ReSCHape Project

Reshaping Supply Chains for Positive Social Impact

Carolina Ciprés, Director of Research, ZLC

ReSChape

ZLC is a research and educational institute on Supply Chain Management

ZLC mission is to create an international center of excellence for research and education in logistics and SCM that actively engages with industry and the public sector to develop and disseminate knowledge

What's going on ?

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- World population is expected to increase from 7.4 to 8.6 bil people,
- 97% of this growth in developing countries

65% of the jobs Gen Z do not even exist yet

The number of jobs requiring high-level qualifications in manufacturing is projected to rise by 1.6 million (21%)

It is estimated an increase in value added through Digital Transformation of 20-30% or EUR 1.25 trillion for European industry

- Global export is expected to more than double
- exports from developing economies are projected to grow almost fourfold

- The middle class population spends $35 trillion annually
- Expected to spend $29 trillion more by 2030

Global primary energy demand is expected to increase 17%

- 60% of the world population lives in cities in 2030 –
- 81% in developed countries

The average share of individuals owning smartphones in developing countries increase to 82%

What's next ?

From passive shield to protect companies against union claims, citizens claims → value-creating, value added and inclusive role of humans in decision making in SC

Societal trends and needs → Supply chains → Supply chain for Society 5.0
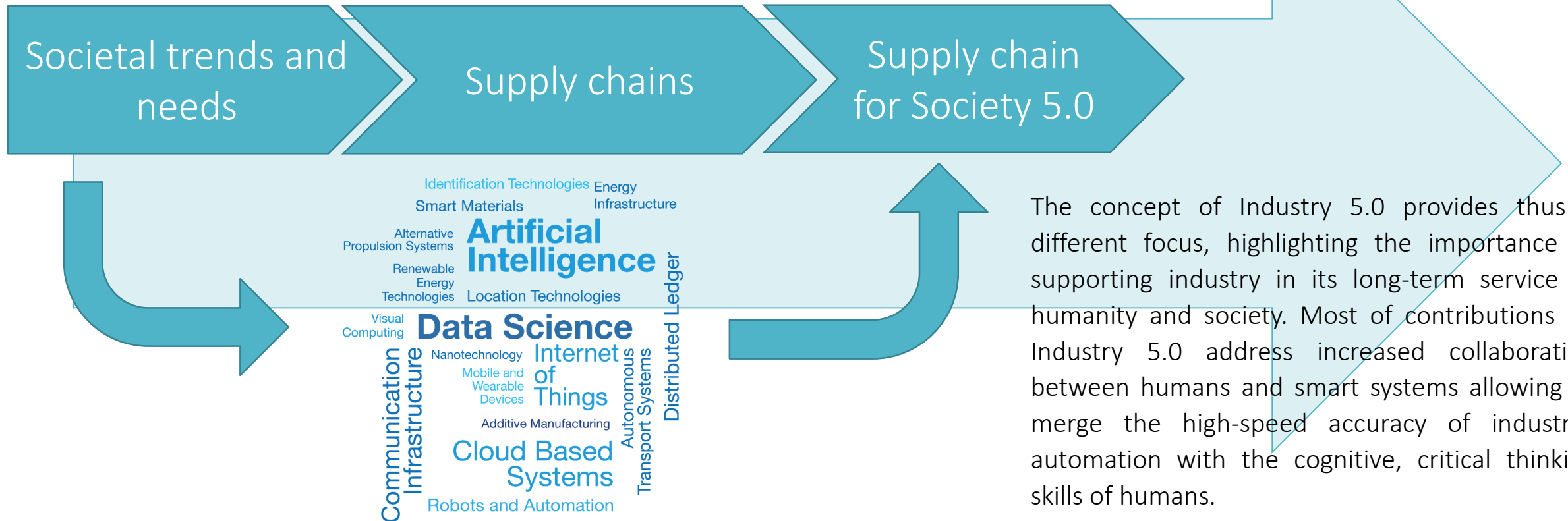
The concept of Industry 5.0 provides thus a different focus, highlighting the importance of supporting industry in its long-term service to humanity and society. Most of contributions on Industry 5.0 address increased collaboration between humans and smart systems allowing to merge the high-speed accuracy of industrial automation with the cognitive, critical thinking skills of humans.

Industry 5.0

Industry 5.0 ...

