

*Resilient Supply Chains:
Market-Proven Concepts for the
Investment Casting Industry*

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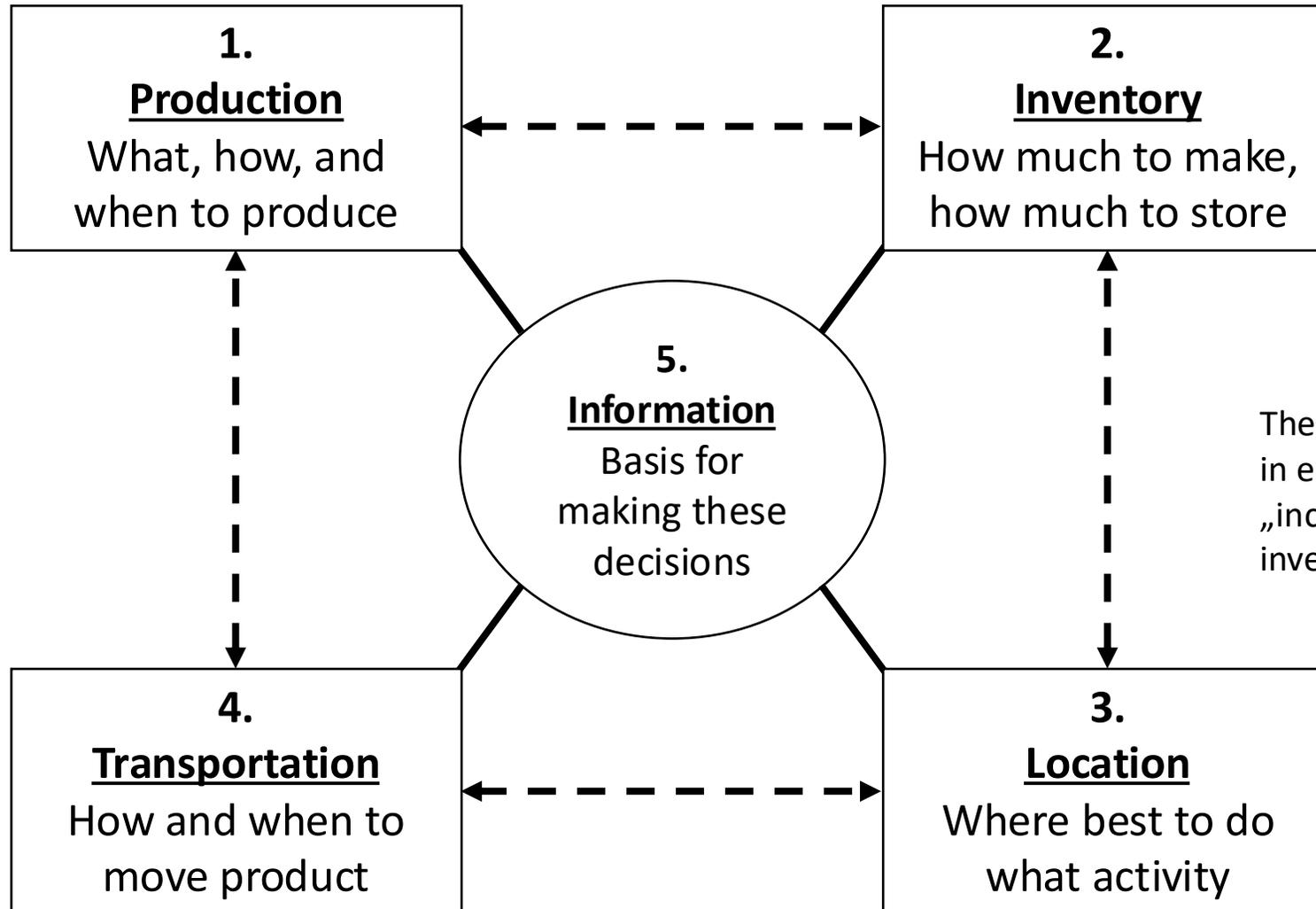
- Zircoa
- Supply Chain
- Disruptions
- Survey
- Observations in Best-Practice
- Key Take-Aways

- Zircoa, Inc., USA
 - Headquarters
 - Founded 1952
 - ISO 9001:2015 with Design
- Zircoa GmbH, Germany
 - Sales office EMEA
 - Founded 2012
 - 100% Subsidiary of Zircoa, Inc.



What is the Supply Chain?

