

# Photonics Industry Supply Chain Survey 2023

Photonics21/EPIC  
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- **Resilient supply chains are highly critical to the EU economy**
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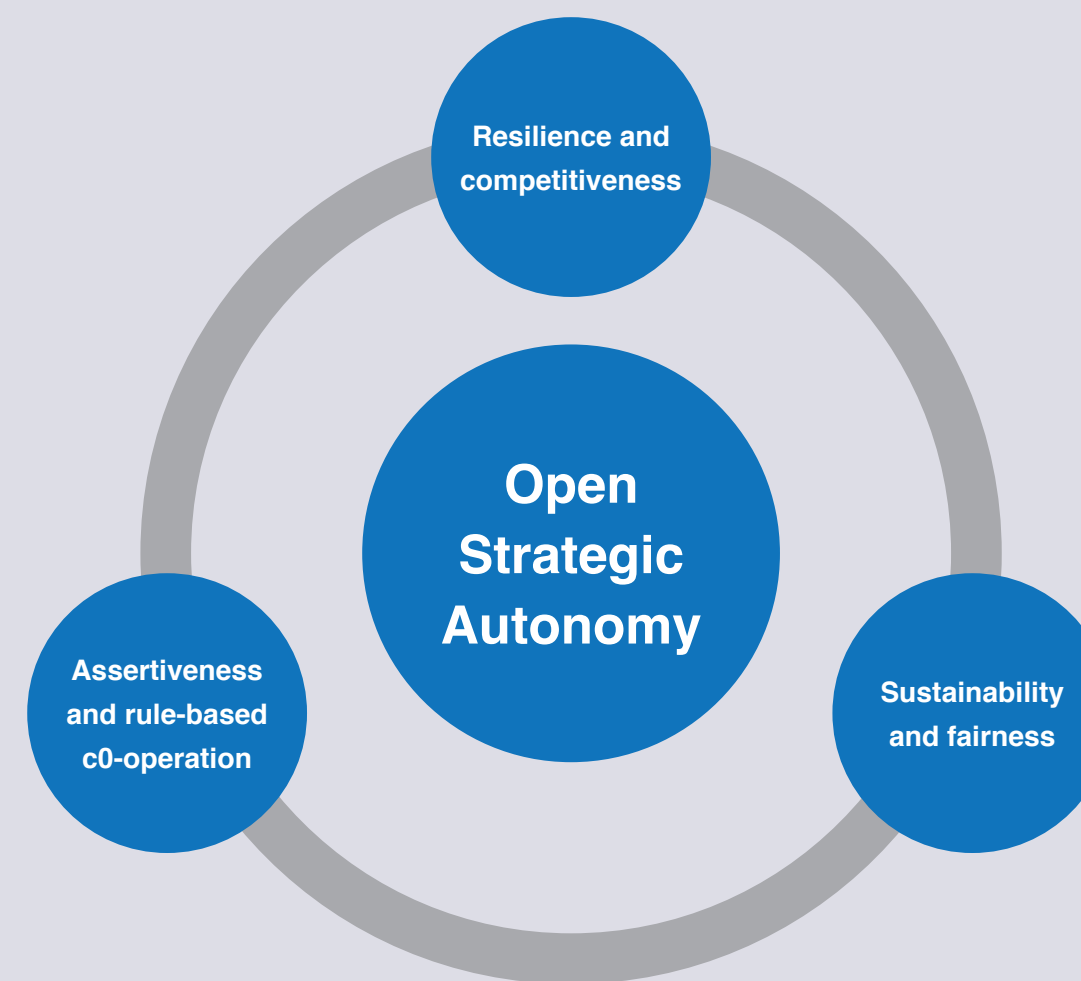
# Supply chains are critical to the EU

**“Trade is at the center of Europe’s economic prosperity and competitiveness. The EU is the world’s largest trader of agricultural and manufactured goods and services and ranks first in both inbound and outbound international investments”.**

COM(2021) 66 final.  
Trade Policy Review – An Open,  
Sustainable and Assertive Trade Policy.

