

What would a HRO roadmap look like?

Author: Dr. Michael Collins, Business School



Contents

Introduction	3
1. Set high reliability goals	4
2. Conduct an organisation reliability gap analysis	5
3. Assess HRO maturity	6
4. Develop a HRO implementation plan	7
5. Implement high reliability practices.....	7
6. Monitor progress and adjust the plan	8
Conclusion	8
References	9

What would a HRO Roadmap look like?

Introduction

High Reliability Organisations (HROs) have an enviable reputation for error-free performance despite operating in complex, demanding and highly hazardous environments¹. Studies of individual HROs have been conducted across a broad range of industries, including transportation, aviation, military, healthcare, food retail, and energy². A great deal of this research attributes high performance, disaster prevention and safety improvements to specific high reliability practices³. This article draws on such research to offer a practical roadmap for implementing high reliability practices in the mining and resources industry.

Becoming a HRO takes planning, training, new or modified processes, monitoring and reporting systems, and data analysis, to name just a few of the business practices central to high reliability¹. The work of Weick and Sutcliffe (2001) has been influential in guiding the implementation of HRO practices across many organisations across various industries. These practices focus on identifying:

1. **Weak signals:** process or system lapses that signal potential failure.
2. **Unwanted system interactions:** incidents, events or process variations that are potential indicators of a systemic problem.
3. **Hidden conditions or system interactions:** unexpected events that arise from routine operations that are normally dormant but can rapidly escalate into bigger problems if not identified and fixed at the outset.
4. **Small problems:** that occur unexpectedly in all operations that can be contained and fixed at the lowest level of disruption.
5. **The expert in the room:** who has the most knowledge of the condition and situation, is closest to the front line during a disruption, and can make a decision.

These five practices might appear self-evident to most who work in the mining and resources industry, however, they require considerable focus and involve a cultural transformation to deliver tangible and lasting benefits to the organisation. The following six-stages are critical to ensuring such high reliability practices are adopted and embedded in resource and mining organisations.

1. Set high reliability goals

The first stage in establishing a high reliability culture requires the senior leadership team to discuss and agree on a set of high reliability practice goals^{3,4}, for example:

1. Acceptable number of near misses or incidents.
2. Frequency and quality of incident reporting.
3. Frequency and content of post-activity or “lessons learned” debriefs, or after action reports.
4. Frequency and quality of critical feedback processes, and who needs to be involved.
5. Frequency and quality of field supervision.
6. Emergency response readiness, reaction times and adherence to protocols.
7. Frequency and quality of critical capability and skills assessment.

An effective way to approach this task is to involve the senior leadership team in establishing clear and relevant high reliability practice goals and setting achievable base-level measures commensurate with the current level of organisational maturity. An assessment of HRO maturity should be conducted at the next stage of the process and is a critical step since a maturity assessment provides an indication of the organisation’s readiness to successfully implement high reliability practices⁵. HRO implementation efforts often fail because senior leaders fail to discuss, agree, and clearly articulate such goals and measures, or set overly ambitious objectives and timelines without considering the current state of maturity and readiness to undertake such cultural transformation.

2. Conduct an organisation reliability gap analysis

As previously mentioned, it is critical to assess the current state of organisational maturity and readiness to adopt high reliability practices. Neglecting to do so can establish a false sense of confidence by underestimating the time, effort and resources needed to achieve the high reliability goals set by the senior leadership team in the previous stage.

A gap analysis of current high reliability practices can be relatively quick and easy to achieve through a series of interviews and online surveys involving a cross-section of managers and workers. It is important to use an objective and measurable framework to assess organisational reliability and track progress toward implementing high reliability practices. One way to do this is to track the progression of the organisation through the following five maturity stages²:

1. **Silent:** a general lack of standardised procedures and processes, poor communication, punitive relationships, and a false sense of safety and security.
2. **Starter:** gradual development of standardised procedures and processes, improved communication, capability development, and near miss and incident reporting.
3. **Stable:** work procedures and processes for most jobs are fully developed, understood, and (mostly) executed with precision, and a culture of compliance is established.
4. **Sustain:** employees begin to understand and agree with the reasoning behind work procedures and processes, they start to take ownership, and see themselves as central to sustaining these. In addition, they begin to own their own learning and development, and begin to see feedback as a positive process for themselves and the organisation.
5. **Summit:** relationships between leaders and employees are built on mutual respect and trust, 360-degree feedback is actively sought and seen as a performance improvement opportunity, the entire workforce is mindful of operations, and is proactive to safeguard and improve work procedures and processes.