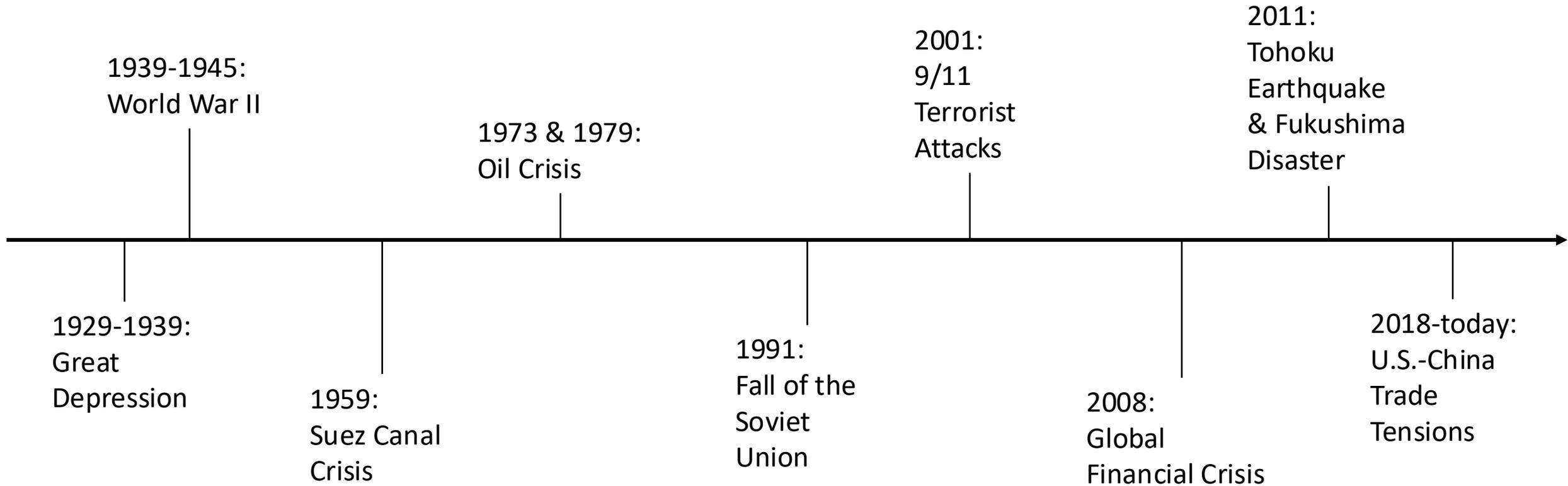




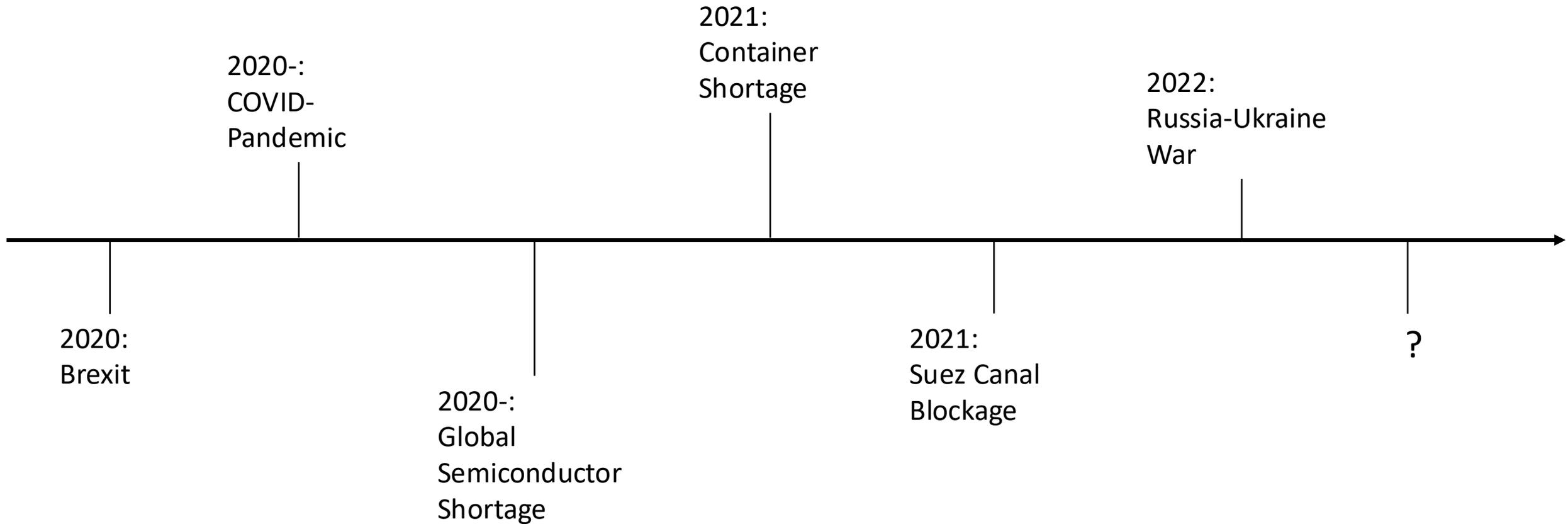
RESPONSIVENESS versus EFFICIENCY

The right combination of responsiveness and efficiency in each of these drivers allows a supply chain to „increase throughput while simultaneously reducing inventory and operating expense.“

