MASTERING DP PREPAREDNESS

A Strategic Guide to IMCA M273 – Conducting Effective DP Drills

January 2026
Guidance for DP1, DP2, and DP3 Vessels

Moving from Optimism to Professional Paranoia.

Bridging the Gap Between Competence and Reality

IMCA M117

THE STANDARD

Defines Competence, Training, & Experience.

IMCA M273

THE METHOD

Defines Drills, Preparedness, & Execution.

Key Details

PURPOSE

To provide a practical operational framework for planning, conducting, and reviewing DP drills.

SCOPE

Applicable to Equipment Class 1, 2, and 3 vessels.

GOAL

Drills are not for design validation. They are structured learning opportunities to reinforce human performance.

Murphy’s Law is Not Pessimism. It is a Planning Mindset.

“Anything that can go wrong, will go wrong.”

The Assumption

In DP operations, we do not assume generators, thrusters, or control systems will behave as designed. Single-point failures are inevitable.

The Reality

Human error is as likely as hardware failure. Resilience in DP Class 2 and 3 relies on redundancy because Murphy is constantly monitoring progress.

Key Takeaway: If an organization runs on optimism, problems creep in. Professional paranoia drives the need for robust procedures.

The Toolkit: Three Tiers of Operational Drills

LIVE DRILLS

Context: Active operations or Annual Trials.

Focus: Real failure modes, alarms, and environmental forces.

Value: Tests the system AND the crew's response under pressure.

DESKTOP DRILLS

Context: Classroom, port calls, pre-mobilization.

Focus: Theoretical scenarios, role-playing, and analyzing past incidents.

Value: Builds a “Shared Mental Model” without risking the vessel.

TOUCH DRILLS

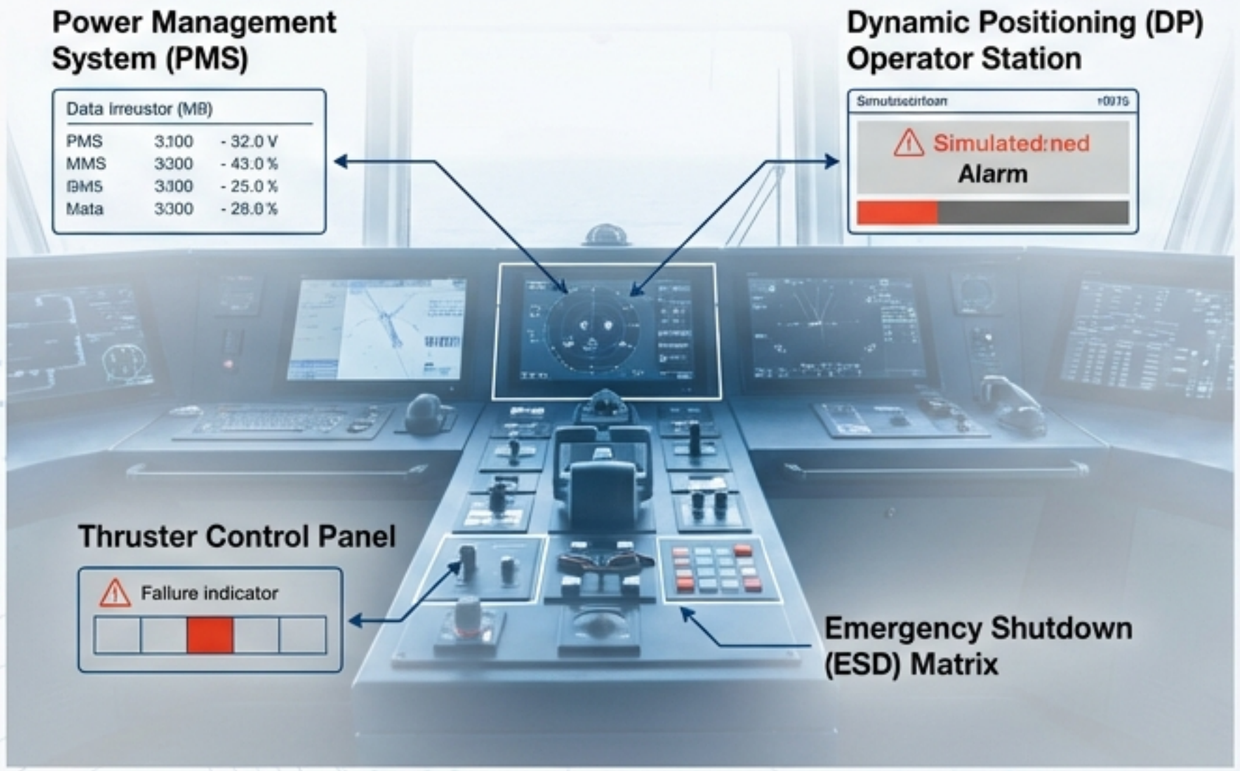
Context: Onboard familiarization.