**Supply chains are the nervous system of the European economy. Up to 30% of total European value added relies on functioning cross border supply chains, either as a source of input or as a destination for production.**

From OECD TiVA and Oxford  
Economics Industry Databank



**“The waves of global and European supply chain disruptions from firstly COVID and, subsequently geopolitical issues has revealed the long-term vulnerabilities of Europe’s industrial ecosystems and related supply chains; their lack of sovereignty and strong dependence on a few external input providers”.**

European Commission Strategic  
Foresight Report

# Photonics supply chains are critical to EU strategic autonomy



EU Commissioner Breton has stated that  
“Our ability to shape the metaverse will depend on our ability to master and develop cutting-edge technologies in Europe such as Photonics....”.

From “Europe’s plan to thrive in the metaverse: People, technologies & infrastructure”,  
Thierry Breton, European commissioner for Internal market,  
September 14, 2022, LinkedIn.

Photonics technologies, components and solutions play a crucial role in many EU strategic value chains (SVC’s).



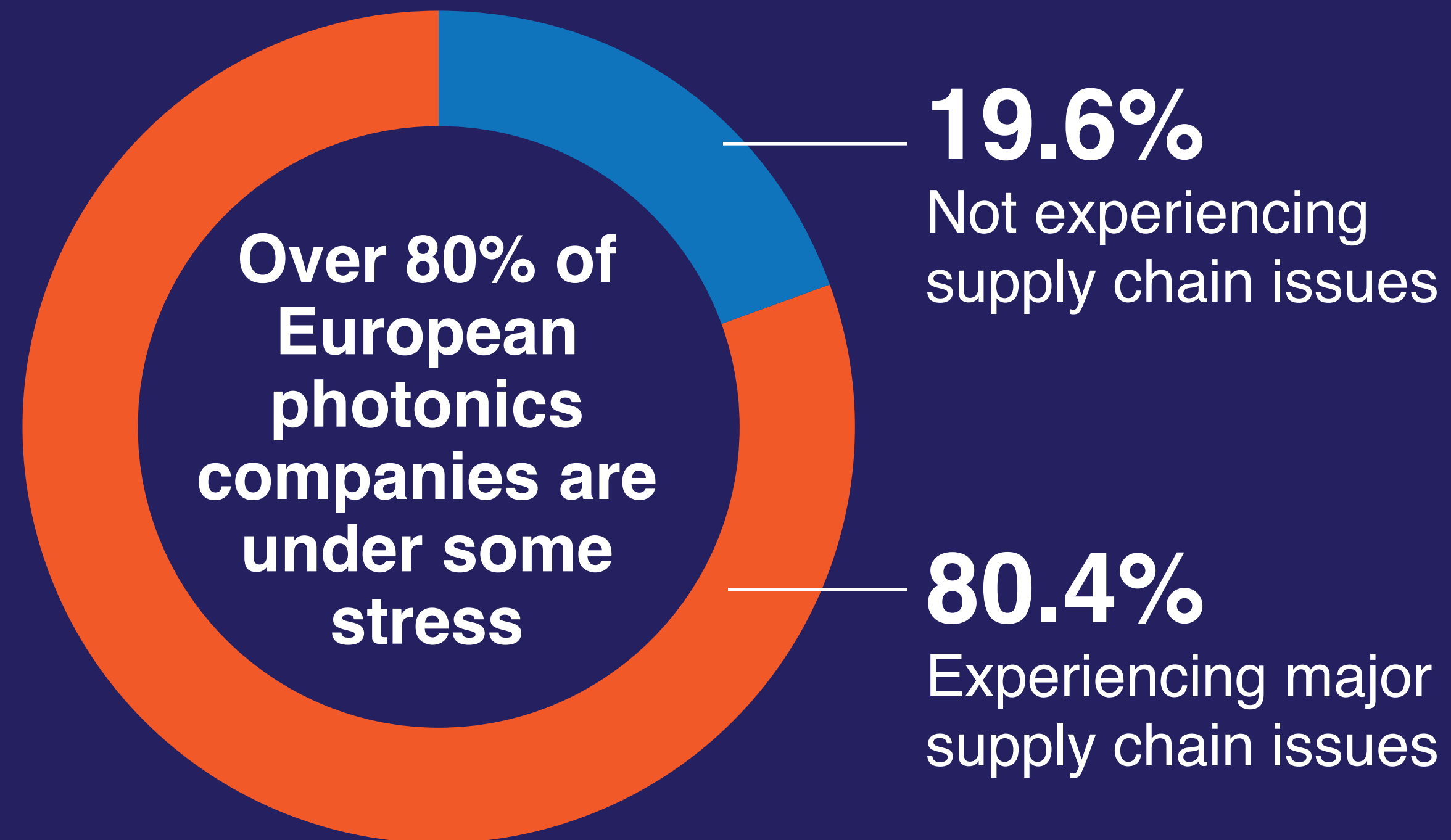
**A recent survey conducted by PH21/EPIC analysed the European photonics industry supply chain with the aim to identify critical dependencies/shortages as well as potential need for actions to increase the resilience of the photonics supply chain as well as of its end-user markets.**