Global Supply Chain Disruptions – Past 100 Years

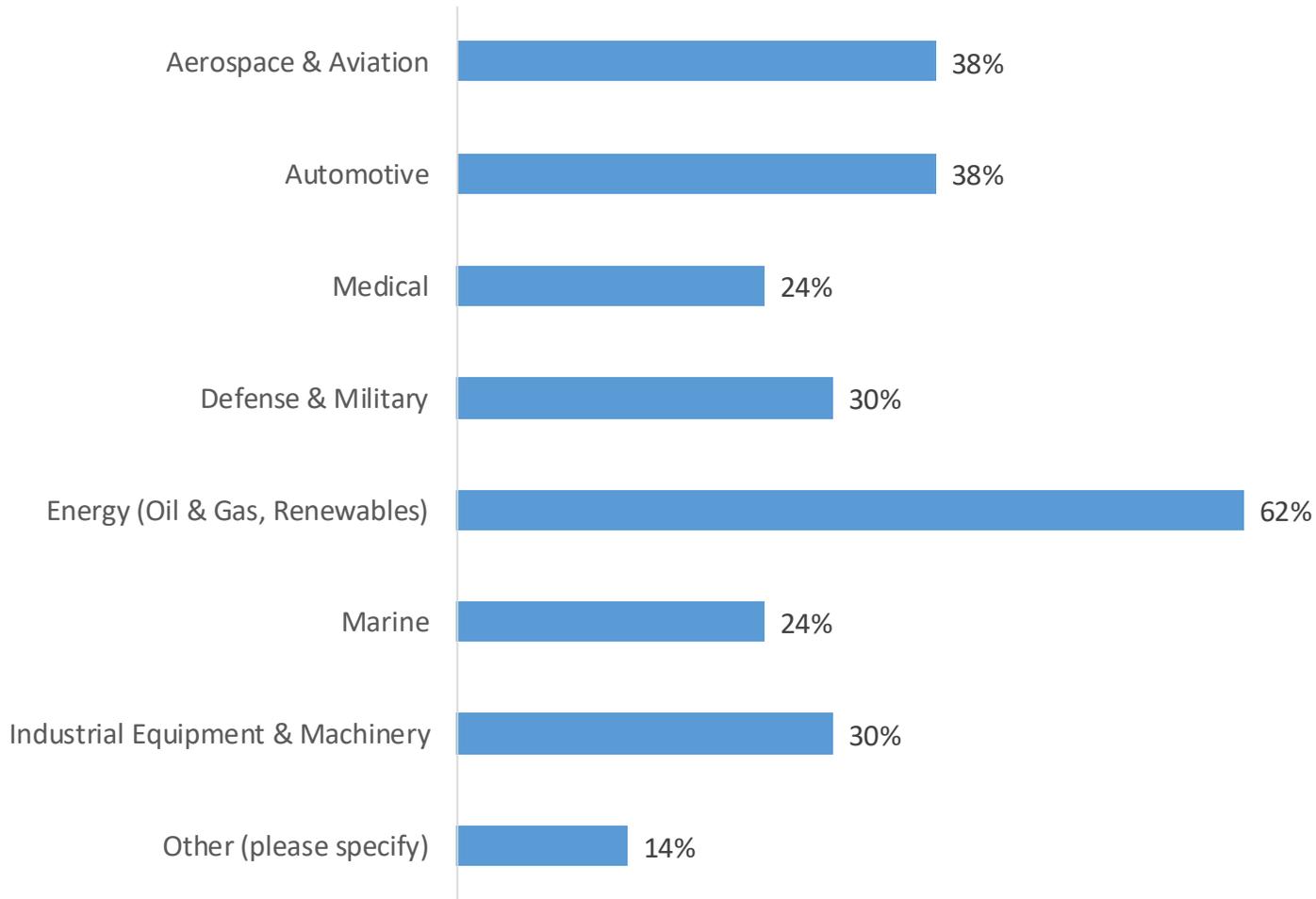


Global Supply Chain Disruptions – Past 5 Years

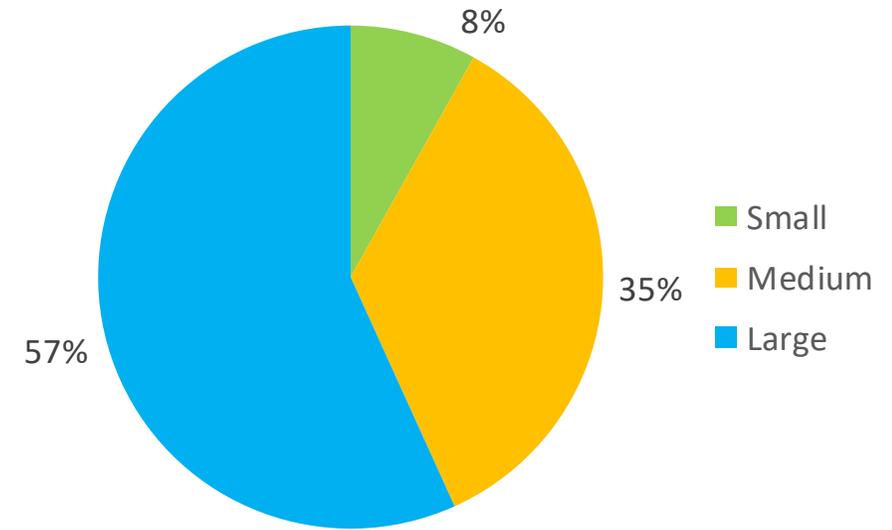


Zircoa Survey

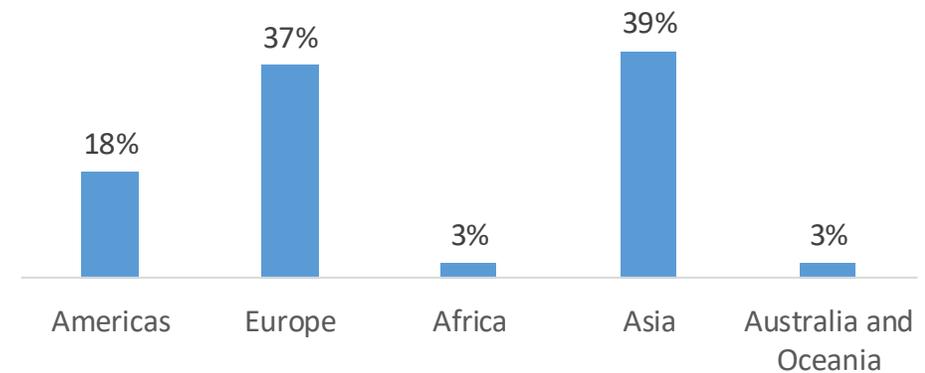
Which industries do your investment castings primarily serve?



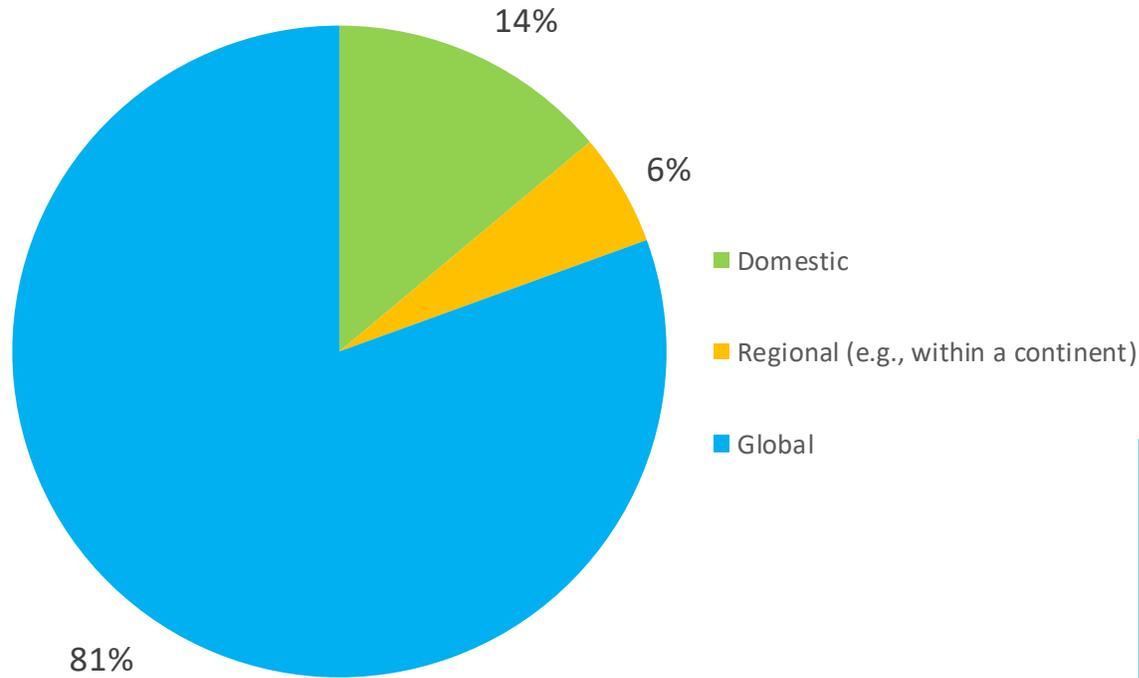
What is the size of your company?



