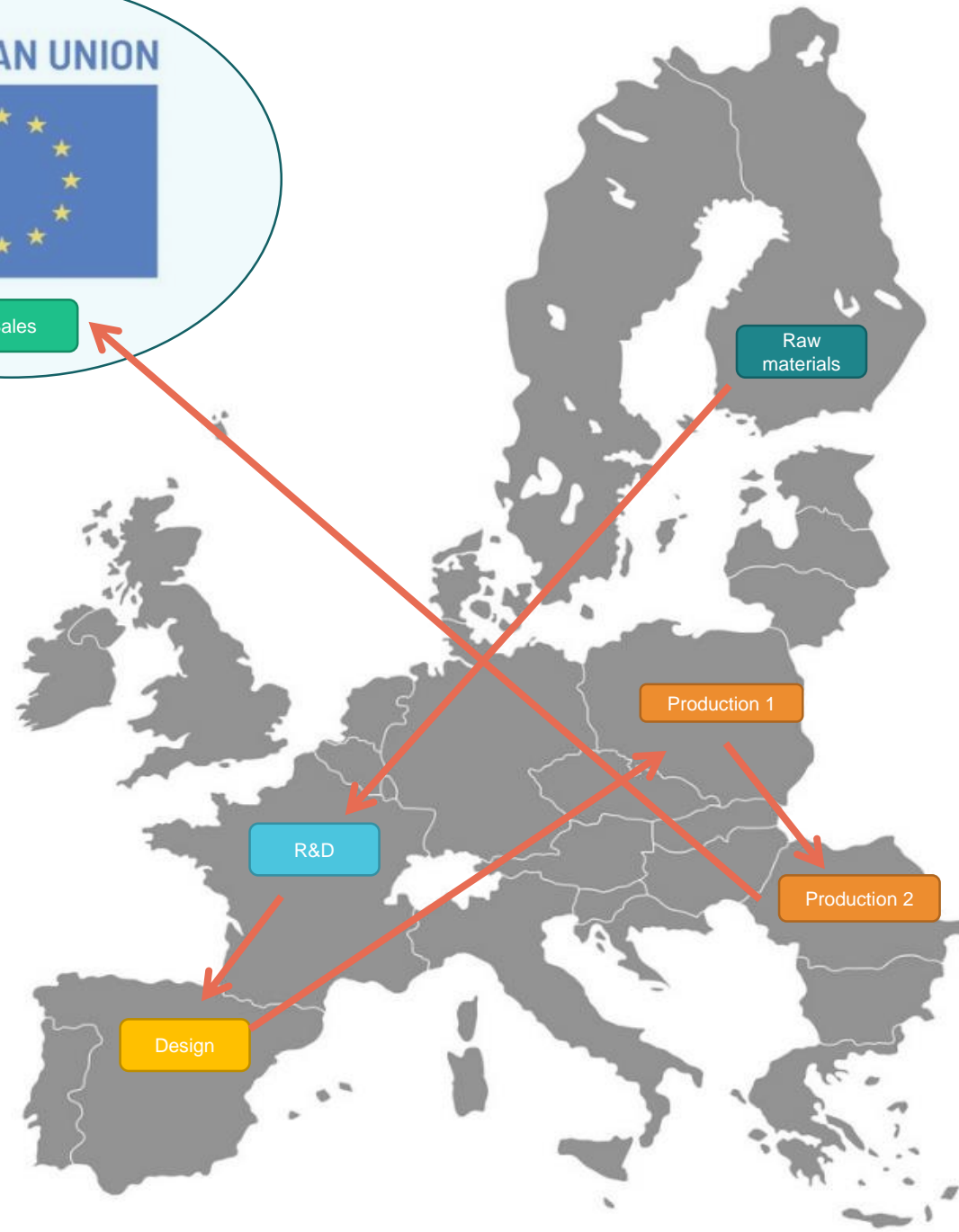
- Electric motors, engines and turbines
- Electric power generation
- Manufacturing and distribution of gas

# The ecosystem approach in practice

- Ecosystems as **networks** rather than (value) chains:
  - Trace the complex links across firms, sectors and institutions.
- Ecosystems include both **private and public** activities.
  - Public institutions and research centres as key actors in their interactions with firms.
- Ecosystems **evolve** continuously.
  - Not meant as a fixed and discrete unit of observation.



