

Second-Life Utilisation: Reusing Used Components in Industrial Procurement

Second-life utilisation refers to the reuse of products, components or materials in a second deployment cycle after their primary purpose of use has been completed. For technical buyers, this opens up savings and sustainability potential, ranging from spare parts procurement through remanufacturing to the circular economy within the supplier network. The term is gaining importance, as regulation, raw material costs and supply chain security increasingly make reuse more economical than buying new.

Key facts

- Second-life utilisation covers the reuse, refurbishment and remanufacturing of used components.
- Typical applications include machine components, electric motors, batteries, pallets, conveyor modules and IT hardware.
- In practice, savings compared with buying new are frequently 30–70 per cent, depending on refurbishment effort and remaining service life.
- Success depends on clear qualification, documented testing and binding contracts.
- Legally relevant are warranty, product liability and, for electrical equipment, requirements such as RoHS.
- Second-life strategies should be anchored in the procurement manual and steered using KPIs such as the reuse rate.

Definition: second-life utilisation

Second-life utilisation is the systematic reuse of capital goods, components or materials in a second life cycle after the end of their first use. It differs from pure recycling in that the product's functionality is retained.

Distinguishing it from recycling and remanufacturing

Recycling returns the product to material level, whereas second-life utilisation preserves the function. Remanufacturing in this context means industrial reconditioning to as-new condition, while refurbishment means repair to a serviceable standard. Buyers should precisely separate these levels in tenders, as price, guarantee and remaining service life vary considerably.

Relevance for technical procurement

For buyers, second-life utilisation is not a niche topic but a procurement route alongside buying new and alternative suppliers. It is particularly effective with long lead times, high backorder rates for critical parts or rising material prices. Whether the second source threshold or second life applies should be decided per commodity group and defined in the procurement manual.

Methods and approach for introduction

Introduction follows a structured process: potential analysis, supplier qualification, contractual regulation and operational integration into day-to-day procurement.

Potential analysis by commodity group

First, commodity groups are identified in which used or reconditioned parts are technically acceptable. Criteria are tolerance relevance, safety requirements, availability of test specifications and volume. A Supplier Segmentation Matrix helps classify suitable reconditioning and trading providers.

Supplier qualification and tendering

Suitable providers are identified via a structured RFX in procurement. Bidder questions on the origin of the parts, depth of testing, documentation and warranty are essential, as the second-life market is highly heterogeneous. The result is a supplier shortlist of qualified providers with verifiable test processes.

Contractual safeguards

Contracts must clearly regulate specification, remaining service life, warranty and liability. A documented negotiation protocol secures attachments such as age certificates or test reports. For critical parts, a performance bond or a step-in right for interim solutions is additionally recommended.

Key KPIs of second-life utilisation

Second-life strategies can only be steered if reuse is economically and qualitatively measurable. Typical KPIs are defined per commodity group and compared with buy-new benchmarks.

Financial KPIs

Core KPIs are savings compared with buying new, total cost of ownership per deployment cycle and the share of second-life parts in procurement volume. Cost per inspection and the failure rate after installation also belong here, as only these reflect the actual economic viability.

Quality and delivery KPIs

Relevant are the complaint rate, the service level target per commodity group and the delivery capability of the second-life sources. A high backorder rate for new parts can increase the acceptance of second-life options; conversely, the second-life share must not come at the expense of the service level.

Risks and controls

The main risks lie in unknown history, missing documentation, liability gaps and quality variability. Controls must therefore be applied along the entire part history.

Quality assurance and documentation

Every second-life part should be delivered with proof of origin, a test report and an assessment of remaining service life. Incoming inspection, selection measurement if necessary and a documented approval procedure are mandatory. Without complete documentation, no technical invoice verification and no cover in the event of damage is possible.

Legal and regulatory aspects

Warranty and product liability issues are more complex for reconditioned goods than for new parts; the assessment should always be legally reviewed on a case-by-case basis. For electrotechnical components, conformity requirements such as RoHS must be observed, and for exports the export handling including any required EUR.1 preference certificate.

