

Technologies | Test & Measurement Systems

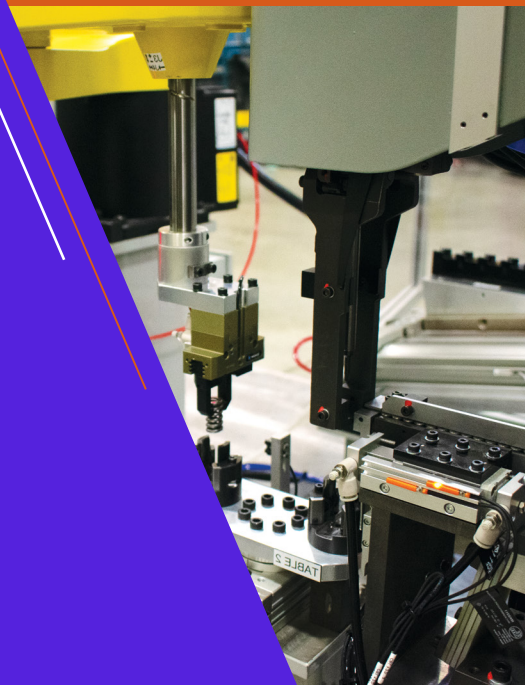
Right-shoring your supply chain

Balancing cost, risk,
and resilience



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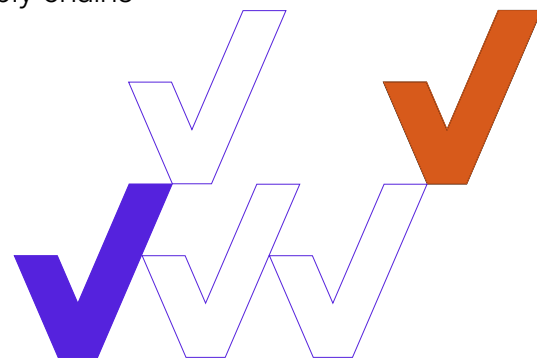
Introduction: A new era for global supply chains

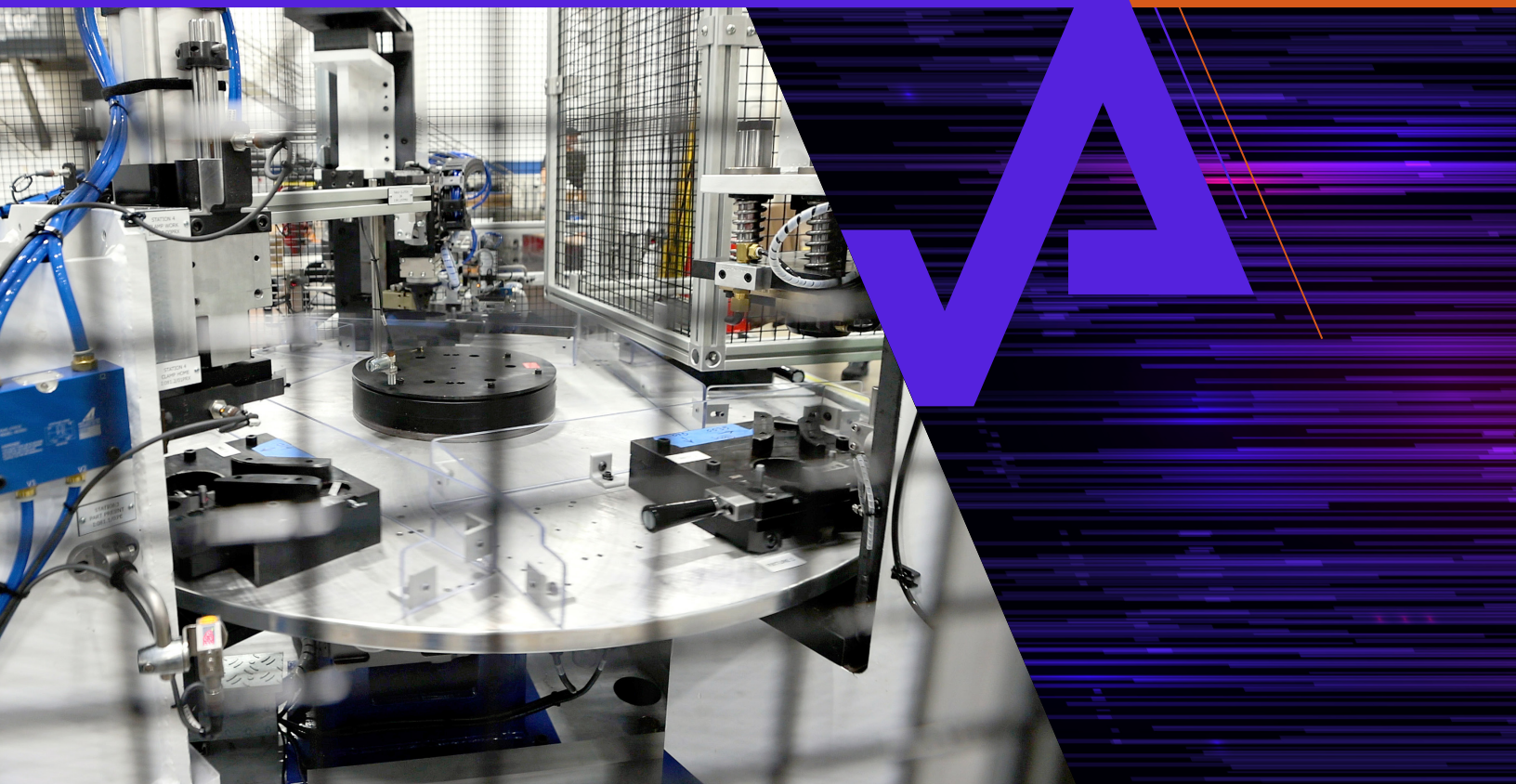
Supply chain leaders are facing more complexity — and more opportunity — than ever before in our rapidly shifting global trade environment. Tariffs, labor shortages, geopolitical risks, and rising demands for speed-to-market are reshaping how transportation and industrial companies think about sourcing and manufacturing.