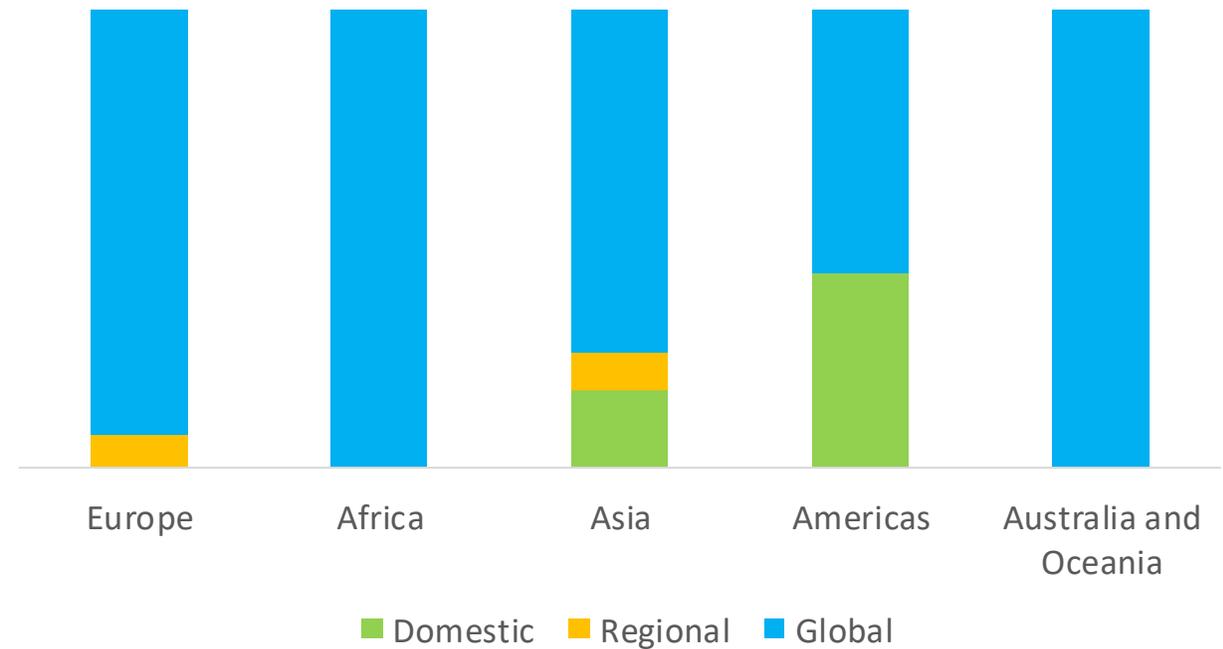
Where is your facility located?



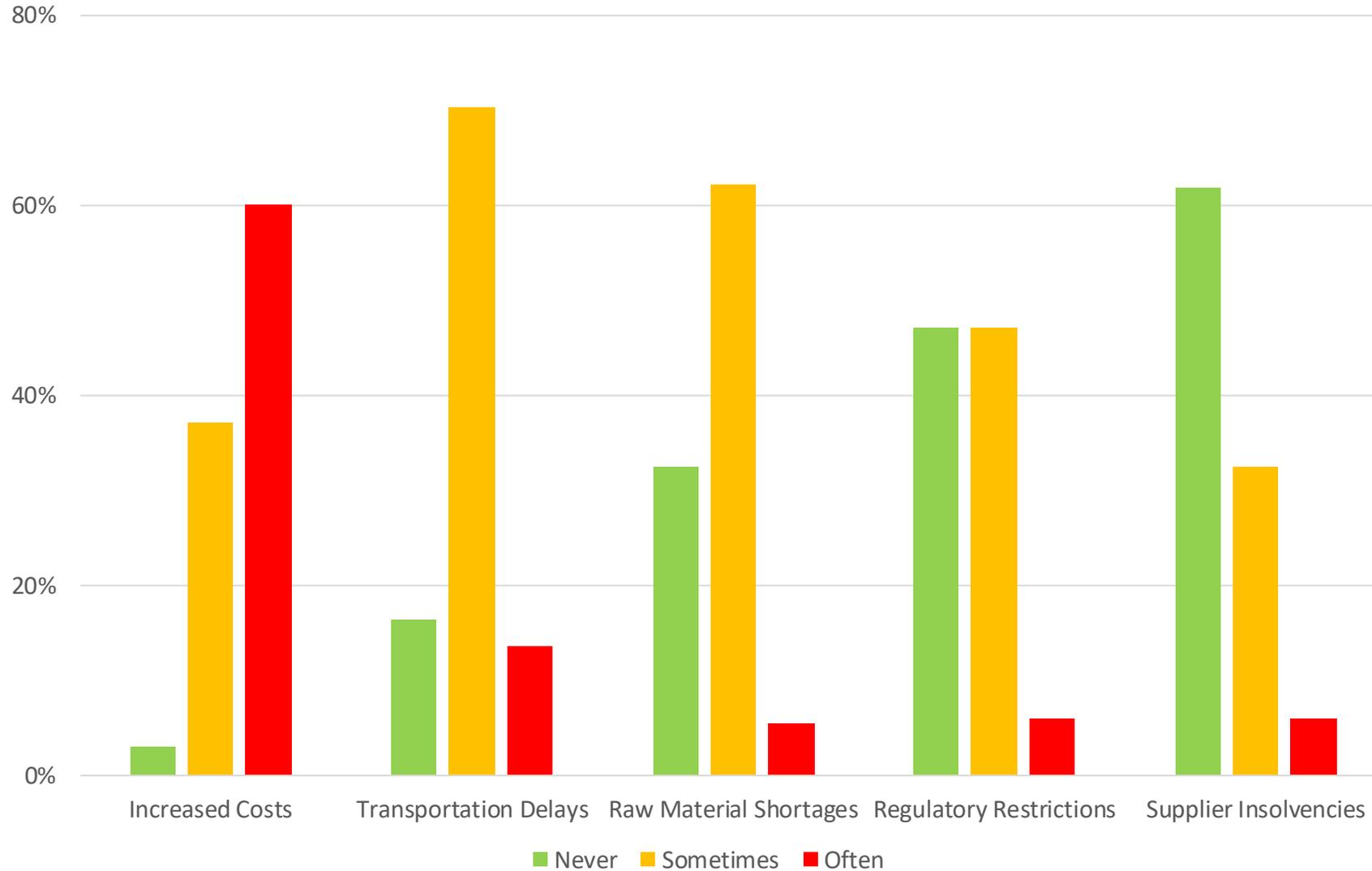
What is the geographic reach of your supply chain?



A high degree of global dependency makes the supply chain vulnerable to external shocks.



What were the biggest supply chain disruptions you faced in the past five years?