HUMAN-CENTRIC ... promotes talents, diversity and empowerment

RESILIENT ... is agile and resilient with flexible and adaptable technologies

SUSTAINABLE ... leads action on su and respects planeta

REDUCED COST due to resource efficiency

Improved SAFETY and WELL-BEING

EMPOWERED WORKERS remaining in control

COMPETITVE EDGE in new markets

Adapted TRAINING FOR EVOLVING SKILLS
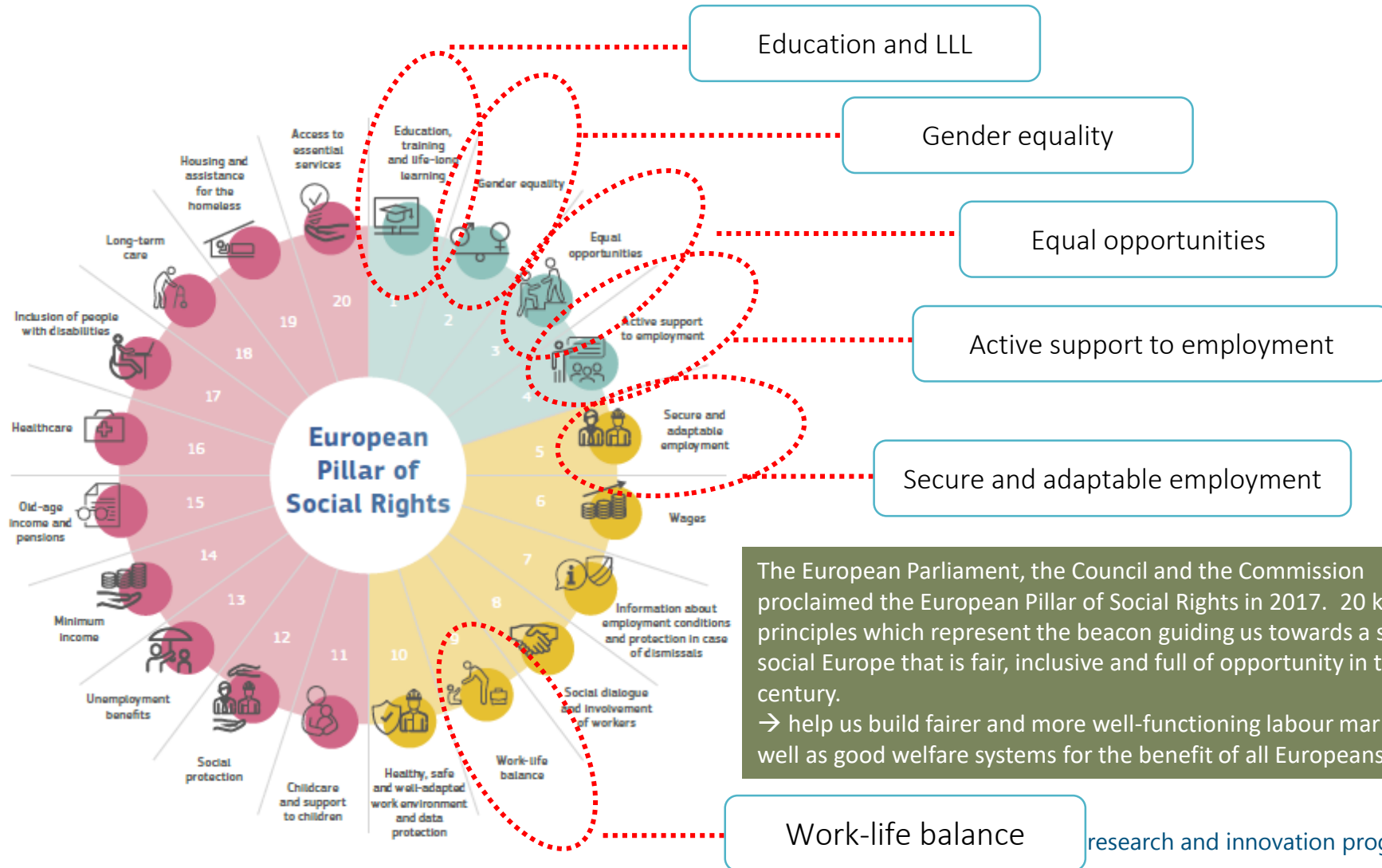
Competitve industry by ATTRACTING BEST TALENT

INDUSTRY 5.0 recognises the power of industry to achieve societal goals beyond jobs and growth to become a **RESILIENT PROVIDER OF PROSPERITY**, by making production **RESPECT THE BOUNDARIES OF OUR PLANET** and placing the **WELLBEING OF THE INDUSTRY WORKER** at the centre of the production process.

Not only workers ... but also consumers, society, local communities etc.

Social side – European Pillar of Social Rights

Education and LLL

Gender equality

Equal opportunities

Active support to employment

Secure and adaptable employment

Work-life balance

The European Parliament, the Council and the Commission proclaimed the European Pillar of Social Rights in 2017. 20 key principles which represent the beacon guiding us towards a strong social Europe that is fair, inclusive and full of opportunity in the 21st century.
→ help us build fairer and more well-functioning labour markets as well as good welfare systems for the benefit of all Europeans.

