

Acceptance Sampling (glossary)

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In acceptance sampling many examples of a product are presented for delivery. The consumer samples from the lot and each member of the sample is then either categorized as "acceptable" or "unacceptable" based on an attribute (attribute sampling) or measured against one or more metrics (variable sampling). Based on the measurements, an inference is made as to whether the lot meets the customer requirements.

There are four possible outcomes of the sampling of a lot, as shown in Table 1.

Table 1. Truth Table - Outcomes of Acceptance Sampling. (SEBoK Original)

	Lot meets requirement	Lot fails requirement
Sample passes test	No error	Consumer risk
Sample fails test	Producer risk	No error

A sample acceptance plan balances the risk of error between the producer and consumer. Detailed ANSI/ISO/ASQ standards describe how this allocation is performed. (ANSI/ISO/ASQ 1993)

Sources

ANSI/ISO/ASQ. 1993. *Statistics—Vocabulary and Symbols—Statistical Quality Control*. Philadelphia, PA, USA: American National Standards Institute

(ANSI)/International Standards Organization (ISO)/American Society for Quality(ASQ) :A3534-2-1993.

Discussion

A company cannot test every one of its products due to either the need for destructive testing requirements, or the volume of products being too large. Acceptance sampling solves this by testing a sample of product for defects. The process involves batch size, sample size and the number of defects acceptable in the batch. This process allows a company to measure the quality of a batch with a specified degree of statistical certainty without having to test every unit of product. The statistical reliability of a sample is generally measured by a t-statistic.

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