Real commitment to safety comes from demonstrated organisational competence

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SUMMARY

Leadership accountability for safety in the rail industry starts with you. All levels of an organisation, right down to a single specialist or individual have leadership accountabilities. When it comes to safety, the key is making sure everyone understands their accountabilities and is prepared to act on them. That preparation doesn't just mean being ready to act personally. I am also referring to the condition that the individual has been prepared by their organisation to act in that they are competent, have all the necessary resources and have been authorised or empowered to act on their leadership accountabilities.

One of the key focus areas of a safety regulator is to determine if an actual incident or even a near miss was a result of an individuals actions or lack of action or a result of a failure by the organisation to prepare the individual to act appropriately in exercising his or her safety duties or accountabilities. Was their a failure in leadership or coaching, did the individual operate to the best of their knowledge and capability and had the organisation done everything reasonably practicable to ensure an appropriate or tolerable level of safety risk was present at the time of the incident?

To unpack the perception from the reality, there are two key understanding for discussion. The concept that leaders are not born and don't just sit at the top of organisation structures and the concept that an organisation understands what is meant by the duty to do everything reasonably practicable to ensure an appropriate or tolerable level of safety risk in rail operations.

INTRODUCTION

Leadership accountability for safety in the rail industry starts with you. All levels of an organisation, right down to a single specialist or individual have leadership accountabilities. When it comes to safety, the key is making sure everyone understands their accountabilities and is prepared to act on them. That preparation doesn't just mean being ready to act personally. I am also referring to the condition that the individual has been prepared by their organisation to act in that they are competent, have all the necessary resources and have been authorised or empowered to act on their leadership accountabilities.

One of the key focus areas of a safety regulator is to determine if an actual incident or even a near miss was a result of an individuals' action or lack of action or a result of a failure by the organisation to prepare the individual to act appropriately in exercising his or her safety duties or accountabilities. Was their a failure in leadership or coaching, did the individual operate to the best of their knowledge and capability and had the organisation done everything reasonably practicable to ensure an appropriate or tolerable level of safety risk was present at the time of the incident?

In other words, is the organisation showing the signs of a mature, competent organisation in respect to its safety risk management? Does the organisation share any learning from incidents and near miss reports, particularly any failure or casual findings, with all levels of its organisation as well as with other operators in the industry? Such action is a clear demonstration of maturity and competence. A less competent organisation keeps its findings hidden in fear that it will impact its image or give another operator a competitive advantage. Clearly, there is a need to keep commercial information confidential, but safety information should be shared freely across the industry to help inform and trigger improvement in safety risk management within the industry.

MAIN TEXT

Many business studies have shown that underperforming organisations typically only access around 25% of their strategic capability because they are trapped in a transactional world. If the organisation hasn't

invested in developing its leadership capability it wont be able to unlock the strategic capability that comes about through learning from safety incidents and near miss events, gaining a practical understanding of the failures and causes and then adapting processes and procedures so that safety improvement initiatives can be implemented.

Sometimes organisations can be seen to be doing better than they actually are because their risk and safety is lead by a zealot. Zealots use their own personal understanding and intuition to drive convergence of ideas, align organisations behind them and shape an organisations approach to safety risk management. However, this requires a particularly strong personality to use novel, breakthrough strategies and who then uses much of their own energy to drive change and implement appropriate safety outcomes. Usually, zealots don't like to share information with other organisations, rely strongly on the organisation agreeing to their values and ideas and either burn out or look for new challenges leaving an organisational mess behind. Their reliance on heuristics and their own knowledge rarely results in improvement in the overall organisational competency or maturity to deal with risk.

When an organisation starts to use its transactional and logical processes, supported by experience in safety risk management and leadership that is spread throughout an organisation's structure, such that the culture and values are understood and promoted by the whole organisation, it starts to unlock up to 80% of its strategic capacity or potential. The zealot is replaced by institutional learning and development so that accountabilities and responsibilities are shared and well understood throughout the organisation. People can align their current and potential capabilities with their assigned accountabilities.

Staff become self aware of their own levels of competency and the organisation does not place them in a position where they are expected to perform above that level or in ways in which they haven't been prepared. Equally, the organisation sees the value in sharing lessons learned, at least internally if not externally.

An organisations competency is a reflection of the maturity and competency of its people, processes and the effectiveness and integrity of its resources. It is also reflected in how the organisation plays in its own neighbourhood. As mentioned earlier, a really mature and competent organisation is prepared to share its safety risk understanding and knowledge with the rest of its industry in order to make the overall environment safer.

