

# System supplier: The partner for complete assemblies and modules

A system supplier does not deliver individual parts but fully assembled, tested assemblies or complete modules, up to and including fully functional subsystems. They often take on development work, procurement of upstream products, assembly and quality assurance. For buyers, this shifts the effort away from managing many individual suppliers towards leading a small number of high-performing partners. The term must be distinguished from the classic parts or series supplier, who only delivers individually tailored components to drawing.

## Key facts

- A system supplier delivers finished assemblies or modules instead of individual parts and often takes on design and development work.
- Terms such as KABI (buyable assembly), DABI (detailed assembly) and OEM-compliant deliveries apply in graduated form – the degree of integration distinguishes the models.
- Typical industries are automotive, mechanical and plant engineering, commercial vehicles, and electrical and medical engineering.
- Buyers significantly reduce the number of suppliers, interfaces and the effort involved in quality agreements and complaint handling.
- Key checkpoints are suitability assessment, supplier approval, PPAP capability and contractual framework conditions such as payment terms.
- System suppliers command higher unit prices but can reduce total cost of ownership or life cycle costs.

## Definition: system supplier

A system supplier is a subcontractor who delivers fully assembled assemblies, modules or subsystems to the customer which can be installed directly into the end product or further processed. What distinguishes them is that they assume responsibility for the function, quality and often also the design of the delivered unit – not just for individual components. The degree of integration ranges from a pure contract manufacturer to a development partner with their own design responsibility.

## Distinction from the parts supplier

The classic parts supplier manufactures individual line items to drawing and delivery note specifications; responsibility for assembly, functional testing and fit lies with the customer. The system supplier, by contrast, bundles several components – often including purchased-in parts – into a testable unit. In practice, this also shifts responsibility for defects: once an assembly has been ordered and accepted as a system, the supplier is typically liable for the overall result. This simplifies complaints and reimbursement, but requires clear contractual arrangements regarding warranty and production readiness.

## **Degrees of integration: KABI, DABI and development partnership**

In the supply industry – particularly in the automotive environment – tier designations have become established. A KABI (buyable assembly) is purchased fully finished and installed unchanged; a DABI (detailed assembly) is specified in detailed design by the customer but delivered assembled. Above this sits the system partner with their own development responsibility, who designs, tests and industrialises on the basis of a specification sheet. The higher the degree of integration, the more important supplier approval, joint drawing and change processes and a robust quality agreement become as the basis of the collaboration.

## **For whom and when system suppliers are worthwhile**

System suppliers are not the right choice for every procurement need. They are particularly worthwhile where assembly depth, variant diversity or a shortage of skilled workers burden in-house production and the supplier brings economies of scale or specialist know-how. The decision should be made on the basis of a life cycle cost calculation, not solely on the unit price.

### **Typical use cases**

Common scenarios are complex assemblies such as drive modules, control cabinets, body components or hydraulic units, where procurement would otherwise have to manage dozens of individual items. The systems approach is also common in pilot projects with suppliers to prepare new product lines, or in site relocations. It also makes sense where special processes such as surface treatment, vacuum casting or complex palletisation and logistics integration require specialist expertise that cannot be built up economically in-house.

### **Making the make-or-buy decision systematically**

Before awarding to a system supplier, a structured suitability assessment and a make-or-buy comparison should be carried out. In addition to material and labour costs, machine utilisation, set-up times, failure risks and capital tie-up must be included. Spare parts supply over the life cycle should also be included in the life cycle cost calculation: a system supplier who can no longer deliver replacement units after ten years incurs subsequent costs that are not visible in the unit price. In practice, it has proven worthwhile to qualify at least two potential partners in parallel in order to avoid dependencies.

## **Selecting and qualifying system suppliers**

Selecting a system supplier is more involved than selecting a standard component, as strategic dependency and development input are at stake. The process usually runs through the project initiation stage – handled professionally via project procurement and source-to-contract (S2C) – and should be divided into clear phases.