Focus: Muscle memory and ergonomics.

Value: Reinforces physical response sequences (Mimic Only).

Maritime Technical Editorial

Live Drills: Validating Response Under Pressure

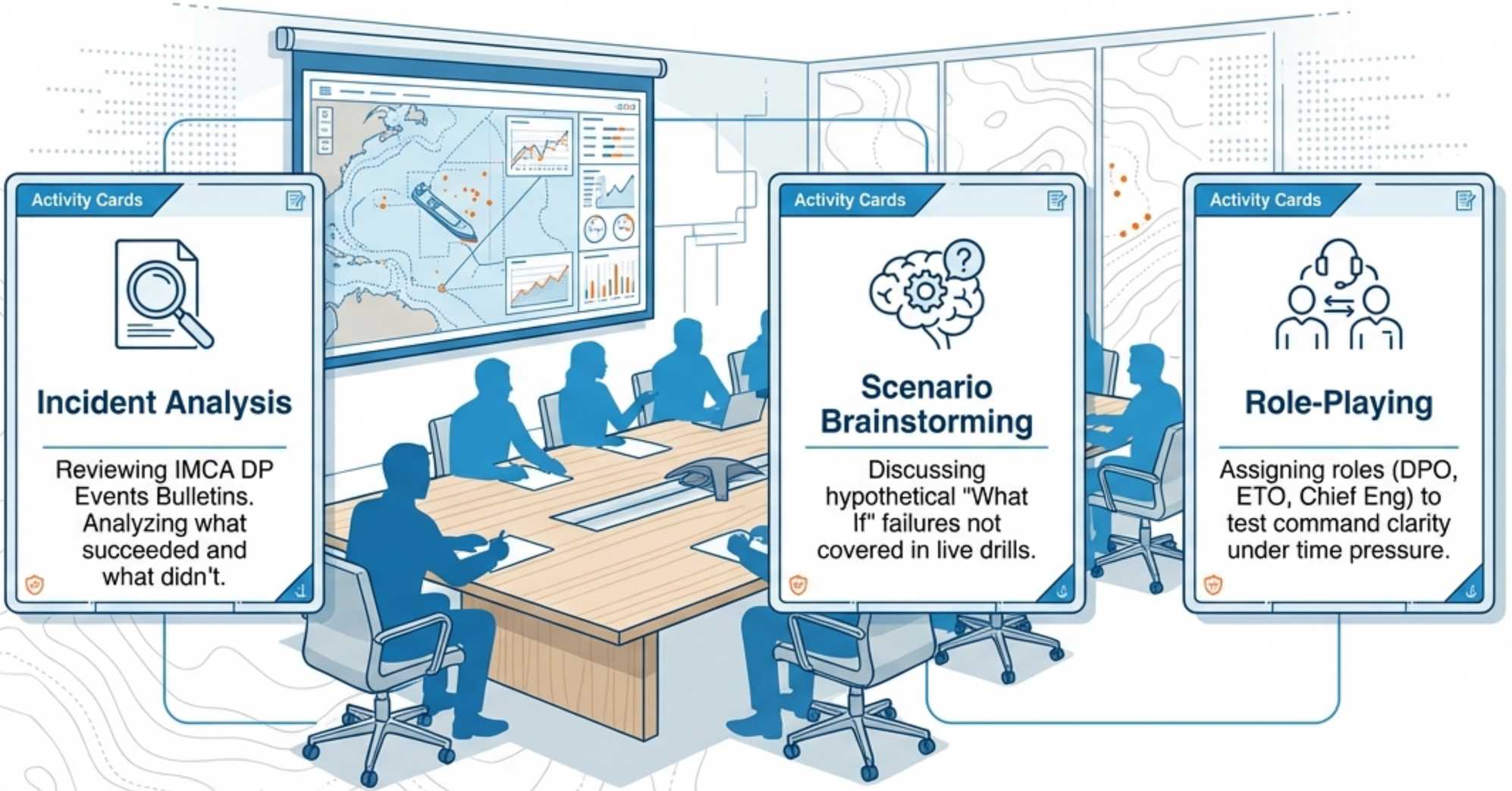


Key Failure Scenarios

- **Power System:** Simulate blackout or bus tie failures.
- **Thruster/PRS:** Trigger simulated failures to observe redundancy logic.
- **E-Stop:** Confirm crew understanding of consequences.
- **Spoofing:** Simulate sensor interference to test anomaly detection.

CRITICAL INSIGHT: The applied failure alone is not the drill. The true value lies in the realistic human emergency response.

Desktop Drills: Building the Shared Mental Model



Activity Cards

Incident Analysis

Reviewing IMCA DP Events Bulletins. Analyzing what succeeded and what didn't.

Activity Cards

Scenario Brainstorming

Discussing hypothetical "What If" failures not covered in live drills.

Activity Cards

Role-Playing

Assigning roles (DPO, ETO, Chief Eng) to test command clarity under time pressure.

Best for Port Calls, System Changes, or Post-FMEA Reviews.

Touch Drills: Muscle Memory and Ergonomics

Manual Thruster Control

Reaching for levers to assess ergonomics and fallback procedures.

