Managing Collision Risk Offshore Systems, People, and Learning from Reality

Marine Safety Forum – All Members Meeting

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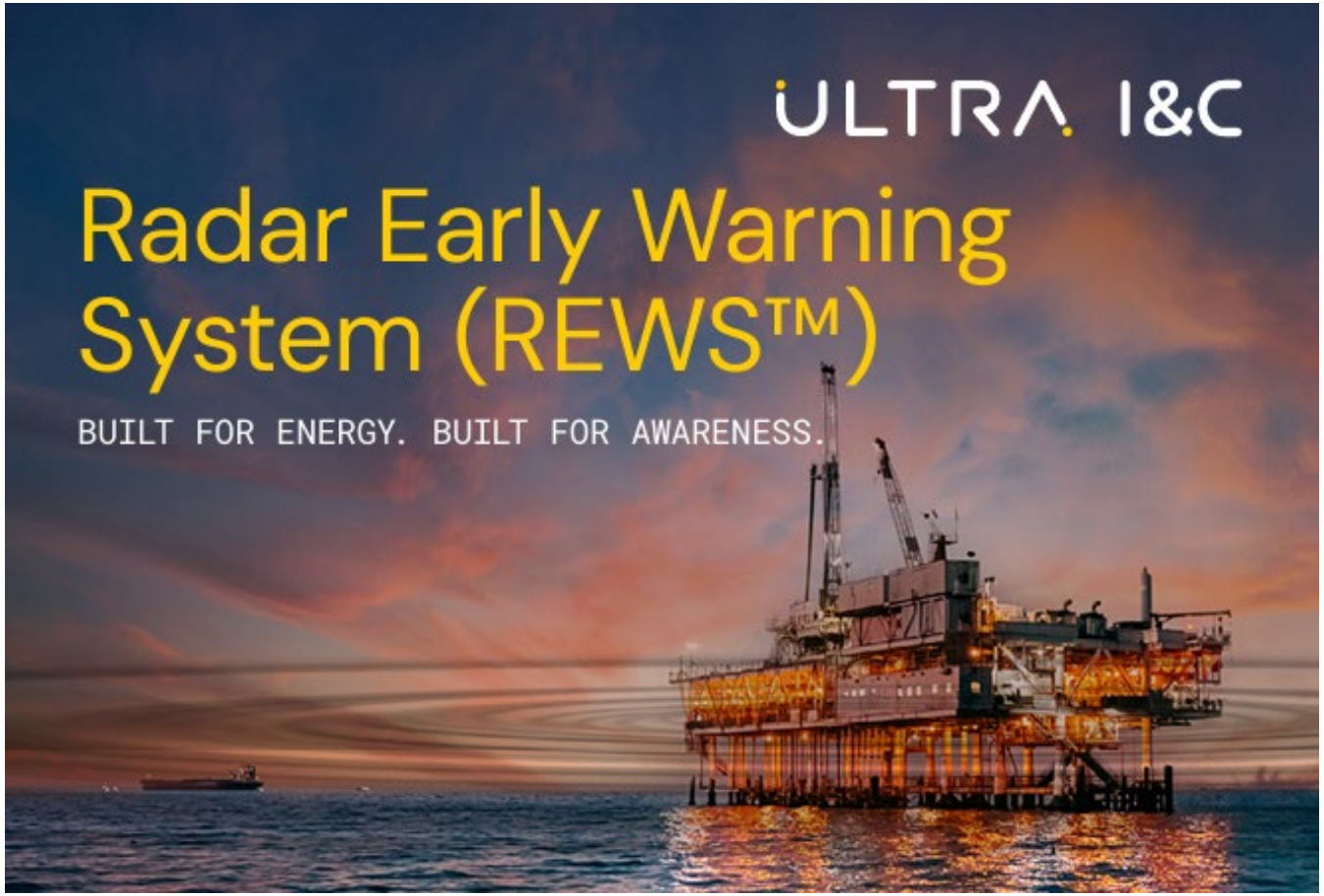
Ultra I&C - Who We Are

- Context – who we are and why this matters
- Offshore safety-critical systems and assurance
- Working alongside operators, ERRV crews, Onshore control room crew
- Focused on supporting safe operations.



