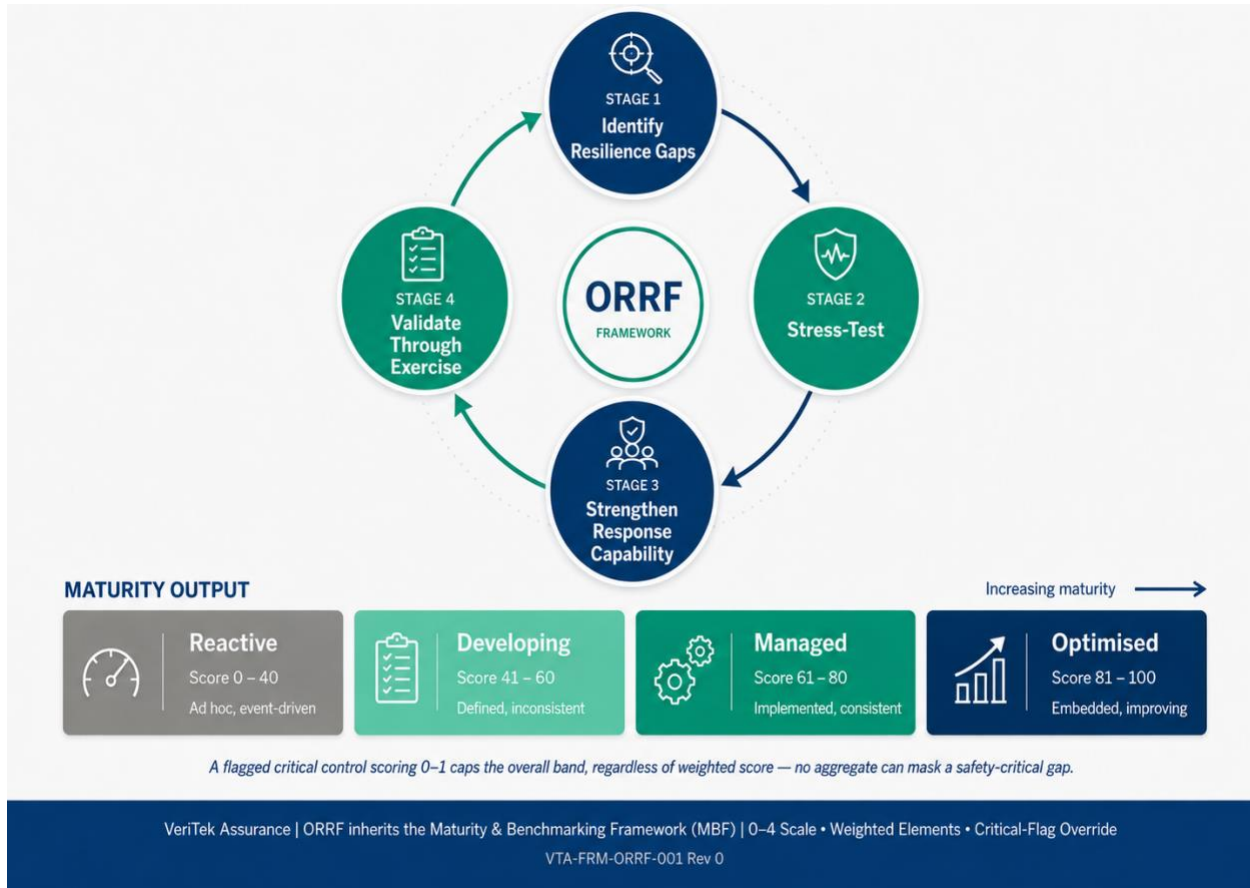


OPERATIONAL RISK & RESILIENCE FRAMEWORK (ORRF)

Asset-Specific Resilience Built from Identified Damage Mechanisms



Overview

ORRF sits beneath HSE and Risk Engineering and cross-links to Process Safety Engineering, focused on operational resilience: major accident hazard (MAH) contingency, business continuity, and asset criticality-linked emergency response. It is distinct from RAF's enterprise-wide assurance scope.

The VTA Difference

ORRF builds resilience scenarios from an operator's own identified damage mechanisms and critical findings rather than from generic industry hazard templates. The contingency plan is asset-specific, not boilerplate.

The 4-Stage Methodology:

Stage	Name	Function
1	Identify Resilience Gaps	Map major accident hazard scenarios against current emergency response, business continuity, and contingency planning.
2	Stress-Test	Evaluate response plans against credible worst-case scenarios derived from PIMS/CMS/AIMS damage-mechanism findings.
3	Strengthen Response Capability	Close gaps in emergency response procedures, mutual aid arrangements, and criticality-linked contingency resourcing.
4	Validate Through Exercise	Confirm resilience capability through drills and exercises, feeding findings back into the assessment.

Scoring Logic via the AIMS Instrument

ORRF does not yet have a dedicated diagnostic instrument in the current family. It draws risk inputs from the PSM instrument (emergency response and MAH-related procedures) and the RBI instrument (consequence-of-failure severity), cross-referenced against critical-flag findings from AIMS, CMS, RAP, and PIMS to build asset-specific resilience scenarios. A dedicated ORRF instrument following the MBF architecture is a recommended near-term addition.

The VTA Difference:

ORRF derives resilience scenarios from the operator's own identified damage mechanisms and critical findings, not generic hazard libraries.

Instrument Family MBF in Production:

This framework deploys the Maturity & Benchmarking Framework (MBF) through the following instrument(s). Each applies the same 0–4 response scale, weighted-element structure, four-band model, and critical-flag override logic, calibrated to the domain.

Code	Instrument	Mat. Q	Elem.	Flags	Codes
PSM	Process Safety Management (input)	40	10	5	CCPS RBPS · ISO 22301
RBI	Risk-Based Inspection (CoF input)	40	10	5	API 580/581

Note: ORRF currently operates on inputs from the PSM and RBI instruments. A dedicated ORRF/HRE Maturity Assessment instrument is recommended as a near-term addition to the family.

Engagement:

This framework currently deploys by drawing on completed PSM and RBI instrument outputs, cross-referenced against the critical-flag registers of the AIMS, CMS, RAP, and PIMS instruments, to build asset-specific resilience scenarios. The engagement is delivered as an engineer-issued resilience assessment report covering the major-accident-hazard scenario set, the response-capability gap register, and a risk-weighted improvement roadmap. A dedicated ORRF Tier-1 / Tier-2 instrument, following the MBF architecture, is a planned near-term addition to the family.