Covid-19 shocks

Supply

- disruptions to the availability of goods sourced from China

- Companies from various industries temporarily shutting down all over the world e.g. automotive industry, apparel industry

Demand

- Panic buying e.g. toilet paper, flour, antibacterial wipes/gel etc.
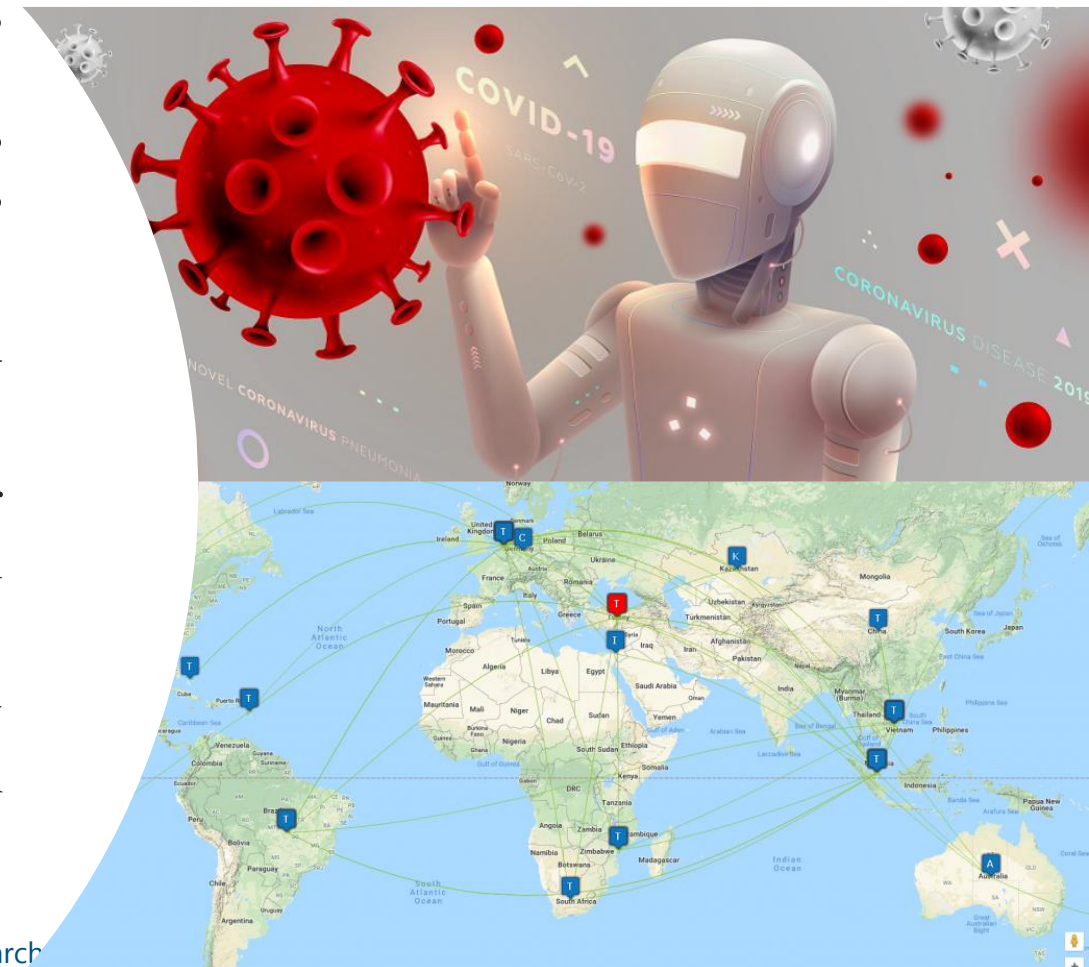
Other implications

- Labour intensive industry remains severely impacted due to quarantine policy which induced low level of work resumption

- Protectionism: Indonesia/Jordan stopped import of all live animals from China and other countries are restricting medical supply exports

SC Strategies to move forward

> Technology e.g. one company resolved a shortage of parts for life-saving ventilators in Italy by using 3D printing, blockchain, artificial intelligence and the Internet of Things could be used to quickly switch to alternative providers when regular suppliers face disruption.

> Repurposed production facilities e.g. LVMH, L'Oréal and Coty produced hand sanitizer.

> Supply chain mapping i.e. create transparency on multitier supply chains, critical components, determining the origin of supply, and identifying alternative sources.

> Identify and secure logistics capacity, estimating capacity and accelerating, where possible, and being flexible on transportation mode, when required.

Objective 1

Trends, changes and disruptions and their impact on SCs

Identification of trends, changes, and disruptions

Objective 2

Innovative SC models for social resilience and sustainability

Conceptualize global and sectoral patterns, value chains, SCs, production networks

Objective 3

Assessment of impact of trade patterns and new supply chains on social indicators