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Offshore Operations: A Complex Environment

- Managing safety in a highly dynamic system
- Multiple simultaneous hazards
- Changing weather, traffic and operational states
- Human, technical and organisational interfaces
- Thin margins for error when things start to drift

Why Collision Risk Still Matters

- Ship–installation collision remains a major accident hazard
- Historically high proportion involve attendant vessels
- Consequences escalate rapidly once control is lost
- Low-probability, high-consequence events
- Nearly always preceded by weak signals

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Human Factors: Where Risk Often Starts

- Most collisions don’t start with bad intent
- Loss of situational awareness
- Task overload and distraction on the bridge
- Multiple competing priorities
- Normalisation of deviation over time

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HSE Safety Bulletin ED01-2025

What ED01-2025 is clearly telling the industry

Increase in vessel collisions with offshore structures

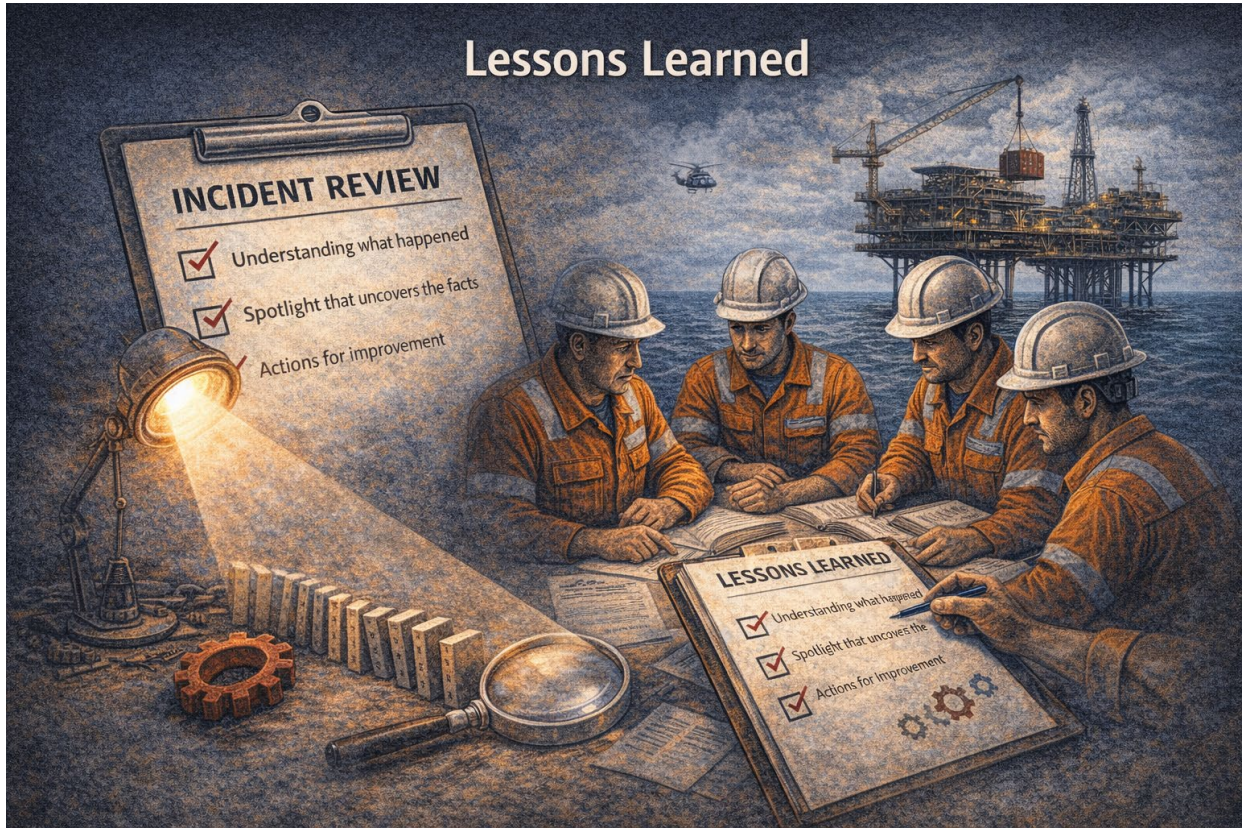
Watchkeeping and situational awareness failures

Distraction by non-navigational tasks

Clear expectation for improved detection and alerting

Have we taken the appropriate action?