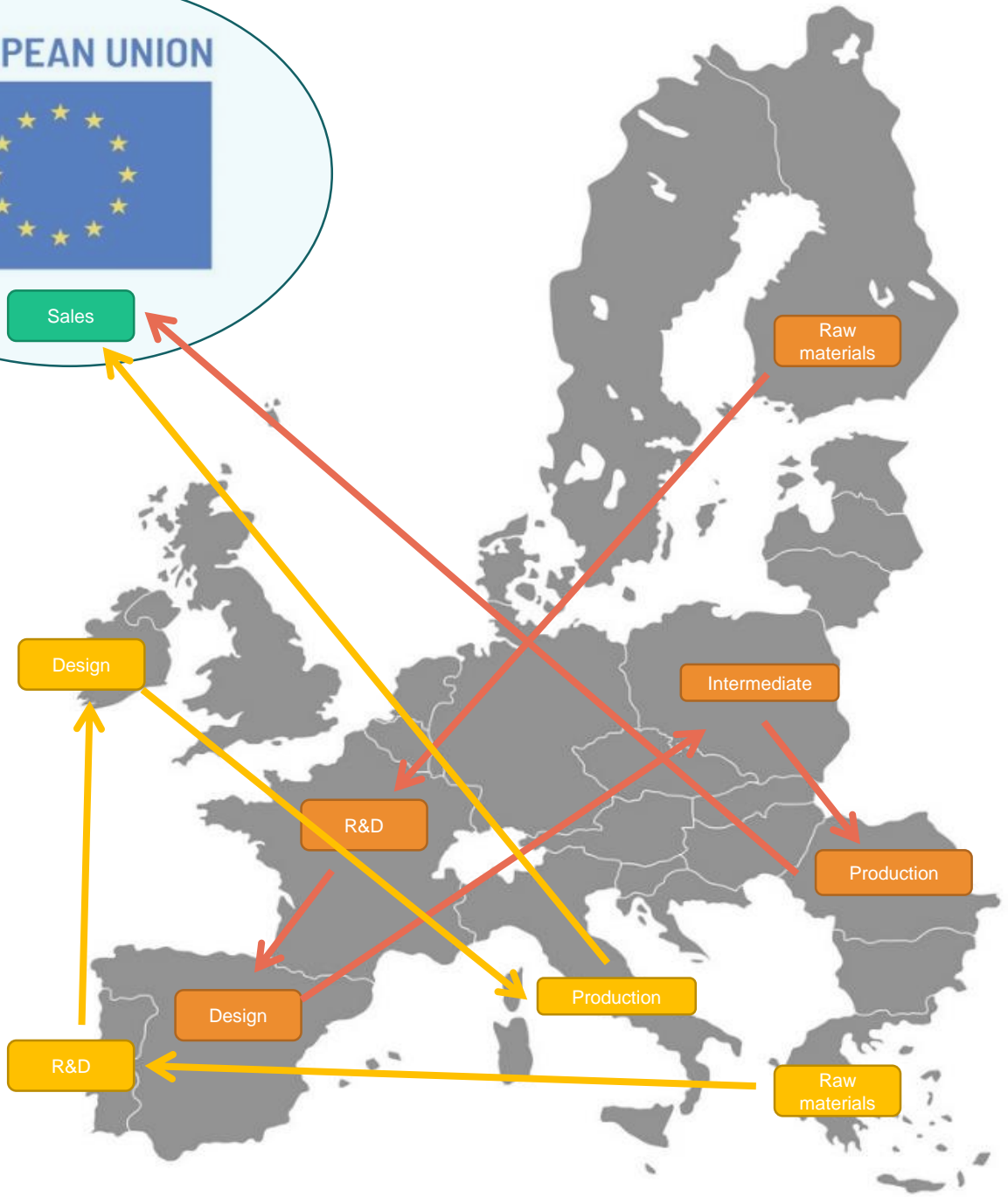
# Linear Value Chain





Value chain A

Value Chain B



In reality,  
many value  
chains  
coexist...