Gone are the days when the decision was as simple as offshoring vs. reshoring. Today's leading organizations are embracing right-shoring: a data-driven strategy that balances cost, proximity and risk to build resilient, future-ready supply chains.

In this eBook, we'll explore:

- ▲ The evolution of global manufacturing strategies
- ▲ Key models for modern supply chain decision-making
- ▲ Practical frameworks for evaluating costs and risks
- ▲ How technology and regionalization are enabling smarter supply chains
- ▲ Actionable steps to optimize your supply chain





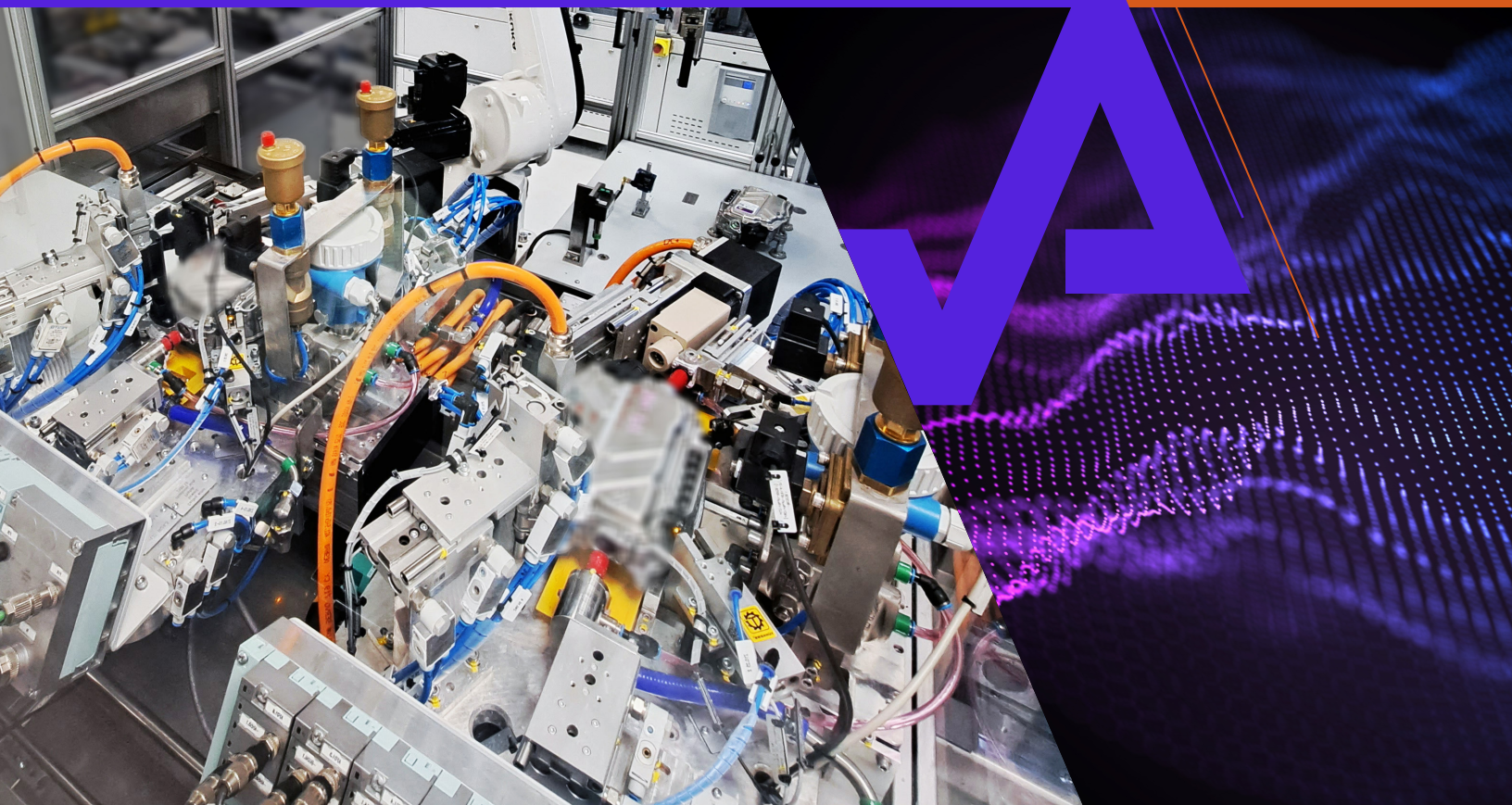
How we got here: The limitations of offshoring

