

ITISQS Quality Measurement Simulation Tool – User Guide

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Welcome to the **ITISQS Quality Measurement Simulation Tool!** This web-based platform is designed to help you understand and simulate **software quality measurement** using international ISO standards. Follow this guide to complete your evaluation step by step.

Step 0: Introduction

This tool simulates the **ISO/IEC 15939 measurement process** using **ISO/IEC 25010** quality characteristics and **ISO/IEC 25023** metrics. You will:

- Define your evaluation scenario
- Select software quality characteristics
- Assign importance weights
- Choose or define metrics
- Enter simulated or real metric values
- Analyze and interpret results

Step 1: Define Evaluation Scenario

1. Choose Scenario Type:

- a. **Predefined Scenario:** Pick from existing examples such as:

- i. E-Commerce Platform
 - ii. Student Portal
 - iii. Mobile Banking App
- b. **Custom Scenario:** Define your own project context and evaluation purpose.

2. Enter Scenario Details:

- a. For predefined scenarios, the name and quality characteristics are automatically filled.
- b. For custom scenarios, provide a **name** and quality characteristics.

3. Choose Characteristics:

Select the quality characteristics that are relevant for your evaluation. These come from **ISO 25010**:

- a. Functional Suitability
- b. Performance Efficiency
- c. Reliability
- d. Usability
- e. Security
- f. Maintainability
- g. Portability

4. Next: Click **Next** to continue to Step 2.

Step 2: Select Quality Characteristics

1. Assign Weights:

- a. Give each selected characteristic a relative importance (%)
- b. **Total must equal 100%**
- c. The system will validate your inputs and alert if the sum is incorrect

2. Next / Previous:

- a. Click **Next** to go to metrics selection
- b. Use **Previous** to return to scenario definition

Step 3: Select or Add Metrics & Input Data

1. Select Metrics for Each Sub-Characteristic:

- a. Choose from default **ISO 25023 metrics**, e.g.:
 - i. Mean Time to Failure (MTTF)
 - ii. User Error Rate
 - iii. Defect Density
 - iv. Average Response Time
- b. Or **define your own metric** by entering:
 - i. Name
 - ii. Unit / Formula
 - iii. Target value or acceptable range

2. Input Metric Values:

- a. Enter observed or simulated values for each metric, e.g.:
 - i. Response Time = 2.4 s
 - ii. Defect Density = 0.5 / KLOC
 - iii. User Error Rate = 0.06

Note: If you select more than one metric for a sub-characteristic, the average of the normalized values entered in the metrics for this sub-characteristic is used in the calculation.

3. Next / Previous:

- a. Click **Next** to analyze results
- b. Use **Previous** to adjust characteristics or weights

Step 4: Analyze Results

1. Overall Score:

- a. The system calculates a normalized **Overall Quality Index (0-100)**
- b. Color-coded card shows:
 - i. **Green** → Very Good Quality
 - ii. **Orange** → Good Quality
 - iii. **Red** → Needs Improvement

2. Quality Dimensions Table:

- a. Lists each characteristic with:
 - i. Raw score (0-100)

- ii. Weight (%)
- iii. Weighted score
- iv. Interpretation badge (Strong / Moderate / Weak)

3. Gap Analysis:

- a. Identifies weak areas (below threshold, default 60%)
- b. Shows score and gap for each characteristic

4. Recommendations:

- a. Provides context-aware improvement suggestions for weak areas
- b. Example: “Enhance Security. Implement robust authentication and encryption.”

5. Start New Measurement:

- a. Click **Start New Measurement** to reset the tool and begin a new evaluation

Tips for Best Use

- Always ensure the **total weight = 100%** when assigning characteristic importance
- Use realistic metric values for meaningful results
- Explore both predefined and custom scenarios for learning purposes
- Pay attention to the **gap analysis and recommendations**; these help identify areas to improve