# Six key messages from the EU Photonics Industry Supply Chain Survey 2023



# Message I

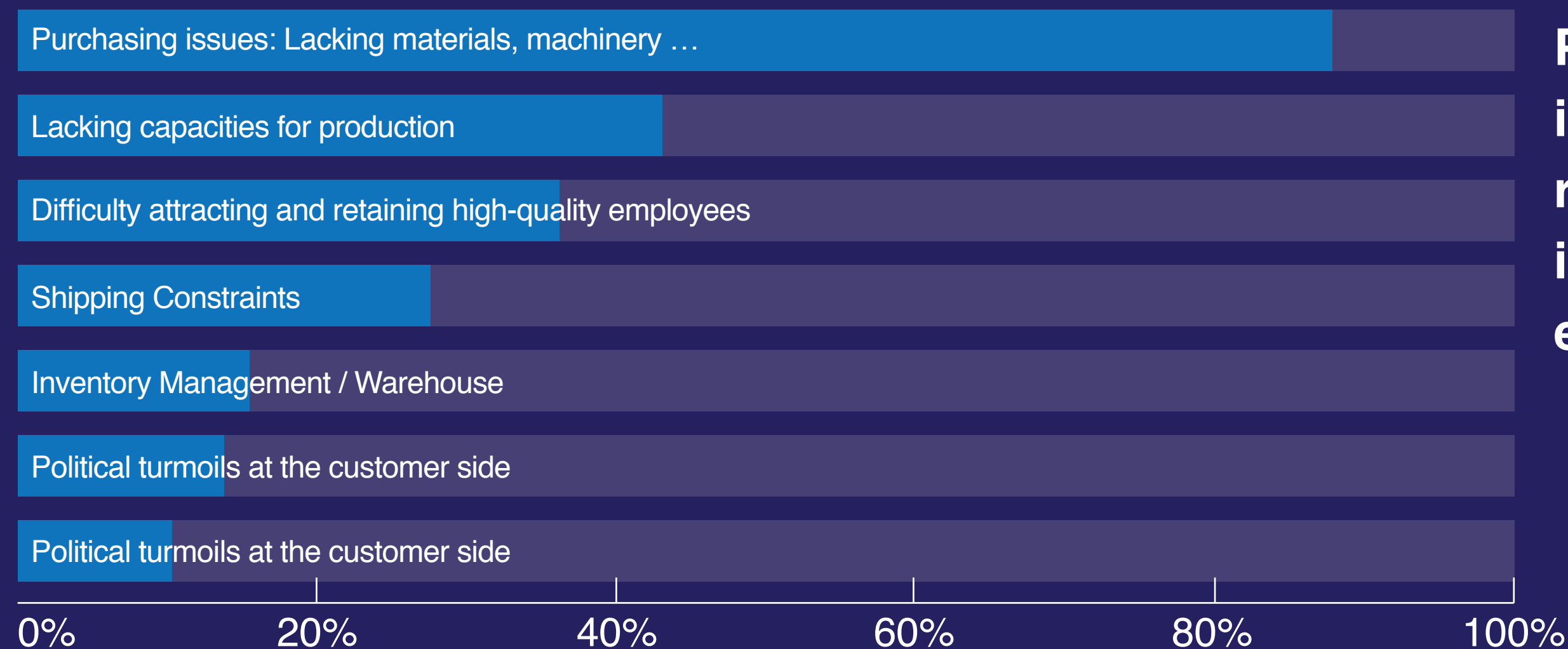
Majority of European photonics companies in survey face major supply chain issues.



