



From Systems to Practice

What a New Zealand Safety Culture Pilot reveals about worker knowledge, management understanding and the future of safety

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Author: Rebekah Stephens

Email beke_stephens@yahoo.co.nz

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Abstract

For more than three decades, health and safety improvement has focused on building increasingly sophisticated management systems. These systems have delivered significant benefits by creating structure, accountability, governance, worker participation and consistency across workplaces. Yet many organisations continue to experience uncertainty about whether critical risks are effectively controlled in practice.

This paper draws on findings from the 2025 Safety Culture Pilot (“the Pilot”) by the Employers and Manufacturer’s Association (EMA). It assessed twelve organisations across Auckland, Northland and Waikato using the Safe365 ten-module safety culture framework. The pilot found that most participating organisations operated at a Systematic level of maturity; with formal processes, management reporting, worker knowledge and worker engagement generally well established. However, consistent weaknesses were evident in management knowledge, verification and audit activities, health and safety data collection and assurance. No participating organisation achieved all selected maturity goals at initial assessment.

The findings suggest that the issue facing many organisations is no longer the absence of systems. Rather, it is whether organisations can learn from how work is actually performed. In particular, the pilot revealed a recurring disconnect between worker knowledge and management understanding. Workers often appeared to hold important operational knowledge about risks, pressures, adaptations and control effectiveness; while organisational decision-makers were less consistently able to verify, interpret and act on that knowledge.

Drawing on contemporary safety culture, work-as-imagined and work-as-done, Safety-II, resilience engineering, organisational learning and assurance literature, this paper argues that New Zealand’s next safety challenge may be less about building additional systems and more about strengthening the capability to translate worker knowledge into organisational understanding. The paper proposes a practical shift in the role of health and safety professionals: from system custodians toward interpreters of work, helping organisations verify assumptions, identify control drift, strengthen leadership sense-making and build justified confidence that controls remain effective in practice.

Keywords: Safety culture; Work-as-done; Organisational learning; Assurance; Leadership capability; Health and safety management.

1.0 Introduction

Over recent years, health and safety management has undergone a significant transformation. What was once characterised by prescriptive rules, individual responsibility and reactive responses to incidents has progressively evolved into a systems-based approach to managing workplace risk. Organisations have invested heavily in formal health and safety management systems designed to bring consistency, accountability, governance and structure to health and safety practice. Frameworks such as ISO 45001 have reinforced the expectation that organisations should manage health and safety through documented processes, leadership commitment, risk management, worker participation, performance evaluation and continual improvement (International Organization for Standardization, 2018).

These developments have been valuable. Formal governance structures have clarified accountability at organisational and board level. Risk assessment processes have improved identification and control of workplace hazards. Reporting mechanisms have increased visibility of incidents, near misses and emerging risks. Worker engagement processes have created opportunities for participation and consultation. Structured audit programmes have helped organisations assess compliance against internal and external requirements. Systems-based safety management has been one of the most important developments in modern occupational health and safety practice (International Organization for Standardization, 2018) (Reason, 1997).

However, as management systems have matured, a new challenge has become more visible. Organisations may be able to demonstrate that procedures exist, reports are produced, audits are completed and responsibilities are assigned, while still remaining uncertain about whether critical risks are effectively controlled in practice. A management system can describe how work is expected to occur; but it cannot guarantee that work is performed in that way, that controls remain effective over time, or that the information generated by the system is meaningfully interpreted by decisionmakers (Hale & Borys, 2013) (Hollnagel E. , 2014).

This paper explores that challenge through findings from the Pilot, which assessed twelve organisations across Auckland, Northland and Waikato using the Safe365 ten-module safety culture framework. The pilot assessed governance, management and frontline worker perspectives, alongside documentation review and survey input. The finding was that most operated at a Systematic level of maturity; with formal processes, reporting and worker engagement generally well established but with consistent gaps in assurance, verification and management capability to interpret and act on health and safety information.

The most significant insight from the Pilot was the pattern that sat beneath this finding of weak assurance. Worker knowledge, worker and contractor engagement and management reporting were among the stronger areas of performance; while management knowledge and verification activities were among the weaker areas. This suggests a recurring organisational gap: the people closest to the work often appeared to understand operational risks, pressures and practical controls more clearly than the managers and systems responsible for interpreting and assuring those risks.

This paper argues that the next stage of health and safety practice may depend less on building additional systems and more on strengthening the ability of organisations to learn from work as it is actually performed. In doing so, the paper revisits the well-established distinction between work-as-imagined and work-as-done, and positions that distinction as a practical challenge for assurance, leadership capability and the future role of the health and safety profession.

The paper addresses the following research question:

What does the Pilot reveal about the relationship between worker knowledge, management understanding and organisational confidence in safety performance?

The purpose of the paper is to contribute to discussion about the future of health and safety practice in New Zealand, particularly for organisations that have already developed systematic approaches but continue to struggle with assurance, verification and confidence that controls remain effective in practice.

2.0 Literature Review

2.1 Learning from the past: the rise of systems-based safety management

The development of modern health and safety practice has been strongly influenced by systems-based approaches to risk management. Research into organisational accidents demonstrated that serious events rarely arise from frontline behaviour alone, but from interactions between organisational decisions, leadership, design, supervision and control effectiveness (Reason, 1997). This contributed to the growth of formal Safety Management Systems and international standards such as ISO 45001, which emphasise leadership, worker participation, risk management, performance evaluation and continual improvement (International Organization for Standardization, 2018).