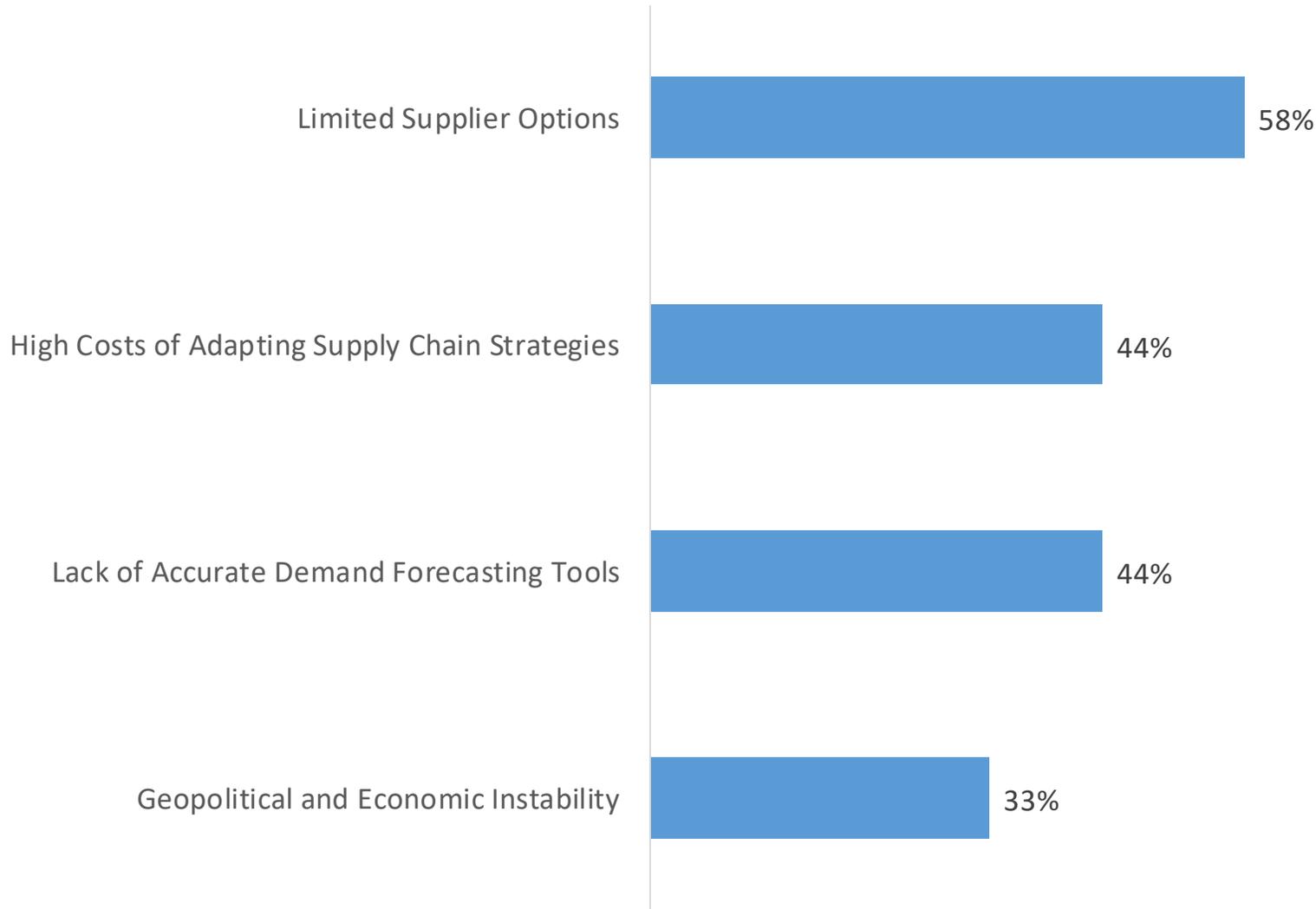


- Increased costs are a major challenge
- Delivery delays are another source of disruption

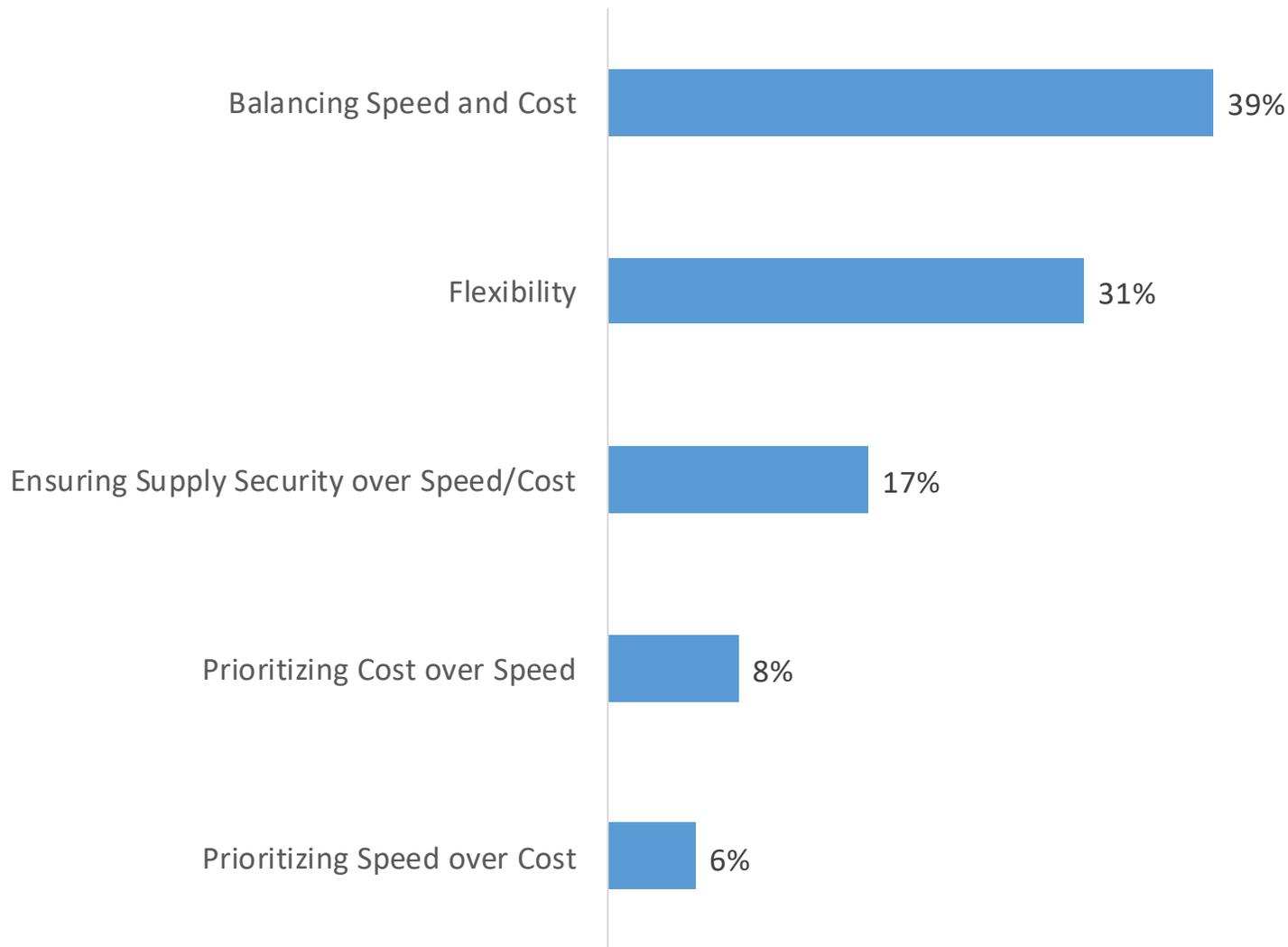
What is the primary challenge your company faces in achieving a resilient supply chain?