# Message II

Shortages and delivery delays in the supply chain are the primary source for output disruptions in the European Photonics industry.

Supply Chain issues are related to:



**Purchasing issues included unavailable raw materials, intermediates and equipment.**

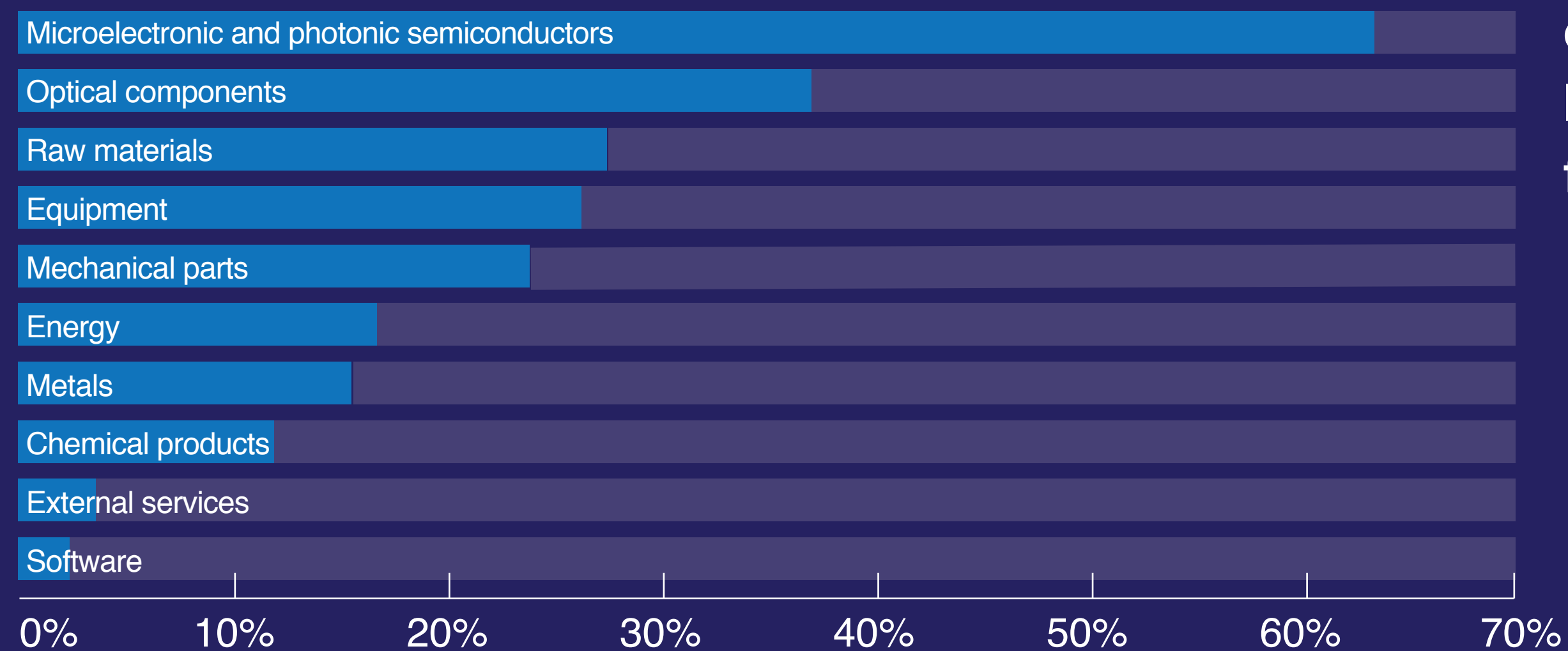
**Almost 90% of EU photonics companies faced disruptions caused by shortages and delivery delays in the global supply chain.**



# Message III

The key choke points for European Photonics companies on the supply input side are microelectronic and photonic semiconductors, optical components, basic raw materials and equipment.

