WORLD MANUFACTURING FORUM
WMF
REDESIGNING SUPPLY CHAINS IN THE NEW ERA OF MANUFACTURING
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Porsche Experience Center Franciacorta

The 2022 World Manufacturing Report

Redesigning Supply Chains in the New Era of Manufacturing

Marco Taisch
Scientific Chairman – World Manufacturing Foundation

WMF REDESIGNING SUPPLY CHAINS IN THE NEW ERA OF MANUFACTURING

The World Manufacturing Report
THROUGH THE YEARS

2018 2019 2020 2021 2022

Nothing Happens without Manufacturing

Manufacturing value added represents **17.0%** of the **global gross domestic product** (GDP)

(World Bank. (2022))

The **manufacturing sector directly employs 13.6% of workers**, ranging from 6.2% in low-income countries to 16.9% in upper-middle-income countries

(International Labour Organization. (2022))

Trade in **manufactured goods represented 71% of world merchandise exports** in 2020, equal to US$12.1 trillion out of a total of US$17 trillion

(World Trade Organization. (2021))

The Global Megatrends

The Global Megatrends

The global economic growth is slowing

The inflation is rising

The global trade volumes are projected to decrease

The global labour market recovery is a risk

The consumers' confidence in the state of the economy and their own financial stability are decreasing

The end of hyperglobalisation moving to "slowbalisation"

Climate Change and Sustainability

Rise of nationalist politics and protectionism

The evolving consumers' needs

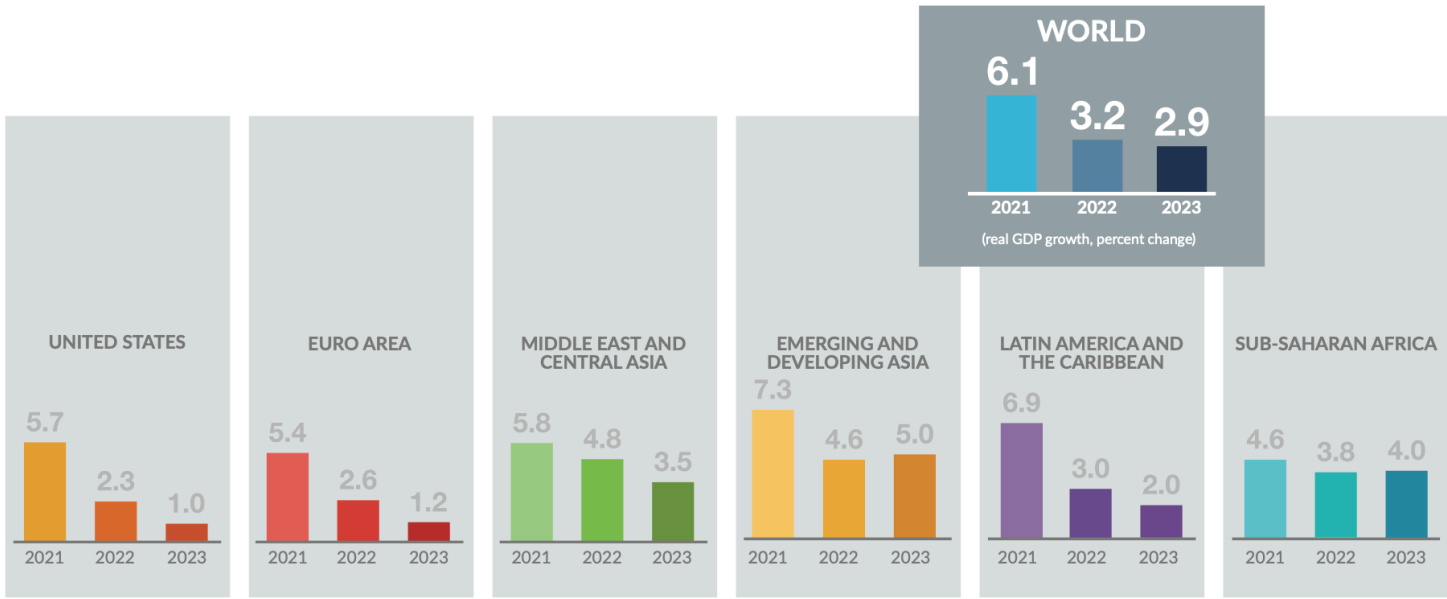
Transformation of the job market

The Global Megatrends

The global economic growth is slowing

Real GDP Growth by Region (percentage change)

(Sources: IMF, World Economic Outlook Update, July 2022)

