

Business Requirements Document

Title: Three-Point Estimation & Resource Forecasting Tool

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1. Purpose

The Three-Point Estimation Tool provides an interactive interface to support project teams in generating accurate time estimates for tasks using the Beta distribution formula. It enables better planning, risk reduction, and resource alignment based on historical data, assumptions, and scenario modeling.

2. Intended Users

- Project Managers
- Quality Assurance Analysts
- Software Engineers
- Program Managers
- Product Owners
- Process Improvement Leads

This tool assists these roles in driving estimation clarity, resource allocation accuracy, and cycle time efficiency.

3. Functional Overview

3.1 Core Functionality

- Accepts **three estimates per task**:

- Optimistic (O)
- Most Likely (M)
- Pessimistic (P)
- Calculates **Expected Time (TE)** using the **Beta distribution**:

$$TE = \frac{O + 4M + P}{6}$$

$$TE = 6O + 4M + P$$

3.2 What-If Resource Analysis

- Allows user to input the **number of available resources**.
- Calculates **adjusted time estimate** using parallel task allocation.
- Validates resource entry:
 - Minimum = 1 resource
 - Maximum = 1000 resources
 - Invalid entries are gracefully handled (no NaN, no negatives, no blank failures).

4. Input Fields

Field	Type	Description
Optimistic Estimate (O)	Number	Best-case duration in minutes
Most Likely Estimate (M)	Number	Realistic expected duration
Pessimistic Estimate (P)	Number	Worst-case duration
Number of Resources	Integer	Number of team members working concurrently

5. User Instructions

- Input all three estimates for each task.
- Use whole numbers in minutes (no decimals).
- Use the resource input to perform what-if scenario analysis and calculate total task completion time based on parallel allocation.

6. Cost Savings Impact

This tool contributes to **operational cost reduction** by:

- Preventing **overallocation of resources** and burnout.
- Avoiding **schedule slippage** due to underestimation.
- Enabling **contingency planning** with realistic buffers.
- Improving **forecasting accuracy**, thereby reducing rework cycles and associated costs.
- Supporting better **decision-making** by modeling outcomes under different resource loads.

Potential **ROI indicators**:

- 10–25% improved estimation accuracy
- Up to 2x faster sprint planning cycles
- Reduction in defect leakage due to properly estimated QA time

7. Non-Functional Requirements

- Smooth and mobile-friendly UI (hosted via AWS S3)

- Dark-themed UX (deep navy/black + white)
- No display of "NaN" or system errors
- Watermarked branding optional
- Scalable for future enhancements (e.g., exporting, batch uploads)

8. Disclaimer

This tool is designed for **educational and planning purposes** only. All outputs are based on user-input values and are not guarantees of performance. Always supplement automated estimates with expert review.

This tool calculates the expected time (TE) for each task using the beta distribution formula.

Optimistic (O)

Most Likely (M)

Pessimistic (P)

Calculate

Expected Time (TE):
Optimistic: 15 mins
Most Likely: 45 mins
Pessimistic: 90.5 mins

What-If Analysis

Number of Resources:

e.g. 3

Time with 3 resources:
Optimistic: 55 mins
Most Likely: 15 mins
Expected Time (TE)

Download Results

Print Summary