STRATEGIC BRIEF

Pilot Projects as a Practical Test in EMS Selection

What a real project can reveal about an EMS provider's practical capabilities

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Initial Situation

When selecting an EMS partner, OEMs face a central question: *How can they reliably assess whether a manufacturer can meet their requirements not only on paper, but also in practical cooperation?*

Audits, technical discussions, customer references, certifications, and assessments of equipment and processes provide important information. They show structures, existing capabilities, and previous experience. However, they provide only limited insight into how the actual cooperation will work when the EMS has to handle a new and relevant task.

A pilot project can provide an additional perspective. It allows certain capabilities and the cooperation between the OEM and EMS to be observed under real conditions. The aim is not to fully qualify an EMS based on a single project, but to gain additional practical information for the supplier selection process.

Why an Established Production Project Provides Limited Insight

An EMS may manufacture a product reliably and without significant problems for many years. This is a positive indication that the manufacturer has control over that particular product and process. However, it says relatively little about how the manufacturer will deal with a new task.

For an established product, processes and programs have been optimized, inspection equipment and manufacturing parameters have been aligned, and the specific characteristics of the assembly are well known. In addition, the responsible team often has practical experience that is not fully captured in formal documentation.

A stable existing production project therefore mainly shows how well a manufacturer handles a known task. It provides only limited reliable information about how the EMS analyzes new requirements, identifies risks, develops manufacturing processes, or deals with unexpected problems – yet these capabilities are important when new products are transferred into production.

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What a New Project Can Reveal

A new project lacks many of the advantages of an established production process. The EMS has to review the manufacturing documentation, define manufacturing and test processes, organize materials and components, set up programs and parameters, and manufacture the assembly for the first time.

This creates an opportunity to observe aspects of the practical cooperation that are only partly visible during a conventional pre-qualification.

From a technical perspective, it can be assessed how well the EMS handles the specific requirements of the assembly. This may include component placement, solder paste printing, the reflow process, AOI, X-ray inspection, electrical testing, or other product-specific test procedures. The key point is not simply whether the required equipment is available, but whether it is suitable for the specific task and used correctly.

The technical review of the documentation can also show whether potential manufacturing risks are identified and addressed at an early stage. Are problematic components, footprints, tolerances, test requirements, or other manufacturing-related issues discussed before production starts? Or do such issues only become visible when the first assemblies encounter problems?

The cooperation itself also provides useful information. How does the EMS deal with open issues, changes, and deviations? Are responsibilities clearly defined? Are the feedback and technical responses understandable and useful? Are problems addressed in time? And how quickly are solutions developed jointly?

The way problems are handled can be particularly revealing. A capable EMS does not necessarily have to avoid every problem. More important is whether problems are identified, communicated transparently, analyzed systematically, and resolved in a sustainable manner.

The Limitations of a Pilot Project

As valuable as these practical insights can be, a pilot project remains an *observation under specific conditions.*

The outcome depends, among other things, on the complexity of the assembly, the technologies involved, the responsible team, the available resources, and the quality of the data provided by the OEM.

A simple assembly may therefore provide little indication of whether an EMS can also handle more complex products. Conversely, a particularly demanding project may confront a manufacturer with requirements that are outside its intended range of capabilities or technologies.

The quality of the initial data must also be considered. Incomplete, contradictory, or frequently changing development documentation can affect the performance of any EMS. A pilot project should therefore not be used to attribute weaknesses in the OEM's own product preparation to the capabilities of the manufacturer.

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Likewise, a smoothly running project does not automatically prove overall suitability. The project may simply have involved requirements in which the EMS already had sufficient experience.

Conversely, a problem does not automatically mean that the EMS is unsuitable. What matters here as well is how the problem is handled and whether its root cause can be addressed.

How to Increase the Value of a Pilot Project

A pilot project should be deliberately selected and integrated into the qualification process rather than treated as an ordinary production order.

It should preferably include requirements that are relevant to the future cooperation, without creating an unreasonable business or supply risk.

If the OEM intends to outsource complex assemblies later, it should therefore not select only a very simple assembly as the pilot project. If high volumes or demanding production ramp-ups are planned, the EMS's ability to industrialize the product and subsequently stabilize the process should also be considered.

It is equally important to define **evaluation criteria before the project starts**. These may include:

- Quality and process stability during the initial production phase
- On-time delivery and response times
- Quality of technical feedback
- Identification and communication of manufacturing risks
- Handling of deviations and changes
- Transparency when problems occur
- Speed and sustainability of problem resolution
- Cooperation between the EMS and OEM
- Ability to further develop and scale the process in a controlled manner

This turns the production order into more than a general "test". It creates a structured opportunity to observe specific aspects of the cooperation.

The way the first significant problem is handled can be particularly revealing. Is a deviation identified and openly addressed at an early stage? Is the root cause investigated, or is only the immediate symptom corrected? Are corrective actions documented and their effectiveness verified?

An EMS that identifies problems early and communicates them transparently can therefore be a more suitable partner than a manufacturer where everything initially appears to run smoothly simply because critical issues have not yet occurred.

Pilot Project and Conventional Qualification

Audits, reference discussions, technical assessments, capacity analysis, quality management, and the evaluation of processes and equipment remain important elements of a sound EMS selection process.

These methods answer partly different questions than a real production project. Pre-qualification, for example, examines *which capabilities and prerequisites are available*. A pilot project can provide additional insight into *how these capabilities are actually applied to a specific new task and how the cooperation works in practice.*

This creates an additional practical picture of how the potential partner works with technical requirements, uncertainties, changes, and problems.

Conclusion

A pilot project can be a valuable addition to the selection of an EMS partner when it is deliberately selected and evaluated against predefined criteria.

Its particular value is that the OEM does not only receive information about capabilities, processes, and equipment, but also gains direct experience of the cooperation during a specific task. This can reveal strengths that are difficult to assess during pre-qualification, as well as weaknesses that may remain hidden in an established production project.

The key point is therefore not whether a pilot project runs without problems. More revealing is how the EMS deals with requirements, deviations, and problems, and whether this leads to understandable and sustainable solutions.

The EMS Strategy Group supports OEMs in selecting suitable EMS partners, designing pilot projects, and evaluating manufacturing and supply chain strategies.

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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