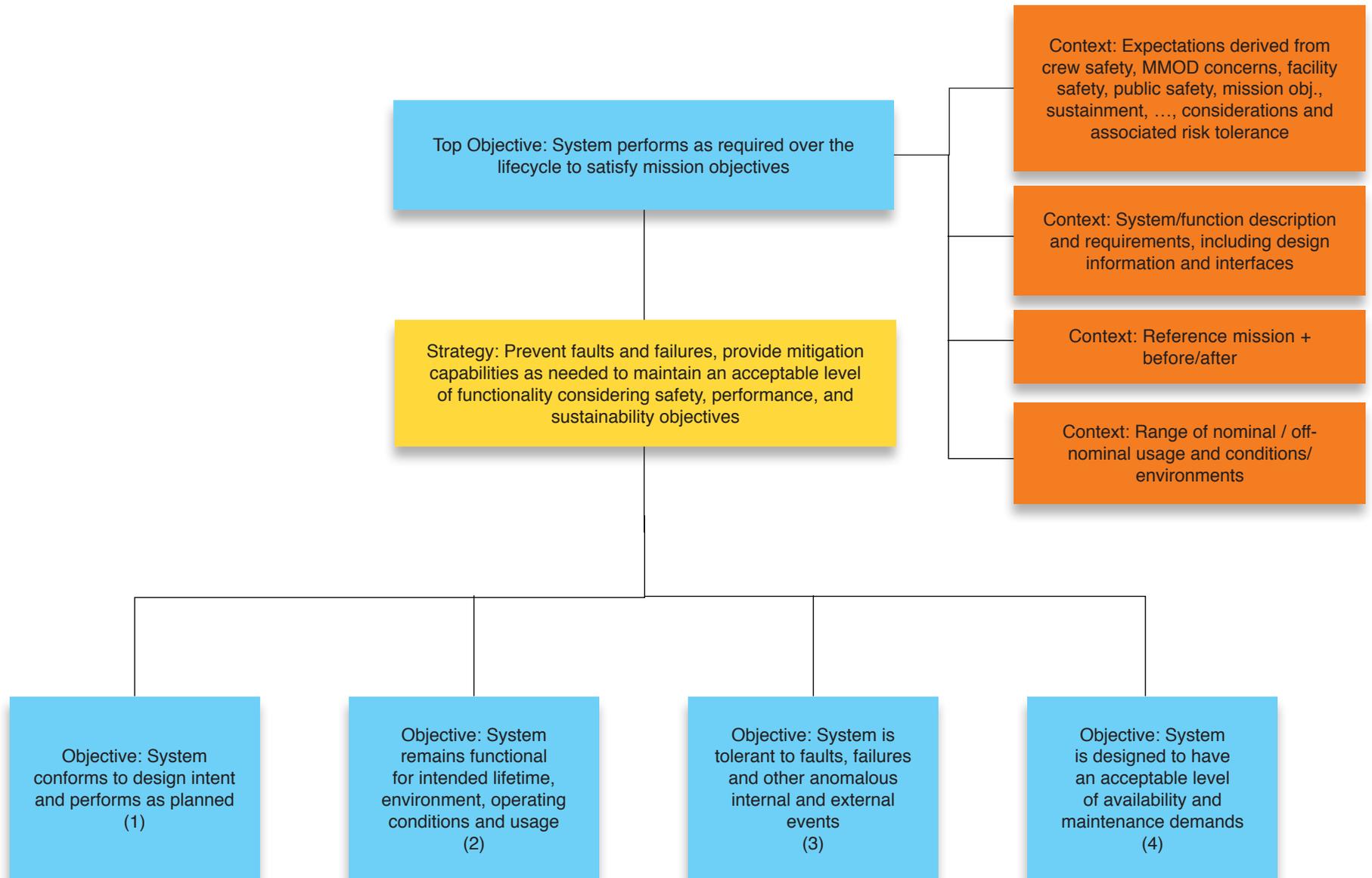


Reliability and Maintainability Objectives Hierarchy

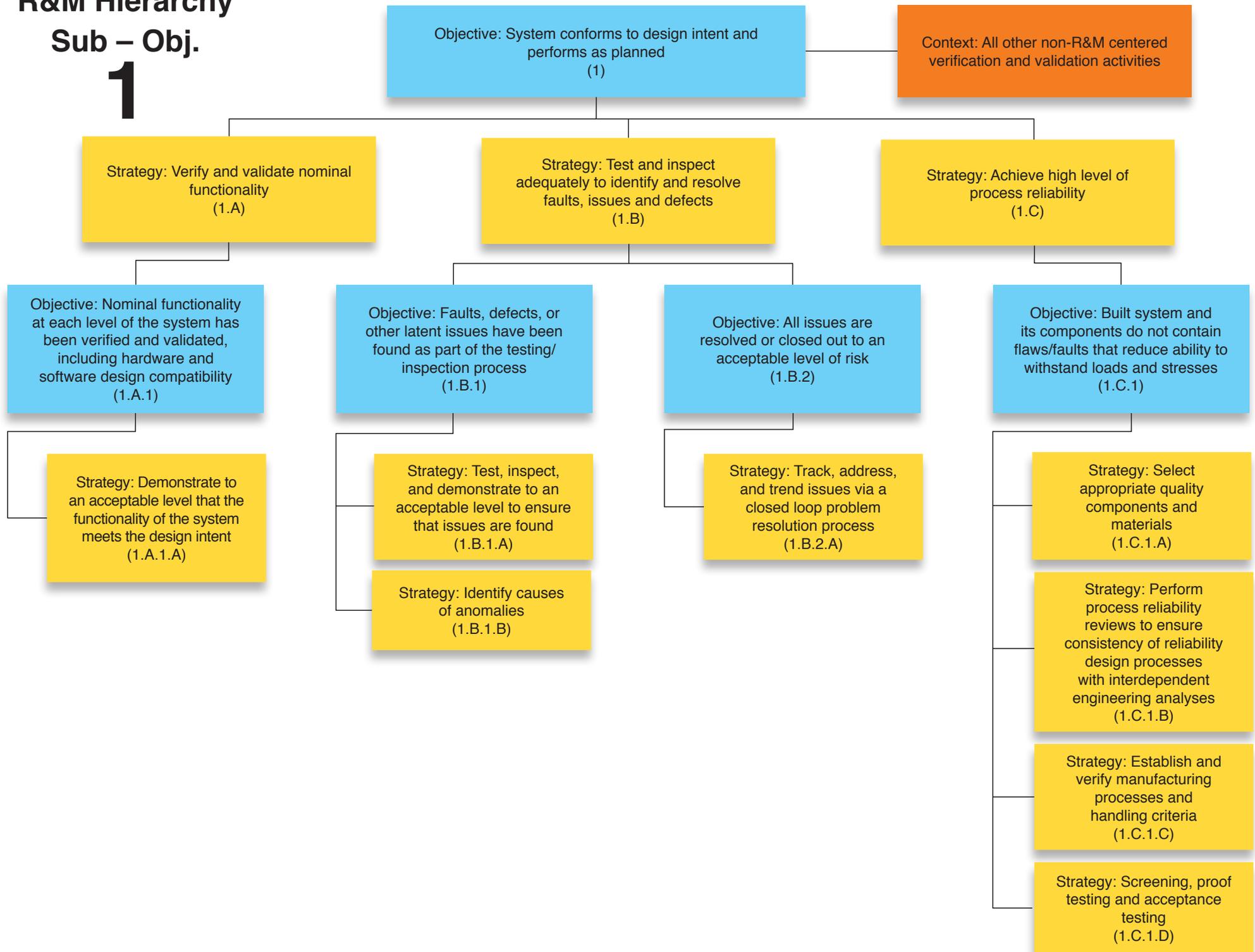
R&M Objectives Hierarchy – Top Level



R&M Hierarchy

Sub – Obj.

1



R&M Hierarchy

Sub – Obj. 2

Objective: System remains functional for intended lifetime, environment, operating conditions and usage (2)

Context: Description of operating environment, including static, cyclical, and randomly varying loads

Strategy: Understand failure mechanisms, eliminate and/or control failure causes, degradation and common cause failures, and limit failure propagation to reduce likelihood of failure to an acceptable level (2.A)

Strategy: Assess quantitative reliability measures and recommend or support changes to system design and/or operations (2.B)

Objective: system and its elements are designed to withstand nominal and extreme loads and stresses (radiation, temperature, pressure, mechanical, ...) for the life of the mission (2.A.1)

Objective: System or its elements are not susceptible to common-cause failures (2.A.2)

Objective: System and its components meet quantitative reliability criteria (2.B.1)

Strategy: Apply design standards to incorporate margin to account for variable and unknown stresses (2.A.1.A)

Strategy: Evaluate and control nominal stresses and related failure causes (2.A.1.B)

Strategy: Evaluate and control potential for extreme stresses and related failure causes (2.A.1.C)

