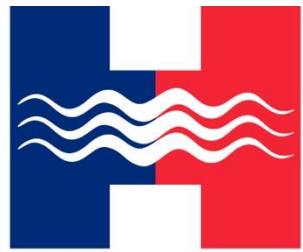


Transformational Maritime Training



aage hempel group

!kilo

How do **You** manage the delta between
CoC and actual Competence?

Do you know?

Let's start with **you.**

Are you confident?

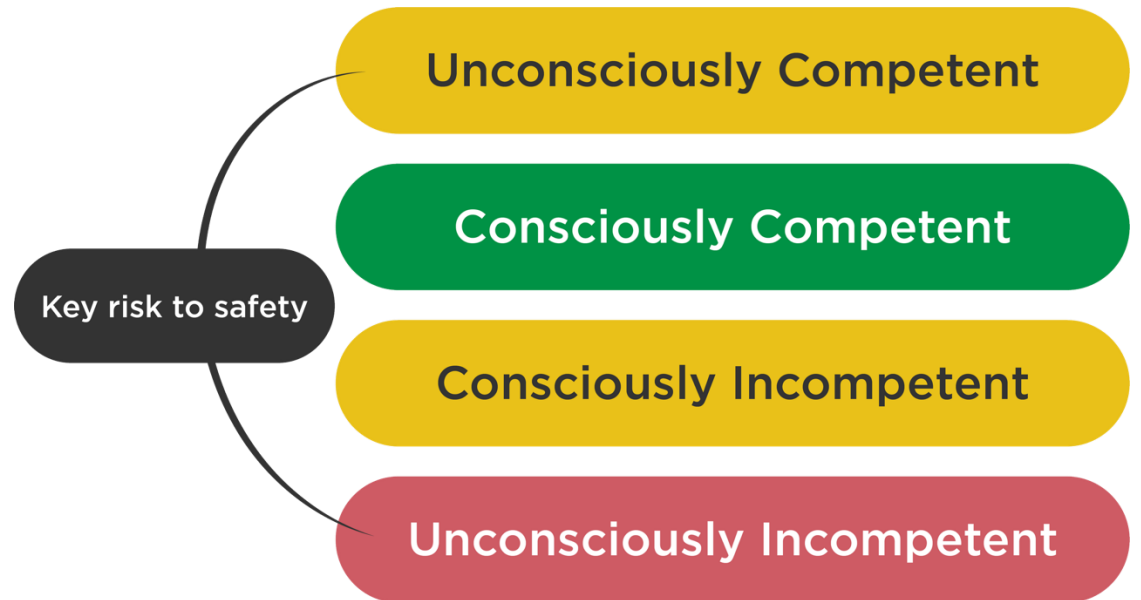
How knowledgeable are **you**?

Are you sure?

Can **you** apply that knowledge when needed?

Are there any gaps?

Where are **you** in the hierarchies of competence?



Do you know when **you** are outside of
your comfort zone?

This is me right now !

If you can't answer those questions about **yourself**, how can **you** identify where operational risks exist within **your** crew?

Can immersive technology help?

Yes !

Untethered Virtual Reality permits you to **train** and **evaluate** watchkeeping standards around the Globe.

Increasing Data Confidence

Metric	Traditional Training	VR-Based Training	Improvement
Knowledge Retention	~60%	85–90%	+30–40%
Error Rate	Baseline	–35%	Significant reduction
Confidence/Engagement	Moderate	80–90%	+40–50%
Training Duration	100%	~70–75%	–25–30%
Cost Efficiency	-	15–25% savings	Notable
Environmental Impact	-	–60% emissions	High benefit