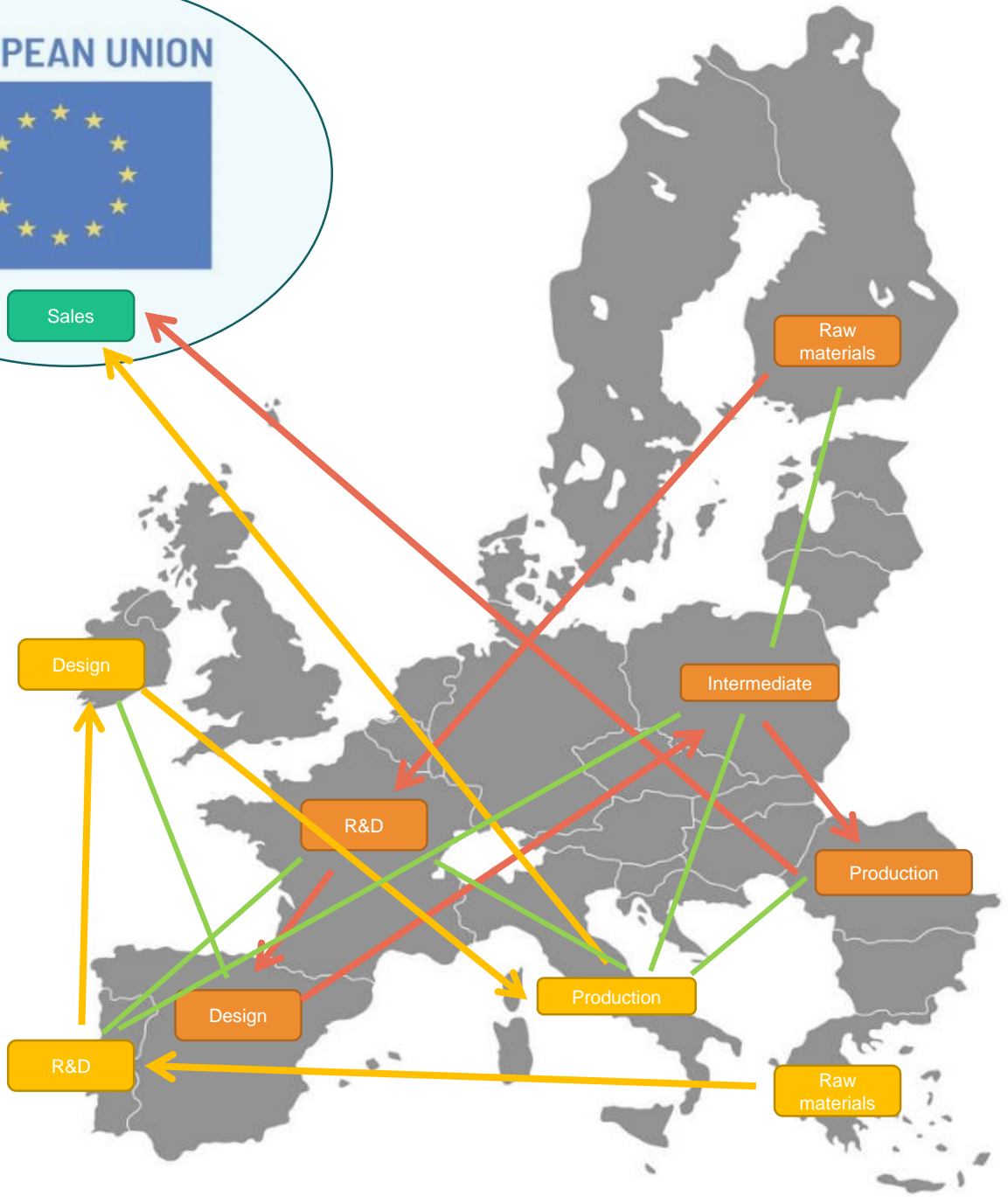




Sales

Value chain A

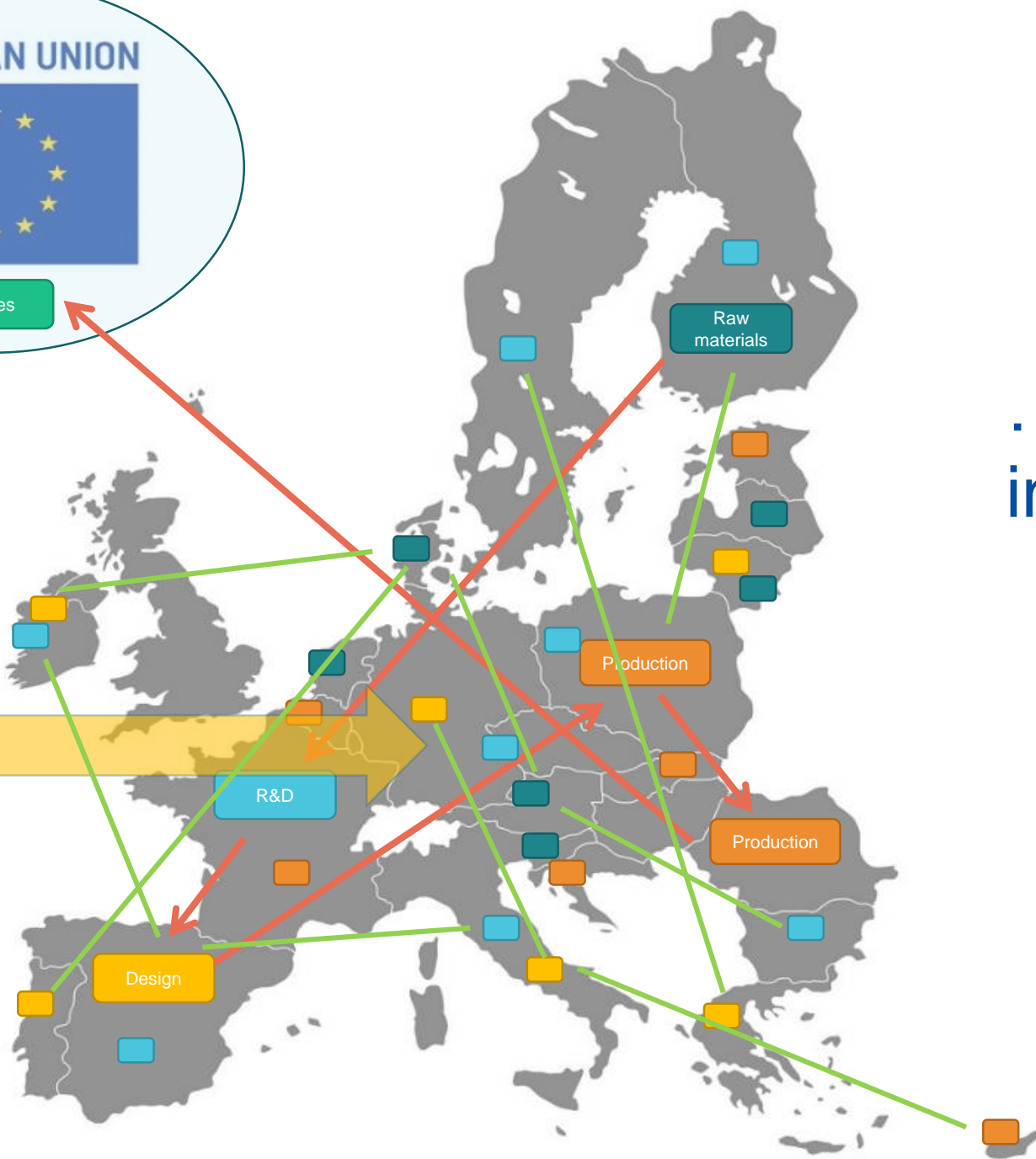
Value Chain B



...interact with each other ...



Sales



Local Governments

Research institutions

Third countries

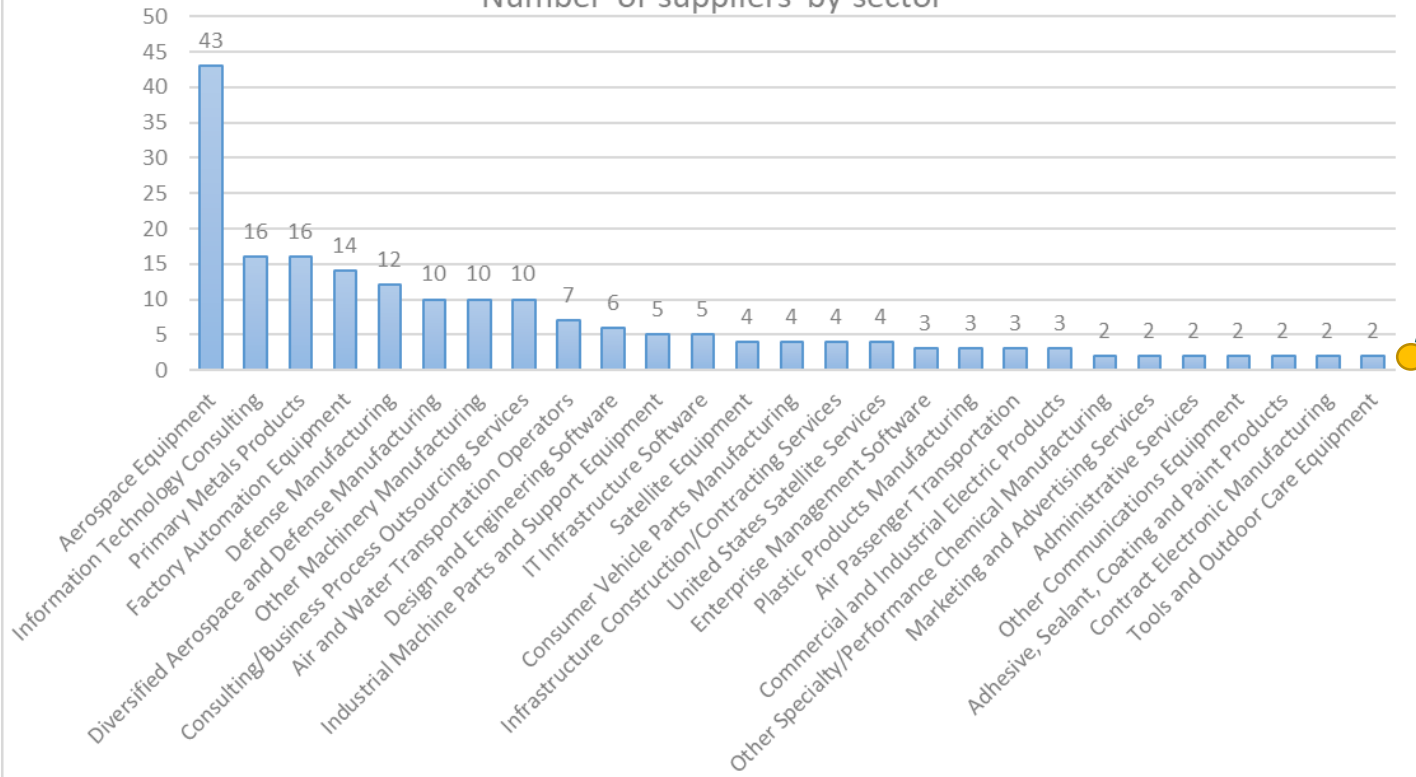
International organisations

... and with institutions.



