Data Quality Report: Securing Master Data and Transparency in Structured Procurement

A data quality report is a structured document that systematically evaluates and presents the quality of procurement and master data. It shows where material master records, supplier data, price records or purchase order information are incomplete, outdated or inconsistent. For procurement organisations, it is a central management instrument for building processes such as order management, commodity code assignment or supplier credit checks on a reliable data foundation.

As of October 2026 · amplifa-marketplace.ai/en/glossary/datenqualitaetsbericht

Key facts at a glance

01 The data quality report evaluates master data and process data along dimensions such as completeness, accuracy, timeliness, consistency and uniqueness.

02 In procurement, it typically focuses on material master records, supplier master records, purchasing info records, price records and purchase order data.

03 Typical KPIs are data completeness (frequently a target value above 98%), the error rate per data record and the update rate.

04 It is usually based on automated validation rules and a defined procurement ETL process in which data from source systems is consolidated and validated.

05 The report forms the basis for data cleansing projects, deduplication and ongoing data maintenance in day-to-day operations.

06 Without clean data, KPIs from procurement controlling and AI-based applications are only of limited informative value.

Definition: Data Quality Report

A data quality report is a regular or event-based report that documents the state of business-critical data and evaluates it against defined quality dimensions. In the procurement context, it covers in

particular material master records, supplier master records, purchasing info records, contract data and transaction data from order management.

Distinction from Master Data and Process Reports

While a classic master data report usually only lists stock levels and changes, the data quality report evaluates this data against measurable criteria such as completeness or consistency. It therefore answers not the question of which data exists, but how reliable it is. This also distinguishes it from pure KPI reports, as it specifically names root causes and the affected data fields.

Typical Use Cases

Data quality reports are often produced in the course of system migrations, when introducing new procurement platforms, ahead of audits and as a regular monthly or quarterly report. They are also used during the vendor onboarding of new suppliers or when assigning commodity codes to new parts to detect input errors early. In practice, a frequency of four to twelve reporting cycles per year has become established.

Methods and Approach for Creating the Report

Creation generally follows a multi-stage approach: extract data, validate against rules, evaluate results and derive actions. The technical core is usually a defined procurement ETL process that consolidates data from ERP, catalogue and supplier systems.

Quality Dimensions and Validation Rules

Evaluation typically takes place along the dimensions of completeness, accuracy, timeliness, consistency and uniqueness. Validation rules can be formulated technically: mandatory fields populated, valid commodity codes present, price records plausible, no duplicate supplier numbers. The rules are documented and versioned in a rule catalogue so that results remain comparable across periods.

Data Sources and Process Integration

Relevant sources include the ERP system, supplier portals, catalogue data, contract archives and, where applicable, external data from supplier credit checks. A clear assignment of responsibility is important: in practice, it has proven effective to assign data fields to a data owner, for example the buyer for terms and conditions or the business department for technical characteristics. Only in this way can deviations be effectively corrected.

Report Structure

A practical report contains a management summary with KPIs, a detailed analysis per data object and material group, and an action list with owners and deadlines. Trend charts across several periods show whether cleansing measures are taking effect. Annotated outliers – such as a material group with a low completeness rate – make the report easier to follow.

Key KPIs in the Data Quality Report

KPIs make data quality measurable and usable for procurement controlling. A compact set of KPIs limited to a few rule-based, measurable values has proven effective.

Completeness and Accuracy

Completeness indicates the proportion of data records for which all mandatory fields are populated; in practice, values above 98% are considered a good benchmark for material master records. Accuracy measures how correct the content is, for example whether units of measure, currencies or prices are plausible. A typical KPI is the proportion of records without validation errors per thousand data records.

Timeliness, Consistency and Uniqueness

Timeliness assesses how fresh data is – for example, the proportion of supplier master records with a research date within the last twelve months. Consistency checks the alignment between systems, for example whether terms and conditions in the ERP system match those in the supplier portal. Uniqueness quantifies duplicates; a typical benchmark is a duplicate rate of under 2%.

Deriving Downstream Costs

Advanced reports translate quality defects into financial effects, for example through subsequent change orders, manual rework or incorrect orders. This links the report to lifecycle costing and significantly raises management attention, because data defects then become visible not as an IT issue but as a cost factor.

Risks and Controls Surrounding Data Quality

Poor data quality typically causes duplicate orders, incorrect supplier call-offs, compliance breaches and delayed procurement processes in procurement. The data quality report serves here as an early-warning and control instrument.

Operational Risks

Incomplete material master records lead to manual purchase requisitions, incorrect units of measure or erroneous orders. Outdated supplier data complicates KYC in procurement checks and compliance monitoring. Inconsistent price records undermine contract compliance and distort savings reports, which weakens overall trust in procurement KPIs.

Controls and Preventive Measures

Effective controls start at the point of data entry: mandatory field validations, look-up tables for units of measure and commodity codes, and the four-eyes principle for critical fields. In addition, periodic sample checks and deduplication runs prove effective. The data quality report documents these controls and their impact, which is also helpful during internal and external audits.

Responsibilities and Escalation

Every data object type should have a clearly named data owner and defined processing deadlines. The report makes an escalation level visible when errors remain unresolved beyond an agreed deadline. In practice, short monthly reviews between procurement, data management and IT have become established, in which open actions are discussed.

Current Developments: Automation and AI

Data quality reports are increasingly being produced automatically and enriched with AI-based analyses. This shifts the effort from report creation towards root cause analysis and prevention.