There are usually two ways to learn from incidents and mistakes; the hard way in which an organisation has to experience the incident and consequences for itself, and the easy way where an organisation is able to learn from other organisations that have experienced similar incidents. For everyone to be able to use the easy way, the rail industry needs mature, competent organisations that are willing to share, not just the occurrence data, that is a report that something has happened, but also their findings into the failures and causes that led to the incident.

Of course this is easier said than done. The missing ingredient is the same whether you are talking about strategic capability or competency in safety risk management. It always comes down to Trust! Even if an organisation is able to effectively integrate its logical and intuitive processes it is rarely enduring unless the organisation can establish trust by empowering managers to act as leaders at all levels of the organisation and similar, by empowering safety leadership within the rail industry. Trust is the catalyst that can unlock the full strategic potential.
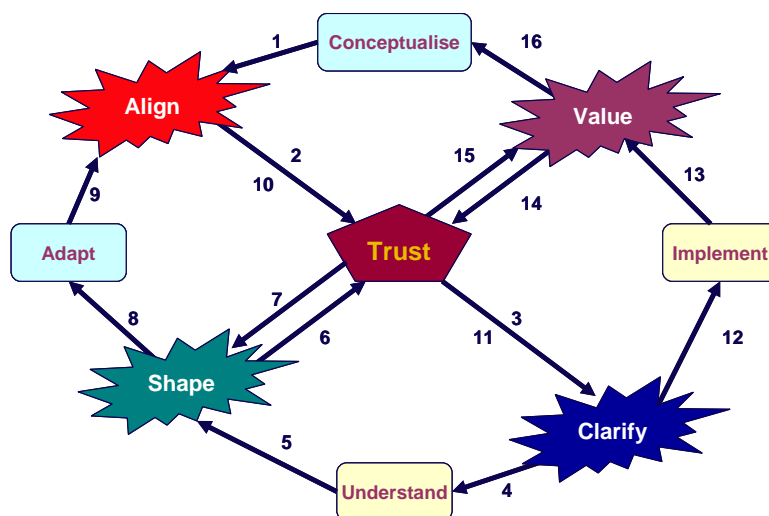
Figure 1: Trust binds the logical with the intuitive

Another specific sign of a competent and mature organisation, when it comes to safety risk management, is that it doesn't wait for incidents to happen or for the rest of the industry to mature enough to share their experiences openly. A competent organisation tests and exercises its risk controls and defences and validates its analysis of the threats and hazards that it is trying to control.

After a study into major industrial incidents conducted during the 90's, by Charles Perrow, he made the following prediction:

> *"Despite improvements in technology, the number of catastrophic incidents is expected to rise, if for no other reason than opportunities for both human and machine failures increase with complexity."*

It is the blending of human failure with technology failure that creates the greatest potential for disaster. When disaster does occur, history tells us that in most cases the organisations involved have always failed to see the potential for a chain of events leading to a catastrophic outcome before the disaster. Many catastrophic outcomes are the result of a technical failure, followed by human error in attempting to control or recover from those failures.
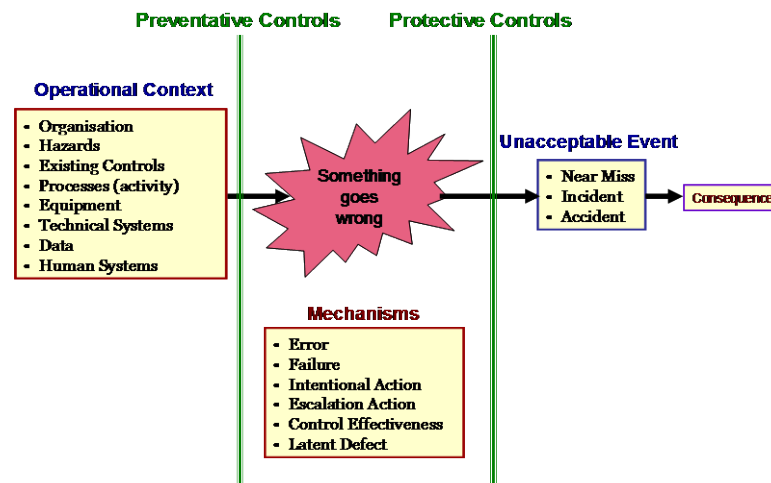

Figure 2: Understanding the mechanism is a critical part of causal analysis

A recent example of this is the tragedy in Japan at the Fukushima reactor. In the context of rail, the Waterfall accident comes to mind. In that case, the part of the train driver safety system known as the deadman pedal was meant to detect driver incapacitation but the dead weight of the driver's legs after he had suffered a coronary failure, was sufficient to keep the switch active. Organisational judgements and decisions led to this critical failure:

- The specification required this functionality to be tested as fail safe, but due to schedule pressures that never occurred.