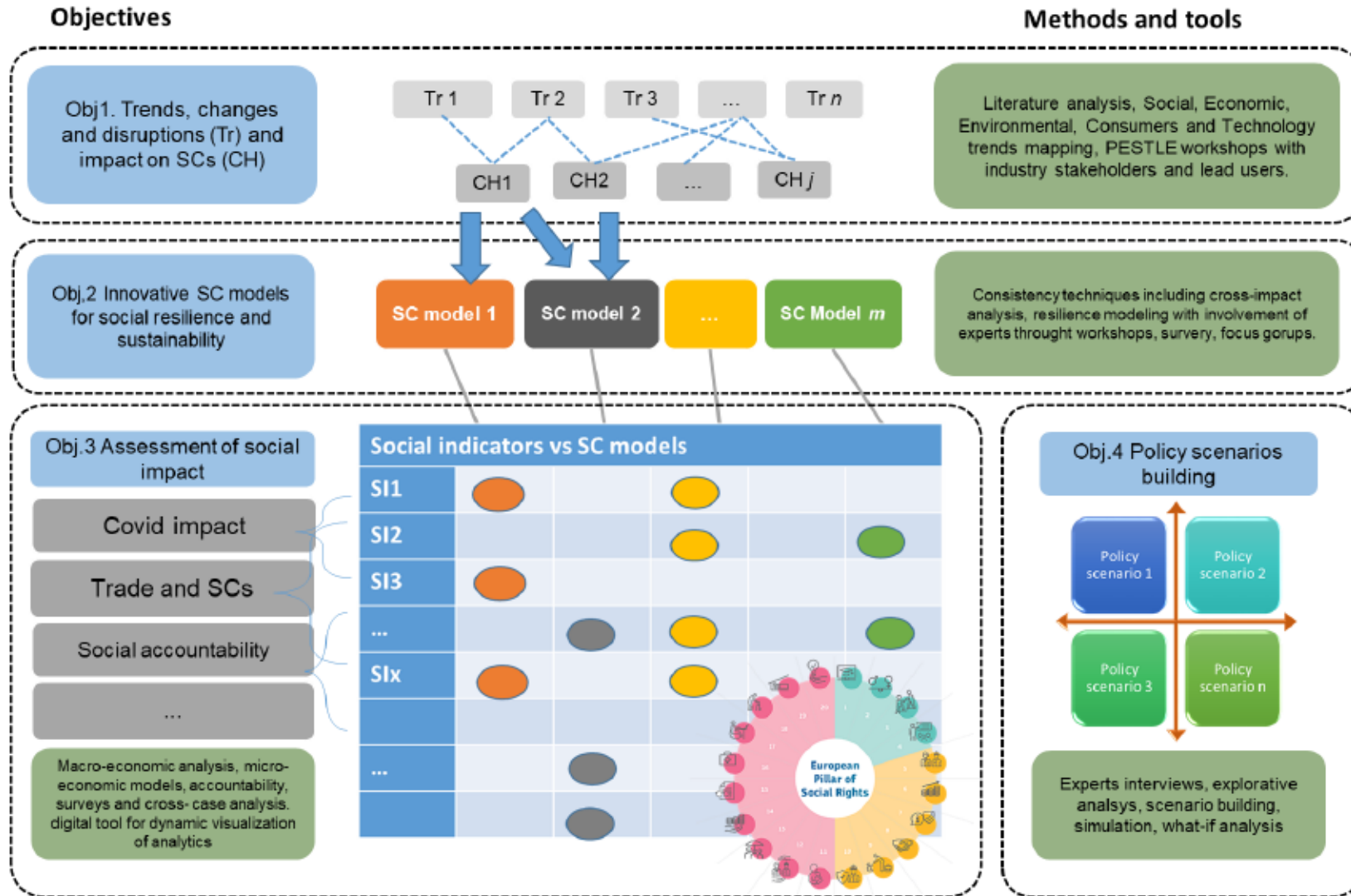*Quantification the effects of these trends*

Objective 4

Policy scenarios for positive social impact including level playing field developments

Forward looking policy scenarios with recommendations

ReSChape approach

Objectives

Methods and tools

Obj1. Trends, changes and disruptions (Tr) and impact on SCs (CH)

Literature analysis, Social, Economic, Environmental, Consumers and Technology trends mapping, PESTLE workshops with industry stakeholders and lead users.

Tr 1 | Tr 2 | Tr 3 | … | Tr *n*

CH1 | CH2 | … | CH *j*

Obj.2 Innovative SC models for social resilience and sustainability

Consistency techniques including cross-impact analysis, resilience modeling with involvement of experts throught workshops, survery, focus gorups.

SC model 1 | SC model 2 | … | SC Model *m*

Obj.3 Assessment of social impact

Covid impact

Trade and SCs

Social accountability

…

Macro-economic analysis, micro-economic models, accountability, surveys and cross- case analysis. digital tool for dynamic visualization of analytics

Social indicators vs SC models

SI1	🟠		🟡		
SI2			🟡		🟢
SI3	🟠				
…		⚫	🟡		🟢
SIx	🟠		🟡		
…		⚫			
		⚫			

European Pillar of Social Rights

Obj.4 Policy scenarios building

Policy scenario 1 | Policy scenario 2
Policy scenario 3 | Policy scenario n

Experts interviews, explorative analsys, scenario building, simulation, what-if analysis