The main obstacles are limited options, high implementation costs, and poor predictability

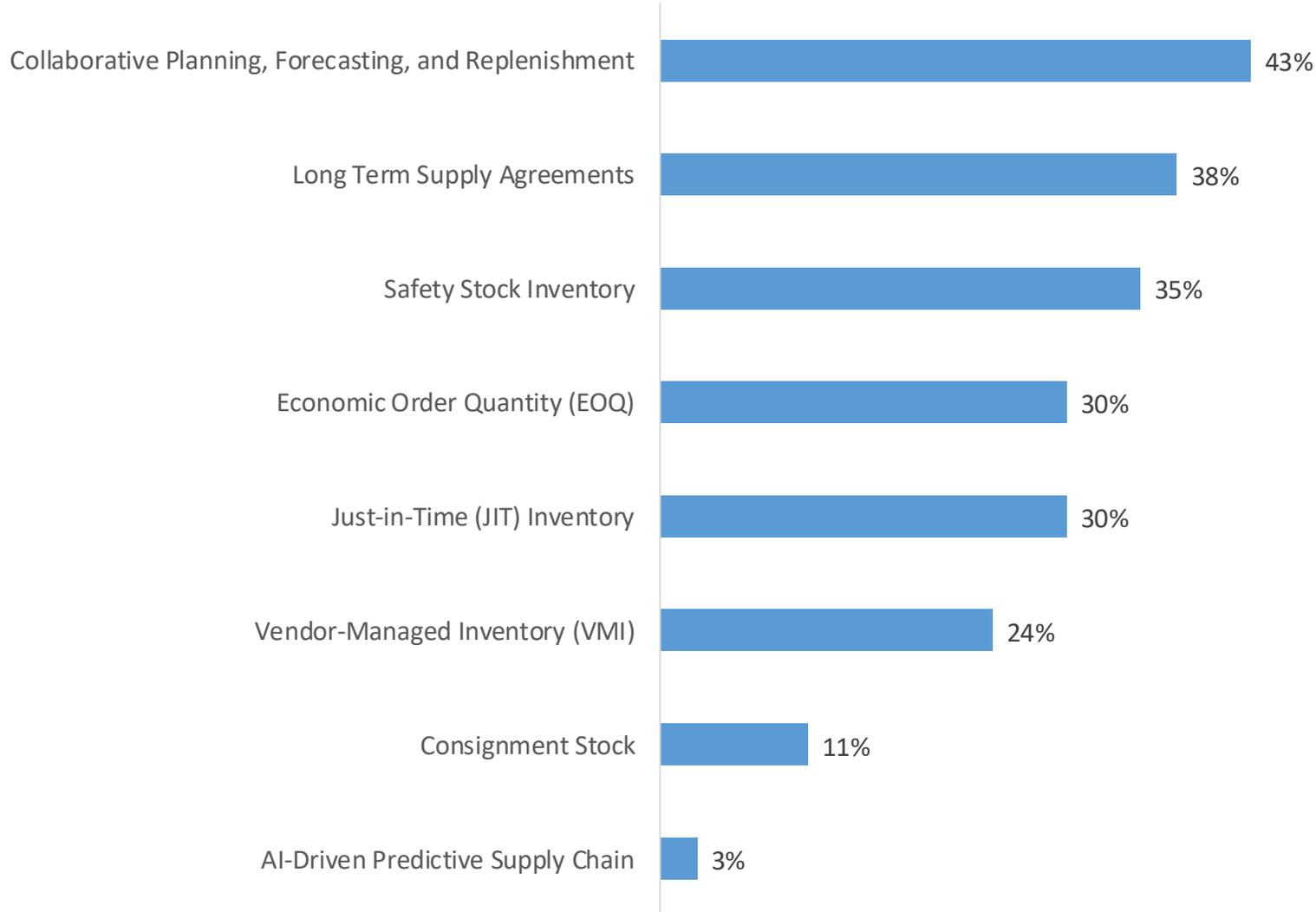


Which factor is the most important in supply chain management?



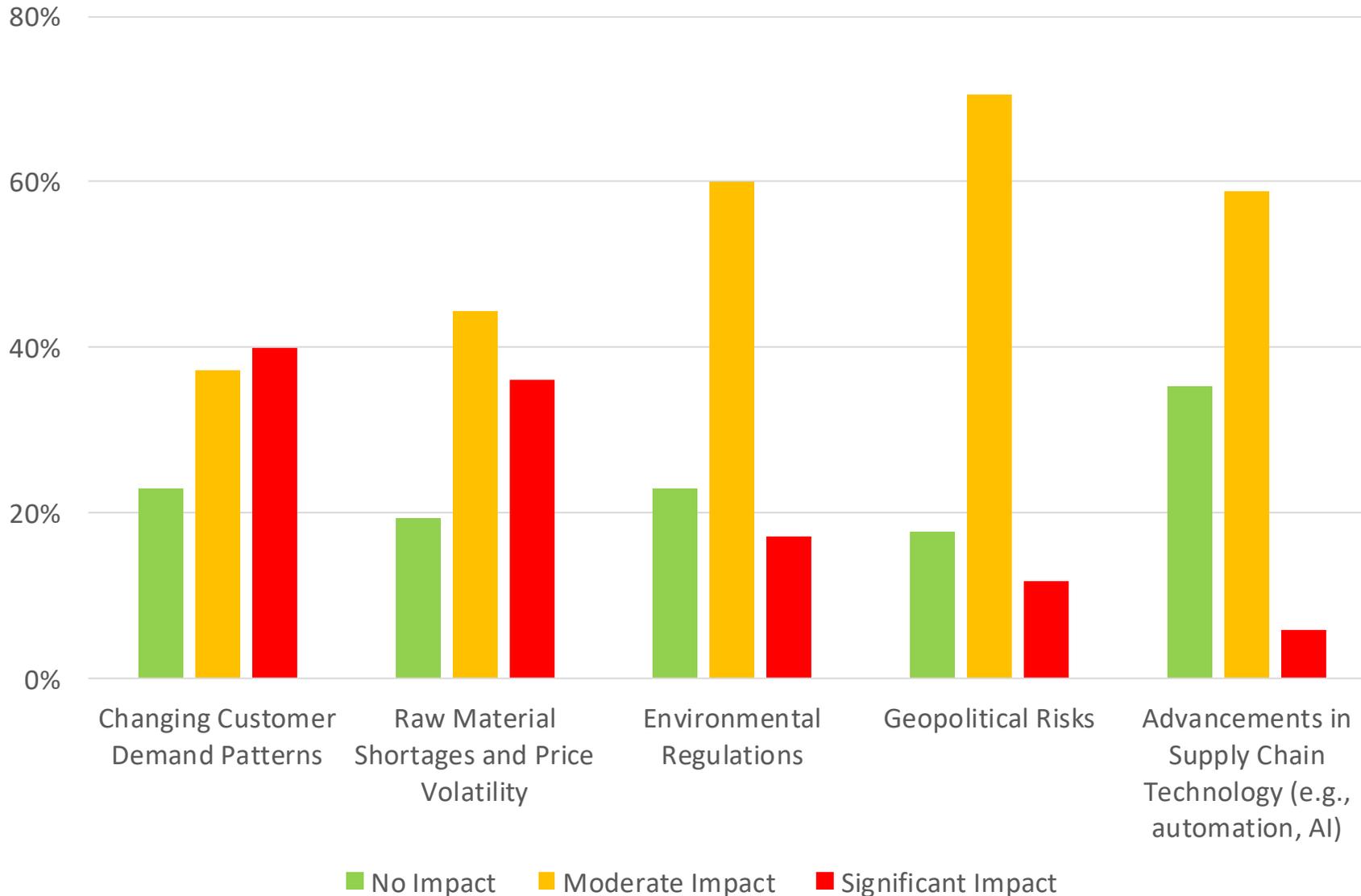
The balance between cost and speed with the flexibility to respond to short-term changes is a top priority