- The fact that the deadman function could be kept active even if a driver was inattentive was known well before the Waterfall incident, it was judged to be low risk and not worth the investment to correct or fit secondary defences

- The authority gradient between drivers and guards was well known but this type of human factor was not discussed during risk assessment of the driver safety systems even though the guard was assumed to be a secondary control in the event of driver incapacitation

Arie de Geus, one of the first to use scenario based planning, studied this question and examined four theories.

- Theory 1: managers are stupid – a conclusion often reached with hindsight by media, academics and investigators. Arie discounted this theory.

- Theory 2: we can only see once the crisis has opened our eyes - this theory is liked by those who think a crisis allows quick decisions, heroic management and centralised power.

- Theory 3: we can only see or understand what has been already experienced – some truth in this as other people's mistakes are the cheapest, human's rationalise only what has a basis of understanding through experience.

- ▪ Theory 4: we do not see what is emotionally difficult to see – those in the lead are reluctant to change until it is too late, the biggest fall the hardest!

None of these theories made complete sense to Arie who was studying some of the world's most successful companies that have been in continuous operation for over 50 years.

He proposed the following:

- ▪ Theory 5: we can only see what is relevant to our view of possible futures. - this theory assumes we are constantly creating time paths of hypothetical futures in our minds.

Each of the possible futures has accompanying options for action – our mind records and stores the options, these can be referred to as our memory of the future. Events and things become meaningful if they fit with our memory of anticipated futures and we tend to take action in accordance with the preconceived options.

The more future memories we create the more open and receptive we become to change, and the better our minds are prepared to recognise tell tale signs or react to precursor events.

Arie concluded that scenario based planning (gaming) helps create an environment for building organisation memories of the future.

Scenario based planning is a powerful tool for understanding risks to safety, testing and verification of risk control effectiveness and help in planning contingency actions to cope with error, vulnerability or threats. If organisations and individuals experience events that lead to harm or unacceptable risk via gaming or exercise they can develop memories of the future to better prepare them to take notice and react when the real events are about to occur or have occurred.

Have you ever had the opportunity to fire a high power, fully automatic rifle? The first time you do, you hear the noise, feel the power and see the results, it can be very unsettling. If you needed to use such a weapon in your job you would need to practice to get used to the weapon before you actually needed to use it under a real threat environment otherwise your reaction will influence your accuracy.

Rail is a complex hazardous industry. In understanding the context we need to recognise that:

1. hazards exist because of what we do, how we do it, where we do it and what we use to do it;

2. operations can either produce positive or negative outcomes;

3. operations must be managed to ensure the outcomes remain acceptable or at least tolerable;

4. there is always a chance that sometimes things do not go as expected, things fail unexpectedly or go wrong. These events need to be understood, simulated under controlled circumstances and tested,

Conducting simulations or gaming operations in degraded states or failed states can provide invaluable insight into risks and help test control effectiveness. To combat increased complexity and a high tempo of rail operations, the rail industry needs to increase in its maturity in understanding and managing risk.

Increased maturity in risk management requires a full understanding of the operational context including what could possibly go wrong. It requires a comprehensive knowledge of the mechanisms that lead to unacceptable safety risk and harm.

A competent organisation has mature, well practiced risk processes. This doesn't mean it is sufficient to run a hazard workshop, assess the likelihood and consequence and then assign some controls. The more important aspect of a mature risk management culture is focused on understanding a risk tolerability framework and what the actual level of *Accepted* and *Residual* risk is for the organisation. It is important to understand that once an organisation has determined that they have done everything reasonably practicable to eliminate or reduce risks to safety, whether it is acknowledged or not that organisation has *Accepted* the residual risk. A competent organisation will do this proactively and explicitly and then let all who may be impacted by the residual risk know what their assumed exposure might be. To do so requires the organisation to determine what it considers being *Acceptable* risk and *Unacceptable* risk appropriate to that organisation's competence and understanding of its operating context.