# Links across sectors...

Airbus  
Number of suppliers by sector

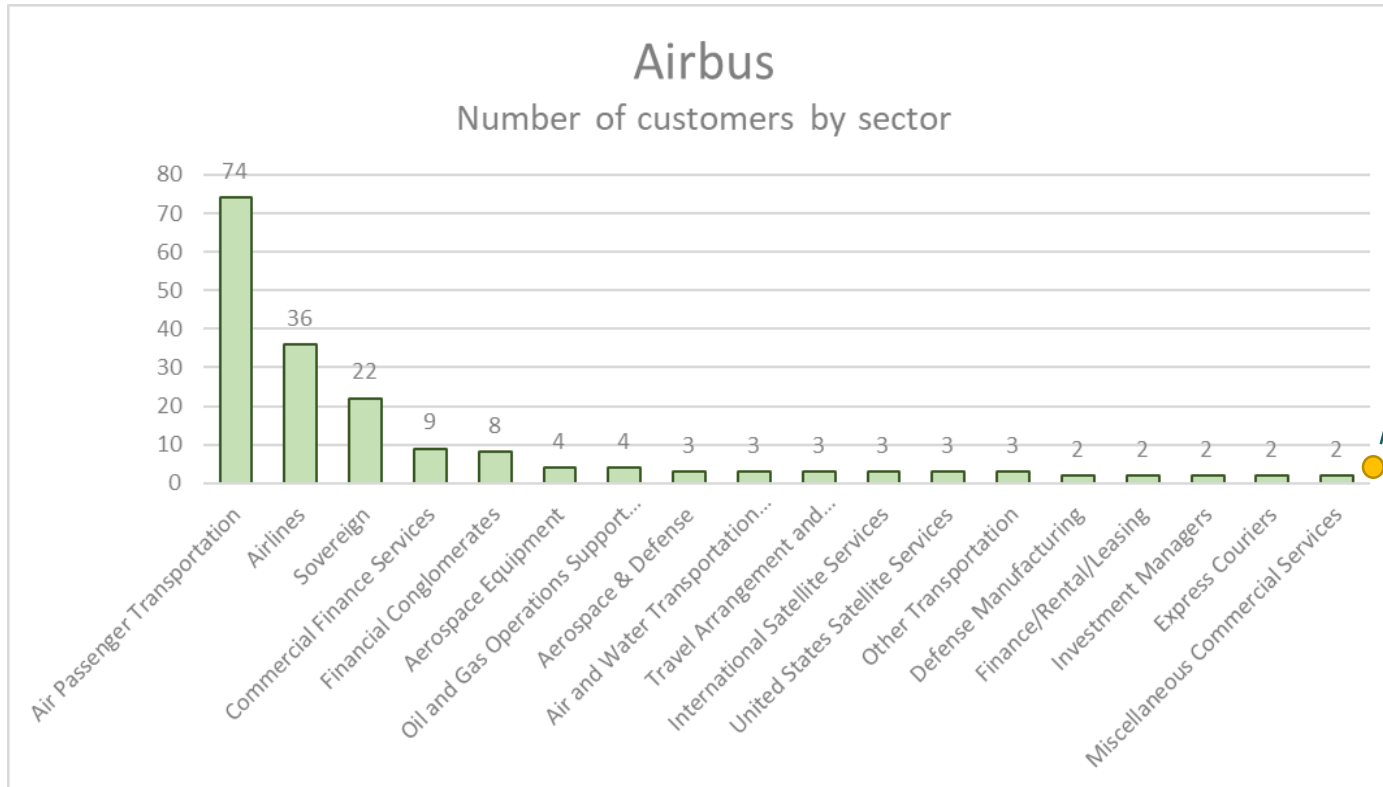


Sector	Suppliers
General Computer Hardware	1
Infrastructure and Network Consulting Services	1
Commerce Equipment	1
Natural Resource and Construction Machinery Makers	1
Financial Conglomerates	1
Commercial Finance Services	1
Module and Subassembly Components	1
Finance Software and Services	1
Analog and Mixed Signal Semiconductors	1
Plastic Packaging Products	1
Test and Measurement Equipment	1
Other Electrical Equipment/Power Systems Makers	1
Equipment and Supplies Distributors	1
Other Food and Beverage Services	1
International Satellite Services	1
Air, Liquid and Gas Control Equipment	1
Consumer Data and Services	1
Electronic Equipment/Instruments	1
Computer Systems	1
Software Distributors	1
Professional Data and Services	1
Equity REITs	1
General Semiconductors	1
Memory Semiconductors	1
Power Generation and Support Products	1
Textile Products	1
Other Electric and Natural Gas Utilities	1
Other Leisure Goods	1
Motor Vehicles and Parts Sales and Rental	1
Facilities and Other Support Services	1
Industry-Specific Software	1
Electronics Manufacturing Equipment	1
Metal Parts and Component Manufacturing	1
Interconnect Electronic Components	1
Semiconductor Manufacturing Capital Equipment	1
Commercial Transportation Equipment Manufacturing	1
Diversified Materials	1
Other Metal Product Manufacturing	1
Electronic Security Equipment	1

Total of 235 Suppliers,  
most likely underestimation

Source: FactSet database

# Links across sectors...

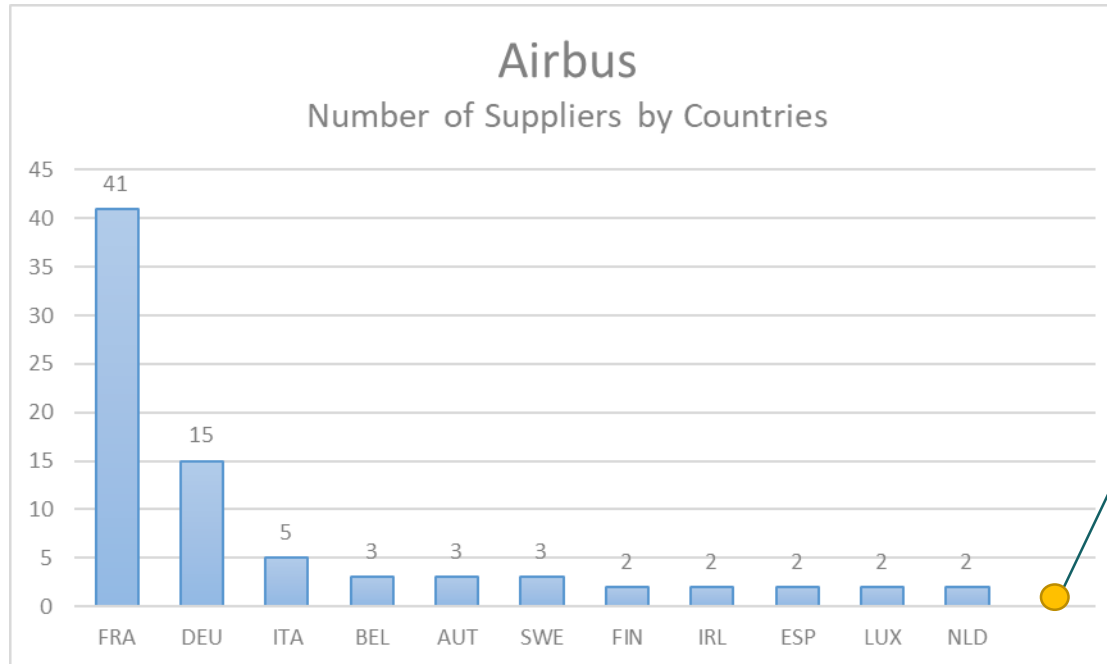


Sector	Suppliers
Air Freight/Couriers	1
Savings Banks	1
Materials Distributors	1
Other Passenger Transportation	1
Contract Drilling	1
Asset Management and Financial Advisory Services	1
Other Ambulatory and Outpatient Patient Care	1
Food Production	1
Commercial Transportation Equipment Manufacturing	1
Insurance Brokers/Services	1
Oilfield Services/Equipment	1
General Food and Beverage Production	1
Europe, Middle East and Africa Banks	1
Processor Semiconductors	1
Diversified Industrial Distribution	1
Wireline Services	1
Movies/Entertainment	1
Province/State	1
Other Consumer Services	1
Other Machinery Manufacturing	1
United States Commercial Banks	1
General Personal Care and Cleaning Products Makers	1
Diversified Aerospace and Defense Manufacturing	1
Trucks/Construction/Farm Machinery	1
Hotels/Resorts/Cruise lines	1
Asia/Pacific Banks	1
Electric Utilities	1
Supranational	1