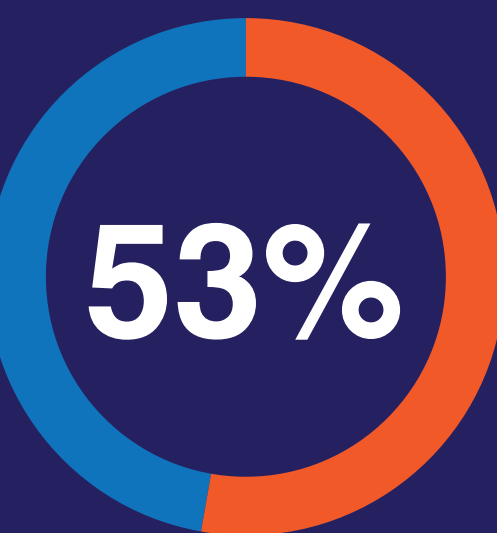
Major restrictions in purchasing activities: missing raw materials, intermediates, machinery ...



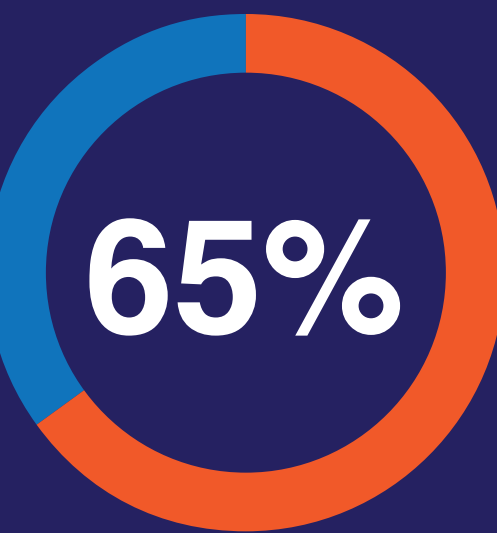
**Typical optical shortages included optical fibers, optical lenses, mirrors, filters and LEDs.**

# Message IV

There is a significant dependence of EU photonics companies on suppliers from outside Europe.

