# Availability (glossary)

availability

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> **Availability** is the probability that a repairable system or system element is operational at a given point in time, under a given set of environmental conditions.

## Source

Adapted from the following sources:

ASQ. 2011. "Glossary: Availability." American Society for Quality. Available at http://asq.org/glossary/a.html.

DoD. 2010. "Acquipedia: Material Availability." Department of Defense. Available at https://acc.dau.mil/CommunityBrowser.aspx?id=387703.

ReliaSoft Corporation. 2003. "Availability and the Different Ways to Calculate it." Available at http://www.weibull.com/hotwire/issue79/relbasics79.htm.

## Discussion

The definition here is similar to the one given in (ASQ 2011) and in the Department of Defense. Availability has some additional definitions, characterizing what downtime is counted against a system. For **inherent availability**, only downtime associated with corrective maintenance counts against the system. For **achieved availability**, downtime associated with both corrective and preventive maintenance counts against a system. Finally, **operational availability** counts all sources of downtime, including logistical and administrative, against a system.

Availability can also be calculated instantaneously, averaged over an interval, or reported as an asymptotic value. **Asymptotic availability** can be calculated easily

from the mean time to failure and the mean time to repair, but care must be taken to analyze whether or not a systems settles down or settles up to the asymptotic value, and how long it takes until the system approaches that asymptotic value.

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