### **From specification sheet to supplier approval**

The starting point is a precise specification sheet with functional, quality and logistics requirements. This is followed by supplier identification via market data, trade fairs and recommendations, then a structured self-disclosure and on-site audit. After technical and commercial evaluation, supplier approval takes place, often linked to a pilot project with the supplier in which samples and small series are tested. Only after successful approval and documented production readiness – often mapped via PPAP in the automotive environment – is series procurement released.

## **Contractual foundations and framework conditions**

System supply contracts should, in addition to unit price and volumes, define the scope of services, change management, tooling and confidentiality rules as well as escalation routes. A frame call-off schedule with call-off logic and volume bands protects both parties against planning peaks. Payment terms, liability, warranty and contractual penalties for delivery failures should also be included in the contract. Where several partners are involved in one project, a bidding consortium can make sense if no single company can cover the entire scope of services.

## **Key KPIs in collaboration with system suppliers**

Since system suppliers are strategic partners, mere price monitoring is not sufficient. Buyers should establish a set of key figures that maps quality, delivery reliability, costs and collaboration, and is consolidated in regular supplier evaluations.

### **Quality and delivery reliability**

Key metrics are the complaint rate (or defect rate in ppm), on-time delivery and the backorder rate as an indicator of call-offs that cannot be fulfilled. In addition, tracking the invoice error rate has proven worthwhile: frequent invoicing errors often indicate weak processes in order reconciliation and burden accounts payable processing. All key figures should be assigned clear threshold values beyond which action plans are automatically requested.

### **Costs, stock and performance as an integrated whole**

Beyond unit costs, it is worth monitoring stock optimisation on both sides, reorder point accuracy for call-off items and the cash-to-cash cycle in order to make liquidity effects of payment terms and VMI models visible. Data quality KPIs – such as master data and parameter maintenance (MRP) in the ERP – are a prerequisite for meaningful evaluations: without well-maintained scheduling parameters, even the best supplier figures distort the picture. In practice, supplier dashboards have become established where all figures are reviewed jointly on a monthly basis.

## **Risks and controls in systems procurement**

The higher degree of integration carries specific risks: dependency on one partner, lack of transparency over upstream suppliers and more complex change processes. Controls must therefore start earlier and go deeper than in classic parts purchasing.

### **Dependency, second source and exit scenarios**

Anyone awarding a critical assembly to just one system supplier creates potential dependency. In practice, a second supplier is often pre-qualified even if they do not actively supply – this preserves negotiating power and provides protection in the event of failures. Contracts should contain exit clauses, tooling handover, know-how protection and documentation obligations. For strategically important partners, a strategic alliance with joint development roadmaps can create additional commitment and planning certainty.

### **Transparency in the sub-tier chain and sustainability**

System suppliers procure themselves, which makes risks in the sub-tier chain harder to see. Contractual disclosure obligations for critical upstream suppliers, audit rights and defined processes in the event of supply bottlenecks are important. Topics such as carbon pricing and emissions data collection are

increasingly moving into requirements for system partners, especially when customers have to present their own carbon footprint in line with Scope 3. Export and customs matters – such as an ATA Carnet for the temporary export of samples – should also be examined at an early stage; tax and legal details require expert review in individual cases.

## Current developments in systems procurement

Systems procurement is changing as a result of electrification, the software content of mechanical assemblies and the digitalisation of procurement processes. Buyers must build up technical and data-related expertise in equal measure.

### More software and electronics in assemblies

Mechanical modules increasingly contain sensors, controls and firmware. This shifts responsibility towards functional and software validation and requires new assessment criteria in the suitability assessment as well as updated quality agreements. Buyers here work more closely with development and quality management; classic procurement skills alone are no longer sufficient.

### Digitalisation of collaboration

Digital supplier portals, EDI integration and joint dashboards are increasingly replacing email and telephone coordination. Preferred supplier programmes are based on structured performance data and make the further development of system partners measurable. The preferred supplier programme itself is also data-driven: only those who reliably deliver KPIs remain in the preferred zone. In practice, investments in joint data quality quickly pay for themselves through less coordination effort and more stable MRP processes.