Organisational controls

Approvals, sourcing decisions and emergency processes such as urgent orders of used parts should be governed by defined procedures. Procurement should document decisions and review them regularly, similar to second source threshold exceedances.

Current developments and outlook

Regulatory pressure, raw material scarcity and digitalisation are driving second-life utilisation forward significantly. Procurement organisations are increasingly building their own competences for this.

Regulatory tailwind

European initiatives on the circular economy and on repair and reuse quotas are increasing the pressure on manufacturers and purchasers. Buyers are well advised to embed requirements early in specifications and supplier evaluations in order to make tenders future-proof.

Digitalisation of part history

Digital product passports and future labelling requirements make the origin and condition of components more transparent. This facilitates negotiation, as residual value and remaining service life become easier to assess. Exchange platforms and supplier network offerings are also professionalising the trade in used and reconditioned parts.

New business models

Take-back systems, rental and pay-per-use models shift residual value responsibility to the manufacturer. Buyers should ensure contractually that take-back, reconditioning and set-off arrangements for residual values are clearly regulated.

Typical metrics

Savings compared with buying new: typically 30–70%

depending on refurbishment effort and remaining service life

Failure rate after installation: < 1%

realistic only with 100% incoming inspection

Reuse rate: > 20% of the relevant commodity group

benchmark for mature second-life programmes

Complaint rate for second-life parts: < 2%

should be comparable with the new-part level

Practical example

A medium-sized mechanical engineering company faced rising prices and long lead times for drive components of a discontinued series model. Procurement established a second-life source for

reconditioned motors and gearboxes alongside buying new.

- The potential analysis identified drive and conveyor components as a suitable commodity group
- RFX with structured bidder questions on test processes, origin and warranty
- Contractual fixation of specification, remaining service life and documentation obligations in the negotiation protocol
- Introduction of an approval process with 100% incoming inspection and residual value assessment

Conclusion

For technical buyers, second-life utilisation is a genuine lever for costs, delivery capability and sustainability goals. Success is decided less by price than by the quality of pre-inspections, documentation and contractual arrangements. Those who qualify second-life options in a structured manner via RFX processes and systematically measure KPIs such as reuse rate and failure rate can realise the potential in a controlled way. At the same time, legal questions regarding warranty and product liability must be reviewed on a case-by-case basis. In the long term, second-life utilisation will continue to gain in importance through regulation and digitalisation.

Frequently asked questions

What does second-life utilisation mean?

Second-life utilisation refers to the reuse of used products, components or materials in a second deployment cycle. It includes direct reuse, refurbishment and remanufacturing. In contrast to recycling, the product's functionality is retained.

How much can you save with second-life components?

In practice, savings compared with buying new typically range between 30 and 70 per cent, depending on refurbishment effort, remaining service life and the scope of testing. What matters is consideration of the total cost of ownership, including inspection and failure costs. Without this overall view, the seemingly favourable purchase can end up being more expensive.

What risks does second-life utilisation pose for buyers?

The main risks are unknown history, missing documentation, limited warranty and liability gaps. These can be minimised through proof of origin, test reports, defined specifications and contractual commitments. For critical components, a legal review should be carried out on a case-by-case basis.

Which products are suitable for second-life utilisation?

Particularly suitable are standardised, tolerant and testable components such as electric motors, gearboxes, conveyor modules, pallets, batteries and IT hardware. Less suitable are safety-critical parts without a reliable test specification. The decision should be made by commodity group and documented in the procurement manual.

How do you find reliable second-life suppliers?

Through structured RFX processes with targeted bidder questions on origin, depth of testing and warranty. What matters are verifiable test processes, references and a systematic approach such as the Supplier Segmentation Matrix for classification. The outcome should be a qualified supplier shortlist of vetted providers.

How does second-life utilisation differ from recycling?

In recycling, the product is broken down to material level and the original function is lost. In second-life utilisation, the function is retained and the product is reused or reconditioned. Second-life utilisation therefore requires testing and documentation, whereas recycling primarily requires logistics and material flow management.