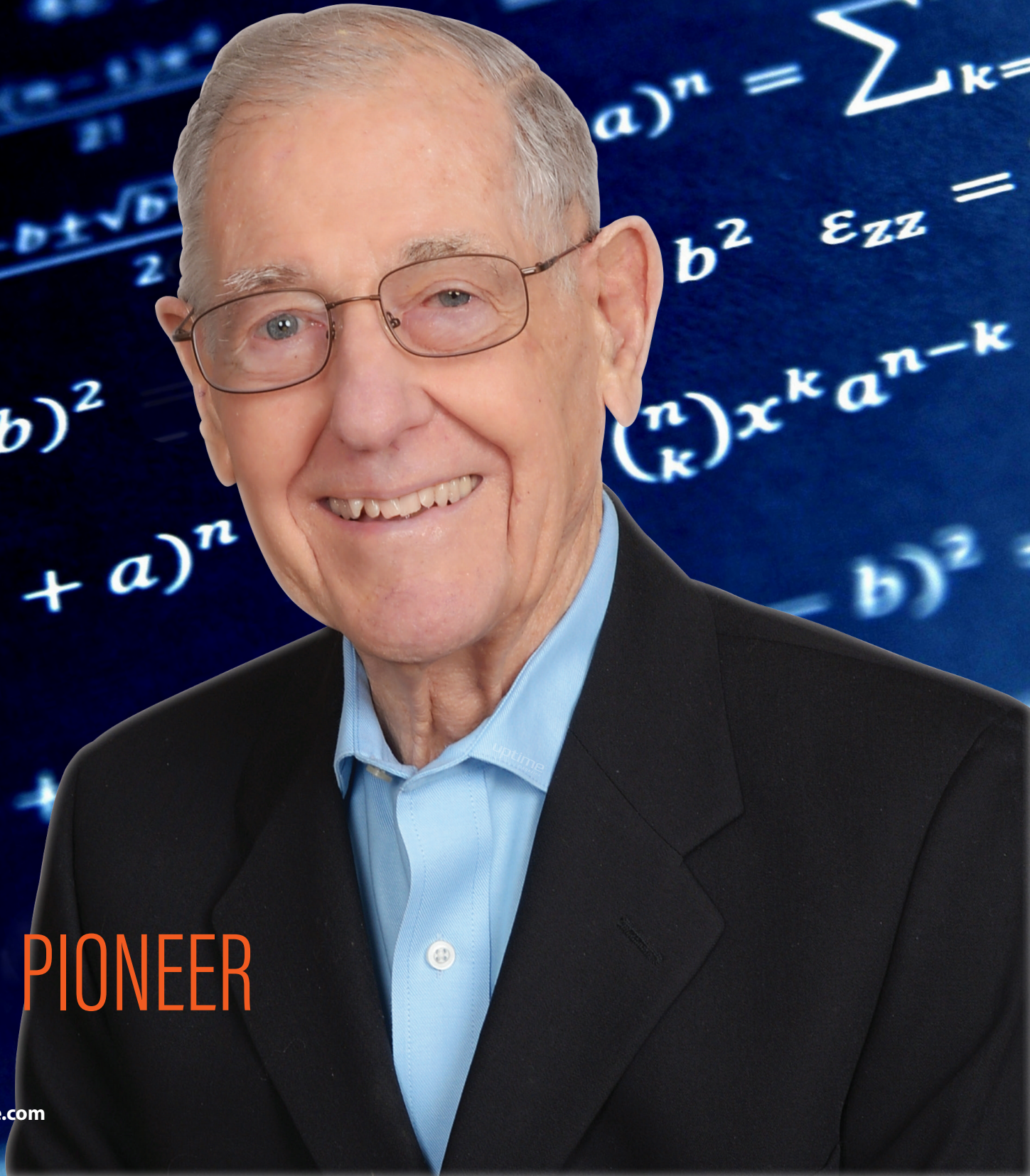


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for reliability leaders and asset managers

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RCM PIONEER



BECOMING A

HIGH RELIABILITY ORGANIZATION

THROUGH DEFECT ELIMINATION

Tim Rice



High reliability organizations (HRO) are those that effectively manage risks by identifying and controlling probability and consequence. They are error-free, with systems in place that make them exceptionally consistent in accomplishing their goals and avoiding potentially catastrophic events.