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COG 000°T 0°S

HOG 110°T 0°W
100° 1° 0° 0°

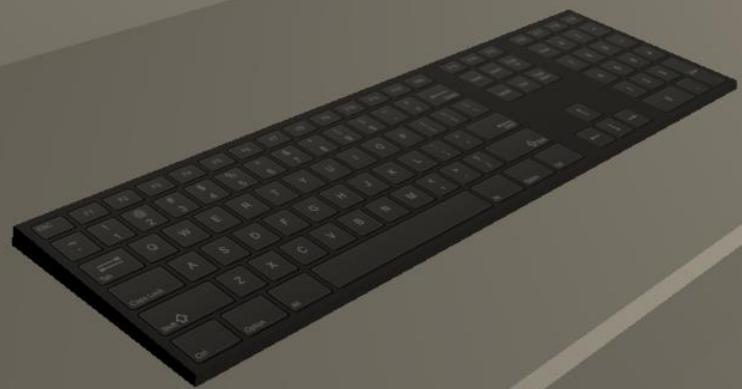
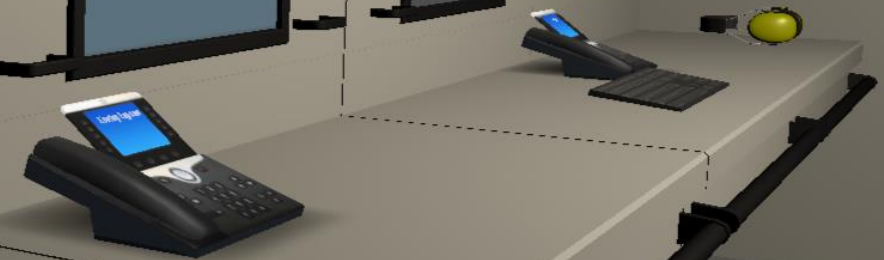
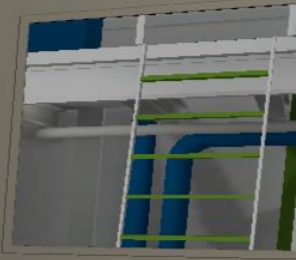
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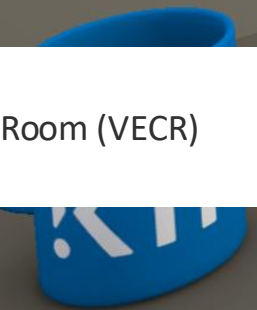
A row of four electronic display screens mounted on the bridge console. The leftmost screen shows a map with yellow and orange landmasses. The second screen displays a list of vessel data. The third screen shows a central depth gauge with a green needle and various control buttons. The rightmost screen displays a blue circular radar or sonar scan with yellow and green returns.