Total of 213 Customers,  
most likely underestimation

Source: FactSet database

# ... and across countries



Rest of the World	Suppliers
USA	71
GBR	24
CHN	11
IND	9
AUS	5
JPN	4
KOR	4
ISR	4
CHE	3
CAN	3
TWN	3
HKG	3
MYS	2
ROU	2
SGP	2
NOR	1
RUS	1
TUR	1
MAR	1
VNM	1

Suppliers in 11 EU and  
20 extra EU countries

Source: FactSet database

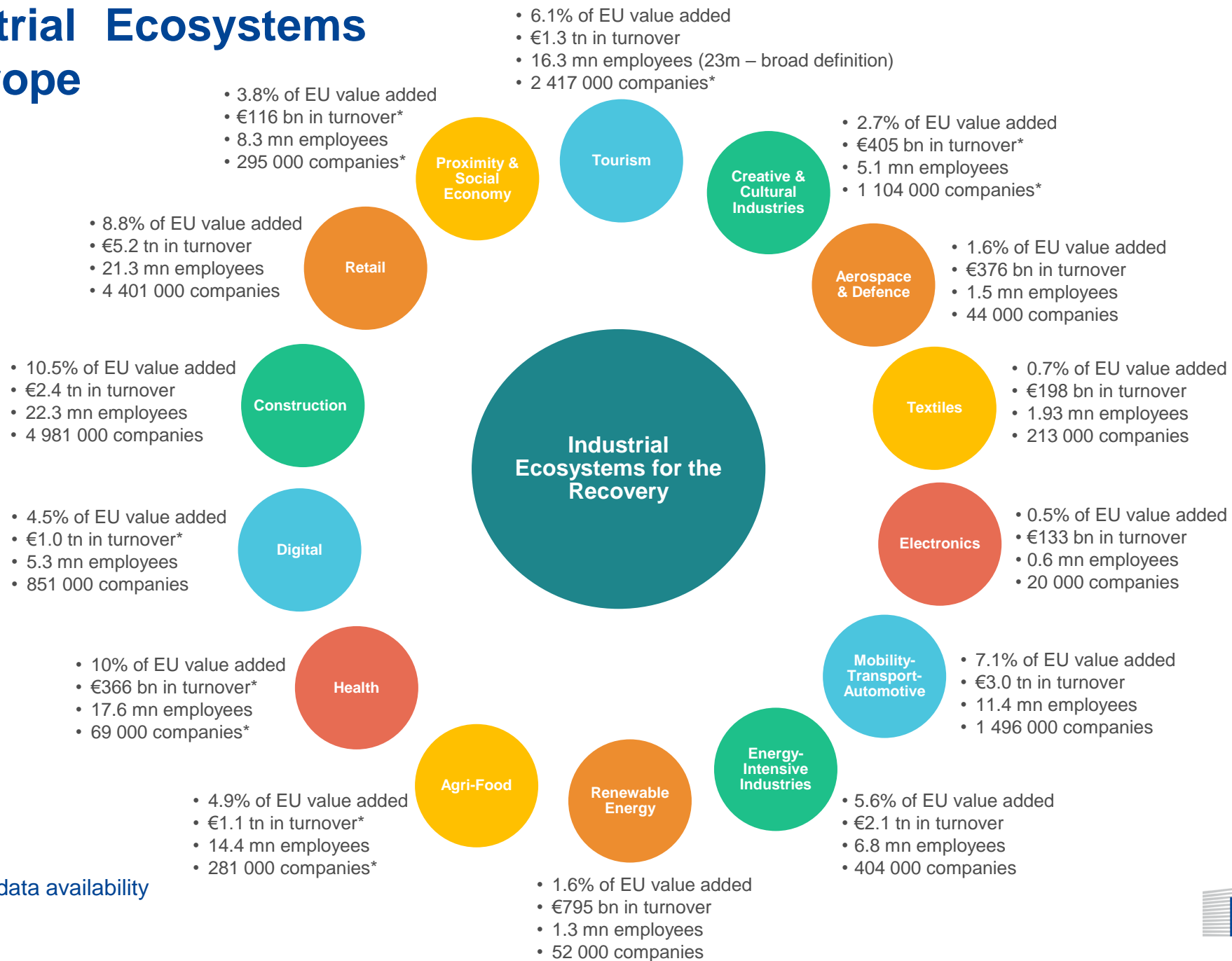
Customers in 72  
countries

Source: FactSet database

# How to measure Ecosystems?

- First attempt developed in the context of preparatory work for the recovery package, aimed at estimating losses.
  - Need to avoid double counting (i.e. overlap of ecosystems).
  - Restrictive definitions, covering only core elements.
- Definitions based on 2-4 digit level NACE classification.
  - Data from Eurostat Structural Business Statistics, complemented with National Accounts.
  - Firm level data to assess solvency and equity losses due to COVID crisis.
  - Firm level data to map sectoral links
  - Economic sentiment indicators from the Joint Harmonised EU Programme of Business and Consumer Surveys.

