



EMS STRATEGY GROUP

Strategic Brief

The Blind Spot of Relocation

Why valuable knowledge is often lost during EMS manufacturing order and production relocations – and how effective knowledge transfer can be achieved.

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Summary

When manufacturing orders or entire production operations are transferred to a new EMS partner, bills of materials, drawings, machines, and sometimes personnel move along with them. What doesn't move in most projects is the knowledge of why things are done the way they are. This strategic brief shows at which four levels—development, manufacturing, materials/SCM, and supplier management—knowledge loss typically occurs, what structural causes underlie it, and what measures companies can take to ensure targeted knowledge transfer.

1. Initial situation

In practice, relocation projects are usually managed as procurement or cost projects: Who delivers at what price, at what quality, and by when? The handover of hardware, production orders, and documentation is now largely standardized in many companies. Far less frequently, however, is relocation treated for what it also is: a knowledge management project. And it is precisely at this point that a crucial gap arises in many relocation projects.

Scientific studies on international production relocations show that insufficient knowledge transfer can impair the learning and adaptability of the organizations involved – with operational and strategic consequences for the relocating company [1]. Relocation is often understood as a purely operational transfer – quantities, deadlines, costs – while the associated experiential knowledge is transferred unsystematically and incompletely.

2. Four levels at which knowledge is left behind

2.1 Engineering

Design and layout decisions often include a rationale that is nowhere documented: Why was this component chosen over an alternative? Why this tolerance, this testing procedure, this approval process? The new manufacturing partner receives the drawing and bill of materials, but not the underlying logic. This results in queries, misinterpretations, and, in the worst case, changes that can reintroduce problems that were previously solved.

2.2 Manufacturing

Soldering profiles, setup parameters, known defect patterns, and the associated corrective actions are not fully documented in many companies, but rather exist as experiential knowledge held by individual employees. A recent example from electronics manufacturing illustrates how clearly this problem is already evident within a single company: A German EMS provider reports that due to a shortage of skilled workers and the departure of experienced experts, valuable manufacturing knowledge is increasingly at risk of being lost. The company is therefore relying on AI-assisted systems to safeguard this implicit knowledge and to onboard new employees more quickly [2].

If valuable knowledge can already be lost when individual employees leave, preserving it becomes even more challenging when production is transferred to a new external manufacturing partner. In such cases, shared workflows, personal networks, and informal communication channels, through which experiential knowledge is typically passed on, are also lacking.

2.3 Materials / SCM

Why a particular component manufacturer was chosen despite a higher price, what quality and supply history led to that decision, how safety stocks and second-source strategies are justified – this context is generally not provided when changing manufacturing partners. The new manufacturing partner takes over the bill of materials – but not the experience and decisions that led to its current configuration.

2.4 Suppliers

Long-standing supplier relationships contain valuable knowledge that is rarely documented: escalation paths, informal commercial agreements, established quality arrangements, and key contacts for critical situations. When production is transferred to a new EMS partner, these relationships usually have to be built from scratch, often without benefiting from the previous partner's experience. This can lead to additional risks, particularly during the start-up phase – such as longer coordination times, quality problems, or less favorable purchasing conditions.

3. Why this happens systematically

The reasons lie less in the individual case than in the structure of many relocation projects:

- **Project logic:** Relocation is primarily managed as a cost and procurement project, while knowledge transfer is often neither established as a dedicated workstream nor assigned clear ownership within the project.
- **Time pressure:** Parallel operation and handover phases are often too short to allow for the structured transfer of experiential knowledge.
- **Lack of incentives:** The transferring party – the old plant or previous supplier – often has limited incentives to transfer knowledge completely and in a structured manner. Studies describe resistance to knowledge transfer that can contribute to knowledge gaps, particularly in the later stages of relocation projects [1].
- **Implicit rather than documented knowledge:** A large part of the relevant knowledge consists of experiential knowledge and is not recorded in documentation, but is tied to individual people.
- **No accountability:** No one in the project is explicitly responsible for ensuring that knowledge – not just hardware and orders – is transferred.

4. Consequences for the company

- **Quality issues and rework during the production ramp-up** because previously known sources of error reoccur.
- **Delayed production ramp-up** because the new manufacturing partner must first build up experience that already existed elsewhere.
- **Loss of organizational learning:** Insights gained during the relocation are only available to a limited extent for future projects [1].
- **Increased dependence on individuals on both sides** as long as knowledge is not documented.

5. Solution approaches

Knowledge transfer cannot be left to chance, but must be treated as a separate, planned component of the relocation process:

- Establish knowledge transfer as a dedicated workstream with clearly defined ownership in the project plan—on an equal footing with cost and schedule objectives.
- Structured knowledge capture before the project begins: Conduct targeted interviews with engineering, manufacturing, and procurement teams to document not only the “what” but, more importantly, the “why” behind technical and organizational decisions.
- Plan sufficiently long parallel production and shadowing phases during which the new manufacturing partner gradually assumes responsibility under the guidance of the previous partner or an experienced project team.
- Supplier handover protocols: Jointly document and agree on commercial terms, escalation paths, and quality agreements with both the previous and the new manufacturing partner.
- Use structured transfer formats instead of informal knowledge sharing: checklists, transfer documentation, and release criteria that clearly document the status of the handover.

Assessment

In practice, knowledge transfer is often underestimated in relocation projects. One reason is that the absence of effective knowledge transfer is rarely reflected in project budgets or schedules during the early stages of a relocation. Its consequences typically become visible only later—for example through rework, delayed production ramp-ups, or the recurrence of previously resolved problems. Companies that treat knowledge transfer as an integral part of relocation planning from the outset can significantly reduce these risks while preserving valuable knowledge for future projects.

6. Conclusion

A manufacturing order or production relocation involves far more than transferring bills of materials, machines, and production orders. One of the key success factors is the knowledge that has been built up over many years in engineering, manufacturing, materials management, and supplier management. If this experiential knowledge is not transferred systematically, avoidable risks to quality, delivery performance, and future improvements arise. Companies that treat knowledge transfer as an integral part of their relocation projects—with clearly defined ownership and responsibilities—create favorable conditions for a successful production ramp-up while preserving the long-term value of their relocation decision.

Strong partners create stronger partnerships.

Sources and further reading

Only information supported by publicly available sources is referenced in this Strategic Brief. Readers who wish to explore the topic in greater depth may use the following publications as a starting point:

[1] Fjellström, D., Hilletoft, P., Fang, T., Kumar, V., Kumar, A. & Tan, K. (2023): “Manufacturing Relocation Ambiguity Model: A Prerequisite for Knowledge Management”, *British Journal of Management*, 34(3), pp. 1100–1116. Available at: <https://doi.org/10.1111/1467-8551.12710>

[2] “How AI saves experiential knowledge in manufacturing” – Case study of a German EMS provider, [elektrotechnik.vogel.de](https://www.elektrotechnik.vogel.de). Available at: <https://www.elektrotechnik.vogel.de/wie-ki-das-erfahrungswissen-in-der-fertigung-rettet-a-4243e9dd8cd5bfaf559b7caa6f67c5ef/>

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 advancement and optimization of their electronics manufacturing operations – from high-level planning to operational execution. Our core expertise lies in the strategic relocation of manufacturing volumes to European EMS providers, 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 to secure and fortify supply chains. Upon request, we manage projects closely until a successful serial production ramp-up is achieved.

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