When trying to assess if the risk has been eliminated or controlled So Far As Is Reasonably Practicable (SFAIRP), the guidance provided by the Australian National Transport Commission may be useful:

"SFAIRP is a legislative qualification that is well known to the law and found in a number of statutes both in Australia and overseas. In essence, it requires weighing the risk against the resources needed to eliminate or reduce the risk. It does not require every possible measure to be implemented to eliminate or reduce risk, but it places the onus on the person holding the duty to demonstrate (or be in a position to demonstrate) that the cost of additional measures to control the risk (over and above those risk controls already in place)

would be grossly disproportionate to the benefit of the risk reduction associated with the implementation of the additional risk control."[1]

The true sign of organisational competence and maturity in respect to safety risk management is a proactive acknowledgement of the residual risk and the level of risk that has been accepted by the senior leadership. Understanding the concept of SFAIRP is important because that will be the standard by which you will be judged if something goes wrong. However, it is far more important to have a working understanding of risk tolerability in your own operating context such that any one exposed to the residual risk is aware of that fact and is familiar with the risk controls and defences that have been adopted and which is the basis of accepting the risk by the organisation on behalf of all those exposed to its consequences.
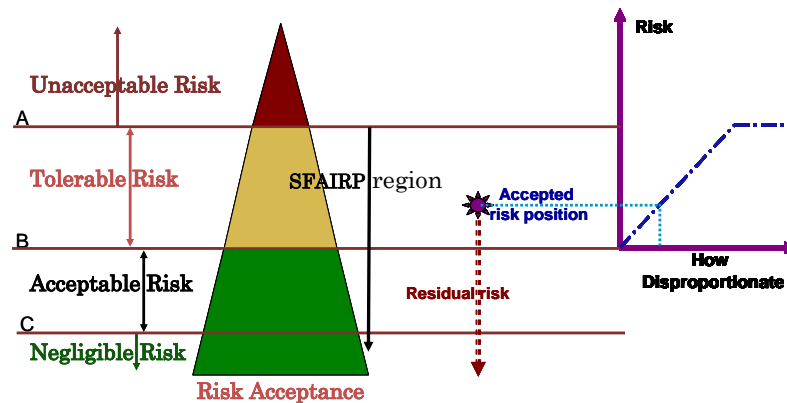

Figure 3: Risk Tolerability and Acceptance

As organisations grow in maturity and competence they will experience the same problem that most advanced technology organisations face; when integrating all the management processes; which one is the over-arching discipline? This is always a difficult task since it really depends on the operating and risk context. How the organisation's leadership deals with this issue is another good indicator of the level of organisational competence. I will discuss some of the more important enabling disciplines in no particular order or priority.

Capability definition is where a lot of organisations are lacking in maturity and competence. Too many organisations launch into major asset acquisition or process reform without first identifying what the actual need or capability gap is that they are trying to resolve. Equally, if the executive leadership fails to adequately consider and publish the accountabilities and responsibilities, particularly for risk management, how are the managers expected to exhibit effective safety leadership. Ultimately, gaps in capability and accountability definition will find their way into contractors through lack of prescription in contracts.

In order for executive leadership to define accountabilities and responsibilities for safety leadership, the organisation needs competency in risk management. Are all leaders aware of the hazards and threats that present to the organisation? Does each individual with accountability for a risk control know the effectiveness of the control and any weaknesses or threats that may prevent the control from mitigating risk under specific operational circumstances?

One particular area of concern for railways is in the field of asset integrity. Is asset management a particular risk control or is risk management a facet of asset management? It depends on your point of view. Regardless, a competent organisation has well defined and well practiced asset management skills that help to ensure operational and safety fitness for purpose by ensuring the asset integrity is optimum for any particular operating context. Too much investment may be gold plating whereas under investment or investing in the wrong process (repair versus replace) may put integrity and hence safety at risk. One critical aspect of asset management that requires strong leadership is in the area of design change. As soon as an organisation authorises a design change without reference to the original equipment manufacturer or a third party authorised by the OEM, that organisation better ensure they have the competency to assume design authority for that system.

That brings us to the discipline of change management. Again you can ask is risk management and asset management tools that underpin change management or is change management a subset of asset

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[1] National Transport commission, 2007 – Guidance on the Meaning of SFAIRP

management that relies on risk management? Starts to get confusing doesn't it? The important aspect is that there is effective leadership in how the organisation uses and integrates these functions. Change always brings about uncertainty or new risk. If technology change is not managed under a systems assurance framework then technical integrity or fitness for purpose can be negatively impacted resulting in intolerable or unacceptable safety risk. Cultural or organisational change can also bring about unacceptable risk if it is not managed in an effective and integrated way within the organisation. Understanding assigned accountability and decision rights is critical in change management. One of the most critical aspects of change management is the exercise of judgement of significance.