Mode Transitions

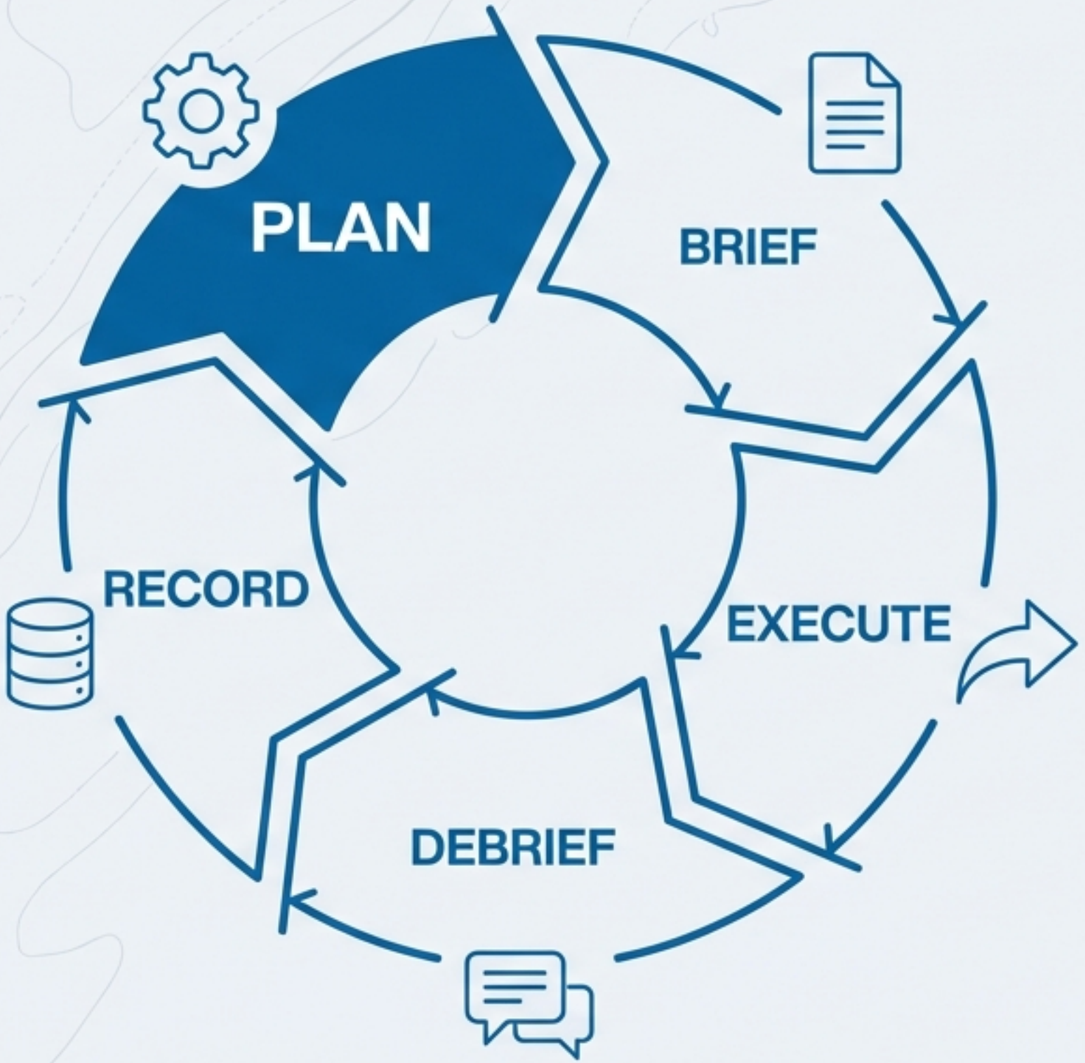
Walking through the sequence of switching from DP to Joystick/Manual.

Contingency Activation

Rehearsing steps to switch PRS priority or isolate power sources.

Definition: Simulated, hands-on exercises where crew physically perform motions without activating controls.

Phase 1: Planning and Scenario Design



Critical Review: Operator Intervention

Codes discourage reliance on operator intervention, but it exists. **Drills MUST target these vulnerabilities.**

1. Manual fuel changeover on DP3 vessels (e.g., 2 fuel tanks).
2. Manual changeover of a stern tunnel thruster dependent on rudders.
3. Emergency stop activation to convert 'Drive Off' to 'Drift Off'.

Phase 2: The Safety Briefing (Toolbox Talk)

PRE-DRILL CHECKLIST (5-10 Mins)

- **SCENARIO:** What failure mode is being simulated?
- **BOUNDARIES:** What is real? What is simulated? What is mimic-only?
- **SYSTEM STATUS:** Known constraints or degraded redundancy?
- **HAZARDS:** Weather, proximity to structures, Time to Safely Terminate.
- **ROLES:** Drill Leader and Observer assigned.
- **STOP AUTHORITY:** Confirmed anyone can stop the drill.

If the crew doesn't agree on the boundaries, the drill is dangerous.

Phase 3: Execution and Realism

The Golden Rule: Simulate realistic conditions without compromising safety.

THE OBSERVER

Assign an experienced observer (Senior DPO, Chief Eng). They are the data recorder.

Tasks: Record alarms, timings, decision-making quality, and procedure compliance.

