



The Structure of Whole Quality

From the Declared Quality Object to Responsible Quality State Determination

Foundational Article 1 — Second Edition

Whole-Quality Institute

Quality is often discussed as though it begins with measurements, checklists, available data, or performance scores. Whole Quality begins earlier.

It begins with the declaration of the Quality Object whose Quality State is to be determined. Only after that object has been sufficiently described can the methodology establish its Intended Function, Intended Results, Boundaries, Interfaces, Quality Factors, Quality Indicators, Quality Outcome Criteria, Evidence requirements, and the scope of any resulting Quality Claim.

The authoritative definitions of the Root Concepts used in this article are established in the Whole Quality Root Vocabulary Standard (WQI VOC1). This Foundational Article does not redefine those concepts. It presents the overall methodological architecture and explains how the principal elements relate.

Whole Quality does not create the quality-relevant structure of the declared Quality Object. It progressively reveals that structure through increasing methodological resolution.

1. The Starting Point: The Declared Quality Object

The first methodological question is:

What is the object whose Quality State is being determined?

The Quality Object may be an infrastructure system, a support-service arrangement, a management system, a biological object, a health-related object, a process, an activity, an Interface, or another appropriately bounded object.

Different Quality Objects require different applied Quality Factors, Quality Indicators, Quality Outcome Criteria, Evidence Sources, and Reference Layers. The Whole Quality methodology remains stable, but its application must arise from the nature, Intended Function, Boundaries, Interfaces, and Context of the declared Quality Object.

Without a clear declaration, the determination may become ambiguous: it may be unclear what was examined, what was excluded, and what the resulting Quality Claim actually means.

2. Quality Object Description and Structural Checkpoints

Declaration alone is not always sufficient. The Quality Object must also be described at the level needed for the intended Quality State determination.

The description may address relevant characteristics, composition, constituent parts, relationships, Lifecycle position, operating or service conditions, users or affected persons, environment, and other quality-relevant conditions.

Structural Checkpoints provide a methodological completeness step. They confirm that the declared Quality Object has been sufficiently described before interpretation proceeds to Boundaries, Interfaces, Intended Function, Quality Factors, Quality Indicators, Quality Outcome Criteria, Evidence, and Quality State determination.

Structural Checkpoints are not Quality Factors and do not determine quality. They protect the methodology from proceeding with an inadequately described object.

3. Boundaries and Interfaces

3.1 Boundaries

Boundaries establish the scope within which the Quality Object and its Quality State are determined. They clarify what is included, what is excluded, and the limits within which the resulting Quality Claim remains valid.

Boundaries may be physical, functional, organizational, temporal, Lifecycle-based, environmental, jurisdictional, informational, responsibility-related, or otherwise appropriate to the declared Quality Object.

3.2 Interfaces

Interfaces identify the quality-relevant interactions occurring at, across, or within Boundaries. They may involve exchanges of matter, energy, information, services, responsibilities, decisions, support, influence, or other interactions.

A Boundary establishes separation and scope. An Interface identifies the interaction that may support, weaken, interrupt, distort, or otherwise affect Function Realization.

Both must remain explicit because many failures arise not only within individual components or activities, but between systems, people, stages, responsibilities, environments, and information flows.

4. Intended Function, Intended Results, and Function Realization

4.1 Intended Function

The Intended Function explains what the declared Quality Object is expected to do, enable, preserve, protect, support, prevent, control, or otherwise realize.

4.2 Intended Results

The Intended Results express the conditions, outcomes, effects, capabilities, or states through which the Intended Function is realized.

The stabilized methodological relationship is:

One Intended Function is realized through multiple Intended Results.

The Intended Function and Intended Results are related but not interchangeable. The Intended Function expresses the broad functional purpose; the Intended Results make realization of that purpose more methodologically understandable.

4.3 Function Realization

Function Realization explains the integrated structure through which the Intended Function becomes actual. It includes the relevant conditions, capabilities, relationships, controls, protections, adaptations, resources, Boundaries, and Interfaces through which the Intended Results are produced or maintained.

Function Realization comes before the selection of Quality Factors. Whole Quality first seeks to understand how the declared Quality Object realizes its Intended Function and only then organizes that understanding into principal methodological dimensions.

5. Function-Realization Requirements and Failure-Mode Families

5.1 Function-Realization Requirements

A Function-Realization Requirement identifies something that must be present, maintained, achieved, protected, supported, controlled, coordinated, or preserved for Function Realization to occur.

These requirements provide traceability among the Intended Function, Intended Results, Quality Factors, and Quality Indicators. They are not observations; they explain what Function Realization depends upon.

5.2 Failure-Mode Families

Failure-Mode Families provide a methodological completeness check. They help examine whether the proposed quality architecture can reveal the principal ways in which Function Realization may become absent, insufficient, excessive, incorrect, unstable, delayed, interrupted, deteriorated, incompatible, uncertain, distorted, or lost.

Failure-Mode Families do not automatically become Quality Factors or Quality Indicators. They test whether the derived structure provides sufficient visibility over meaningful departure from Function Realization.