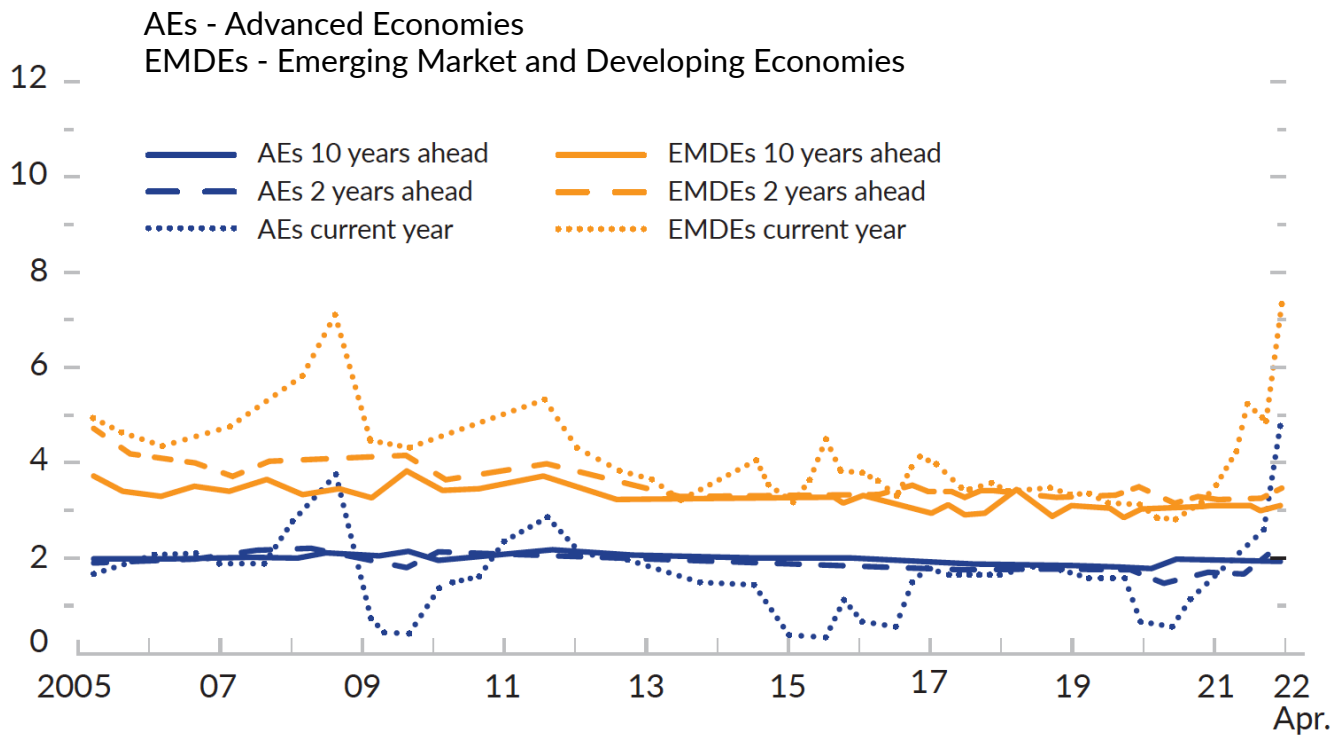


The Global Megatrends

The inflation is rising

Longer-Term Inflation expectations

(Sources: IMF, World Economic Outlook Update, July 2022.)