What supply chain models do you use?



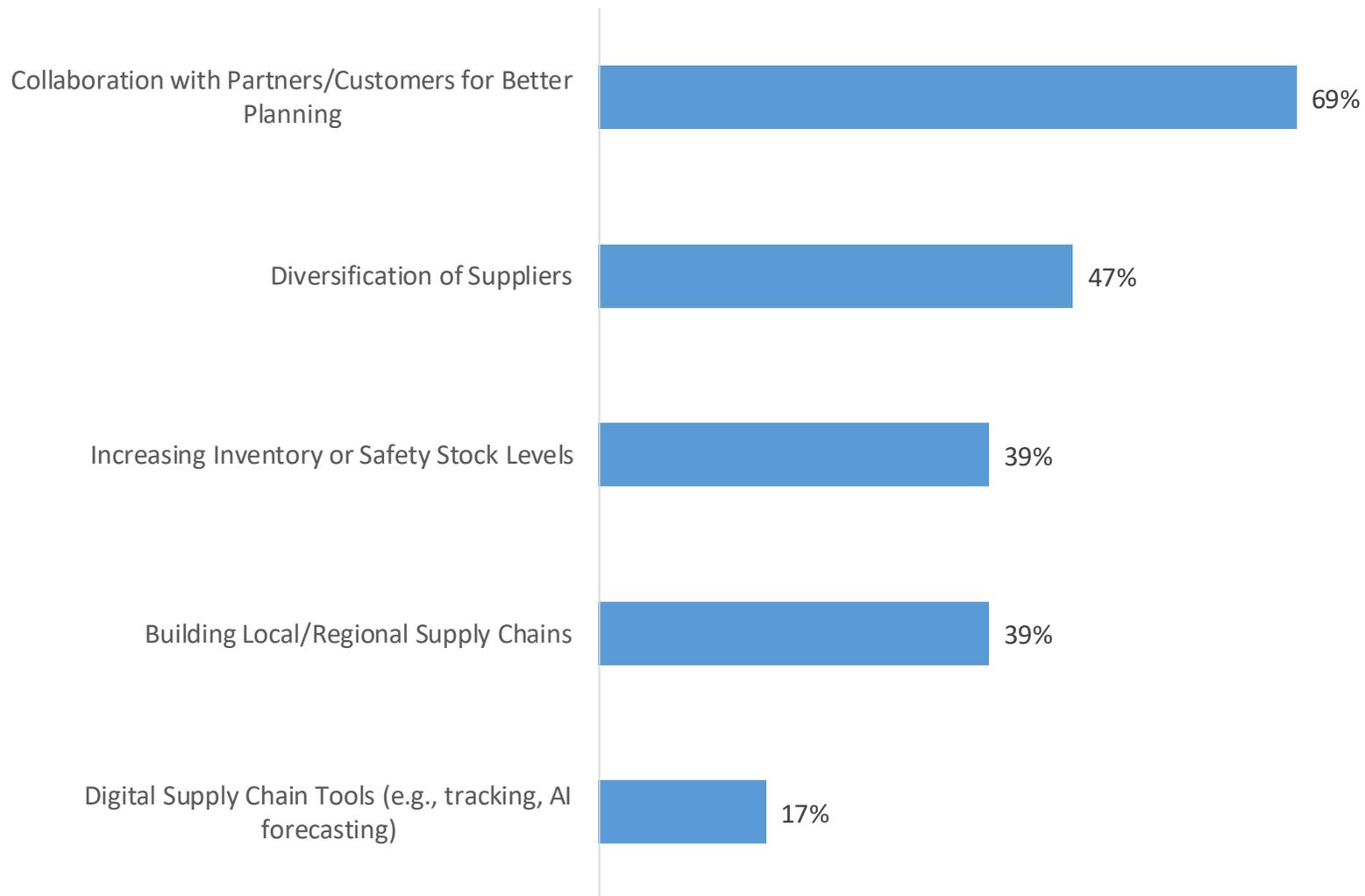
Strong supplier-customer collaboration - a proven approach to supply chain security

Which of the following trends do you expect will have the most significant impact on supply chains in the investment casting industry?



