

This evaluation rubric provides a structured framework for assessing and quantifying risk during the System Design and Development phase of the Systems Engineering “V” lifecycle. It enables consistent evaluation of five primary risk categories—Cost, Schedule, Technical, Programmatic, and Scenario—that collectively capture the full spectrum of uncertainty affecting project success. Each category is subdivided into weighted subcriteria, allowing evaluators to assign numerical scores based on the likelihood and impact of potential shortfalls.

The purpose of this rubric is to transform qualitative assessments into measurable, traceable data that support decision-making, trade studies, and design reviews. Scores from each category are combined into a weighted roll-up, producing an overall Project Risk Score that reflects the system’s readiness, resilience, and exposure to external or internal uncertainties. This structured approach ensures that risk identification, analysis, and mitigation are integrated into every design decision and lifecycle milestone.

COST RISK (0–100)

Risk Category	Subcriteria (Each 25 pts)	Description / Evaluation Focus	Score (0–25)	Comments / Evidence
Cost Risk	Accuracy of Cost Estimates	Are cost estimates realistic, data-backed, and traceable?		
Cost Risk	Funding Stability	Are funding sources stable and adequate for the project duration?		
Cost Risk	Cost Control Measures	Are cost-tracking systems (EVM, reserves) effectively implemented?		

Cost Risk	Cost Risk Response Plan	Are there documented mitigations for overruns or shortfalls?		
Subtotal – Cost Risk			/100	

SCHEDULE RISK (0–100)

Risk Category	Subcriteria (Each 25 pts)	Description / Evaluation Focus	Score (0–25)	Comments / Evidence
Schedule Risk	Schedule Realism	Are milestone timelines achievable and evidence-based?		
Schedule Risk	Dependency Management	Are task and subsystem dependencies identified and managed?		
Schedule Risk	Resource Availability	Are personnel, facilities, and materials aligned to schedule needs?		
Schedule Risk	Schedule Recovery Plans	Are contingency or acceleration measures defined?		
Subtotal – Schedule Risk			/100	

TECHNICAL RISK (0–100)

Risk Category	Subcriteria (Each 25 pts)	Description / Evaluation Focus	Score (0–25)	Comments / Evidence
Technical Risk	Technology Maturity (TRLs)	Are key technologies mature enough for use and integration?		
Technical Risk	Design Margin & Robustness	Are performance margins and redundancies sufficient for reliability?		
Technical Risk	Integration Complexity	Are subsystem interfaces and dependencies well understood?		
Technical Risk	Verification & Validation Readiness	Are verification and test procedures ready for execution?		
Subtotal – Technical Risk			/100	

PROGRAMMATIC RISK (0–100)

Risk Category	Subcriteria (Each 25 pts)	Description / Evaluation Focus	Score (0–25)	Comments / Evidence
Programmatic Risk	Stakeholder Alignment	Are all external and internal stakeholders		

		aligned on objectives?		
Programmatic Risk	Policy/Regulatory Stability	Are legal, environmental, or policy constraints stable?		
Programmatic Risk	Supplier/Contractor Reliability	Are vendors reliable and meeting quality/schedule requirements?		
Programmatic Risk	External Event Preparedness	Are contingency plans in place for external disruptions?		
Subtotal – Programmatic Risk			/100	

The System “Ilities” Evaluation assesses the non-functional engineering qualities that determine a system’s long-term effectiveness, sustainability, and readiness for production. These characteristics, commonly referred to as “ilities”, are critical indicators of how well a product can perform, be maintained, and scale beyond the prototype stage.

This rubric evaluates four key categories: Usability, Reliability & Availability, Maintainability, and Producibility. Each is scored on a 25-point scale, for a total of 100 possible points. Higher scores indicate a system that demonstrates strong engineering maturity, reduced operational risk, and readiness for transition to production or field deployment. Lower scores suggest areas that may require additional design iteration, testing, or process development before the system can achieve operational viability.

Evaluators should base ratings on documented evidence such as prototype test data, design reviews, production plans, and user feedback. The goal is to provide an objective, structured assessment of system robustness to inform investment, acquisition, or development decisions.

SYSTEM 'ILITIES' (1–100)

'Ility Category	Description / Evaluation Focus	Score (1–25)	Comments / Evidence
Usability	Ease with which end-users can learn, operate, and integrate the system into their workflow. Consider UI/UX design, training burden, and user acceptance.		
Reliability	Consistency of performance over time under expected conditions; assess failure rates, redundancy, and fault tolerance.		

Maintainability	Ease and cost of maintaining, repairing, and updating the system through its lifecycle. Look for modular design, diagnostics, and documentation.		
Producibility	Feasibility of manufacturing and scaling the system with consistent quality and cost realism. Review manufacturing readiness and supplier stability.		
Availability	Readiness of the system to perform when needed; evaluate uptime, maintenance downtime, and support logistics.		
Subtotal – System 'ilities' Score		/100	