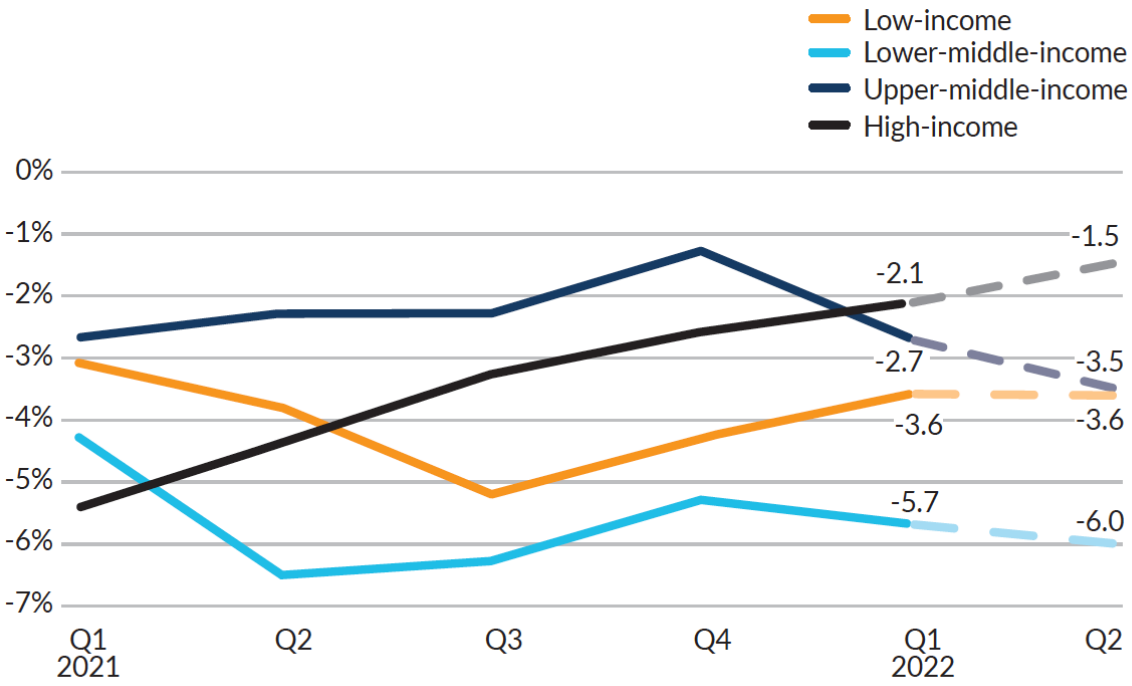


The Global Megatrends

The global labour market recovery is at risk

Change in global hours worked relative to 2019 Q4, by country income group (percentage)

(Sources: ILO Monitor on the world of work, Ninth Edition)

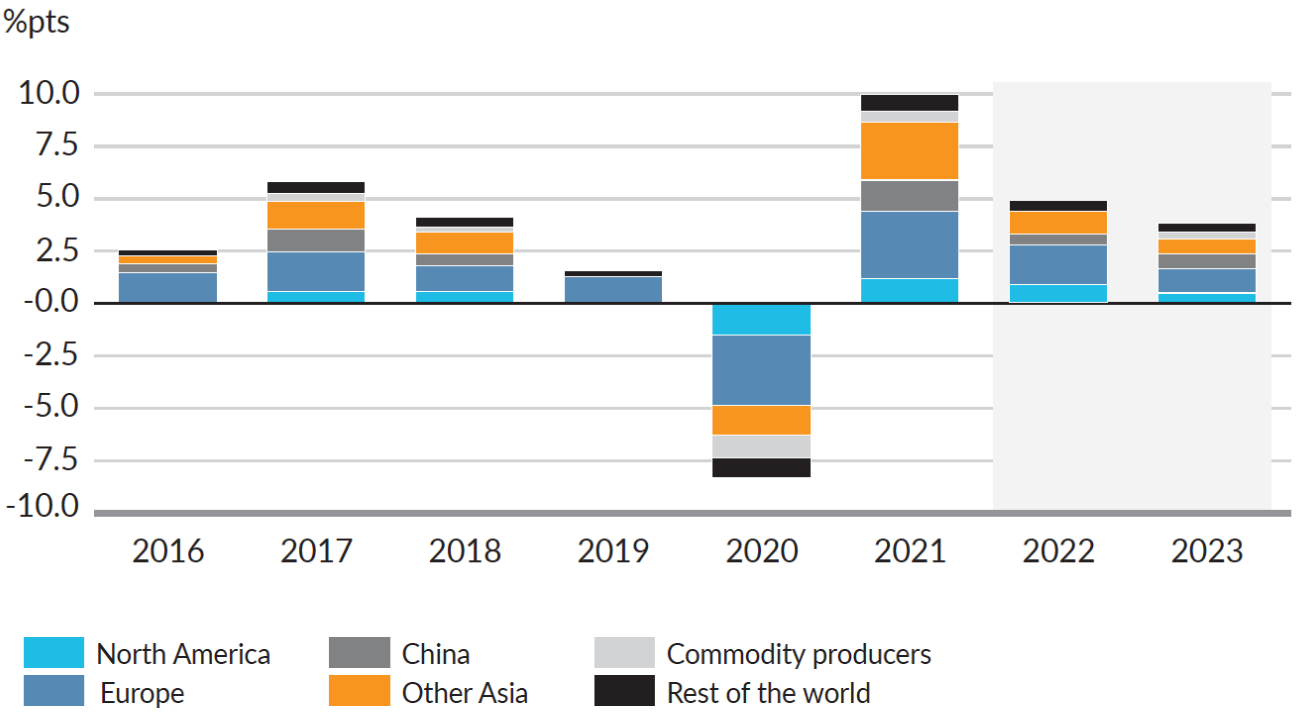


The Global Megatrends

The global trade volumes are projected to decrease

Contributions to annual change in global trade volumes

(Source: OECD Economic Outlook 111 database; and OECD calculations)