3. Assess HRO maturity

In this stage, information from the organisation reliability gap analysis is compared with predetermined objectives from stage one (or industry comparison data) to determine the gap between the current and desired state. An example of this analysis for one high reliability practice (Focus on Weak Signals) is shown in Figure 1.

High Reliability Practice 1: Focus on Weak Signals	High Reliability Goal	Current Assessment
<p>5. Summit: Failure/Near Miss identified, categorized, documented. Root causes are identified. Root causes resolved with no blame on people. Lessons learned reviewed periodically and used to improve the system. People that report near misses/failure are actively rewarded. Superiors actively seek out bad news. Clear and open communication between superiors and front line staff. Planning considers worst case scenarios. Continuous reviews to seek out hot spots.</p>		
<p>4. Sustain: Failure/Near misses reported. Root causes identified and people not blamed. Clear and open communications. Worst case scenarios considered in planning. Lessons learned documented.</p>	✓	
<p>3. Stable: Failure/Near misses reporting process exists and is generally enforced. Root causes identified. People often blamed. Superiors communicate with frontline to give clear instructions.</p>		✓
<p>2. Starter: Failure/Near misses sometimes reported and rectified. Root causes may not be identified. People that cause incidents are perceived as incompetent but may not be punished. Some communication with a few people.</p>		
<p>1. Silent: Failure/Near Misses are not reported. People are punished for incidents. Management is difficult to approach. Continuous mind-set that failure will not happen. If a failure occurs, someone is always to blame.</p>		

Figure 1. Organisation Reliability Gap Analysis Example¹

The results from this organisation reliability gap analysis can be used to benchmark against a desired maturity level, internal benchmarking, peers or best in class for a specific industry². However, the results are most useful for developing an implementation plan.

¹ Adapted from Agwu AE, Labib A, Hadleigh-Dunn S. Disaster prevention through a harmonized framework for high reliability organisations. Safety science. 2019;111:298-312.

4. Develop a HRO implementation plan

The plan for achieving a high reliability culture involves a trade-off between the gaps identified from the Organisation Reliability Gap analysis and the resources available to the organisation. While some organisations may choose to apply an equal weighting and focus on all five high reliability practices, an organisational risk analysis might recommend a different weighting due to prevalent risk factors⁶.

Best results are often achieved by taking a gradual phased approach to implementation, while taking into account the likely degree of acceptance or resistance from the workforce. Prior research suggests that organisations take incremental actions to improve their maturity one level at a time to develop several high reliability practices over time.

By adopting this approach, organisations can gradually achieve HRO characteristics over the longer-term by actively engaging with their workforce in a collaborative manner rather than attempting to enforce compliance over the shorter-term. This strategy, however, relies on sustained and visible commitment from all levels of leadership across the organisation⁷, which is discussed next.

5. Implement high reliability practices

The journey towards becoming a HRO requires a substantial investment in time, resources, and commitment as well as a substantial cultural shift. It is very likely that changes to work procedures and processes will be required, which will mean changes to monitoring and reporting systems, and ultimately new knowledge, skills, and attitudes. All of this requires leaders who are capable and confident in planning and implementing change^{8,9}. This requires a combination of leading “expansion” and leading “reaction”⁴. Leading expansion involves behaviours that increase employees’ alertness and awareness of small signs of failure (i.e., weak signals), and creates the environment where employees are willing to report mistakes, near misses, and incidents. Leading reaction refers to behaviours that respond to immediate demands quickly and effectively in both stable and unstable operating conditions.