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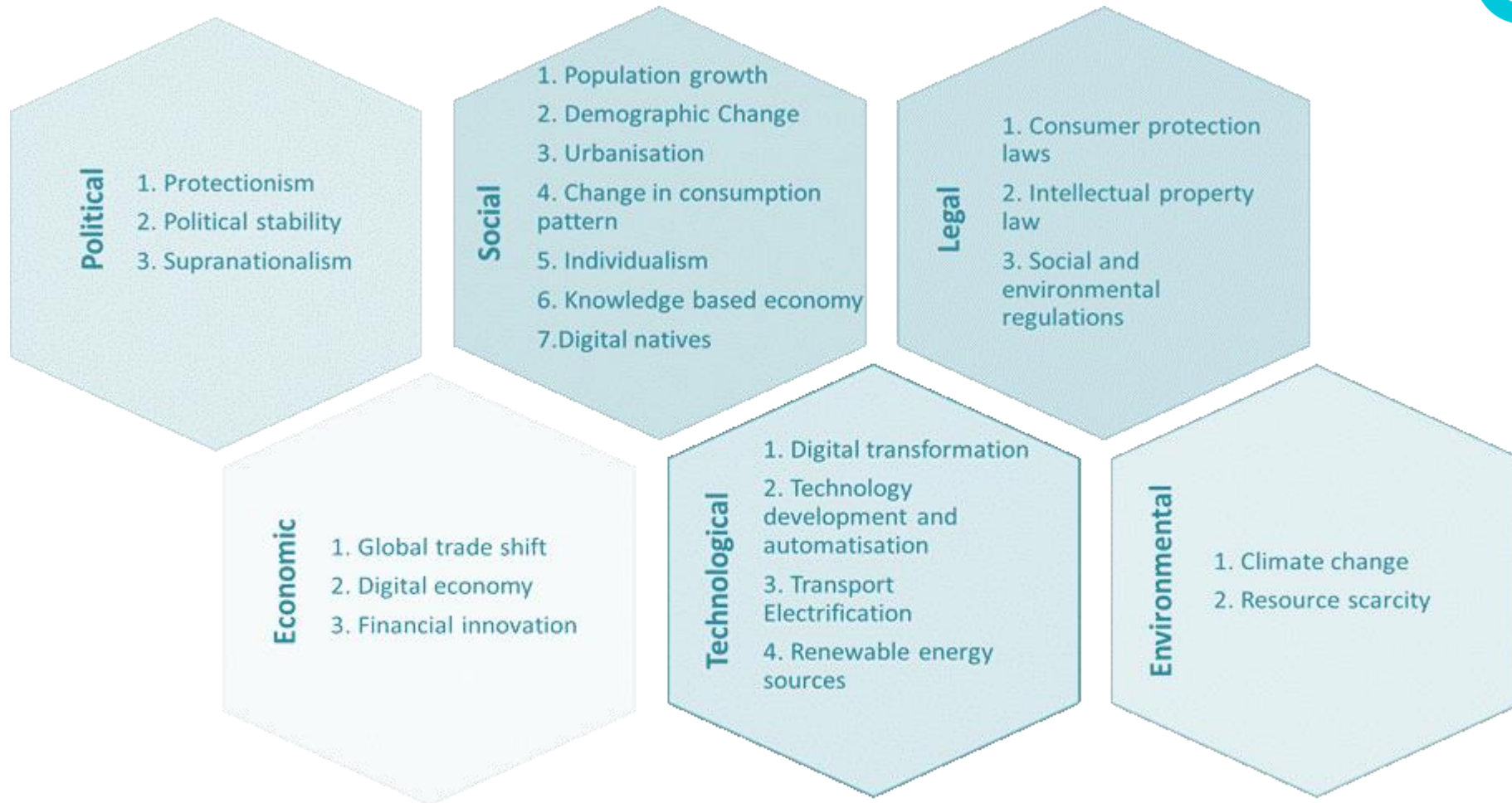
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Forward looking policy scenarios with recommendations

PESTLE analysis

Political
1. Protectionism
2. Political stability
3. Supranationalism

Social
1. Population growth
2. Demographic Change
3. Urbanisation
4. Change in consumption pattern
5. Individualism
6. Knowledge based economy
7. Digital natives

Legal
1. Consumer protection laws
2. Intellectual property law
3. Social and environmental regulations

Economic
1. Global trade shift
2. Digital economy
3. Financial innovation

Technological
1. Digital transformation
2. Technology development and automatisation
3. Transport Electrification
4. Renewable energy sources

Environmental
1. Climate change
2. Resource scarcity

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Impact on SC – Political trends

Political
1. Protectionism
2. Political stability
3. Supranationalism

PROTECTIONISM:
- Trade route changes, the regionalization of production and demand
- Tariffs higher up and further down in the value chain depress value added, employment, labour productivity and total factor productivity to varying degrees

INTERNATIONAL MONETARY FUND

The Effect of Tariffs in Global Value Chains

POLITICAL STABILITY:
- The inclusion of the geopolitical facet when deciding about supply chain governance and reshoring

Impact on SC – Social trends

DEMOGRAPHIC CHANGE

- Increase in the share of senior workers. Need for a lifelong learning mindset, digital skills.

Social

1. Population growth
2. Demographic Change
3. Urbanisation
4. Change in consumption pattern
5. Individualism
6. Knowledge based economy
7. Digital natives

CONSUMPTION PATTERNS

- Opportunity for brands to help consumers make better choices by providing them with more information on how their consumption of products and services impacts the environment

DIGITAL NATIVES

- Reshaping the workplace (Remote work, younger SC workers expect a digital employee experience, ergonomic tools and job satisfaction)

Report of the UN Economist Network for the UN 75th Anniversary
Shaping the Trends of Our Time

SEPTEMBER 2020

Impact on SC – Legal trends

CONSUMER PROTECTION
- Impact of data protection regulations –
  SC compliance tailored to each individual country

- Retailers must also consider the long-term strategic
  implications of free returns.