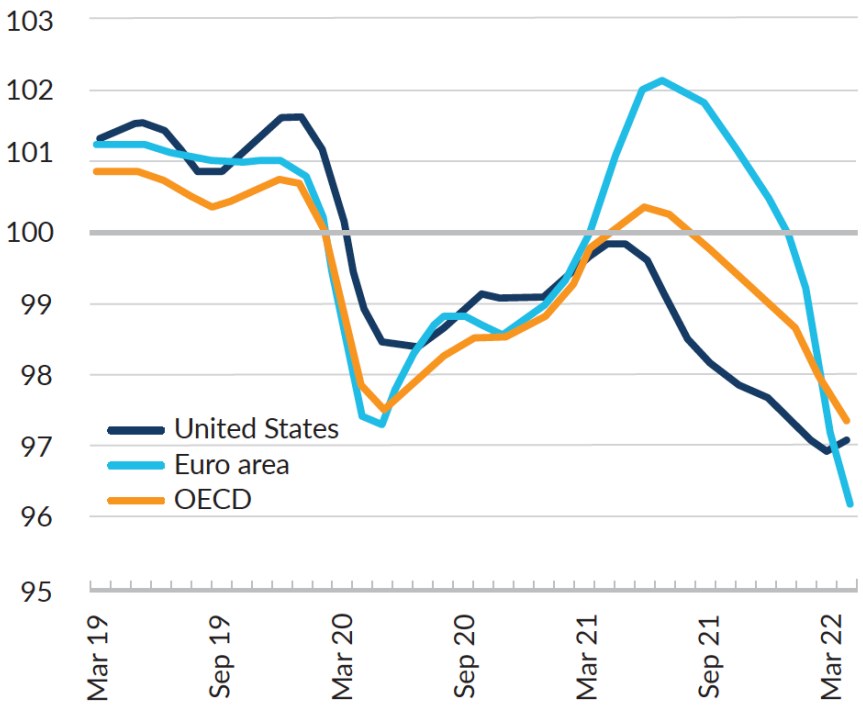


The Global Megatrends

The consumers' confidence in the state of the economy and their own financial stability are decreasing

Consumer Confidence (OECD standardised indicator, long-run average = 100)

(Sources: OECD Economic Outlook, Volume 2022 Issue 1)

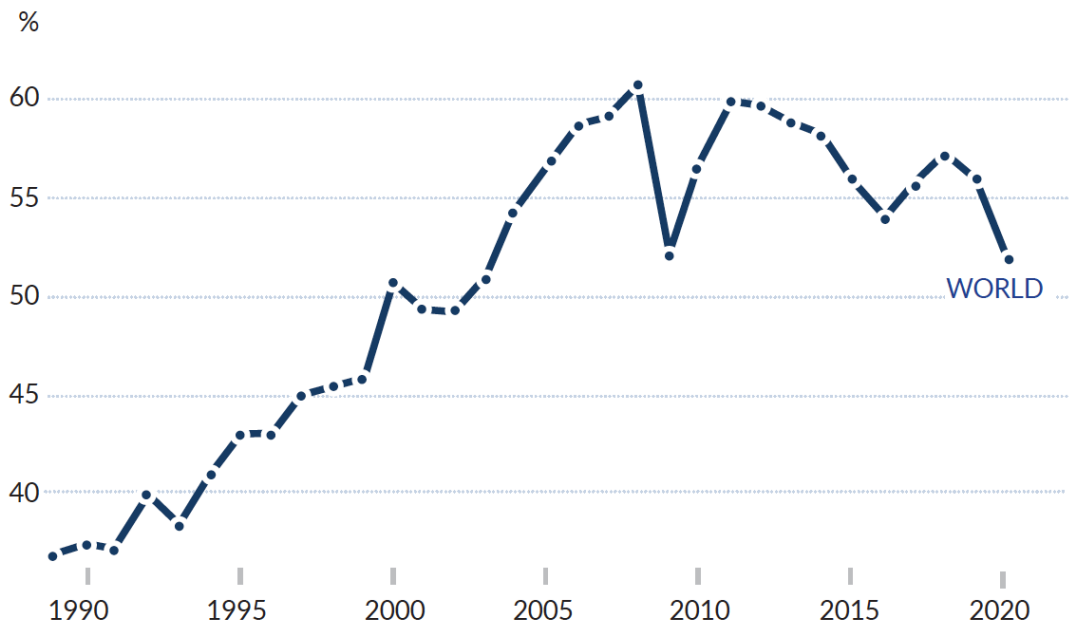


The Global Megatrends

The end of hyperglobalisation moving to "slowbalisation"