Offshoring took off in the 1990s, fueled by free trade agreements and the pursuit of lower unit costs, particularly labor. For years, many companies focused almost exclusively on price per part, overlooking hidden costs like transportation, inventory, lead times and quality risks.

Research shows that traditional offshoring models often led to **cost miscalculations of 20-30%**. As labor rates climbed and supply chain disruptions, like the COVID-19 pandemic and natural disasters, exposed vulnerabilities, the true cost of offshoring became impossible to ignore.

Adding to the complexity: ethical sourcing issues, regulatory pressure and the growing need for shorter lead times to maintain market competitiveness. Ethical and ESG concerns, from labor practices to environmental impact, now play a larger role in sourcing decisions than they did during the original offshoring boom.

Lesson: Cost-driven offshoring alone is no longer sustainable. Today's supply chain strategies must account for total cost, risk, speed, ethical standards and value creation.



Smart supply chain strategies

Today's leaders shouldn't simply be asking, "Should we offshore or reshore?" Instead, they should ask, "What model best balances cost, risk, resilience, proximity and sustainability for our goals?"

Key models to consider:

- ▲ **Offshoring:** Lower upfront costs but higher risks and lead times.
- ▲ **Nearshoring:** Closer to markets with moderate costs and improved agility.
- ▲ **Reshoring:** Domestic sourcing for highest proximity, lowest lead times, but often higher labor costs.
- ▲ **Right-shoring:** A flexible, data-driven approach that finds the best fit for each product or market.

Right-shoring focuses on achieving the optimal balance between several critical factors, including maintaining proximity to customers, managing the Total Cost of Ownership (TCO), mitigating risk, implementing strategic regionalization of supply chains and addressing Triple Bottom Line (TBL) impacts to ensure that economic, environmental and social factors are considered in decision-making.

Lesson: There's no one-size-fits-all answer. Supply chains must be tailored to your product, market, risk profile and sustainability goals.



Know your numbers: Landed cost vs. Total cost of ownership

Making the right sourcing and manufacturing decisions starts with a true understanding of your financial reality. Supply chain strategies cannot rely on surface-level cost assessments alone. Instead, they must be grounded in accurate, holistic financial modeling that captures both visible and hidden expenses.

Landed cost model:

- ▲ Unit price
- ▲ Freight
- ▲ Duties and tariffs
- ▲ Transportation costs

Total cost of ownership (TCO) model:

- ▲ Inventory carrying costs
- ▲ Quality and warranty costs
- ▲ Lead time risks
- ▲ Facility and operational overhead
- ▲ Regulatory and compliance costs

According to Resilinc 2024 data, the frequency and impact of supply chain disruptions continue to rise year over year, intensifying the need for resilient sourcing models.

Recent tariff increases show how vital it is to go beyond piece price. A short-term savings can quickly turn into major financial risk if hidden costs are ignored.

Lesson: Always model both landed cost and TCO and update frequently to reflect dynamic global conditions.

