

Proof of Concept Procurement: Testing Innovation Capability Before the Framework Agreement

Proof of Concept procurement is a purchasing approach in which new suppliers or technologies are first trialled in a limited, controlled practical test before regular volume is awarded. Through it, the buyer deliberately procures a small quantity, a sample build or a pilot service in order to validate performance capability, quality and process capability under real-life conditions. In industrial purchasing, this approach significantly reduces the risk of mis-procurement and creates a fact-based basis for the subsequent production award.

Key facts

- Proof of Concept procurement tests suppliers, materials or technologies in a small, defined volume before production release.
- Typical are sample orders, small batches or pilot projects with clearly defined test criteria and an evaluation scheme.
- The approach reduces the risk of misawards, quality problems and supply bottlenecks with new sources.
- Legally, a clear distinction should be made between paid sample procurement and free-of-charge sampling.
- Successful PoCs often feed into a framework agreement or a Delivery Schedule Agreement.
- Clear KPIs such as sample lead time, first-pass yield and qualification costs make the PoC measurable.

Definition: Proof of Concept procurement

Proof of Concept procurement refers to the targeted procurement of samples, prototypes, small batches or pilot services in order to test the suitability of a supplier, raw material or process before a production award. It is therefore not regular demand coverage, but an instrument of supplier qualification and innovation assessment. In practice, the term is also used for testing new procurement models such as consignment agreements or direct delivery.

Delineation from sampling

Classic sampling primarily tests a single component against the drawing. Proof of Concept procurement goes further: it validates a supplier's entire performance spectrum, i.e. technology, logistics, communication and price stability, under near-real-life conditions. A PoC can therefore also cover several order cycles with genuine delivery deadlines.

Delineation from the pilot project

A pilot project typically tests an end product or a process at the customer. The PoC in purchasing, by

contrast, tests the procurement side: Can the supplier meet the specification reproducibly, what lead times arise, how stable are process and quality data? Both approaches can complement each other but pursue different questions.

Methods and approach in Proof of Concept procurement

An effective PoC follows a structured process: objective definition, enquiry, sample procurement, evaluation and decision basis for the production award. The effort should be proportionate to the loss risk of the later award. In practice, it has proven effective to run the PoC like a real project with a schedule, responsibilities and defined abort criteria.

Defining objectives and test criteria

Before the sample order, measurable criteria are defined: dimensional accuracy, surface quality, process capability, delivery reliability, response times to changes and price structure. These criteria come from technical acceptance, quality management in purchasing and logistical requirements. Without criteria defined in advance, the PoC degenerates into an informal trial purchase with no informative value.

Managing the enquiry and sample order

The PoC often begins with a structured enquiry in which the testing mandate is transparently described. It is important to clearly identify it as a sample or small-batch order with a deviating order policy: deviating quantities, delivery dates, testing scopes and, if applicable, cost reimbursement rules. This avoids later misunderstandings about terms and non-delivery compensation.

Evaluation and scaling

After the practical test, the supplier is evaluated using the scheme defined in advance, ideally jointly with engineering, quality and logistics. If the result is successful, scaling follows: framework agreement, approval as a source in the vendor master and, if applicable, inclusion in material groups with similar requirements. A documented PoC thus becomes a reusable piece of evidence for future awards.

Key KPIs of Proof of Concept procurement

So that the PoC does not remain dependent on anecdotal impressions, measurable metrics are needed. They serve both the supplier decision and the internal justification of the qualification effort. Typical benchmark values vary by industry and complexity and should be calibrated.

Time and cost metrics

Key metrics are the sample lead time from enquiry to acceptance, the number of sampling loops and the cost per PoC including internal testing time. In practice, sample lead times range from a few days to several months depending on the process. Falling lead times across successive PoCs indicate a more mature procurement process.

Quality and delivery metrics

The first-pass yield, i.e. the proportion of samples that meet the specification without rework, is a striking indicator of supplier maturity. In addition, the delivery reliability of sample deliveries and the completeness of accompanying documentation are assessed. The re-requesting of documents, such as test certificates or certificates of conformity, should also be recorded as a metric, as it often represents a hidden driver of time and cost.

Risks and controls in PoC procurement

The PoC reduces risks but creates its own: high internal testing costs, delayed projects with long sampling cycles and the risk that PoC results are not transferable to production volumes. Further pitfalls are verbally agreed sample terms and missing documentation. Clear control mechanisms keep these risks manageable.

Contractual design

Sample orders should be fixed in writing: fee arrangements, transfer of ownership of samples and tools, confidentiality and rights of use. With free-of-charge sampling, it must be clarified who bears the risk of loss and damage. Tax and accounting questions of sample procurement should be examined on a case-by-case basis with the specialist department.