Exports of goods and services (% of GDP)

(Source: World Bank national accounts data, and OECD National Accounts data files)

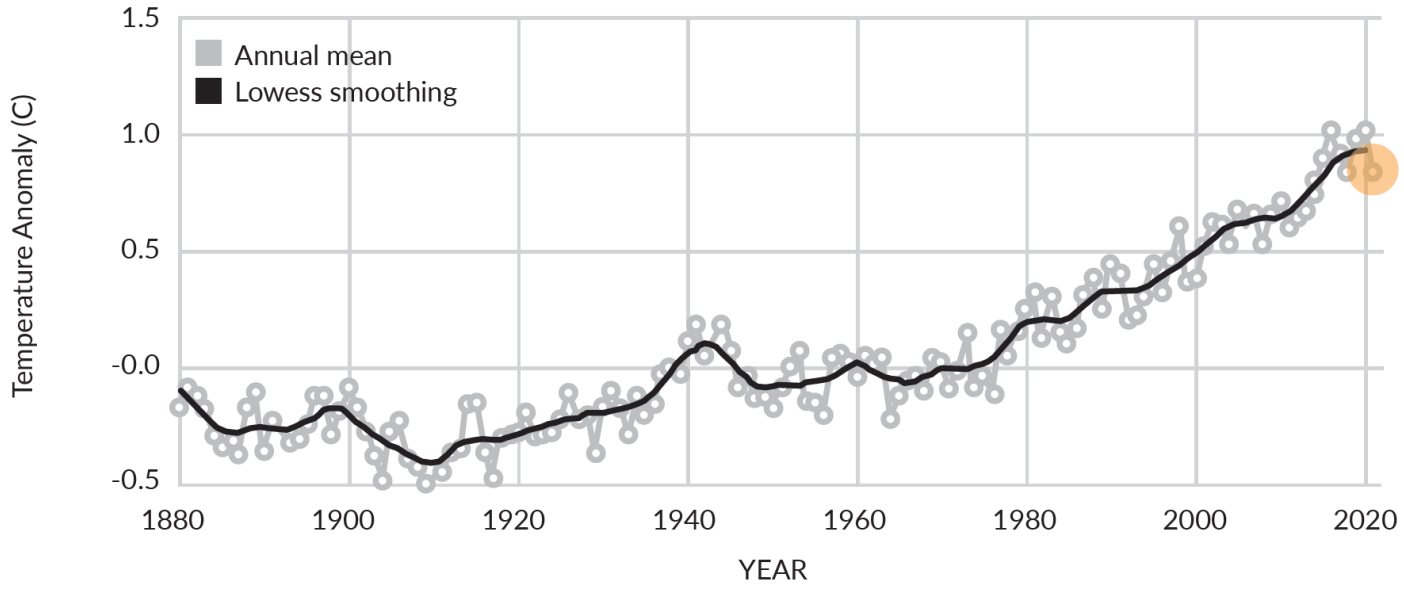


The Global Megatrends

Climate change and sustainability

Global Land-Ocean temperature index

(Source: NASA.)