The airline industry is an HRO. There is a one in 11 million chance of a plane crash with major commercial airlines. Why is the probability so low? Because it needs to be. The airline industry is heavily regulated because the outcome of a plane crash has devastating consequences for all involved. They need to be an HRO in order to survive.

HROs are not just concerned with physical asset reliability. They ensure systems, processes, people and physical assets are running in harmony with each other. They have recognized the need for a shift from traditional asset reliability to organizational reliability. Organizational reliability requires input from everybody within the organization. It's long been said that safety isn't just the responsibility of the safety department, yet organizations seem to continue to place the responsibility of reliability on the reliability department.

The 5 HRO Traits

The five traits an organization must have for becoming an HRO are: a preoccupation with failure, a reluctance to simplify, a sensitivity to the operations, a commitment to resilience, and the humility to defer to the experts.

A **preoccupation with failure** means an HRO is fixated on how things could fail, even when they haven't yet. It also means that when something does fail, they have the desire to find out why.

HROs never ignore a failure, no matter how small it is, because any deviation from the expected result could snowball into tragedy – perhaps not in this specific event, but potentially the next time it happens. Remember, it's not just about asset failures anymore; it's about anything that has impacted the organization's goals and caused it to no longer be consistent on its journey to achieving them.

Having a **reluctance to simplify** means the HRO rejects the simple diagnosis and digs deep to find the real source of a particular problem.

HROs stop explaining away their problems. This can be a regular occurrence in many non-HROs. The undesirable event is brushed aside or flimsy explanations are given. HROs conduct rigorous root cause analysis and do not simplify the controls they put in place to prevent recurrence.


It's okay to have a healthy dose of skepticism. It helps create a **sensitivity to the operations**. Each employee in an HRO pays close attention to the operations and maintains an awareness as to what is and isn't working.

HROs create a sense of chronic unease by not allowing themselves to become complacent. This allows them to look for the weak signals that are alerting them that failure is imminent.

When there isn't a sensitivity to the operations, people tend to take things for granted; they stop paying attention to them and they normalize their deviant behavior. Even in HROs, there are a lot of preexisting conditions and all it takes is a single action to align them all, resulting in an undesirable event occurring. This is sometimes referred to as the Swiss cheese model.

An undesirable event can be prevented by identifying the early signs and making the corrections.

A **commitment to resilience** allows an HRO to anticipate trouble and prepare a response plan. HROs improvise more or quickly develop



“There is a one in 11 million chance of a plane crash with major commercial airlines”

new ways to respond to the unexpected. Not only do they find new ways to respond, they also look for ways to prevent the unexpected.

Traditionally, a fire department's role is to put out fires. Firefighters train and practice, have all the right equipment, and are ready to respond when they need to put out a fire. However, they also work to prevent fires by educating the public and performing regulatory inspections.

Defer to the experts means an HRO listens to the expert rather than the authoritarian figure or those that are most vocal. HROs identify highly skilled individuals within their organization or know who to consult outside of the organization.

These people are the subject matter experts and are utilized. They are one of the greatest assets an organization has.

Defect Elimination at the Core

In each of these five HRO traits, defect elimination (Uptime® Element, De) is present and at the core of any organization wanting to improve or simply sustain its organizational reliability. De won't be the only thing you need to do to get HRO status, however, it can be a large piece of the puzzle for getting there.

De is a program for eliminating defects that are significantly impacting the operating capacity of a business. It's applicable to anything that disrupts the harmonious rhythm of your organization. To shorten Winston Ledet's definition of a defect, a defect is anything that erodes value.