# Industrial Ecosystems in Europe

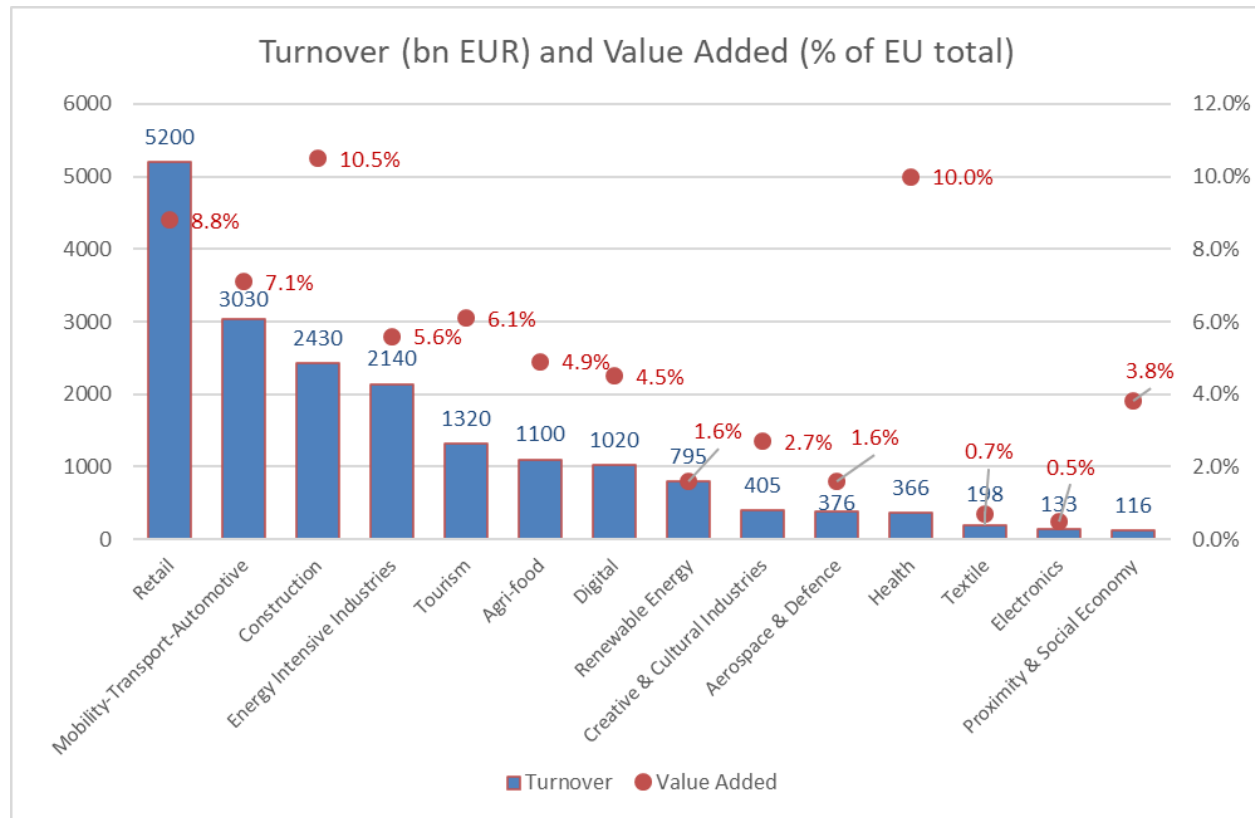


## Warning:

Preliminary data

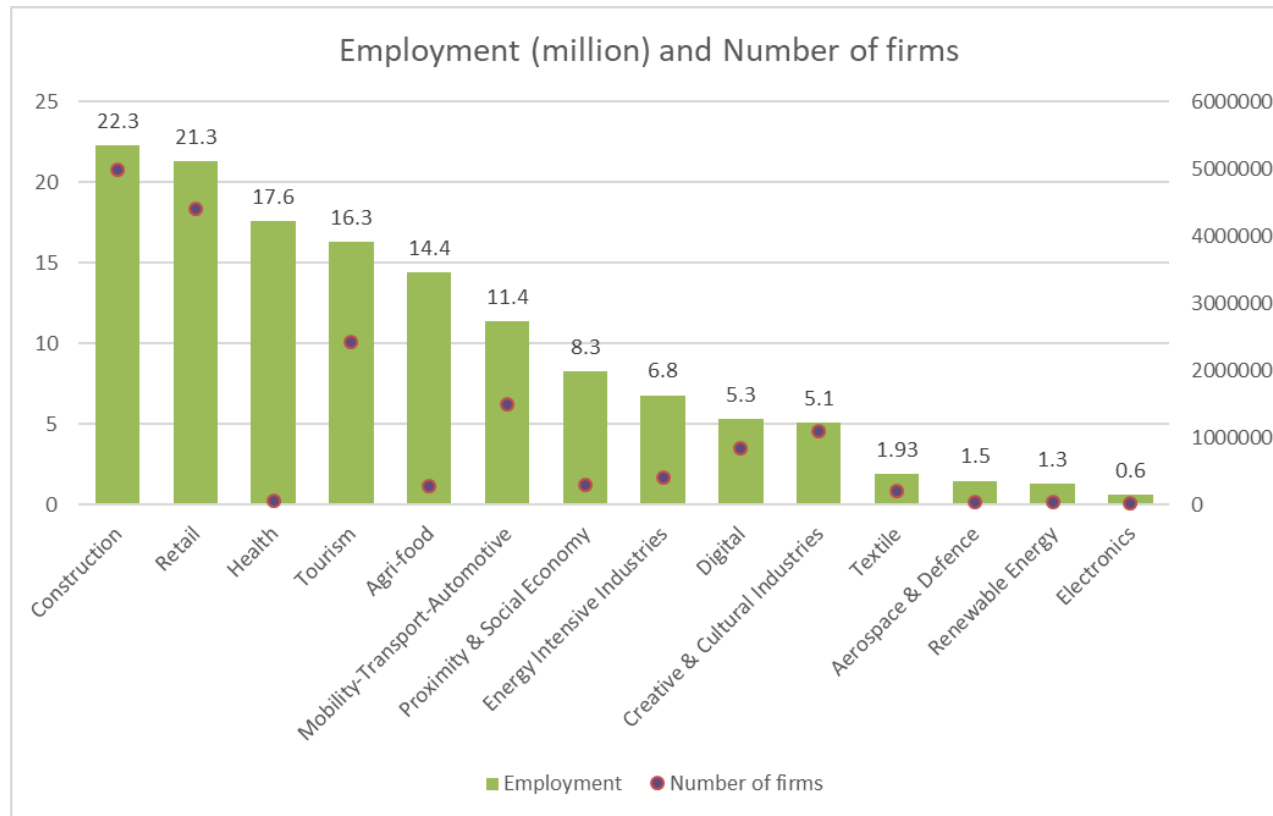
\* Underestimation due to data availability