Strategy: Perform qualification testing and life demonstration to verify design for intended use (2.A.1.D)

Strategy: Evaluate and control coupling factors and shared causes between redundant (or dependent) components (2.A.2.A)

Strategy: Determine reliability allocation (2.B.1.A)

Strategy: Estimate reliability based on applicable performance data, historical data of similar systems, and/or physics-based modeling (2.B.1.B)

Strategy: Support design trades based on reliability analysis (2.B.1.C)

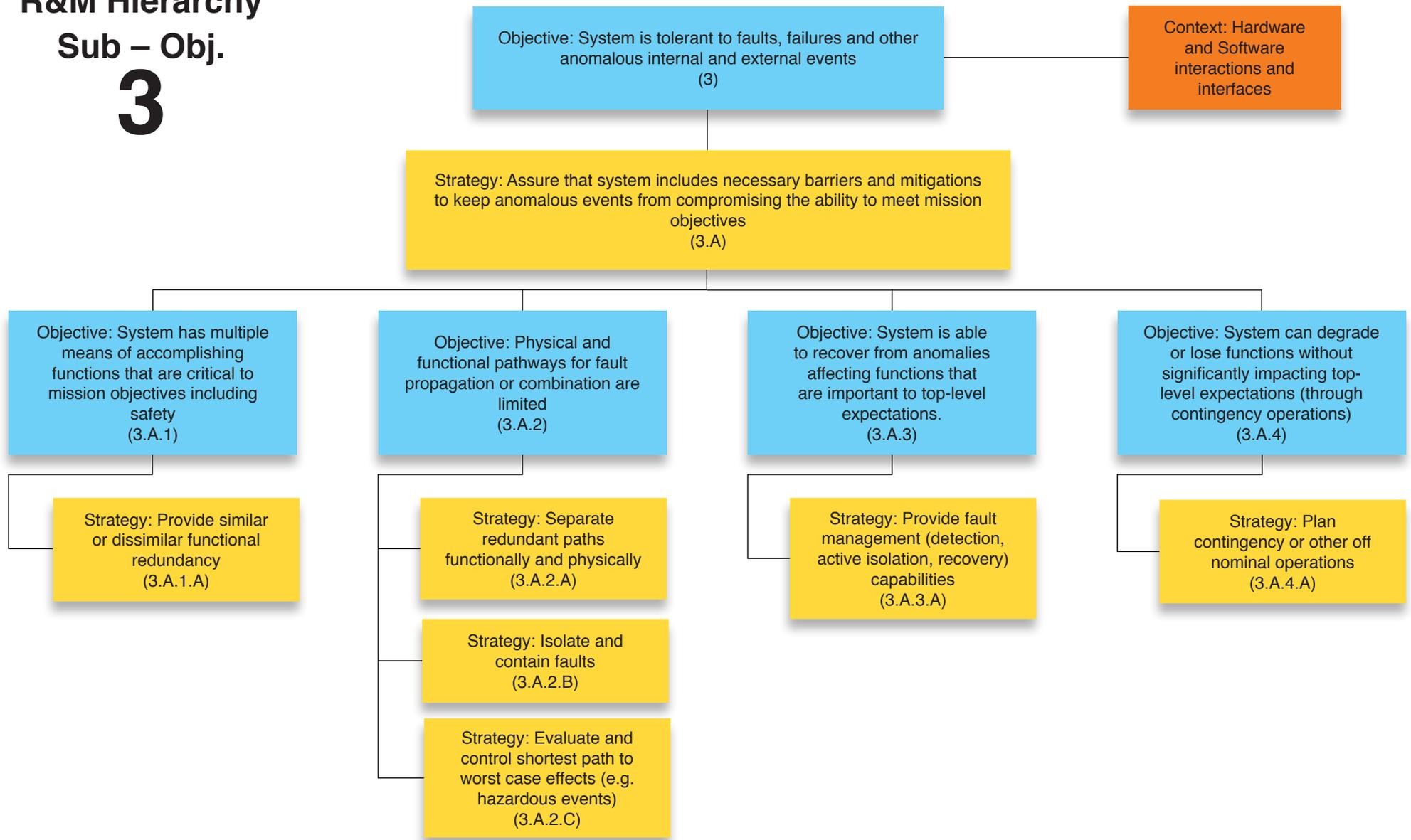
Strategy: Plan and perform life testing (2.B.1.D)

Strategy: Track and monitor reliability performance over time (2.B.1.E)

R&M Hierarchy

Sub – Obj.

3



R&M Hierarchy

Sub – Obj.

4