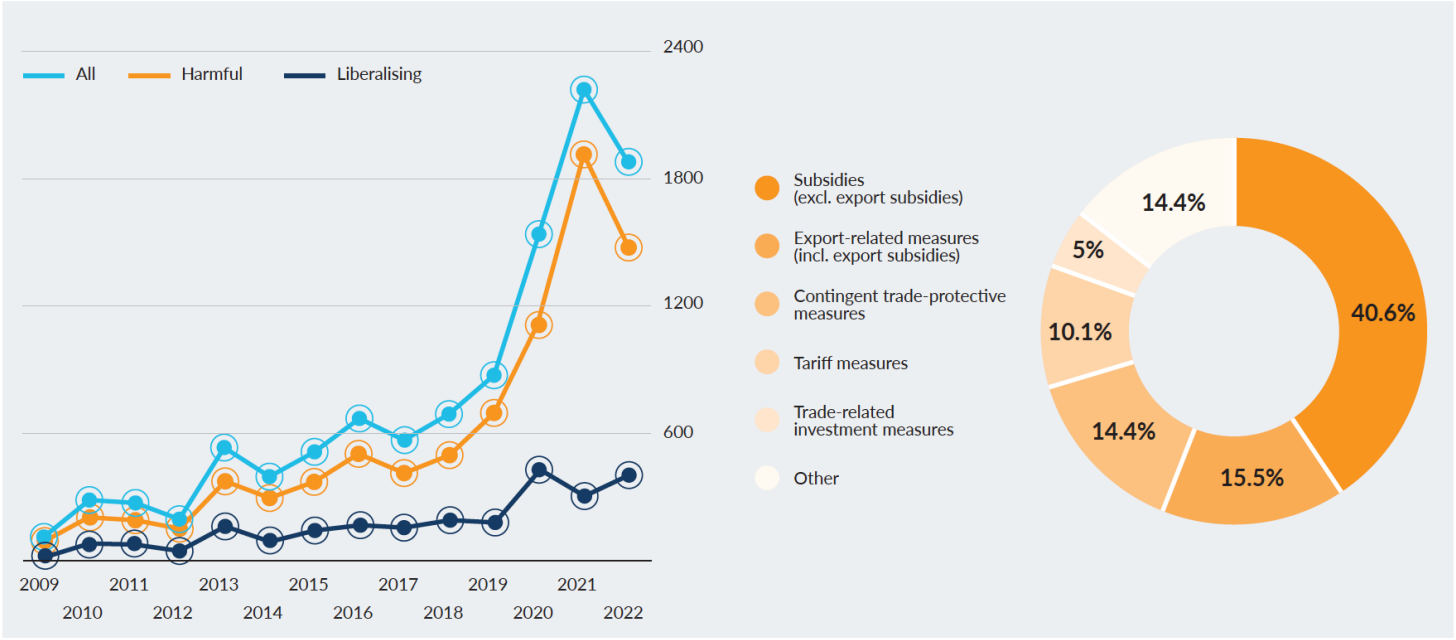


The Global Megatrends

Rise of nationalist politics and protectionism

New harmful trade interventions per year and policy instruments uses

(Source: Global Trade Alert database.)



The Global Megatrends

The evolving consumers' needs

- Increased use of online channels to buy goods and services
- Mainstreaming of the Metaverse
- Green activism and low-carbon lifestyles
- Prioritisation of authenticity and social issues by younger consumers
- Support for local products and services
- Rising demand for activities and products that can support mental and physical health

The Global Megatrends

Transformation of the job market

- Complex skills definition
- Need to transfer women into a balanced workforce
- Increasing relevance of Equity, Diversity, and Inclusion

Why redesigning supply chains in the new era of manufacturing?

To understand how global megatrends may influence the manufacturing sector and it supply chains

To face the disruptive events impacting on manufacturing companies

To be prepared at Supply Chain level to eventually anticipate potential future disruptive events

To ensure to keep under control all the key resources of manufacturing sector including the workforce

Global challenges not within the direct Supply Chain's Control

Limited availability of critical raw materials

Limited availability of suppliers

Cybersecurity and cyber attacks

Employee and workforce shortages

Skills crisis

Global Challenges within the Supply Chain's Control

Digital infrastructures and data exchange

Interoperability between different systems

Communication between supply chain entities

Small and Medium Enterprises challenges

Some of the most common challenges faced by SMEs come with the increased competition in changing markets, rapid technological changes and the reduced access they inherently have to knowledge and resources.

(Source: IntegratingSMEsintoGlobalValueChains:ChallengesandPolicyActionsinAsia By ADBI, ADB)

Facing a lack of resources (financial resources and skills)

Lack of economies of scale

Higher costs due to smaller number of transactions

Lack of information, knowhow and experience due to lack of networks

Small and Medium Enterprises challenges

Inability to compete with large partners at R&D level

Lack of entrepreneurial capacity

Missing incentives to digitally transform

Pressure to provide data in real-time and automated using specific standards

Cybersecurity

Key Takeaways

For the future of Manufacturing

Key Takeaways for the Future Manufacturing

(Source: World Manufacturing Foundation)

Cognitive Manufacturing

Circular Manufacturing

Global Risks-Resilient Manufacturing

Hyper-Personalised Manufacturing

Rapidly Responsive Manufacturing

Inclusive Manufacturing

Key Takeaways for the Future Manufacturing

(Source: World Manufacturing Foundation)

Cognitive Manufacturing

- Promote AI to support resilient supply networks
- Utilise AI to track and respond to supply network disturbances
- Exploit AI to improve daily operations

Circular Manufacturing

- Minimise effect and encourage firms to look into new circularity prospects
- Enable cooperation among relevant stakeholders in building circular value chains
- Facilitate information sharing in the value chain
- Track the flow of materials and/or products in different stages of the value chain