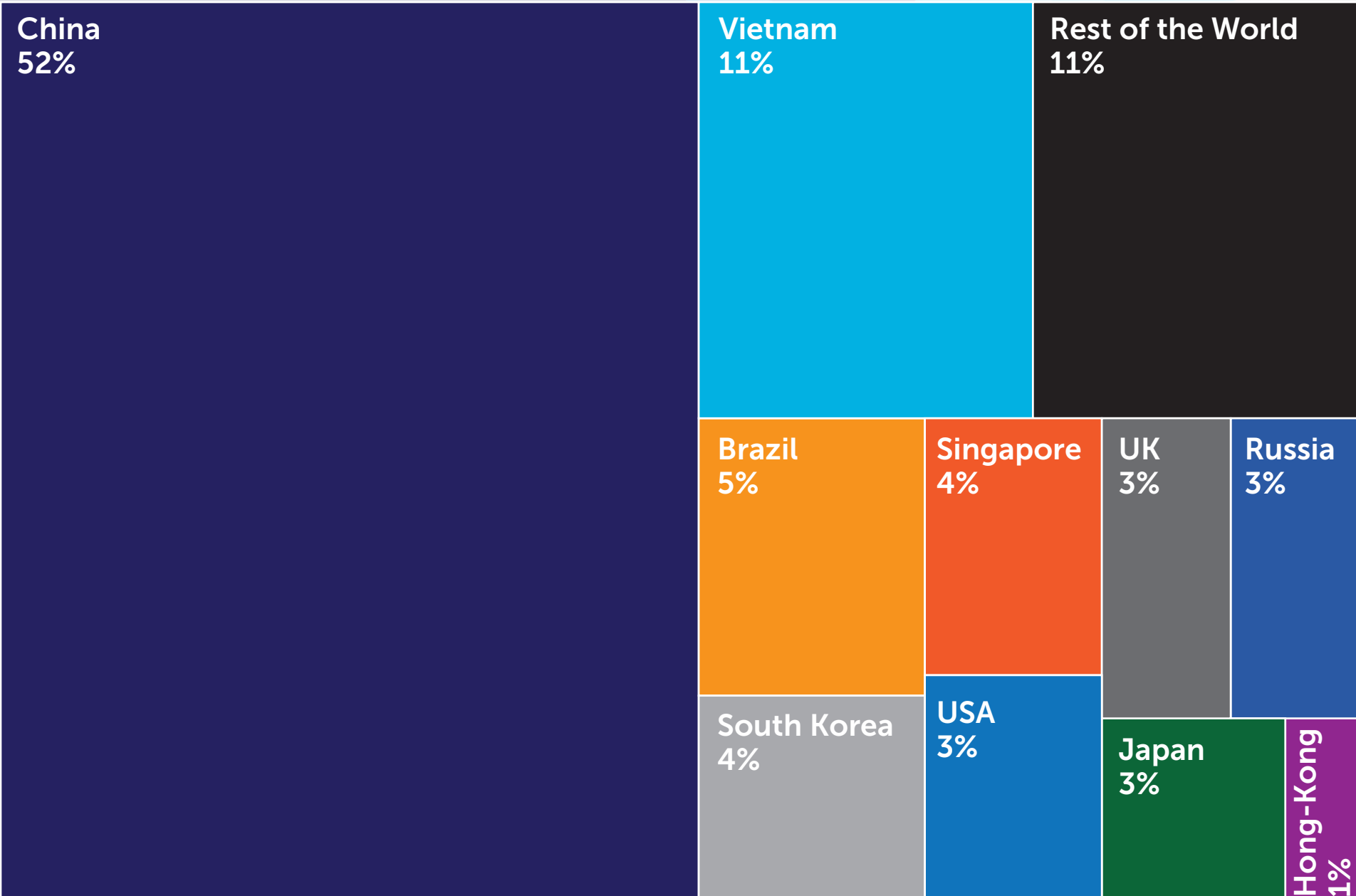


of EU Photonics companies stating a dependency on key sources of goods from China.



of the companies stated that critical goods and materials needed for manufacture are not available in Europe.

This result is similar to a broader EU dependency study which revealed that over half (52%) of the share of EU import value of the most foreign dependent products originates from China.



Share of EU import value by origin of identified 137 products where the EU is dependent in sensitive ecosystems.

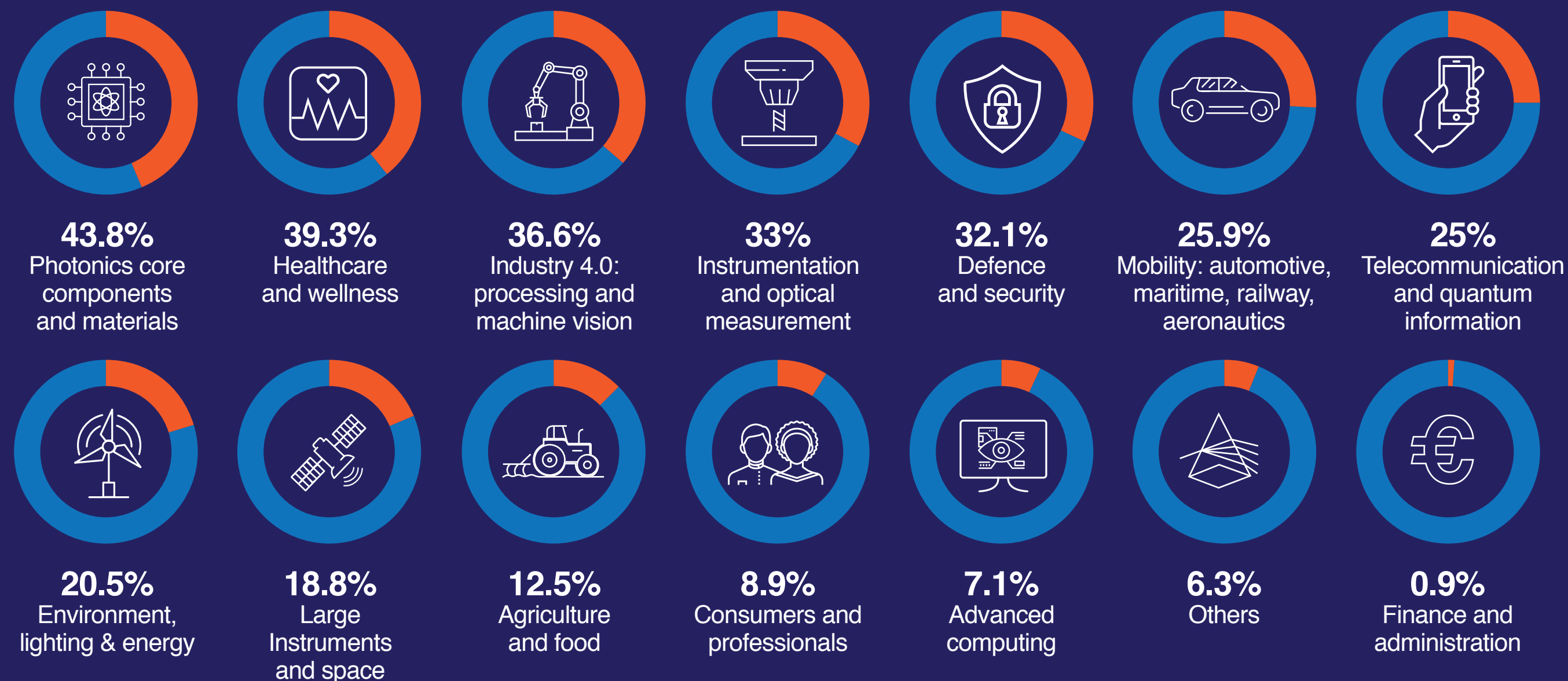
Source: European Commission based on BACI database.