6. Quality Factors, Quality Indicators, and Quality Outcome Criteria

6.1 Quality Factors

A Quality Factor represents a principal dimension of Function Realization that must be understood for responsible Quality State determination. Quality Factors are derived from the declared Quality Object and Function Realization, not selected merely because familiar categories or available measurements exist.

6.2 Quality Indicators

A Quality Indicator identifies an observable aspect through which a Quality Factor is examined. It identifies what should be observed, not the expected judgment or result.

The stabilized methodological relationship is:

One Quality Factor becomes observable through multiple Quality Indicators.

6.3 Quality Outcome Criteria

A Quality Outcome Criterion establishes the expected state or result against which observations associated with a Quality Indicator are interpreted.

The stabilized methodological relationship is:

One Quality Indicator is interpreted through multiple Quality Outcome Criteria.

The need for multiple criteria commonly arises because the observable aspect represented by the Quality Indicator is itself naturally multidimensional. Context, physical time, Lifecycle stage, Boundaries, Interfaces, and Reference Layers refine the criteria and their application.

7. Evidence, Interpretation, and Quality State Determination

7.1 Evidence

Evidence supports interpretation. It may include observations, measurements, inspection results, records, professional evaluations, scientific information, lived experience, or other information appropriate to the declared Quality Object and Context.

Evidence should remain traceable to the relevant Quality Indicator and Quality Outcome Criteria. Documentation, activity, compliance, or measurement alone does not establish the Quality State unless it supports the required methodological interpretation.

7.2 Interpretation and Findings

Observations describe what has been found. Quality Outcome Criteria establish the expected states or results. Evidence-supported interpretation explains what the observations mean in relation to those criteria within the declared Context.

Where Evidence is incomplete, inconsistent, unreliable, outdated, or unavailable, the responsible result may be uncertainty or insufficient Evidence rather than a forced satisfactory or unsatisfactory judgment.

7.3 Quality State Determination

Quality State determination is the structured process through which the condition of the declared Quality Object is interpreted in relation to its Intended Function, Intended Results, Function Realization, Boundaries, Interfaces, Quality Factors, Quality Indicators, Quality Outcome Criteria, Context, Reference Layers, and available Evidence.

The determination must remain appropriately bounded and should not extend beyond what the methodological scope and Evidence support.

8. Quality Claims and Reference Layers

8.1 Quality Claims

A Quality Claim communicates a bounded statement about the determined Quality State. It should identify or remain traceable to the declared Quality Object, scope, Context, applicable Evidence, limitations, and Uncertainty.

A broader or stronger Quality Claim generally requires a correspondingly broader and stronger methodological basis. One satisfactory component, Indicator, document, or activity should not automatically be generalized to the Quality State of the whole object.

8.2 Reference Layers

Reference Layers provide recognized foundations supporting the development, application, and interpretation of Quality Outcome Criteria and Evidence. They may include standards, technical specifications, regulations, scientific knowledge, professional guidance, validated methods, organizational requirements, or other authoritative sources.

Reference Layers support Whole Quality. They do not replace the declared Quality Object, the methodology, professional reasoning, or responsible Quality State determination.

9. The Whole Quality Methodological Pathway

The overall pathway may be summarized as follows:

- Declared Quality Object
- Quality Object Description
- Structural Checkpoints
- Boundaries and Interfaces
- Intended Function
- Multiple Intended Results
- Function Realization
- Function-Realization Requirements
- Failure-Mode Families as a completeness check
- Quality Factors
- Quality Indicators
- Quality Outcome Criteria
- Evidence-supported interpretation
- Quality State determination

- Appropriately bounded Quality Claim

Each step performs a distinct role. None should be treated as a substitute for the others. Together they provide a traceable architecture for understanding and determining the Quality State of the declared Quality Object.

The methodology is common across application domains. The specific content is derived from the nature and Context of the declared Quality Object.

10. Applied Whole Quality Initiatives

The Infrastructure Quality Initiative applies Whole Quality to infrastructure Quality Objects. The American Support Standards Initiative applies it to support-service Quality Objects. Other Whole Quality platforms may develop Core Standards and Context Guides for health, management systems, environmental systems, and other defined classes of Quality Objects.

These applications differ because their Quality Objects differ. The underlying methodological architecture remains stable.

Universality belongs to the methodology. Specificity belongs to the declared Quality Object and Context.

Conclusion

Whole Quality begins with the declared Quality Object, not with available Indicators, measurements, checklists, or documents.

The object is described and methodologically bounded. Its Intended Function is realized through multiple Intended Results. Function Realization becomes understandable through Quality Factors, observable through Quality Indicators, and interpretable through Quality Outcome Criteria. Evidence supports responsible Quality State determination and an appropriately bounded Quality Claim.

The stabilized methodological relationships are:

One Intended Function is realized through multiple Intended Results.

One Quality Factor becomes observable through multiple Quality Indicators.

One Quality Indicator is interpreted through multiple Quality Outcome Criteria.

Whole Quality does not create complexity. It progressively increases methodological resolution, revealing the quality-relevant structure that already exists within the declared Quality Object.

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