



STRATEGIC BRIEF

Manufacturing Cooperative Europa – PCB-Fertigung

Can pooled demand enable new PCB capacity in Europe?

Strategic Discussion Paper

Dirk Kaussen | EMS Strategy Group | Rev.: 2.0 | 29. August 2026

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Central Guiding Principle

The economic rationale for a jointly owned PCB manufacturing facility is not to achieve complete self-sufficiency, but to create an additional strategic manufacturing option in Europe for defined product groups and volumes.

The model is explicitly not intended to replace international supply chains in general, but rather to complement them where supply security, lead times, IP protection, regulatory requirements or long-term availability provide additional economic value.

The central question is:

Can pooling the PCB requirements of several medium-sized companies generate sufficient utilization to make specialized European manufacturing economically viable?

1. Introduction and Strategic Context

In addition to the SMT and electronic assembly variant described in the companion brief “Manufacturing Cooperative Europa”, the same basic principle could also be applied to upstream PCB manufacturing. Several companies would jointly invest in manufacturing infrastructure whose capacity is used and economically supported by the participating companies.

This document deliberately does not present a fully calculated operating concept or a complete business plan. Such a plan would require technological specifications such as HDI, multilayer or flex/rigid-flex, annual capacity, lot sizes, investment volume and location to already be defined. These factors, however, depend on the specific requirements and demand profiles of the future partners.

Which PCB technologies would be suitable for such a model would therefore itself be subject to a subsequent feasibility assessment. The initial question is whether sufficiently large technological and economic overlaps can be identified between several companies.

The purpose of this discussion paper is therefore to provide a strategic impulse and examine a fundamental industrial question:

Can an entrepreneur consortium create a viable middle ground between capital-intensive in-house manufacturing on the one hand and complete external sourcing from international supply chains on the other?

2. Why This Model? – Strategic Value

The potential attractiveness of the consortium model lies in the combination of shared infrastructure, pooled demand and joint use of resources.

Shared Financing and Risk Sharing

The high capital requirements of modern PCB manufacturing, including production and process technology as well as environmental and waste-management infrastructure, can be distributed across several companies. This could enable investments that may not be economically viable for a single medium-sized company.

Base Utilization Through Pooled Demand

The founding members would also be the first customers of the shared manufacturing facility. This would allow a defined base level of demand to be taken into account already during the planning phase. Pooling demand can reduce utilization risk compared with a completely new market-driven manufacturing operation, although it does not guarantee sufficient long-term capacity utilization.

Pooled Purchasing

For suitable standardized materials and consumables, aggregated volumes could create additional purchasing advantages. This could include, for example, base materials, copper foils or certain process chemicals.

Preservation and Development of Process Know-how

Direct participation in the manufacturing infrastructure would keep part of the understanding of manufacturing processes, industrialization and quality control closer to the participating companies. This could help preserve and further develop European process and manufacturing expertise over the long term.

3. Suitability Assessment: Which Companies Could Benefit from the Model?

A jointly owned PCB manufacturing facility is not a universal solution. It is particularly less suitable where standardized high-volume production with maximum cost pressure is the primary objective and international high-volume manufacturing sites offer significant cost advantages.

Its potential strength lies instead in products where factors beyond unit cost have economic relevance over the product life cycle.

Particularly suitable for	Less suitable for
Medium-sized companies with high product variety: Companies with many different designs (high mix) and medium, predictable annual volumes.	Standardized high-volume production: Products with very high volumes and maximum price pressure, where highly automated international manufacturing sites offer significant cost advantages.
Regulated industries: Medical technology, aerospace, defense or demanding industrial electronics, where traceability, documentation and certification have a high priority.	Very low or irregular demand: Companies unable to contribute a stable and predictable base level of demand.
IP-sensitive products: Companies whose PCB layouts and manufacturing data represent significant competitively differentiating intellectual property.	Highly divergent technologies: Where partners require very different manufacturing processes and a common technology platform would only be possible with substantial additional effort.
Strategic demand for European manufacturing: Companies for which supply availability, short development cycles, regional availability or long-term capacity are of greater importance.	Maximum technological customization: Products whose specific requirements make a shared manufacturing platform economically difficult to operate.

4. Critical Milestones and Strategic Parameters

If an initial demand analysis indicates a sufficient demand base, several key requirements would need to be assessed before any specific investment decision is made.

Technology Harmonization

The participating partners would need to identify a sufficiently broad common technological basis. This could include layer counts, base materials, copper thicknesses, surface finishes and other manufacturing parameters.

The greater the technological differences between the products, the higher the potential process complexity, setup requirements and investment needs.

Location and Environmental Requirements

Modern PCB manufacturing involves complex chemical processes as well as appropriate systems for wastewater, exhaust air, energy supply, chemical handling and waste management.

Permitting requirements and a resource-efficient operating concept would therefore need to be considered from the outset when evaluating potential locations. Approaches to water, chemical and material recovery could also form part of such a concept.

IP Separation and Data Security

Since participating companies may also be direct competitors in certain markets, sensitive layout data, manufacturing documentation and customer-specific process information must remain strictly separated.

This would require appropriate physical, organizational, contractual and digital safeguards. Shared use of manufacturing infrastructure must not be equated with shared access to product or development knowledge.

Capacity and Prioritization Model

Joint use of critical process steps can lead to capacity conflicts, particularly during production peaks or urgent orders. Capacity rights, prioritization rules and the handling of bottlenecks would therefore need to be defined transparently before an investment decision is made.

5. Organizational Framework – Outlook for Phase 2

Only once the strategic feasibility has been assessed positively should the specific legal and organizational structures be developed.

Neutral Management

Production control, capacity planning and other shared operational functions would need to be organized professionally and managed neutrally in relation to the individual consortium members.

Liability and Insurance

Process failures, for example in chemical processing, etching or plating, can affect multiple production orders. The responsibilities of the facility operator and individual customers, as well as liability and insurance arrangements, would therefore need to be clearly defined.

Antitrust Compliance

Since such a model may involve cooperation between competitors, particularly in capacity planning, purchasing or the exchange of information, its compliance with applicable antitrust law should be professionally assessed at an early stage of the concept phase.

Governance and Exit Rules

Any subsequent implementation would also require clear rules covering capital contributions, voting rights, investment decisions, capacity entitlements, the admission and withdrawal of members, and the valuation of existing investments.

These issues are deliberately not the subject of the initial strategic feasibility assessment.

6. Conclusion and Outlook

The concept of jointly owned European PCB manufacturing is not intended to achieve complete European independence from international supply chains. Rather, it addresses the question of whether pooling existing demand could create an additional manufacturing option for specific product groups and volumes.

The potential economic advantage therefore does not necessarily lie in achieving lower unit costs than international high-volume manufacturing sites. What matters is the overall value created through cost, availability, lead time, quality, risk reduction, IP protection and long-term manufacturing capacity.

The model could be particularly relevant to medium-sized companies with predictable demand, high product variety and products for which supply security and proximity to manufacturing provide meaningful economic value.

Whether this can actually develop into a viable business model cannot be determined through a conceptual assessment alone. Real demand from several companies would need to be combined and evaluated in terms of technology, volume, investment requirements, utilization and target costs.

The next question is therefore not how such a facility should be built, but whether sufficient compatible demand exists to provide its economic foundation.

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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