Lessons Learned



- Alarm Flood
- Alarm Blindness
- When systems *looked* operational
- Untrained users
- Core system appeared functional
- Intermittent issues not treated as safety-relevant
- Checks passed on paper
- Underlying faults masked by assumptions
- Change implemented before baseline confidence
- *Operators priorities*

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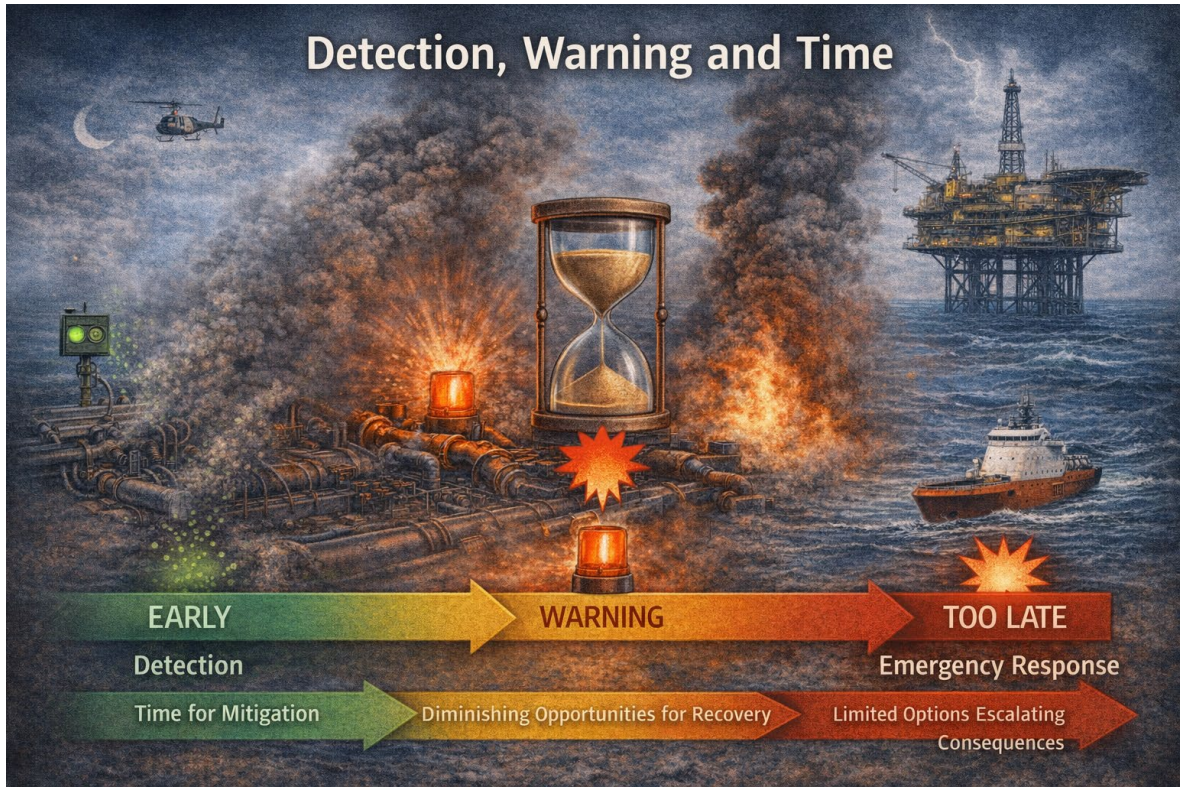
Detection, Warning and Time



- Time is the most valuable safety margin
- Earlier detection = more options
- Track Validation
- Appropriate Alarm conditions
- Alarm Floods/Alarm Blindness