Example - Landed Cost:

CNC aluminum plate (HTS Code 7606.12.3035),
airfreight, Dim #0.5,
145% tariff from China: **\$197.77**

Domestic plate (local supplier): **\$185.00**

Domestic savings is 6.9%



The role of technology and automation

The traditional manufacturing model is under strain. Labor shortages, aging populations and rising operational demands are accelerating the need for smarter, more automated solutions. Companies must harness advanced technologies not just to maintain productivity, but to build resilience and competitive advantage.

These key technology enablers include:

- ▲ **Automation and Robotics:** Reduces reliance on scarce labor and decreases repetitive tasks that strain the body.
- ▲ **Internet of Things (IoT):** Drives predictive maintenance and smarter operations.
- ▲ **Artificial Intelligence (AI):** Optimizes quality control, inventory, and production planning.

At Ascential Technologies, automation is central to our regional supply chain strategy, allowing us to scale efficiently and overcome labor constraints across North America, Europe, and Asia.

Lesson: Automation isn't optional. It's essential for resilient, future-ready manufacturing.



Building resilient supply chains close to your customers

The global supply chain model is undergoing a major transformation. Facing pressures from trade disruptions, geopolitical risks and customer demands for faster delivery, companies are increasingly shifting toward **regionalization** — sourcing and manufacturing within major regional hubs to build agility, resilience and long-term competitive advantage.

Benefits of regionalization:

- ▲ Shorter lead times
- ▲ Lower transportation risk and cost
- ▲ Greater supply chain agility
- ▲ Improved geopolitical risk management

Consumer preferences for domestically produced goods (known as the “Made-in Effect”) are also driving reshoring and regionalization strategies. Buyers increasingly value ‘countries of origin’ as part of their purchasing decisions.

Lesson: The closer your supply chain is to your customer, the more resilient, responsive, and customer-aligned it will be.



Ascential Technologies offers worldwide resources and localized support in design, engineering, automation, and manufacturing to drive success in every market you serve. Each site has deep expertise in transportation, industrial and automation applications.



A practical framework for right-shoring decisions

Right-shoring decisions require a structured, data-driven approach. The following framework provides a clear, actionable path to help organizations assess their options, minimize risk and align their supply chain strategy with long-term business goals.

Step 1

Assess true costs

- ▲ Calculate landed costs and TCO across current and alternative locations.

Step 2

Map risk exposure

- ▲ Identify geographic, political, environmental, and labor risks.

Step 3

Align with strategic goals

- ▲ Tailor your supply chain approach to your company's unique needs: speed, quality, flexibility, or cost.

Step 4

Prioritize proximity

- ▲ Whenever possible, build supply chains as close to your customers as practical.

Step 5

Incorporate automation

- ▲ Offset labor risks and cost pressures by increasing automation and smart technologies.

Lesson: A smart, customized approach beats a reactive one. Data and thorough mathematical modeling should guide your strategy.



Conclusion: Right-shoring for long-term success

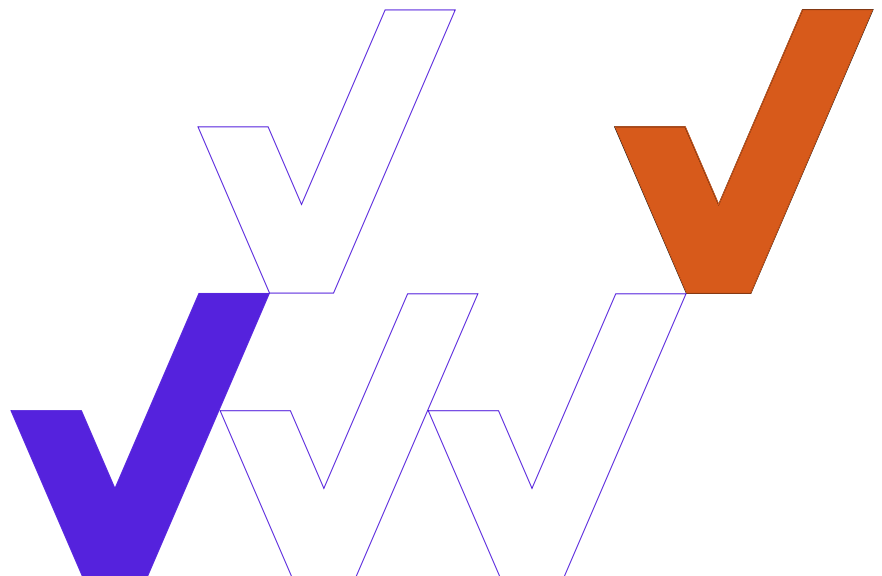
In an era challenged by tariffs, trade shifts, and supply chain disruption, the most successful manufacturing strategies are not reactive, they are resilient, data-driven and forward-looking. Right-shoring isn't just a passing trend; it's a fundamental evolution in how companies build smarter, stronger, and more agile supply chains for the future.

