

Reliability Maturity Matrix

	Stage 1: Uncertainty	Stage 2: Awakening	Stage 3: Enlightenment	Stage 4: Wisdom	Stage 5: Certainty	
Requirements	Requirements & Planning	Informal or nonexistent	Basic customer req. met: plans have required activities	Requirements include environment & use profiles; plans more detailed	Plans customized; distributions used for environmental & use conditions	Contingency planning occurs; decisions based on business & market
	Training & Development	Informally available	Some training in concepts & data analysis	Reliability training for engineers; manager training on reliability & lifecycle impact	Reliability & statistics courses for engineers; senior managers trained on impact on business	New technologies & reliability tools tracked; reliability training supported by management
Engineering	Reliability Analysis	Nonexistent or based on manufacturing issues	Use of point estimates & hand-book parts count; basic ID of failure modes & impact	Formal use of FMEA; field data from similar products analyzed; design changes cause reevaluation	Predictions expressed as distributions; environmental & use conditions used for simulation & testing	Lifecycle cost considered in design; stress & damage models used; extensive risk analysis for new technologies
	Reliability Testing	Primarily functional	Generic test plans; testing only to meet customer or std. specs	Detailed reliability test plans; results used for design changes & vendor evaluation	Accelerated tests & models used; testing done to failure or destruct limits	Test results used to update component models; new technologies characterized
	Supply Chain Management	Selection based on function & price	AVL maintained; audits on issues or key parts; vendor datasheets used	AVL updated by assessments & audit results; field data & failure analysis related to vendors	Vendor reliability data used for vendor selection; suppliers conduct external assessments & audit	Changes trigger vendor reliability assessment; component parameters & reliability monitored
Feedback Process	Failure Data Tracking & Analysis	Only looks at function failures	Field returns analysis & internal testing; FA reliant on vendor	AVL & prediction models updated by root-cause analysis; results shared	Focus on failure mechanisms; failure distribution models updated via failure data	Customer satisfaction vs. product failures understood; prognostic methods used
	Validation & Verification	Informal, without process	Basic verification of plans followed; Field data regularly reported	Supplier reliability agreements & failure modes regularly monitored	Internal reviews of reliability processes & tools, failure mechanisms monitored	Reliability predictions match observed field reliability
	Reliability Improvement	Nonexistent or informal	Design & process change processes followed, corrective action taken	Effectiveness of corrective actions tracked; failure modes addressed in other products; improvements identified	Failure mechanisms addressed in all products; modeling techniques & lessons-learned process adopted	New technologies evaluated & adopted; designs updated per field failure analysis
Management	Understand. & Attitude	Has no grasp	Recognizes but takes no action	Becoming supportive & helpful	Actively participating	Considers essential to company
	Status	No status	Conduct of specific and routine product testing & failure analysis tasks	Reliability manager reports to senior management & has influence in managing division	Reliability manager is an officer, reporting on actions & involved with consumer affairs	Reliability manager is a board member; prevention is key concern
	Cost of Unreliability	Not done	Direct warranty expenses only	Warranty, corrective action materials, & engineering costs monitored	Customer & lifecycle unreliability costs identified & tracked	Lifecycle cost reduction done via product reliability improvements