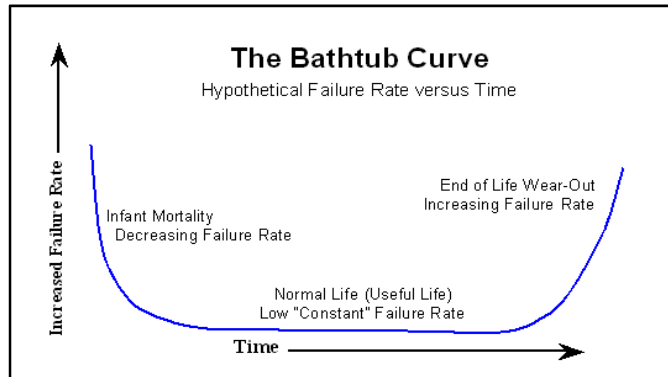


RELIABILITY PREDICTION SERVICES (MTBF) Component Level

Estimates a product's Mean Time Between Failures from component information (bottom up)

- ✓ Satisfy Customer Requirements
- ✓ Determine Spares Requirements
- ✓ Diagnose Weak Points in Designs



BASIC ANALYSIS (Parts Count)

"Parts Count" Analysis estimates the products' overall reliability using industry standard failure rates for each component. Telcordia SR-332 is used for Commercial Products. MIL-HDBK 217F is used for Defense Products. Results presented in a Summary Worksheet including the overall MTBF plus failure rates for each component. This Analysis produces a **ballpark broad estimate**. It is typically used for early stage designs or quicker estimates. Additional accuracy can be provided by the "Parts Stress" Analysis below. For formal quotation, please provide Bill Of Materials (in Excel) and preferred vendor list (AVL).

- Simple Product ~\$2-3,000
- Complex Product ~\$4-5,000

ADVANCED ANALYSIS (Parts Stress)

"Parts Stress" is performed after a Basic Analysis (prerequisite) for a **more accurate** overall MTBF. It considers the influence of additional factors on each component (quality, temperature, electrical stress, etc.). First-Year reliability estimated based on Manufacturing Screening. Please provide either or all: Thermal Profile (estimates, IR photos, etc.), Component Electrical Stresses, and Manufacturing Screening Parameters. Results presented in a Summary Worksheet.

- Typical Product ~\$1-2,000

END-OF-LIFE ANALYSIS

End-of-Life (see Bathtub Curve) is performed after a Basic Analysis (prerequisite). It estimates the **onset of wear-out failures** for consumables (electrolytic caps, fans, motors, disk drives). This can aid in planning In-Warranty costs and scheduling Preventive Maintenance. Results presented in a Summary Worksheet.

- Simple Product ~\$1,000
- Complex Product ~\$2,000

SERVICE-AFFECTING RELIABILITY

"Service-Affecting" Analysis can be performed after the Basic Analysis (prerequisite). Rather than considering any and every component failure, it discounts failures which **do not affect system performance**. Acceptable minimum level of performance is carefully defined and considered across the product.

- Simple Product ~\$1-2,000
- Complex Product ~\$2-3,000

REPORT AND PRESENTATION

Detailed Report ~\$ 500

Executive Summary format explains:

- ✓ The analysis process
- ✓ Significance of the results
- ✓ Recommended product improvements

On-Site Presentation ~\$ 500

One to two hour review of results/recommendations, with What-If analyses of the effects of changes to the product.

OTHER RELATED SERVICES

- ✓ Establish **risks** associated with failures via Failure Modes Effects Analysis (FMECA)
- ✓ Maximize product **robustness** with Accelerated Stress Testing (HALT)
- ✓ Eliminate **infant mortalities** with production screening (HASS)
- ✓ **Measure** the product's reliability with Reliability Demonstration Tests (RDT)

TERMS

Expedited analyses available at nominal fee

Formal quotes: Fixed Price or Time and Materials basis

Invoicing: On progress basis

Payment due: Net 15 days after invoice