Global Risks-Resilient Manufacturing

- Combine the efforts of several players from different sectors and across various governance levels
- Understand the actual problems that businesses encountered during the crisis and the policies that can address such problems
- Build resilient global value chains through effective policies
- Diverse sourcing and digitisation are key to building stronger and smarter supply chains
- Utilise new demand management strategies to create robust supply chains

Key Takeaways for the Future Manufacturing

(Source: World Manufacturing Foundation)

Hyper-Personalised Manufacturing

- Hyper-personalisation commands a certain closeness with, and to, the customer
- The post-COVID future of customer involvement in retail is hyper-personalisation
- Customise for Local and Global Markets

Rapidly Responsive Manufacturing

- Speed has become more significant than scale on a number of fronts, including time to market, time to gather input and learn from it, and time to make and carry out decisions.
- Flexible supplier bases enable businesses to better withstand unexpected events that disrupt the supply chain

Inclusive Manufacturing

- Inclusive supply networks are a key tool the manufacturing sector may use to make a lasting and beneficial impact
- An inclusive supply chain will lead to a resilient economy

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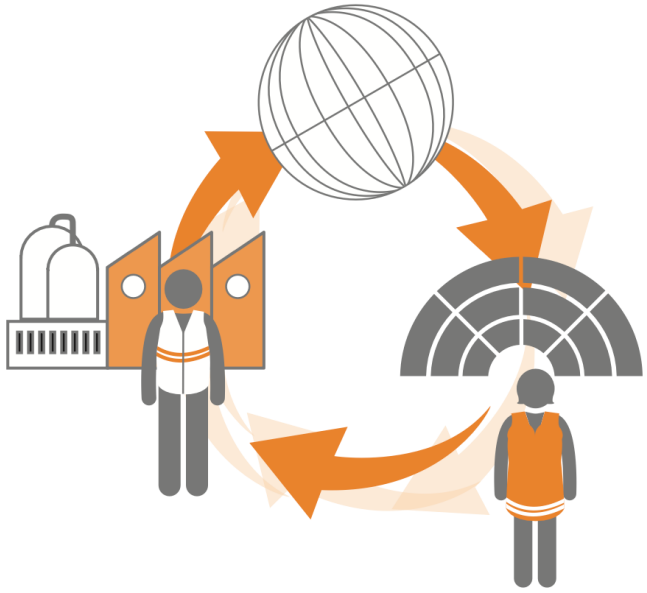
REDESIGNING SUPPLY CHAINS IN THE NEW ERA OF MANUFACTURING

10 Key Recommendations

by the World Manufacturing Foundation

1 AVOID OVERREACTIVE POLICIES THAT BRING BACK THE PENDULUM OF GLOBALISATION

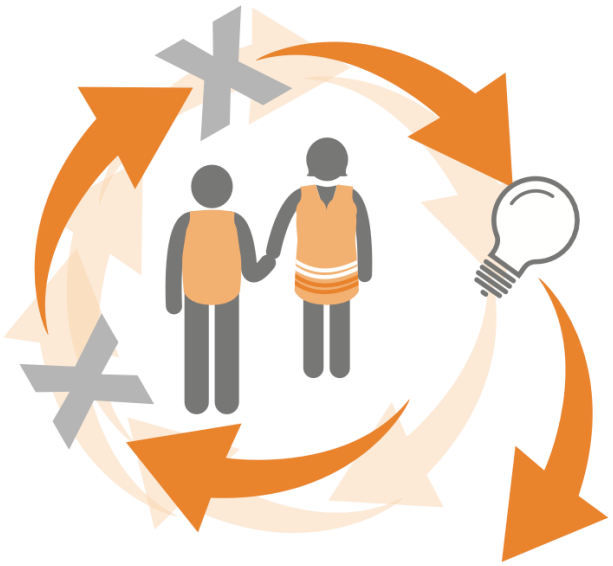


- Do not overreact
- Consider the long-term impact of decisions
- Improve communication between companies and policymakers to design a regulatory environment that supports change

2 ENSURE PRUDENT, CLEVER, ENTREPRENEURIAL, AND PROACTIVE REDESIGN OF SUPPLY CHAINS TO SECURE CRITICAL SUPPLY

- Avoid counterproductive strategies by keeping continuity
- Take supply chain redesign for resilience as an opportunity to shorten the supply chain
- Exploit opportunities to combine reshoring with friendshoring