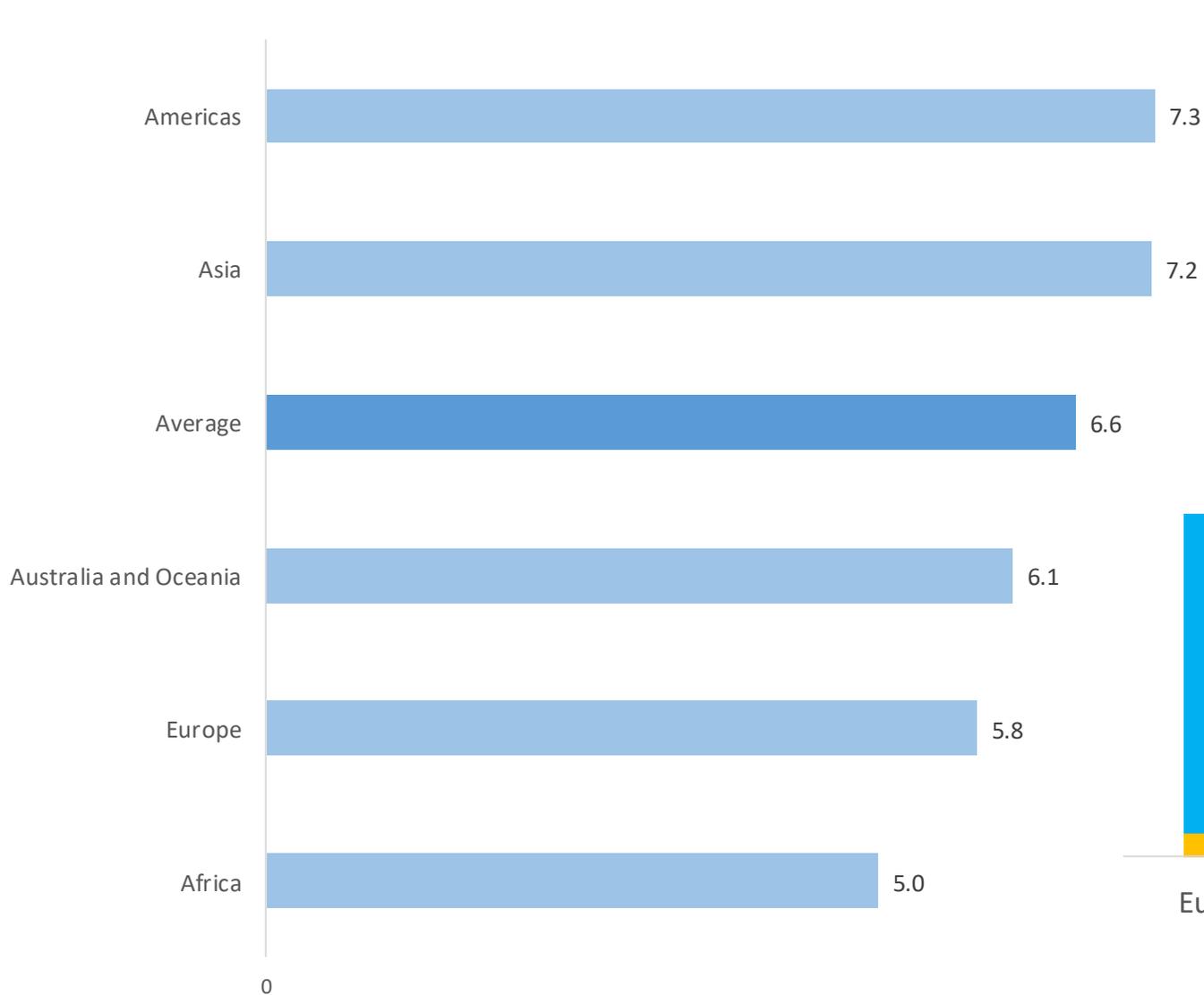
Lack of consistency and forecast quality is the biggest challenge, followed by raw material shortages and price volatility

What strategies or approaches has your company implemented to improve supply chain resilience?

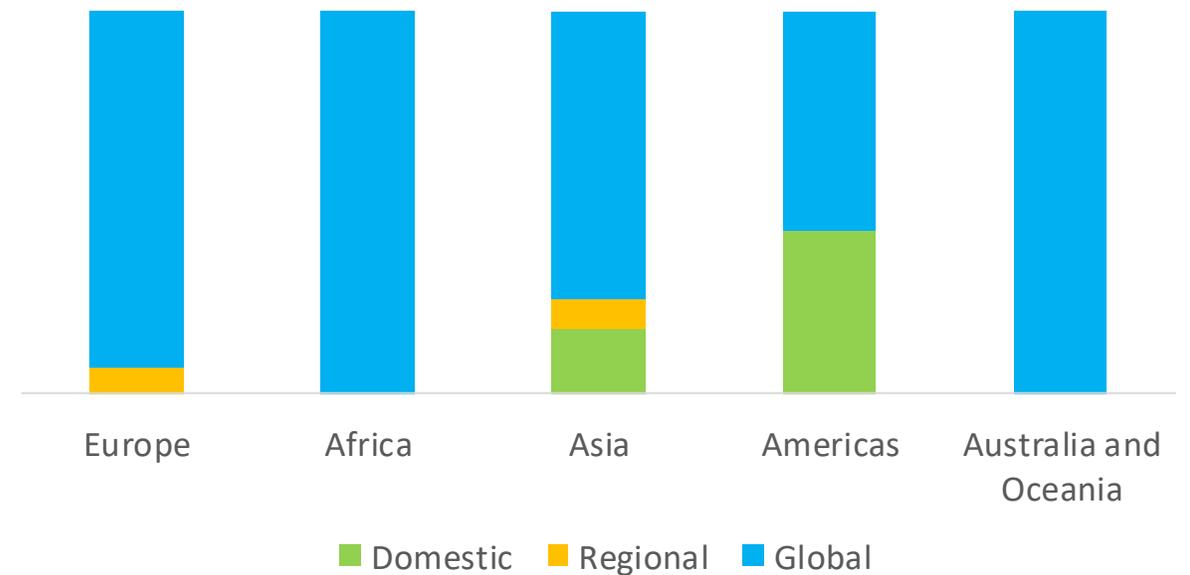


Supplier diversification and supplier-customer collaboration are top strategies

On a scale 1-10,
how satisfied are you with your current supply chain model?



- Moderate overall supply chain satisfaction with regional differences
- Higher levels of local supply chain elements correlate with higher satisfaction



- *Deployment of multiple supply chain methods for critical components*
 - Long-term supply agreement
 - Concepts for local supply
 - Flexible transportation
 - Dual source qualification
- *Emerging technology and concepts*
 - Adoption of AI

*„Never leave a precision
caster without a crucible“**

* Richard Funk, retired crucible product manager, Zircoa Inc.

*Industry leading
manufacturing time*

“Revolutionize Delivery“

- **Challenges:** Raw material shortages, transportation disruptions, cost escalation
- **Geopolitical shifts:** Supplier diversification to mitigate risk
- **Sustainability:** Meeting regulatory and consumer demands
- **Technological Advances:** Adoption of AI and data analytics to improve efficiency
- **Strategy:** Proactively adapt to ensure competitiveness and resilience

→ *Supply chain agility and collaboration is key to a resilient supply chain*

Zirc^oa[®]

Deliver What Matters