# Message V

The vulnerability of the European photonics supply chain may lead to serious knock-on impacts on key European industrial sectors.

End-user markets served by survey respondents



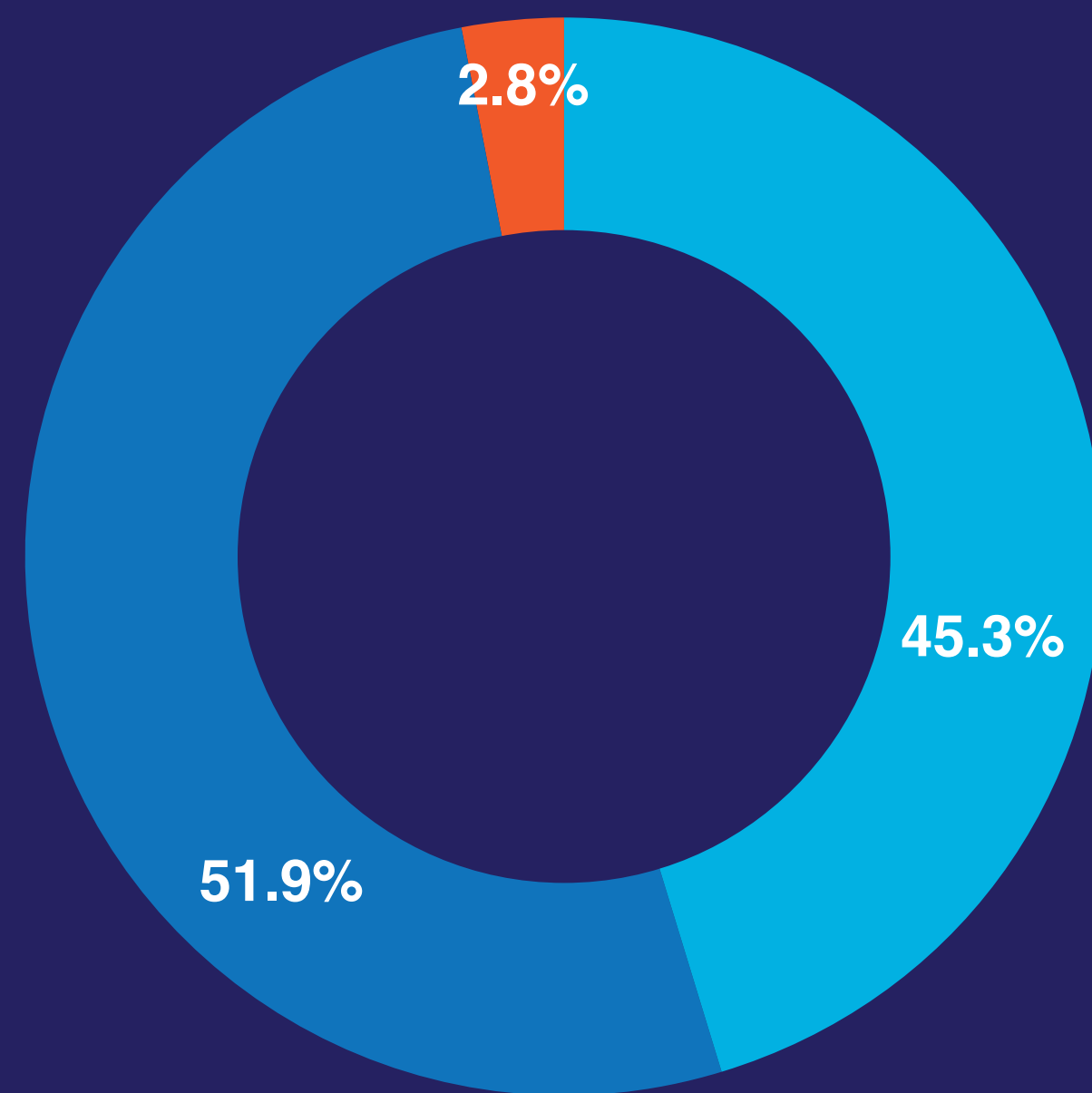
The end-user markets of the EU photonics survey respondents show the wide-spread use of photonics across key EU industries including:

- Healthcare: Photonics is used in medical imaging techniques such as X-rays, CT scans, and MRI scans to help diagnose diseases and injuries.
- Manufacturing: Photonics is used in precision manufacturing processes such as laser cutting and welding and for QA/QC (Quality Analysis & Quality Control).
- Defence & security: Photonics is used in high-tech surveillance systems, night vision equipment, and directed energy weapons.
- Telecommunications: Photonics is used in fibre optic networks, which are the backbone of modern communications, to transmit large amounts of data at high speeds.
- Automotive: Photonics is used in displays, LED Lightings, and in various sensor used for ADAS and autonomous vehicles.

# Message VI

Nearly all EU photonics companies surveyed are willing to accept even higher costs to buy key inputs in Europe and thus have security of supply.

Buy inputs in Europe – even at higher prices



**There is a unique opportunity to (re-) build EU manufacturing capacities and find customers in the market.**

- Yes – all
- Yes partly (as second/third source)
- No – pricing is key



# Call for action

## Four recommendations from the EU Photonics Supply Chain Survey 2023

# Call for action

1. Upstream: Implement a European strategy on critical photonics materials and components for key industries and technologies to secure a photonics supply chain in Europe.
2. Upstream: Incentivise research, development and prototyping of critical photonic components in Europe for strategic industrial supply chains.
3. Establish partnerships with “like-minded” countries around the world to implement trusted and secured photonics supply chains.



# Call for action

## 4. Downstream: Build strategic R&I alliances with key strategic industries leveraging relevant EU initiatives to secure the supply of advanced photonic components and systems:

- High performance computing and quantum computing
- Augmented and virtual reality – European metaverse
- Digital infrastructure
- Industry 5.0 and manufacturing
- Automotive and mobility
- Space and Defence
- Renewable energies
- Health
- Agriculture and Food

# Survey methodology

## **Survey preparation:**

The survey on EU Photonics Supply Chains was prepared by Photonics21 and EPIC, analysed with the help of Tematys and distributed with the support of Spectaris, Photonics France, PhotonicsNL, Photonics Finland, Photonics Sweden, Photonics Austria, Fotonica21, Hellenic Photonics Cluster, Polska Platforma Technologiczna Fotoniki, Ireland's National Technology Platform for Photonics, Swissphotonics, Photonics Leadership Group UK, Association of Research and Technology Organisations Lithuania, Italian Photonics Platform & PhotonHUB Europe.

## **Survey details:**

The survey was conducted from October 10 to December 20, 2022.

Over 112 EU companies responded, with 80% being SMEs.

The breakdown of the respondent business sectors reflects that of the Photonics Industry in Europe

## **Survey objectives:**

To analyse the European photonics industry supply chain

To contribute to the ongoing European Commission dependency reviews of key industry and technology sectors

To identify recommendations for increasing the resilience of EU photonics supply chains