De is a never-ending process. Organizations that have been HROs for many years still have defects within their day-to-day operations today, however, they acknowledge this and constantly work toward eliminating them. They identify the defects, prioritize them, analyze them, develop solutions, implement the solutions, and verify the improvement.

So, how can you make sure your De program puts your organization on the right path to becoming an HRO? The link to De and the five HRO traits are as follows.

A **preoccupation with failure** requires you to analyze the defects to find out why they exist. A **reluctance to simplify** also calls for you to analyze the defect. Root cause analysis is the only way you are able to identify the true root causes and what you ultimately need to eliminate. Developing robust solutions and challenging them against how effective they will be in the long term is also crucial. The hierarchy of controls (Figure 1) indicates that the higher the solutions sit in the hierarchy of controls, the more effective they will be in the long term.

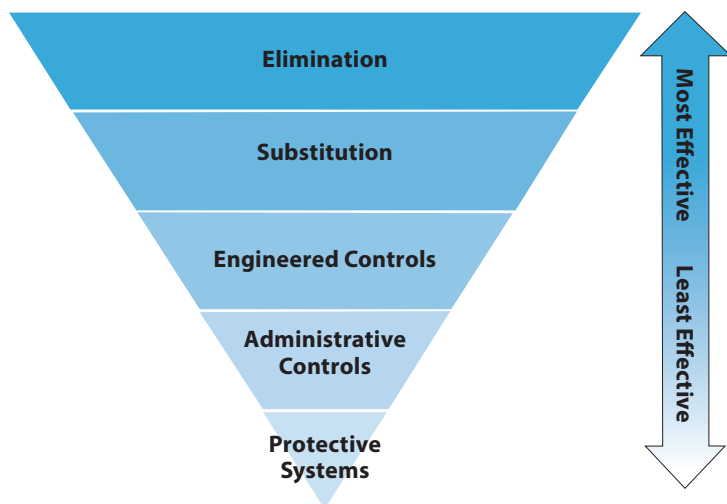


Figure 1: Hierarchy of controls

Don't just be worried about the defects that are currently impacting your organization – be worried about those that could impact your organization. This is having a **sensitivity to the operations**. The data systems your organization has in place must be used to identify defects. Using the people within your organization to be the eyes and ears for finding defects or to notice a change before it becomes an impacting defect is very effective. Know what your trigger points are for identifying when something has or is on the way toward deviating from the norm.

When you know what your organization is sensitive to, develop solutions with cross-functional teams and have the end users involved. This will create a **commitment to resilience**. There is a much better chance the solutions will be successful and sustained if you involve them.

To shorten Winston Ledet's definition of a defect, a defect is anything that erodes value

Don't be afraid to challenge the status quo and change if the solutions are no longer working. The definition of insanity is doing the same thing over and over and expecting different results. Develop new ways to respond to the unexpected events.

In De, you always **defer to the experts**. If you want to find out the real cause of the defect, you ask the expert. This might be the person who deals with the defect every day, like an operator or maintainer. It also may be someone who has seen or dealt with the defect somewhere else. These experts need to be part of your De teams.

In reality, though, is becoming an HRO even possible? It's been proven to be possible by heavily regulated industries, but what about those that are not?

Yes, it will be resource intensive.

Yes, it will be a long journey.

Yes, it will be sustainable – but only if you do it right.

Do not expect the reliability department to be able to do this on its own. Do not expect that you can make this happen quickly. Do not expect it to be sustainable if you try to cut corners or do not have the entire organization engaged and committed to it.

If it was easy, then every organization would be doing it and every company already would be an HRO. But, being an HRO requires a lot. It requires engagement, a dedicated focus, a long-term plan, and an absolute willingness from everybody in the organization to change.

Is your organization up to the challenge of becoming an HRO?



Tim Rice has spent the last 15 years working in the in the reliability realm, with a majority of that time in mining and mineral processing industry. Tim focuses on driving a whole life asset management process and how a reliability mentality can deliver positive gains, especially when utilizing a defect elimination program. www.thedefecteliminationproject.com