# Measuring Industrial Ecosystems (1/2)

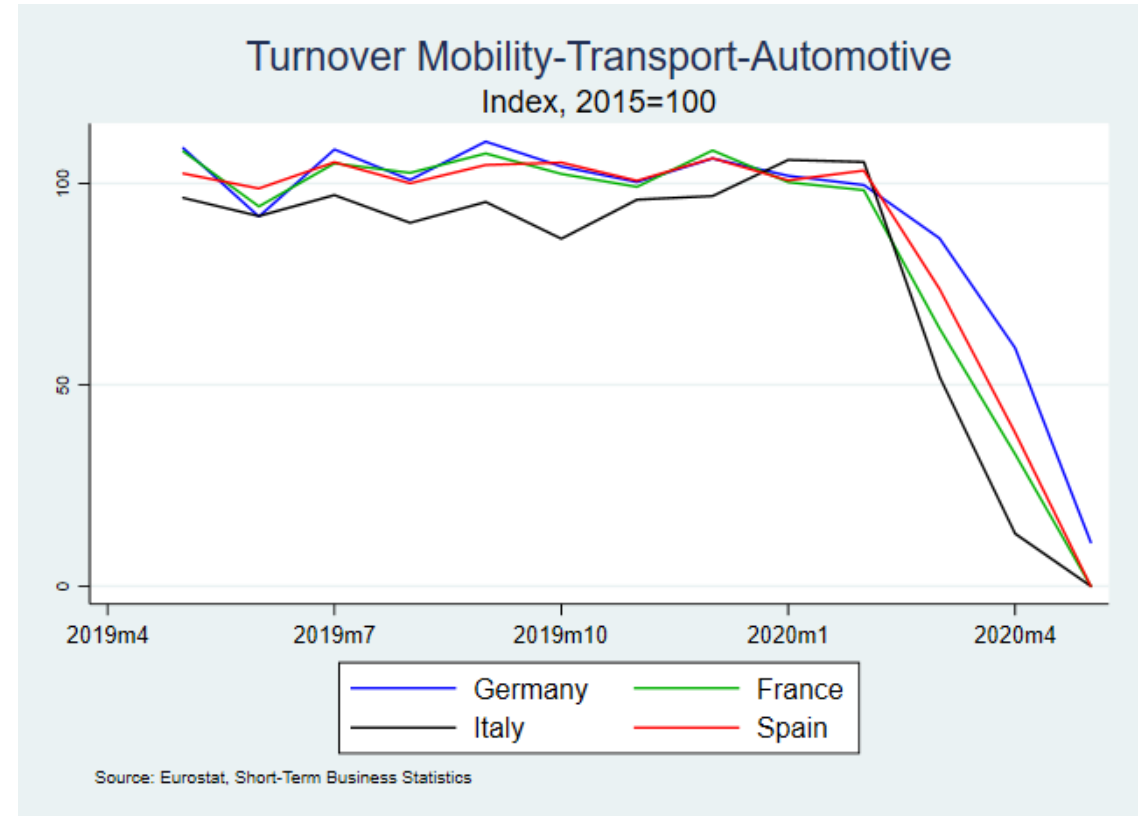
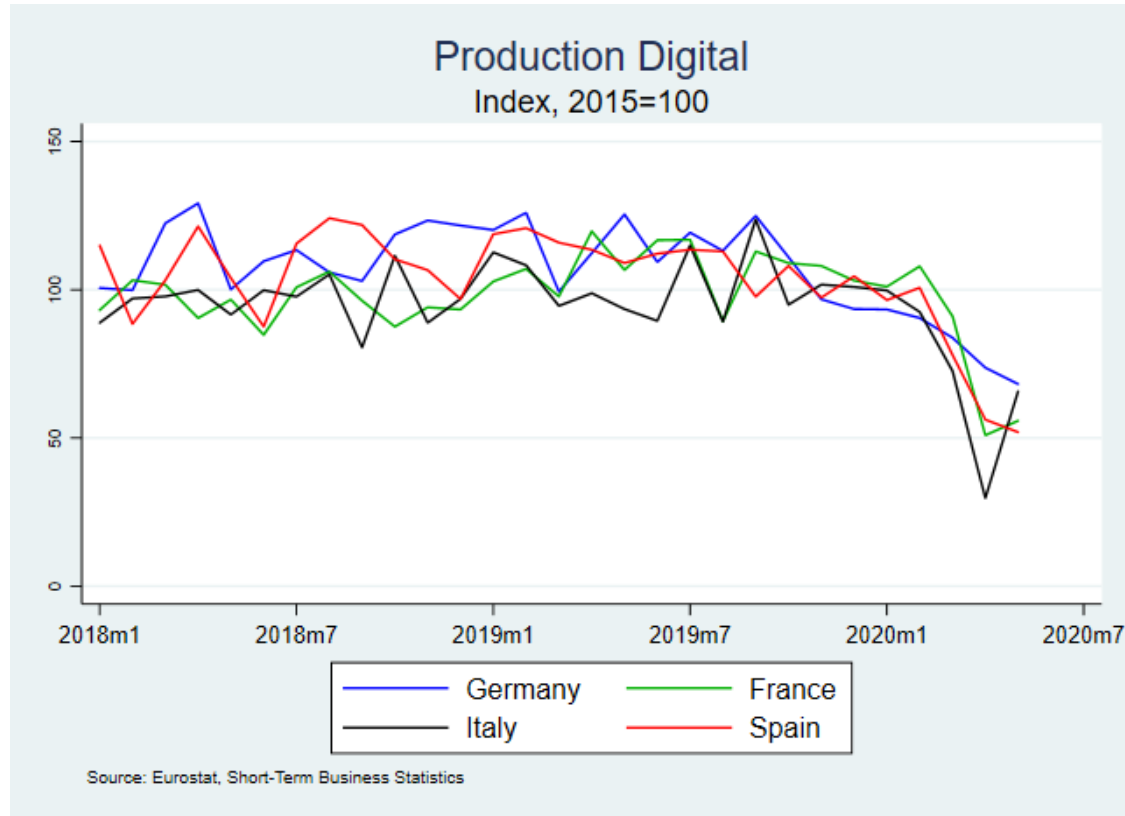




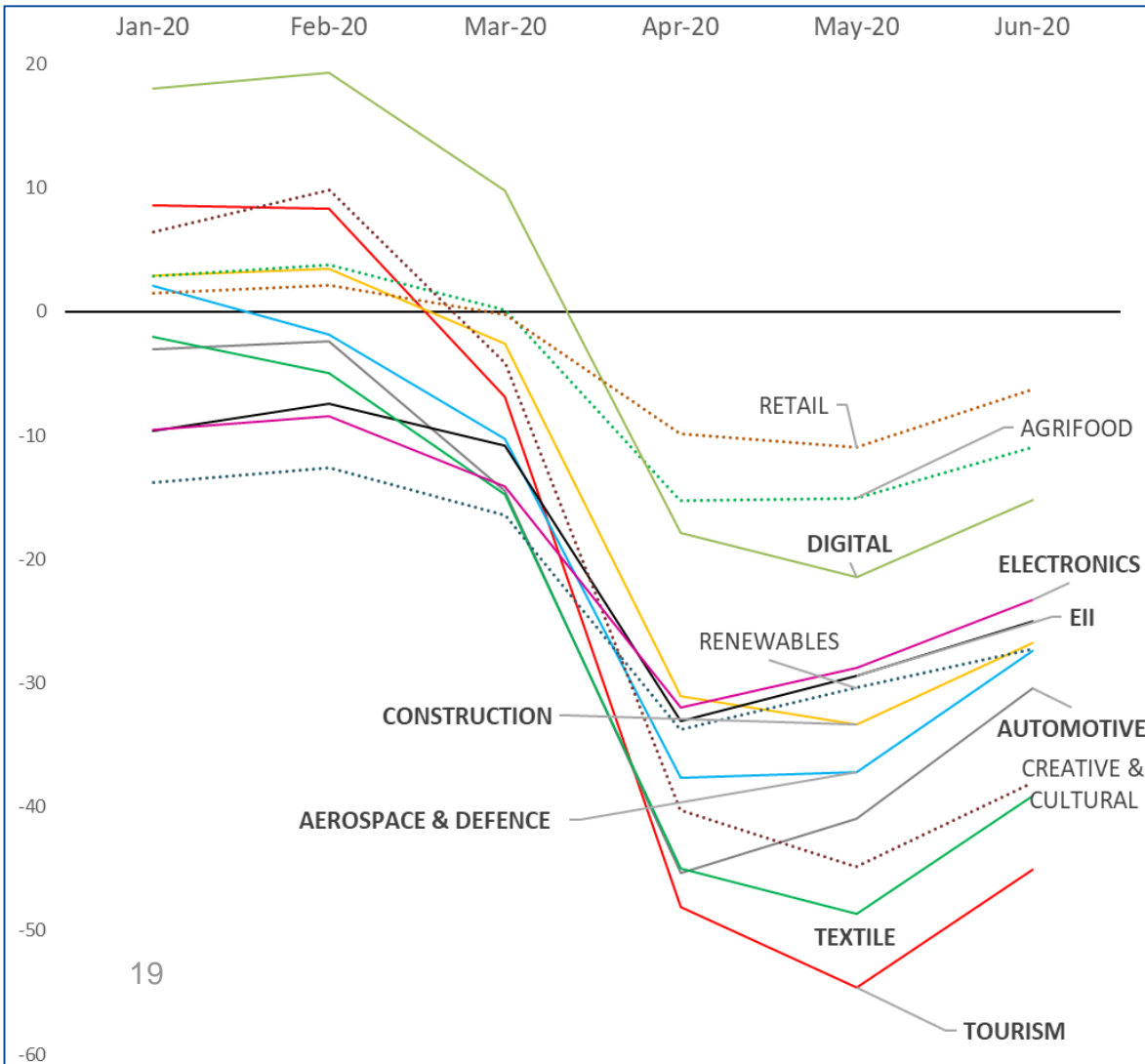
# Measuring Industrial Ecosystems (2/2)