Documentation and data quality

PoC results belong in the vendor master and the qualification history. High data quality is crucial: measurement protocols, test reports and evaluation sheets should be stored in a structured and retrievable manner, for example via a supplier portal. Missing documentation later leads to duplicate sampling and a lost negotiating position.

Abort criteria and escalation

If samples repeatedly deviate or deadlines are missed, a defined escalation process with clear abort criteria is needed. A controlled abort saves costs and protects the project schedule. In parallel, market segmentation in purchasing should ensure that sufficient alternative sources are available for a renewed PoC.

Current developments: PoC in the context of resilience and digitalisation

Proof of Concept procurement is gaining in importance because purchasing departments need to diversify supply chains and evaluate new technologies more quickly. Dual sourcing, second sites and substitution of critical materials constantly require the qualification of new suppliers. Digitalised sample processes significantly shorten the cycles.

Resilience and supplier diversification

Delays in ports, such as demurrage and long lead times, have prompted many companies to examine nearshoring alternatives. In practice, every potential new source goes through a PoC before critical parts are shifted. The PoC thus becomes a standard tool of supply chain resilience.

Conformity and documentation obligations

New suppliers are increasingly required to provide compliance evidence, for example on conflict minerals origin, on packaging relevance under the PPWR declaration of conformity, or on customs relevance and AEO status along the supply chain. These documents are now part of the mandatory scope of the PoC phase, not only of the production award. Anyone who demands them late risks delays in release.

Digitalisation of the sampling process

Digital platforms, structured data models for specifications and standardised evaluation sheets

noticeably shorten the PoC phase. Complementary instruments such as design-to-cost workshops with potential suppliers are also often used before or in parallel with the PoC. Nevertheless, the PoC remains the last genuine practical test before production release.

Typical metrics

Sample lead time: typically 2–8 weeks

from sample enquiry to technical acceptance; varies considerably depending on the process

First-pass yield: > 90 %

proportion of samples that meet the specification without rework

Sampling loops: usually 1–2

more than two loops indicate process problems on the supplier side

Delivery reliability of sample deliveries: > 95 %

indicator of later production reliability

Cost per PoC: project-specific

sample costs plus internal testing time; to be weighed against the loss risk of the award

Practical example

A medium-sized mechanical engineering company was looking for a second source for precision-forged components after a sole supplier had repeatedly caused delivery date problems. Instead of directly switching the critical part, the buyer commissioned three suppliers with a structured PoC: a small batch of 100 parts each with complete metrology documentation, genuine delivery deadlines and an agreed sample fee. Two suppliers were evaluated after four weeks, and one qualified for a framework agreement.

- Test criteria defined in advance with engineering and quality, including first-pass yield
- Sample order with a deviating order policy and fee arrangement fixed in writing
- Evaluation documented using a standardised scheme in the supplier portal
- Escalation process with defined abort criteria agreed for schedule or quality problems

Conclusion

Proof of Concept procurement shifts the award risk from the production phase into a controlled, small and highly measurable test phase. It combines technical validation, supplier evaluation and contractual safeguards into a closed process. Decisive are criteria defined in advance, clean documentation and clear abort rules. Companies that manage PoCs systematically gain faster qualification cycles and a robust decision basis for production volumes. This turns the PoC from a one-off case into a repeatable instrument of a resilient procurement strategy.

Frequently asked questions

What does Proof of Concept procurement mean in purchasing?

It refers to the targeted procurement of samples, prototypes or small batches in order to test suppliers, materials or processes under real-life conditions before a production award. The focus is on validating quality, delivery reliability, process capability and price structure. The result serves as a fact-based basis for the subsequent framework agreement.

Who bears the costs for samples in a Proof of Concept?

In practice, both models are common: paid sample orders, often with a reimbursement arrangement upon a production order, as well as free-of-charge sampling by the supplier. The arrangement should be fixed in writing in the purchase order or framework agreement, including risk allocation in the event of loss. Tax and accounting treatment should be examined on a case-by-case basis.

How long does a Proof of Concept take in procurement?

The duration depends heavily on complexity, process and scope of testing, and in practice ranges from a few days for simple trade goods to several months for certified components. The process becomes measurable via the sample lead time and the number of sampling loops. Clear lead-time agreements and complete enquiry data significantly shorten the cycle.

Which KPIs are suitable for PoC procurement?

Proven KPIs are sample lead time, first-pass yield, the number of sampling loops, delivery reliability of sample deliveries and the cost per PoC. The frequency of requests for documents such as test certificates is also an informative indicator. Benchmark values should be calibrated by industry and material group.

What distinguishes PoC procurement from an urgent order?

An urgent order serves to quickly cover an acute shortage and deliberately neglects parts of the standard process. PoC procurement, by contrast, is a planned qualification instrument with defined test criteria and an evaluation scheme. While the urgent order solves issues in the short term, the PoC secures long-term supply capability.