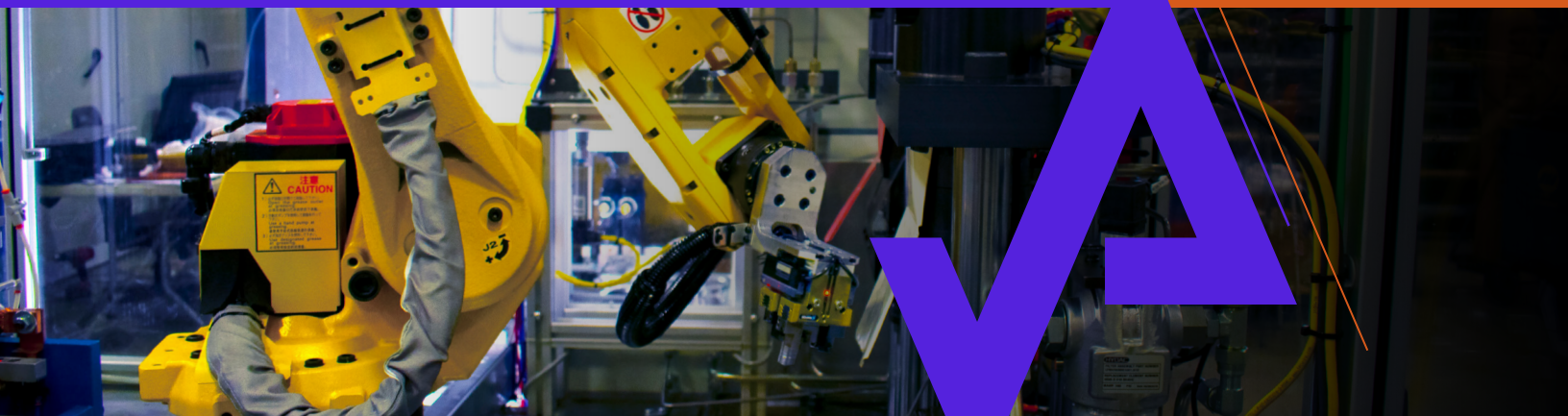
By focusing on total cost, risk mitigation, automation, regionalization, and proximity, manufacturers can build stronger, more flexible supply chains that protect margins, accelerate time-to-market, and drive sustainable growth.

The future belongs to those who plan strategically, act decisively, and innovate boldly.

Are you ready to right-shore your supply chain?

Contact us





Key Contributors



Todd Bauman
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Todd Bauman develops supply chain strategies that reduce risk and improve operational

efficiency. With over 25 years of leadership experience in medical devices, electronics, food, and industrial manufacturing, he specializes in solving complex challenges and identifying paths to success. Todd holds a Doctorate in Global Operations and Supply Chain Management, a Master of Business Administration from the University of St. Thomas, and a Bachelor of Arts in Management from Bethel College. He serves on the Board of Directors for the Institute for Supply Management (ISM) and is a former board member of the Association for Supply Chain Management (APICS), where he earned the designation of Certified Supply Chain Professional (CSCP).



Uwe Krueger
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Uwe Krueger oversees all operational activities related to transportation,

with an aim to create sustainable results by focusing on operational and engineering excellence as well as inspiring and engaging his team members. He has exceptional experience with innovative and advanced technologies, delivering value to customers, understanding industry trends, and navigating marketplace changes. Prior to joining Ascential Technologies, Uwe was North American president at PIA Automation, in which he supported the company's growth and maturation. Similarly, he previously led MAHLE-Behr as president of North America and FTE Automotive as president & CEO of North America. Uwe holds a Doctorate in Engineering Science and a Master of Science in Mechanical Engineering from RWTH Aachen University in Germany.



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Contact us today to discuss how we can help tackle your toughest, most complex challenges and unlock the performance of your business.

About Ascential Technologies

Ascential Technologies solves the most challenging problems where the cost of failure is high.

We design, develop, and automate complex diagnostics, inspection, and test processes across medical & life science, transportation, and specialty industrial end markets.

With 70+ years of experience, 2,300+ experts, and over 40 locations across the globe, Ascential Technologies leverages the power of science and technology to accelerate innovation and improve health and safety.

Impossible? Done.