# Monthly indicators



# Evolution of the Confidence Indicator by Ecosystem

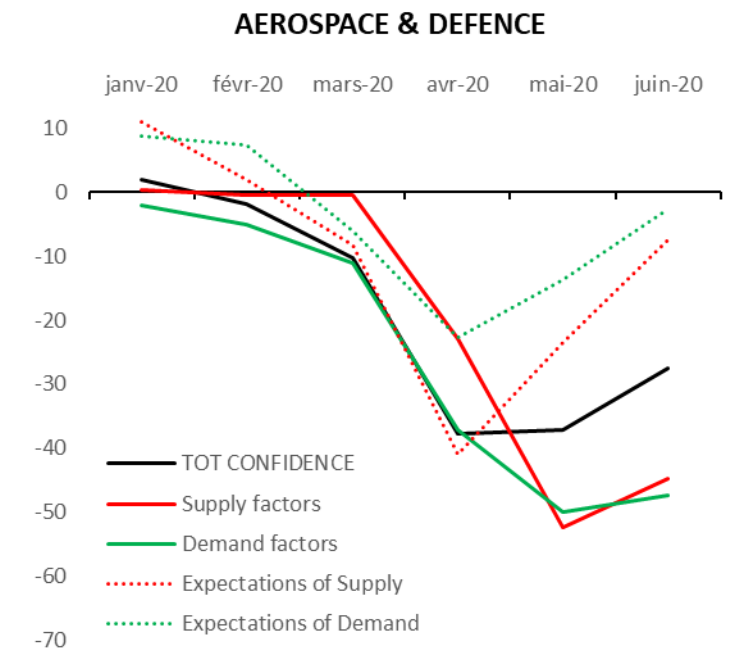
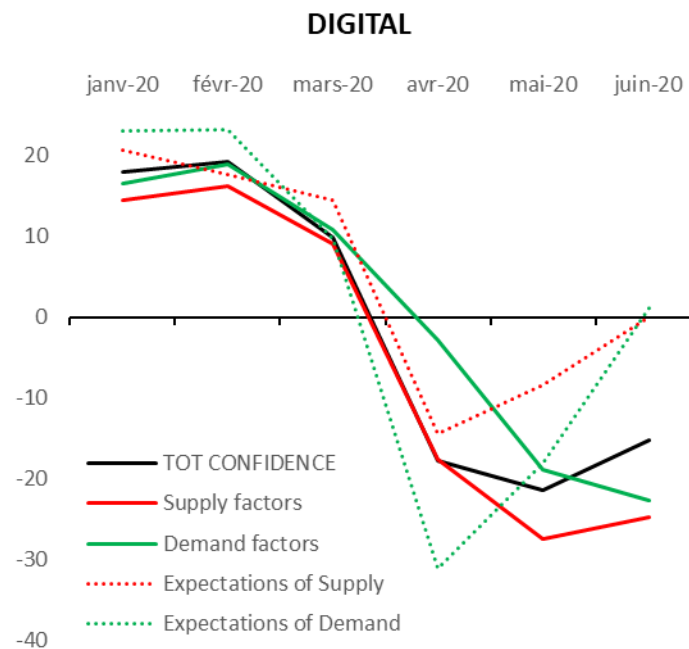
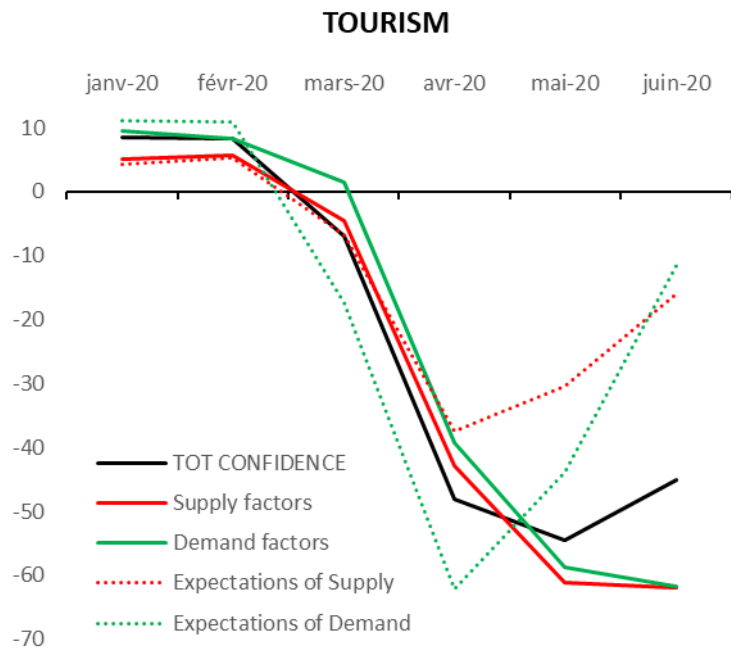


- All ecosystems display negative confidence in June 2020, but improving in comparison with May;
- “Tourism” is the hardest hit, followed by “Textile”;
- “Automotive” and “Aerospace” are the ecosystems in which the economic sentiment has improved the most in June.
- Durable goods (as reflected in the ecosystems “Electronics”, “Automotive”, “Construction”, and “Energy intensive”) are picking up.

Source: GROW.A1 elaborations on data by the Joint Harmonised EU Programme of Business and Consumer Surveys.

Note: Data cover only partially the ecosystems “Retail”, “Agrifood”, “Renewables” and “Creative & Cultural”, which are represented by dotted lines. For “Health” and “Social Economy” there are not enough NACE2 codes to measure the confidence indicators, so they are not included in the analysis.

# Disaggregation of the confidence indicator



# Thank you



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