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The Assurance Gap

Compliance does not always equal confidence

Passing checks ≠ correct behaviour in all conditions

Intermittent or nuisance issues matter

Weak signals should not be ignored

Assurance must reflect operational reality

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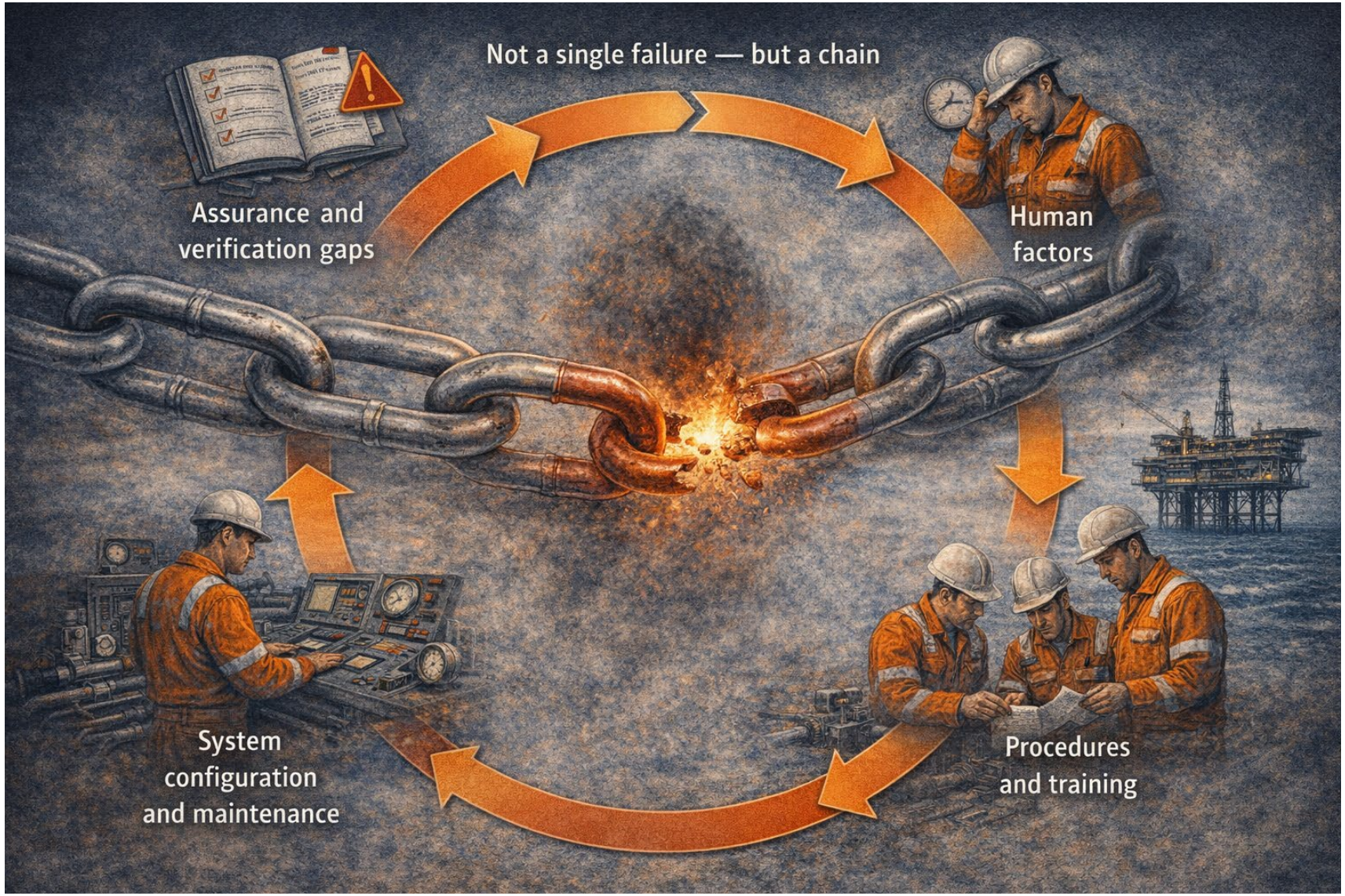
Collision Risk Is a System Problem



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What Good Looks Like

From detection to decision

Early warning, not last-second alerts

Clear escalation thresholds

Audible and visual cues

Integrated into procedures and training

Regular testing and verification

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Alarm Management and IEC 62682

- Supporting people under pressure
- Alarms must be meaningful and prioritised
- Clear response expectations
- Avoid alarm flooding and ambiguity
- Designed to aid human decision-making
- IEC 62682 addresses this directly

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Collaboration Is Essential

- Collision risk management is shared
- Operators, ERRVs, crews, duty holders
- Open reporting culture
- Learning before incidents occur
- Using lessons across assets, not in isolation

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Key Takeaways

- Collision risk is systemic, not individual
- Human factors sit at the centre
- Early detection buys time
- Assurance beats assumption
- Collaboration saves lives

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Closing