Once an organisation has assigned accountabilities and responsibilities, individuals still need to know when they must elevate a decision to a more senior leader due to the operational, safety or financial significance of the decision. The decision to elevate or not requires an individual to exercise judgement based on prescribed procedures, personal experience or reference to coaches or advisors. A competent organisation understands this and doesn't leave such judgements up to chance. Such an organisation will prescribe delegations and clear accountabilities to help managers exercise their judgement. If managers are too conservative it will stifle innovation and growth, if they are risk takers it will create circumstances for intolerable or unacceptable risk.

The key in integrating these processes is to ensure that the strategic objectives (safe, effective, efficient, dependable, affordable, profitable) are kept in focus and when trade-off is required, the organisation has the competency to explicitly assess and decide on outcomes, and not just leave it up to fate to determine how effective operations will be in meeting the strategic objectives.
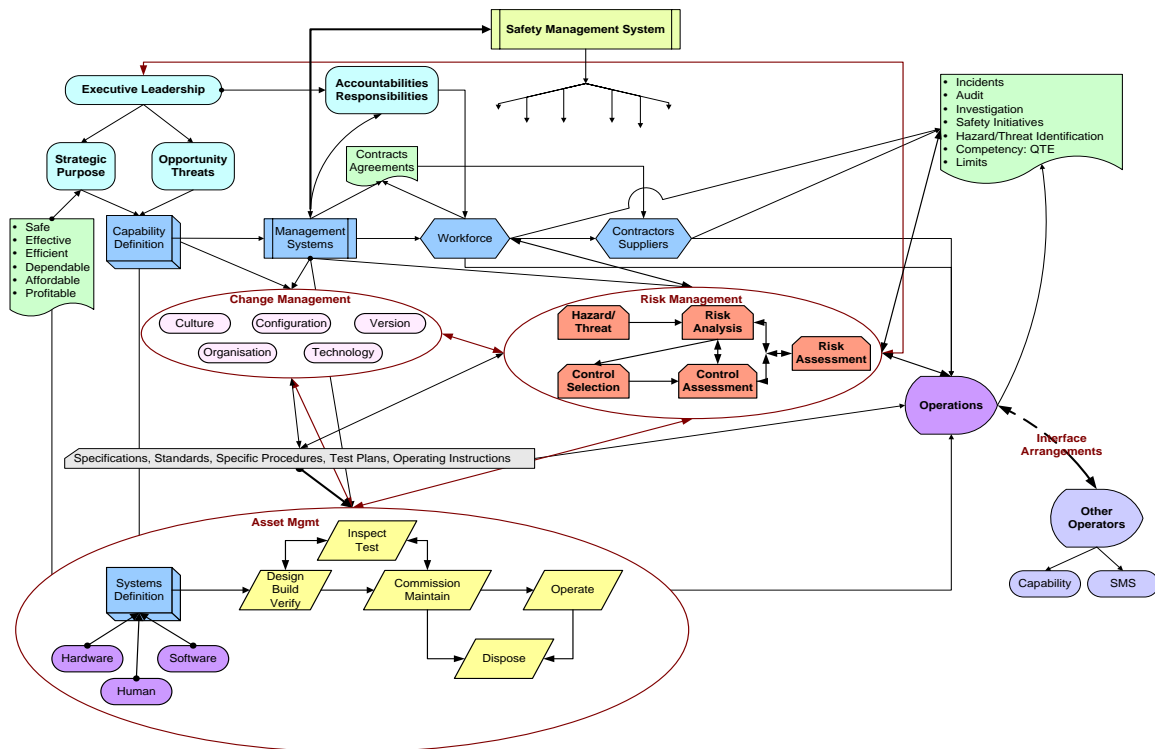

Figure 4: A competent organisation has integrated management processes

CONCLUSION

From a rail safety regulatory perspective, I believe that the glue that helps integrate and hold the various management processes together such that safety risk is managed SFAIRP to keep the risk tolerable or better still acceptable is the Safety Management System (SMS). Similarly, an organisation's competency and maturity in safety risk management is usually reflected in the organisation's SMS and how well it is understood and applied throughout the organisation.

When making judgements as to the maturity and competency of an organisation to operate safely and effectively in the rail environment, I look to how well its SMS prescribes the organisations proactive functions associated with risk management, asset management and change management.

- Is the SMS just another management discipline with a plan and a policy that sits on book cases or does the organisation's leaders, from executive down to line management, understand how the SMS requirements are integrated through out the operational and human aspects of the business?

- Is the extant or residual risk known and understood and where there remains significant risk, has the organisation gamed or tested the controls so that individuals are prepared for action if confronted with the consequences?

- Does the SMS provide a basis for keeping other organisations informed in respect to incident and near miss data and the outcomes of any causal analysis?

- Is the leadership of the organisation from the Chief Executive down to line managers committed to ensuring safety is paramount?