3 ADOPT AN ITERATIVE AND CONTINUOUS IMPROVEMENT APPROACH TO SUPPLY CHAINS



- Use a continuous improvement approach to adjust to frequent changes
- Build and maintain relationships based on dependability, organisational compatibility, commitment, and trust
- Incorporate supplier considerations into product design as a way to reduce costs and the impact of disruptions

4 DESIGN PRODUCTS FOR AN AGILE REDESIGN OF SUPPLY CHAINS

- Optimise product design and management for supply, production, and sustainability
- Design products and services to match the agility of supply chains
- Shift from the traditional Design for X approaches to Design for Supply Chains

5 EXPLOIT THE OPPORTUNITY OF REDESIGNING SUPPLY CHAINS TO DRIVE CIRCULARITY AND SUSTAINABILITY

- Use the opportunity given by supply chain redesign to achieve a competitive edge by proactively incorporating sustainability issues into business models
- Include more multi-tier circular supply chains
- Establish more genuine circular supply chains to proactively reduce the adverse environmental effects

6 ACCELERATE THE URGENT ADOPTION OF DIGITAL TOOLS AS ENABLERS FOR RESILIENT AND ADAPTIVE SUPPLY CHAINS

- Accelerate the adoption of digital technologies as enablers of resilient and adaptable supply chains
- Develop the skills necessary to analyse the data for utilising digital technologies
- Invest in effective data analytics to mine data for important insights for building flexible supply chains

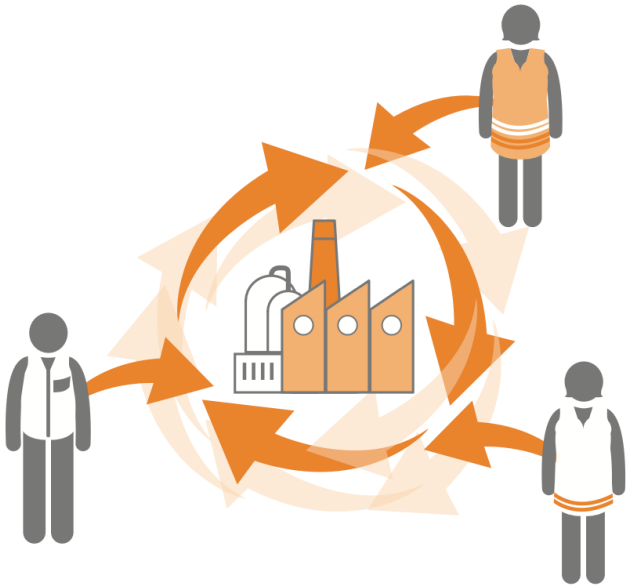
7 SUPPORT SMALL AND MEDIUM ENTERPRISES BY INCLUDING THEM IN THE REDESIGNING OF THE SUPPLY CHAINS LEVERAGING ON THEIR CAPABILITIES AND ADDRESSING THEIR NEEDS

- Equip SMEs with digitalisation to enhance the capabilities of value chains
- Establish and maintain relationships along the value chain to strengthen support for SMEs
- Include SMEs in the redesign of the supply chains to utilise their strengths and address their needs

8 ADOPT A MULTI-DIMENSIONAL APPROACH TO CONSIDER GEOPOLITICAL RISKS AND OTHER NON-COST FACTORS IN REDESIGNING SUPPLY CHAINS

- Develop a better understanding at the collective level of how supply chains operate
- Think of long-term planning that emphasises localisation of supply and flexibility
- Modernise the cost calculus by adopting a multi-dimensional approach to consider geopolitical risks

9 RECOGNISE SKILLS AS THE NEXT MISSING FACTOR IN PRODUCTION



- Upskill the future workforce with the skills required for supply chains
- Adopt a culture that involves the entire workforce in strategic decisions for supply chain redesign
- Facilitate distinctive managerial abilities required for the redesigning and ongoing improvement of supply chains for resilience

10 TAKE ACTION THROUGH POLICIES TO EMPOWER RESPONSIBLE CONSUMER BEHAVIOURS TO REACH A STABLE ECONOMIC DEVELOPMENT

- Take new customer requirements into account while modifying business models and supplier networks
- Put in place measures through regulations that support responsible consumer behaviour
- Educate consumers about their impact on supply chains to establish responsible behaviour

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THE 2022 WORLD MANUFACTURING REPORT

REDESIGNING SUPPLY CHAINS IN THE NEW ERA OF MANUFACTURING

Report Highlights

50+ CONTRIBUTORS GLOBALLY

30+ COUNTRIES REPRESENTED

9 Case Studies from both Young Manufacturing Leaders and the Editorial Teams Members

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