ELEMENTS OF REALISM

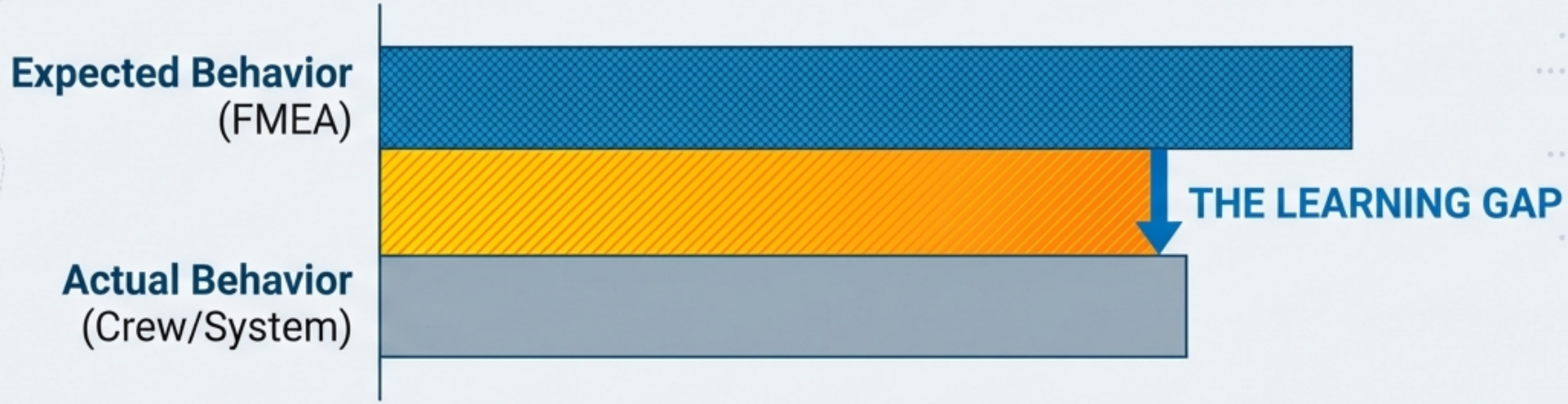
Uncertainty: Introduce escalation; don't just follow a script.

Redundancy Checks: Does the system react to component loss as designed?

Manual Overrides: Can the crew confidently switch to manual?

Comms Discipline: Evaluate coordination between Bridge, ECR, and Deck.

Phase 4: The Debrief – Where Learning Happens



Expected vs. Actual

Did the DP system react as predicted?

Human Factors

Was anyone task-fixated or overloaded?

Communication

Was flow between Bridge and ECR timely?

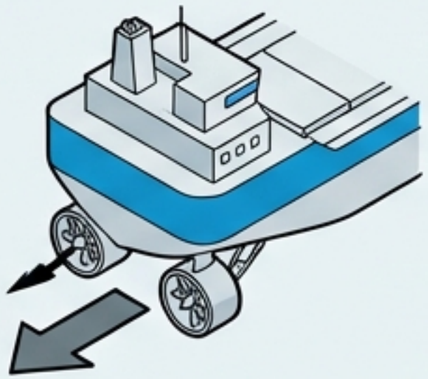
Procedures

Do the CAM/TAM/ASOG need updating?

Culture: A learning exercise, not a disciplinary review.

Scenario Spotlight: Drive Off (Appendix A4)

TRIGGER



Thruster fails to full thrust or large position move initiated.

RECOGNITION

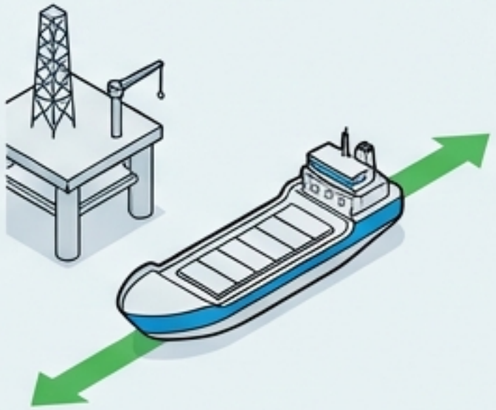
Alarms generate.
DPO notices deviation.

ACTION

Option A:
Independent Joystick (IJS)

Option B:
Manual Thruster Control / E-Stop (Convert to Drift Off)

RECOVERY



Move vessel away from danger and stabilize.

Discussion Point:
How quickly was it determined this was a ‘Red’ ASOG status?