## Typical metrics

### On-time delivery (OTD): typically > 95%

Benchmark for series suppliers; particularly critical for system assemblies due to assembly scheduling.

### Complaint rate: often < 500 ppm

Industry-dependent; in the automotive environment often considerably stricter requirements.

### Backorder rate: ideally < 2%

Shows how reliably call-offs from the frame call-off schedule are fulfilled.

### Invoice error rate: typically < 3%

Indicator of process quality in order reconciliation and a cost driver in accounts payable.

### Sampling lead time (PPAP): often 8–16 weeks

Typical duration from sample request to approval; strongly dependent on complexity.

## Practical example

A medium-sized mechanical engineering company with around 300 employees had previously sourced more than 60 individual parts for its control cabinet assemblies from different suppliers and carried out the final assembly in-house. High coordination effort, fluctuating complaint rates and bottlenecks in cable pre-assembly burdened assembly. The company decided to award the work to a system supplier who delivered finished, tested control cabinets including wiring and documentation.

- Structured suitability assessment and audit of two candidates, followed by supplier approval and

PPAP-oriented sample acceptance.

- Frame call-off schedule with weekly call-offs and agreed palletisation for direct transfer to the final assembly line.
- Quality agreement with documented complaint rate, 8D process and joint KPI reviews.
- Parallel qualification of a second supplier for critical assembly variants to safeguard against dependency.

## Conclusion

A system supplier is more than an extended parts supplier: they take on responsibility for the function, quality and often the design of complete assemblies and structurally relieve the procurement function. The decision in favour of one should be based on life cycle costs, availability of expertise and risk assessment – not on the unit price alone. Successful collaboration is built on clear contracts, clean approval processes and a robust set of KPIs. Those who actively manage dependencies and take data quality seriously gain a genuine strategic partner. In practice, the effort of qualification typically pays for itself through fewer interfaces, more stable processes and shorter time to market.

## Frequently asked questions

### What is a system supplier?

A system supplier delivers fully assembled, tested assemblies, modules or subsystems instead of individual parts. They often also take on design and development work as well as the procurement of upstream products. In doing so, they assume responsibility for the function and quality of the entire delivered unit.

### What is the difference between a system supplier and a parts supplier?

The parts supplier manufactures individual components to drawing, and responsibility for assembly and function remains with the customer. The system supplier delivers fully integrated units and is liable for the overall result. This reduces the number of suppliers to be managed, but increases the requirements placed on contract and qualification processes.

### What do KABI and DABI mean in relation to system suppliers?

KABI stands for 'kaufbare Baugruppe' (buyable assembly), which is purchased fully finished and installed unchanged. DABI stands for 'detaillierte Baugruppe' (detailed assembly), where the customer specifies the detailed design but the supplier delivers it assembled. The terms originate from the automotive sector and describe the degree of integration of the collaboration.

### When is a system supplier worthwhile?

It is particularly worthwhile for complex assemblies, high variant diversity, lacking internal assembly capacity, or when the supplier brings specialist know-how and economies of scale. The decision should be made on the basis of a total cost of ownership calculation. It is important to plan a second-source strategy in parallel in order to limit dependencies.

### How do you qualify a system supplier?

Typically this involves a specification sheet (requirements specification), supplier identification, self-disclosure, an on-site audit and then supplier approval. This is often followed by a pilot project with the supplier and, in the automotive environment, PPAP documentation before the start of series

production. Only after documented production readiness does regular series procurement begin.

### **Which KPIs are important for system suppliers?**

Key indicators are the complaint rate, on-time delivery, backorder rate and invoice error rate. In addition, stock and scheduling data such as parameter maintenance (MRP) provide indications of process quality. All figures should be consolidated in regular supplier evaluations and provided with threshold values.