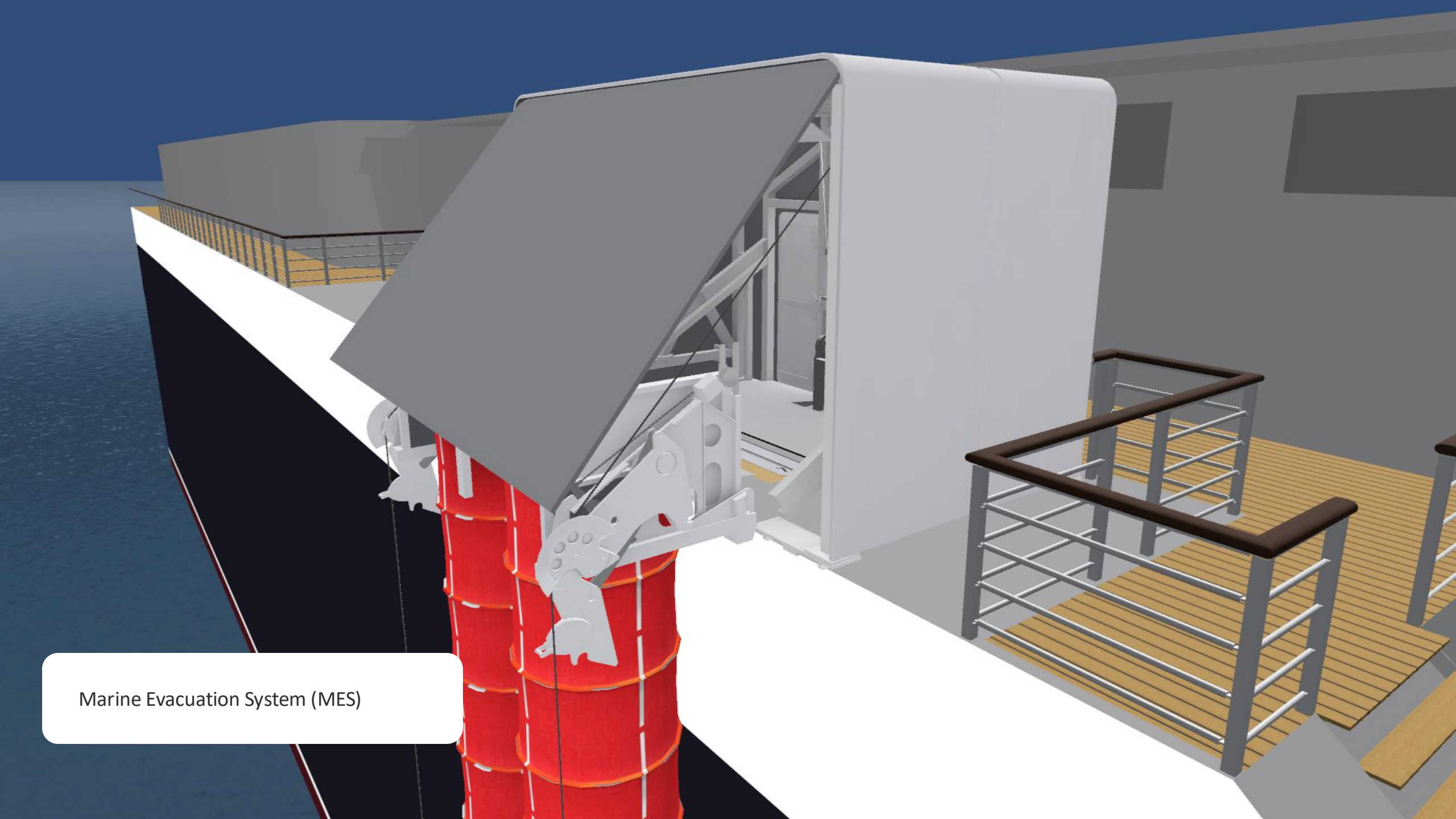


VASCO



Engine Control Room (VECR)





Marine Evacuation System (MES)



Take the Simulator to the Individual and
maintain standards.





Navigator			
Exceptional Standard	Average/Median Standard	Accepted	Below Standard/Critical
Consistently	Frequently	Infrequently	Rarely
Score = 4	Score = 3	Score = 2	Score = 1
Navigator demonstrated over several scenarios that they have an excellent/deep understanding of the ColRegs.	Navigator has a strong understanding of the ColRegs.	Navigator has an adequate understanding of the ColRegs.	Navigator has a deeply flawed understanding of the ColRegs.
Navigator demonstrated over several scenarios that they apply the ColRegs correctly at all times and a safe CPA is maintained at all times.	Navigator applies the ColRegs correctly and a safe CPA is maintained at all times.	Navigator applies the ColRegs correctly. Generally maintains a safe CPA.	Navigator consistently applies the ColRegs incorrectly. Fails to maintain safe CPA.
Navigator demonstrated over several scenarios that they communicate clearly, and effectively communicate their mental model	Navigator communicates clearly, and effectively communicates their mental model	Navigator generally communicates clearly, and adequately communicates their mental model	Navigator rarely communicates clearly, and generally fails to effectively communicate their mental model
Navigator demonstrated over several scenarios that they respond appropriately to challenge from the Bridge team, encourage open dialogue and always consider the teams input..	Navigator responded appropriately to challenge from the Bridge team, encouraged open dialogue and always considered the teams input.	Navigator generally responded appropriately to challenge from the Bridge team, mainly encouraged open dialogue and generally considered the teams input.	Navigator does not respond appropriately to challenge from the Bridge team. Does not encourage open dialogue. Does not appropriately consider the teams input.
Navigator demonstrated over several scenarios that they make informed decisions based on their situational assessment. They detect relevant visual, auditory and other sensory cues. They understand the significance of perceived information.	Navigator makes informed decisions based on their situational assessment. They detect relevant visual, auditory and other sensory cues. They understand the significance of perceived information.	Navigator generally makes informed decisions based on their situational assessment. They detect most relevant visual, auditory and other sensory cues. They generally demonstrate that they understand the significance of perceived information.	Navigator failed to make informed decisions based on their situational assessment. Failed to detect relevant visual, auditory and other sensory cues. Failed to understand the significance of perceived information.
Navigator demonstrated over several scenarios that they eagerly engage with the training program and it is evident that feedback from the instructor is being implemented enthusiastically and consistently	Navigator engages with the training program and its evident that all of the feedback from the instructor is being implemented.	Navigator engages with the training program and its evident that some of the feedback from the instructor is being implemented.	Navigator refuses to engage with the training program and it is evident that most of the feedback from the instructor is being ignored.