Legal
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2. Intellectual property law
3. Social and environmental regulations
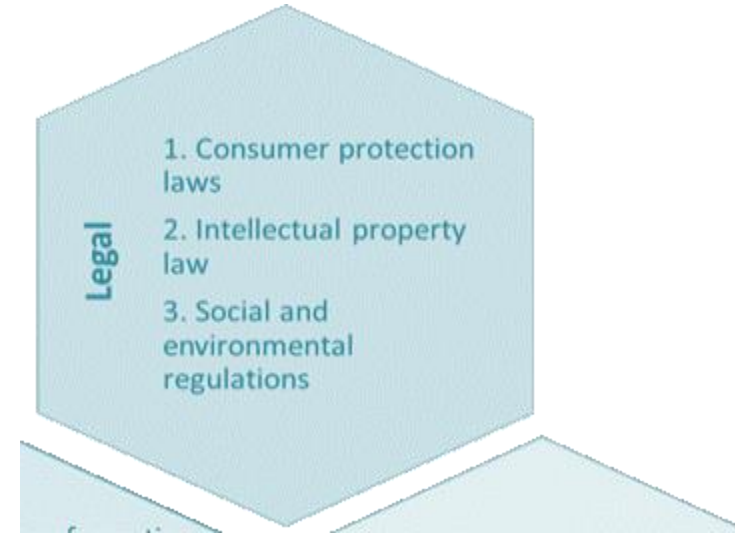
SOCIAL AND ENVIRONMENTAL REGULATIONS
- New SC strategies for diversity management,
  for filling the gender gap, increase
  representation of minorities
- Corporate Sustainability Directive - Supply
  chains must be presented transparently

Press release | 23 February 2022 | Brussels

Just and sustainable economy: Commission lays down rules for companies to respect human rights and environment in global value chains

Impact on SC – Economic trends

GLOBAL TRADE SHIFT
- Risk mitigation concerns related to the COVID-19 pandemic have sparked debates about the reshoring production
- Increasing inflation leads to demand falls, capacity constraints, supply chain instability, longer lead times and delayed orders

The Economist INTELLIGENCE UNIT

The cost of de-globalising world trade
Economic scenarios for the world's turn inwards

A report by The Economist Intelligence Unit

Economic
1. Global trade shift
2. Digital economy
3. Financial innovation

DIGITAL PLATFORM ECONOMY
- Visibility along the supply chain
- Workers rights in the platform economy

Impact on SC – Technological trends

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DIGITAL TRANSFORMATION

- Improved visibility leading to SC resilience
- Increase the quantity, quality and timeliness of information exchanged between SC partners, enabling greater levels of visibility, trust and collaboration.

AUTOMATION

- AR leads to customer service improvement (flexible order picking, routing, delivery)

- AVs – failures avoided thanks to data generated by the vehicle

Technological
1. Digital transformation
2. Technology development and automatisation
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4. Renewable energy sources
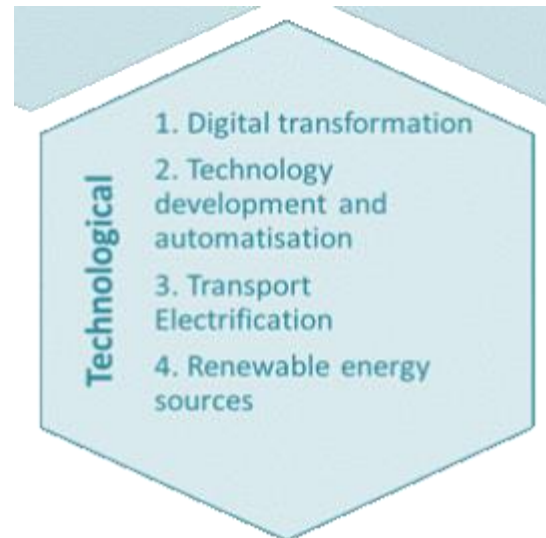
THE LOGISTICS TREND RADAR 6.0
Delivering insight today, creating value tomorrow.

Impact on SC – Environmental trends

CLIMATE CHANGE
- Circular supply chain models
- Strategies for decarbonizing the SC