Initially this requires leaders to have sufficient knowledge of high reliability practices and a thorough understanding of the current versus desired gap in high reliability practices within their organisation, business unit or team⁴. Leaders then need to raise awareness of this gap with employees through two-way discussion and debate. Central to this dialogue is the need to break down organisational silos to open up communication between different teams and functions, as many operational processes span organisational boundaries.

Leaders at all levels need to be comfortable identifying and highlighting near misses, incidents, and failures, while employees need to feel comfortable discussing the implications and potential solutions without fear of retribution. This requires a high degree of confidence and trust in leaders^{10,11}. One way leaders can achieve this is through “leading by example” and openly admitting their own mistakes, rather than covering them up or shifting the blame¹². Finally, leaders must be comfortable in knowing when to make decisions and act, and when to defer and delegate to others with more experience or expertise.

6. Monitor progress and adjust the plan

By now it should be clear that there is no fast track to high reliability. The journey requires a substantial commitment and a concerted effort from leaders at all levels of the organisation. It is also essential that ongoing monitoring (e.g., through regular organisation reliability gap analysis) and adjustments be made to maintain HRO status once the initial implementation plan has concluded. This is important as there is always a risk that individuals will revert to prior habits if high reliability practices are not fully embedded in the organisation's culture¹³.

Conclusion

Organisational benefits such as improved performance, effective disaster prevention and high safety culture have been attributed to HROs. However, mining and resources organisations seeking to implement high reliability practices should start the journey with eyes wide open. Research indicates that such endeavours requires a clear understanding of the gap between current and desired practices and an involved and committed workforce. Central to this outcome is a gradual and phased approach to implementation where organisational leaders play a substantial role in initiating and sustaining a high reliability culture.

References

1. Cantu J, Gharehyakheh A, Fritts S, et al. Assessing the HRO: Tools and techniques to determine the high-reliability state of an organization. *Safety science* 2021;134.
2. Agwu AE, Labib A, Hadleigh-Dunn S. Disaster prevention through a harmonized framework for high reliability organisations. *Safety science* 2019;111:298-312.
3. Weick K, Sutcliffe K. *Managing the Unexpected: Assuring High Performance in an Age of Complexity*. San Francisco: Jossey-Bass, 2001.
4. Martínez-Córcoles M. High reliability leadership: A conceptual framework. *Journal of contingencies and crisis management* 2018;26:237-246.
5. Youngberg BJ. Assessing your organization's potential to become a high reliability organization. *Journal of healthcare risk management* 2004;24:13-20.
6. Labib A, Franlund J, Vamvalis C. Benchmarking best practice: towards a total reliability & maintenance management award. *Journal of Maintenance & Asset Management* 2009;4:34-39.
7. Patrick DON, Dale K. Policy and Organizational Change in the Federal Aviation Administration: The Ontogenesis of a High-Reliability Organization. *Public administration review* 2012;72:98-111.
8. Burnes B, Hughes M, By RT. Reimagining organisational change leadership. *Leadership* 2018;14:141-158.
9. Taylor-Bianco A, Schermerhom J. Self-regulation, strategic leadership and paradox in organizational change. *Journal of Organizational Change Management* 2006;19:457-470.
10. Crossley CD, Cooper CD, Wernsing TS. Making Things Happen Through Challenging Goals: Leader Proactivity, Trust, and Business-Unit Performance. *Journal of Applied Psychology* 2013;98:540-549.
11. Podsakoff PM, MacKenzie SB, Moorman RH, et al. Transformational leader behaviors and their effects on followers' trust in leader, satisfaction, and organizational citizenship behaviors. *Leadership Quarterly* 1990;1:107-142.
12. Farson R, Keyes R. The failure-tolerant leader. *Managing innovation and change* 2006;249.
13. Milosevic I, Bass AE, Combs GM. The paradox of knowledge creation in a high-reliability organization: A case study. *Journal of Management* 2018;44:1174-1201.



Contact details

Business School

T +61 409 910 100

E m.collins@business.uq.edu.au

W business.uq.edu.au

CRICOS Provider Number 00025B