Scenario Spotlight: Recovery from Full Blackout (Appendix A5)

BRIDGE WORKFLOW (Secure Position)

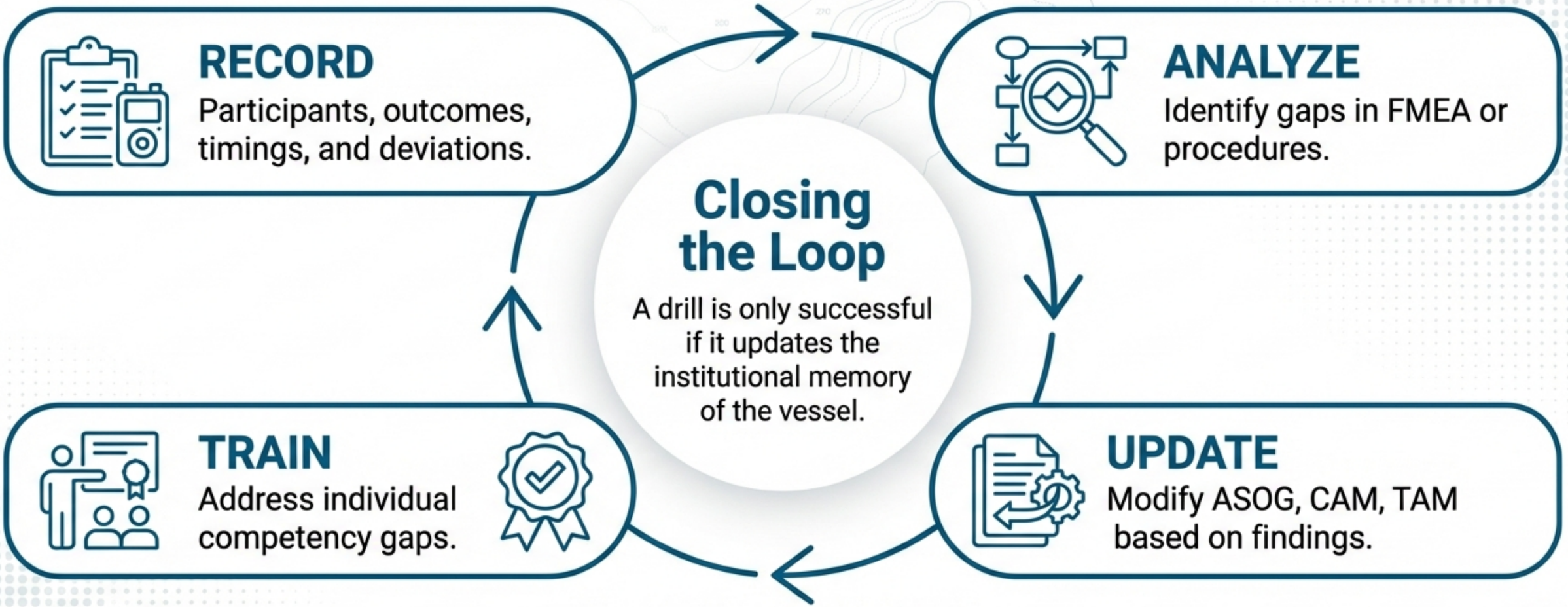
- Where is the vessel drifting?
- Is there a clear escape route?
- Are thrusters selected to Auto or Manual upon restart?

Mission Crew must secure equipment brakes/clamps to prevent damage during power-up.

ECR WORKFLOW (Restore Power)

- How was the blackout triggered?
- Will generators auto-start and connect?
- Are auxiliaries (cooling/fuel) reset?

Assurance and Continuous Improvement



CRITICAL: Continuous improvement requires direct feedback integration. Failure to update procedures based on drill findings results in repeated risks and static safety culture.

Preparedness is Not a State; It is an Activity.

READINESS

Familiarizes personnel with failure modes.

REACTION

Reduces time to handle emergencies.

SAFETY

Minimizes risk to crew, vessel, and environment.

Drills provide structured learning opportunities rather than system proving. They reinforce the human performance that the redundancy concept relies upon.

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