RESOURCE SCARCITY
- SC reconfiguration:
  - Network structure (including local supply base and the number of sites in the given location),
  - Process flow
  - Product value structure
  - SC governance/coordination mechanisms (including supplier relationships, customer relationships, institutional relationships and internal site roles in company network structures)
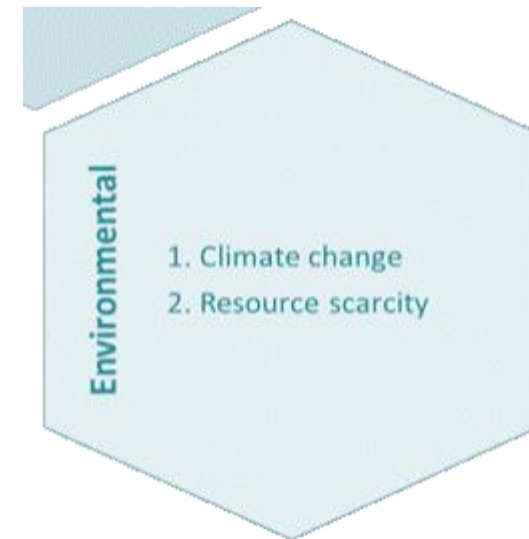
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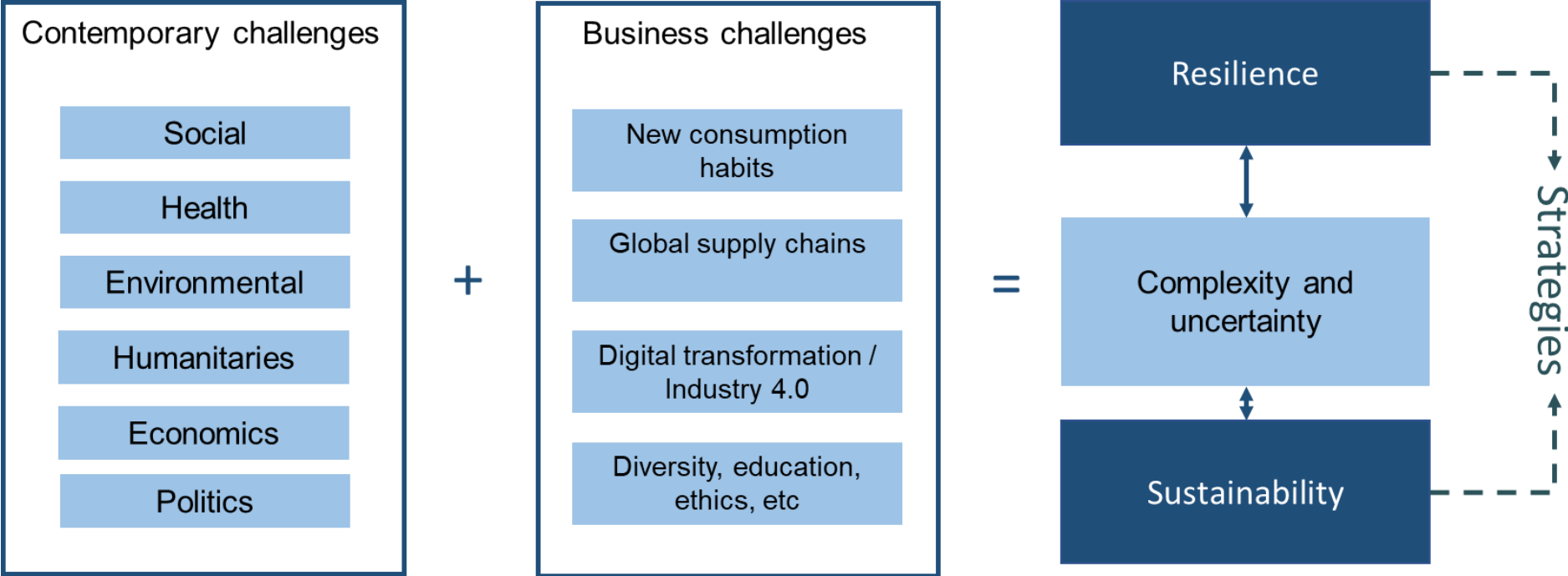*Quantification the effects of these trends*

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Resilient and Sustainable Supply Chains

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Contemporary challenges

- Social
- Health
- Environmental
- Humanitaries
- Economics
- Politics

+

Business challenges

- New consumption habits
- Global supply chains
- Digital transformation / Industry 4.0
- Diversity, education, ethics, etc

