STRATEGIC BRIEF

Risk diversification in EMS electronics manufacturing

How industrial companies can strengthen the resilience of their electronics manufacturing to geopolitical, regulatory and supply chain risks

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Initial Situation

Electronics manufacturing has evolved in recent years from a purely cost-driven decision into a strategic question of corporate resilience. Geopolitical tensions, export controls, trade conflicts, natural disasters, and persistent disruptions to global supply chains have highlighted the vulnerability of highly concentrated procurement and manufacturing structures. Companies that rely on a single manufacturing location, one EMS partner, or only a limited number of supply sources expose themselves to significant operational risks. Risk diversification is therefore no longer an optional element of risk management but an essential component of a resilient, long-term manufacturing and procurement strategy.

Key Risk Areas

- **Regional concentration.** A large share of global EMS manufacturing capacity remains concentrated in a limited number of manufacturing regions across Asia. While this concentration provides cost advantages, it also increases exposure to export controls, natural disasters, political tensions, and other regional disruptions.
- **Single sourcing of critical components.** Semiconductors, specialized printed circuit boards, and certain passive components are often manufactured by only a few suppliers. If one of these sources becomes unavailable, qualified alternatives are frequently not available at short notice.
- **Dependence on a single EMS partner.** Concentrating all electronics manufacturing with one EMS provider creates a high level of dependence on that partner's production capacity, financial stability, and operational performance.
- **Regulatory and geopolitical changes.** Export controls, tariffs, sanctions, and local content requirements are reshaping international supply chains with increasing frequency. As a result, highly concentrated procurement and manufacturing structures become more difficult to plan and manage.

Strategies for Risk Diversification

- **Dual and multi-sourcing.** Critical assemblies and components are secured through at least two qualified suppliers or manufacturing partners. Although this increases coordination efforts, it significantly improves supply continuity and reduces the risk of unplanned production disruptions.
- **Regional diversification ("China+1" strategy).** Rather than relocating production entirely, companies can complement existing manufacturing operations with a second location or EMS partner in another region. This approach reduces geopolitical risks without abandoning established supply chains.
- **Strategic allocation of manufacturing volumes.** Instead of investing in or relocating their own production facilities, companies can assign selected product lines or production volumes to qualified EMS partners in different regions. This increases operational flexibility while reducing investment requirements and implementation risks.
- **Continuous supplier assessment.** In addition to quality, cost, and delivery performance, companies should regularly evaluate suppliers' financial stability, capacity development, and geopolitical exposure. Early identification of potential risks creates valuable time to implement appropriate countermeasures.
- **Contractual flexibility.** Framework agreements with defined capacity reservations, transparent escalation procedures, and suitable price adjustment mechanisms improve responsiveness to changing market conditions and short-term supply shortages.

- **Targeted inventory strategy for critical components.** Strategic safety stocks should be maintained where replenishment lead times are long or supply risks are particularly high. A risk-based inventory strategy strengthens supply security without creating unnecessary working capital.

Considerations

Risk diversification does not mean eliminating every dependency. Additional suppliers, manufacturing locations, and logistics routes inevitably increase coordination efforts and place greater demands on quality management, supplier management, and internal processes. The objective should therefore not be maximum diversification, but an appropriate balance between resilience, cost efficiency, and operational complexity. The most suitable diversification strategy depends primarily on product criticality, market requirements, and the company's overall business and procurement model.

Recommendations for Action

- Systematically assess critical components, assemblies, and supply chains with regard to availability, replenishment lead times, and geopolitical risks.
- Establish and regularly qualify secondary or tertiary supply sources for identified risk areas.
- Distribute manufacturing volumes for suitable products across at least two qualified EMS partners in different regions.
- Continuously monitor supplier, country, and market risks while implementing appropriate early warning indicators.
- Regularly review diversification strategies with regard to cost, operational complexity, and actual risk reduction, adjusting them where necessary.

ASSESSMENT

Risk diversification has become a fundamental element of resilient electronics manufacturing. Companies that systematically identify and strategically reduce critical dependencies not only strengthen supply continuity but also improve their ability to respond to changing market conditions. Success depends not on achieving the highest possible level of diversification, but on implementing a balanced strategy that aligns resilience, economic efficiency, and operational practicality.

CONCLUSION

Geopolitical developments, regulatory changes, and volatile supply markets will continue to shape the global electronics industry. Companies that proactively diversify their manufacturing footprint based on a structured risk assessment will be better positioned to respond to future disruptions while maintaining supply continuity. Risk diversification should therefore be regarded not as a temporary crisis response, but as an integral element of a long-term manufacturing and procurement strategy.

About the author

Dirk Kaussen is Founder and Managing Director of EMS Strategy Group. With around 40 years of experience in the electronics industry — including founding and managing his own electronics manufacturing company in Germany — he brings deep expertise in manufacturing processes, EMS partner selection, supply chain stability, relocation projects, and risk management. His approach combines practical solutions with a direct connection to industrial reality.

About the EMS Strategy Group

EMS Strategy Group supports industrial enterprises in the strategic and operational advancement of their electronics manufacturing. Our core expertise lies in the strategic relocation of manufacturing volumes, the selection of qualified EMS partners, the establishment of new production capacities, and the expansion of existing manufacturing structures.

Furthermore, we design resilient supply chain frameworks, conduct comprehensive risk assessments, and guide dual-sourcing strategies, with operational support through to a successful series production ramp-up.

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