io	Understanding	Application	Communication	Teamwork	Situational Awareness	Attitude	Contribution to De-Brief	Overall Performance	Master Mariner Instructor Remarks
1	3	3	3	3	3	3	3	2.9	Andy delivered a solid performance, effectively leading the team to successfully complete the scenario while maintaining safe CPAs throughout.
2	3	3	3	3	3	3	3	2.9	Chris provided strong support to the Navigator and effectively utilized the PACE model on several occasions.
3	3	3	2	3	3	3	2	2.7	Marko demonstrated excellent helming skills and actively engaged with the team, providing valuable visual cues to support both the Navigator and Co Navigator.
4	3	2	3	3	3	3	3	2.7	Chris successfully led the team; however, an initial hasty decision resulted in a close-quarters situation with two sailing vessels early in the scenario.
5	2	2	3	3	3	3	2	2.5	Marko supported the Navigator by consistently using the PACE model. He could definitely be more assertive when in doubt to enhance decision-making and clarity.
6	3	3	3	3	3	3	3	2.9	Andy demonstrated sound helming skills. He could improve by actively assisting in verifying vessels visually to further support the team.
7	2	1	3	2	3	2	1	2.1	Marko understood Rule 19 but failed to apply it when a risk of collision arose and did not acknowledge the necessity of its correct application during the debrief. This oversight may have resulted in a close-quarters situation or a collision.
8	3	3	2	2	3	3	3	2.5	Andy needs to strike a balance between being a supportive Co Navigator and avoiding the perception of being an overbearing "Master" on the bridge. At times, the Navigator may not have felt the freedom or confidence to take appropriate action due to the pressure created by Andy's approach. That said, Andy demonstrates a strong understanding of COLREGs and Bridge Resource Management (BRM) practices.
9	2	3	3	3	3	3	3	2.7	Chris executed all helm orders accurately and conveyed an excellent overall understanding of the scenario. However, when uncertain about the situation or the Navigator's decisions, he should proactively utilize the PACE model to address concerns effectively.
10	2	2	2	2	2	3	3	1.9	After familiarizing himself with the simulator, Michal successfully navigated the vessel through the exercise, maintaining a safe CPA throughout. While he occasionally used the PRO format, Michal recognized the importance of thinking aloud to share his mental model and ensure decisions are made with all relevant information. This demonstrated his self-reflection and commitment to improvement for future scenarios.
11	2	2	2	2	2	3	3	1.9	Clarace provided Michal with only basic target information, without utilizing the PACE model. However, she recognized the importance of accurately identifying vessels, effectively delivering that information, and actively probing and alerting the Navigator for additional details about their plan. Additionally, Clarace acknowledged the value of using the EBL to verify planned headings and employing AIS and visual aids to accurately identify vessels.
12	3	3	3	3	3	3	3	2.9	Michal demonstrated a significant improvement from his first scenario. He consistently thought aloud, correctly identified vessels using all available resources, applied the PRO model effectively, and took decisive and appropriate actions. To enhance further, Michal needs to consider discussing the various options available to the vessel well in advance to ensure clarity and better decision-making.
13	3	3	3	3	3	3	3	2.9	Clarace showed a marked improvement, with a noticeable increase in communication. This allowed her to deliver target information at the right moments, supported by effective long range scanning. On several occasions, she utilized the PACE model to good effect, further enhancing the team's performance.
14	2	2	3	3	3	3	3	2.5	Michal once again demonstrated his experience and patience in making the correct decision at the start of the scenario. However, during the second part, he briefly experienced tunnel vision, which delayed early action to avoid a collision. Despite this, his honest and candid reflection ensured the correct action was ultimately taken, and valuable lessons were learned for future scenarios.
15	2	2	3	3	3	3	3	2.5	Clarace demonstrated strong situational awareness throughout the exercise but could have been more assertive in highlighting all available options to the Navigator. During the debrief, she was honest and genuine, clearly showing that she had reflected on the scenario and taken the lessons learned to heart.
16	2	1	1	2	2	3	3	1.5	Theodor initially struggled to gain situational awareness and keep up with the pace of developing close-quarters situations. He needs to improve his use of PRO, Closed-Loop Communication, and decisive decision-making skills.
17	2	2	2	2	2	3	3	1.9	Iakub provided good support to the Navigator. On reflection, he correctly recognized the need to voice his concerns more effectively by using the PACE model.
18	3	3	2	2	2	3	3	2.3	Henryk helmed the vessel well throughout the scenario, keeping the Navigator informed of headings and helm positions. He recognized the importance of speaking up at the right moment when feeling uneasy about a situation.
19	3	3	3	3	3	3	3	2.9	Iakub skillfully navigated the vessel through the scenario, consistently maintaining a safe CPA. His strong situational awareness from the start enabled his team to remain patient and closely monitor all vessel movements.
20									Review of closed-loop communication