=

- Resilience
- Complexity and uncertainty
- Sustainability

Strategies

Supply Chain Sustainability

Supply chain sustainability: the management of **environmental and social impacts** within and across networks consisting of suppliers, manufacturers, distributors, and customers in line with the UN Sustainable Development Goals. This spans every phase of the supply chain, from raw material sourcing and extraction to product use and end of product life.
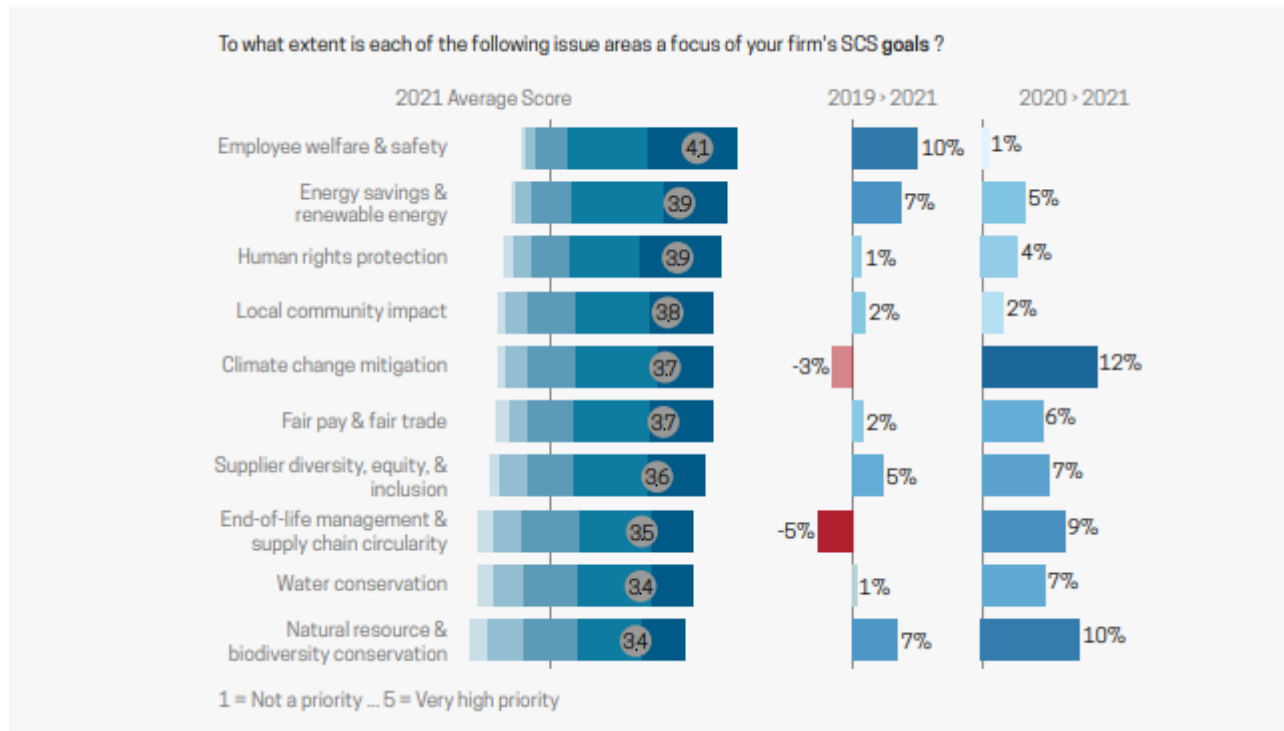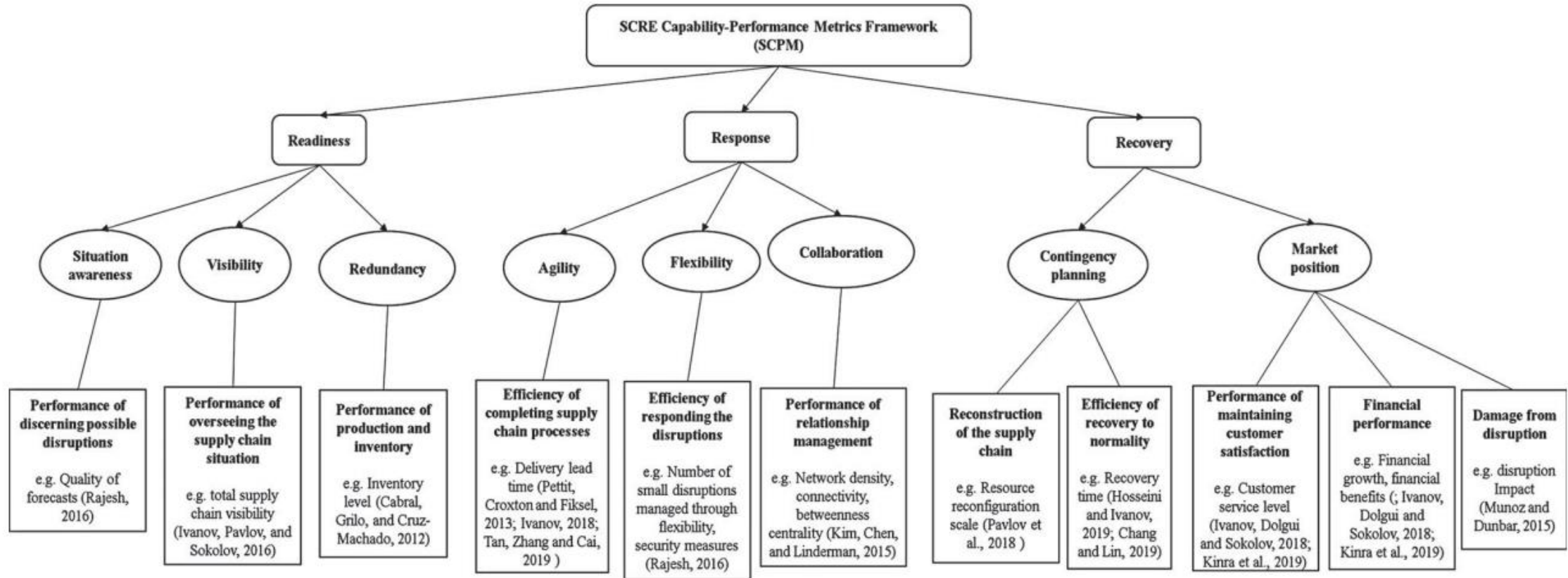

(source: MIT State of Supply Chain Sustainability 2022)

Supply Chain Resilience

(source: Han et al., 2020)

Capacity to persist, adapt or transform in the face of change (Wieland & Durach, 2021)

Thank You!

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