Automated Dashboards

Instead of static documents, many companies rely on continuously updated dashboards that evaluate the same quality rules in real time. The periodic report nevertheless remains relevant, as it provides a binding, agreed snapshot for committees and audits. The combination has proven effective: the dashboard for day-to-day business, the report as a formal control instrument.

AI-Based Data Enrichment

Language models today support the classification of short texts, the assignment of commodity codes and the deduplication of supplier master records. The results should always be accompanied by a confidence score and an approval step in the data quality report. Automated enrichment does not replace functional review, but in practice it frequently reduces manual effort considerably.

Data Quality as a Prerequisite for Digital Procurement Processes

Electronic tendering, AI-based RFX in procurement evaluations and automated supplier selection only work with reliable master data. The data quality report thus becomes an enabler of digital projects: it provides the starting point and later the evidence that the data foundation supports the new processes.

Integration into Procurement Processes and Supplier Management

Data quality is not an isolated topic but runs through the entire procurement cycle – from the enquiry through to supplier evaluation. The data quality report links these touchpoints and makes cross-cutting defects visible.

From Enquiry to Purchase Order

In the RFX in procurement process, the comparability of quotes depends on uniform article descriptions, units of measure and commodity codes. Later, accurate purchasing info records influence the implementation of purchasing terms and the PO policy in the ordering cycle. The data quality report shows where in this chain defects arise and which fields need to be corrected.

Supplier Master Data and Performance

Supplier master data is the foundation for vendor onboarding, supplier credit checks and supplier evaluation. A data quality report that also covers fields such as bank details, certificates and Incoterms CIF or delivery terms makes it visible where the data foundation for supplier negotiations or a supplier development workshop is incomplete. In this way, data quality flows directly into supplier management.

Planning and Controlling

Dispositive processes also benefit: stock issue analysis relies on correct movement data, and budgeting needs reliable price and volume histories. When the data quality report highlights these connections, it strengthens acceptance of KPIs in procurement controlling and avoids debates about questionable figures.

Typical metrics

Metric	Typical value
Data completeness (mandatory fields)	> 98% *Typical target benchmark for material master records; may differ depending on the data object.*
Duplicate rate for supplier master records	< 2% *Common benchmark after deduplication has been carried out.*
Currency of supplier master data	> 90% within 12 months *Proportion of records with a research or validation date within the last year; varies by industry practice.*
Error rate per 1,000 data records	< 5 *Sum of rule-based validation errors; the trend across several periods is what matters.*

Practical Example

A medium-sized mechanical engineering company with around 40,000 material master records found, when introducing a new tendering platform, that quotes were hardly comparable: unclear units of measure, duplicate supplier numbers and outdated price records. Procurement introduced a quarterly data quality report with a rule catalogue comprising initially 40 validation rules.

- Establishment of a procurement ETL process that consolidates master data from the ERP system and supplier portal monthly and evaluates it against defined rules
- Introduction of mandatory field and unit of measure validations when creating new material and supplier master records
- Deduplication of supplier master data as a precursor to vendor onboarding with mandatory data

maintenance

- Quarterly review between procurement, data management and IT with an action list and an escalation rule for overdue corrections

Conclusion

The data quality report makes measurable a topic that often only becomes visible in day-to-day business when processes stall: the quality of procurement data. It combines technical data validation with financial evaluation and creates accountability for data fields. Those who implement it regularly and with a small set of stable KPIs gain a reliable foundation for order management, supplier evaluation and digital projects. What matters is not to treat the report as an isolated IT report but as a management instrument of procurement. Companies that systematically report on data quality make decisions faster, negotiate on a better-informed basis and avoid avoidable downstream costs.

Frequently asked questions

? What is a data quality report?

A data quality report documents and evaluates the quality of master data and process data against defined criteria such as completeness, accuracy, timeliness, consistency and uniqueness. In procurement, it focuses primarily on material master records, supplier data, purchasing info records and purchase order data. It serves as a management and control instrument for data cleansing and ongoing data maintenance.

? Which KPIs belong in a data quality report?

Proven KPIs include data completeness (a target benchmark of over 98% for mandatory fields), accuracy as the proportion of error-free records, timeliness for currency, consistency for alignment between systems, and uniqueness for the duplicate rate. In addition, remediated data records or costs caused by data errors can be reported. It is important that every KPI is underpinned by documented, versioned validation rules.

? How often should a data quality report be produced?

Monthly to quarterly cycles have become established in practice. Monthly reports are suitable for highly operational data such as order and info records, while quarterly reports suit supplier master data and strategy reviews. What matters is that corrective actions are implemented between cycles and their impact is shown in the next report.

? Who is responsible for the data quality report?

Typically, data management or IT bears the methodological and technical responsibility, while functional data owners in procurement and the business departments are responsible for correcting their own fields. Procurement should actively help shape the reporting, as it is the main user of the data. A clear allocation of roles with escalation rules is crucial for success.

? What technology is used to create a data quality report?

The technical basis is usually a defined procurement ETL process that extracts data from the ERP system, supplier portals and other sources, transforms it and validates it against validation rules. The results feed into a reporting tool or dashboard. AI-based methods are increasingly being used for text classification and deduplication, and their results should be given functional approval.

? Why is data quality important for AI in procurement?

AI applications such as automated commodity code assignment, text classification or quote comparison learn from existing data. If this data is incomplete, inconsistent or duplicated, the models deliver unreliable results. The data quality report provides evidence that the data foundation is sufficiently clean and makes improvements measurable over time.

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