How Maritime Innovators are using Virtual Reality

Competence

Competence assessment during recruitment

Maintenance

Maintenance of bridge watchkeeping skills

Evaluation

Evaluation of talent ahead of promotion selection

Pathways

Providing existing staff with new career pathways

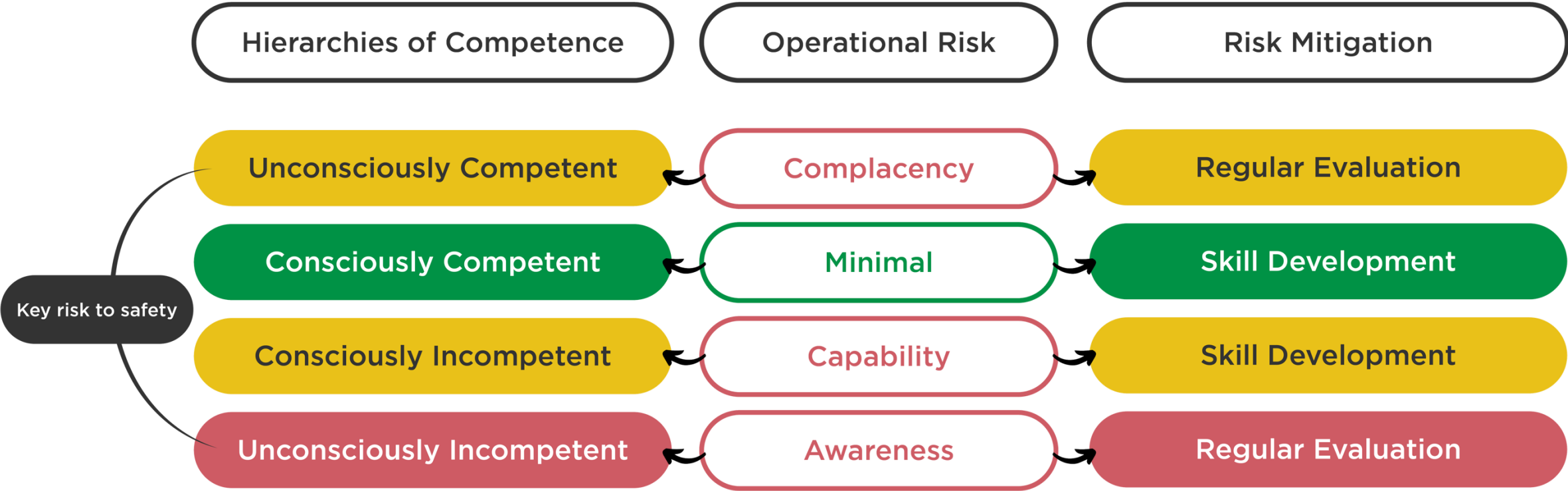
Rehearsals

Conducting mission rehearsals

Cohesion

Building team cohesion and safe operations

Use tech to mitigate Risk



Stand out in your field by using smarter technology and new ways of thinking to boost performance.

We are here to help !

Thank you

Andy Parkin, Managing Director
Kilo Solutions Limited
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