These developments have delivered substantial benefits. Organisations now have clearer governance structures, stronger accountability, improved worker engagement and more systematic approaches to risk management. However, increasing system maturity can create a new challenge. Organisations may become proficient at demonstrating compliance and system activity while remaining uncertain about whether risks are effectively controlled in practice (Hale & Borys, 2013). This raises an important question for contemporary practice: if many organisations have already built formal systems, what explains the ongoing gap between system maturity and confidence in safety performance?

2.2 Leading in the present: safety culture, work and organisational understanding

Safety culture is commonly understood through the shared values, beliefs and practices that influence how safety is prioritised and managed within an organisation (Claxton, Hosie, & Sharma, 2022). Safety climate concerns workers' perceptions of the relative priority given to safety at a particular point in time (Zohar, 1980). Together, these concepts highlight that the effectiveness of systems depends substantially on how systems are interpreted and enacted by people.

Human and Organisational Performance (Conklin, 2019), Safety-II (Hollnagel, Wears, & Braithwaite, 2015) and resilience engineering (Woods, 2015) have further challenged assumptions that safety is primarily achieved through compliance. These perspectives recognise that people are not simply sources of error but are also essential contributors to successful performance. People adapt to changing conditions, manage competing goals, identify practical difficulties and create safety through everyday judgement (Dekker, 2014) (Hollnagel E. , 2014).

A central concept across these perspectives is the distinction between work-as-imagined and work-as-done. Work-as-imagined describes how work is expected to occur according to procedures, policies, plans and risk assessments. Work-as-done describes how work is actually carried out in operational environments (Hollnagel E. , 2014). Differences between the two are often unavoidable due to production pressure, staffing constraints, equipment condition, weather, contractor variability, customer demands, competing priorities and changing work conditions (Dekker, 2014) (Hollnagel E. , 2014) (Rasmussen, 1997).

This distinction is particularly important for health and safety assurance. Procedures and risk registers usually represent work-as-imagined. Workers experience work-as-done. They know where procedures are difficult to apply, which controls aren't practical, where workarounds are emerging, what pressures affect decisions and which controls are vulnerable under normal operating conditions. If organisations do not create mechanisms to learn from this knowledge, worker insight remains local while organisational decision-making remains dependent on reports, metrics and assumptions (Dekker, 2014) (Hollnagel E. , 2014).

The Pilot findings make this issue especially relevant. The Pilot found strong worker knowledge and worker engagement, while management knowledge and verification activities were weaker. This suggests that knowledge about how risk is managed may exist within organisations, but not always in the places where strategic decisions are made.

This is not just a communication problem, but a sense-making problem. Work on organisational sense-making (Weick K. E., 1995) emphasises that organisations must interpret information, create meaning and decide what action is required under uncertainty. In health and safety, leaders may receive reports, audit results and dashboards; yet still struggle to understand what those signals reveal about real risk, control effectiveness and organisational vulnerability.

The implication is that safety performance cannot be understood only by asking whether systems exist. Organisations must also ask whether leaders understand what systems are telling them, whether worker knowledge is being interpreted accurately, and whether assumptions about control effectiveness are being tested against operational reality (Weick & Sutcliffe, 2015).

2.3 Innovating for the future: assurance, verification and control drift

As management systems have become more common, assurance has become more important. Assurance differs from compliance. Compliance generally asks whether a requirement has been met or an activity has been completed. Assurance concerns the justified confidence an organisation has that the controls relied upon to manage risk are functioning effectively in practice (International Council on Mining and Metals, 2026).

This distinction is particularly important in relation to critical risks. Critical Control Management focuses attention on the controls that prevent or mitigate fatal and other high-consequence events. In this context, it is not enough to know that a control is listed in a risk register, that a procedure exists or that training has been completed. Leaders and officers need confidence that controls are functioning effectively at the point of risk (International Council on Mining and Metals, 2026).

One reason assurance is difficult is that controls drift over time. A control that is effective when introduced may become less effective as work changes. Operational pressure increases, staffing changes, experienced workers leave, equipment deteriorates, contractors rotate, technology changes, and production demands shift. Over time, workers adapt the way work is done. Some adaptations create resilience and help work succeed, while others may erode controls or normalise increased exposure to risk (Dekker, 2011) (Rasmussen, 1997).

Control drift is often gradual and difficult to detect. A pre-start check that was once completed carefully may become abbreviated over time, or a permit process may continue to exist formally while becoming less meaningful in practice. In each case, the control remains visible within the system while its effectiveness in work-as-done changes (Dekker, 2011) (Rasmussen, 1997).

This is why verification matters. Verification is not just checking whether paperwork has been completed; it tests whether the organisation's assumptions about controls continue to match operational reality, and whether critical controls are present, understood and effective in practice (International Council on Mining and Metals, 2026). The Pilot findings suggest that many participating organisations had established reporting mechanisms and formal systems, but weaker verification and assurance activities. This indicates a risk that organisations may be more capable of confirming system activity than confirming control effectiveness.

Therefore, the future solution is not anti-system; systems remain necessary. The answer is to ensure systems are connected – and stay connected – to the reality of work. Confidence in assurance depends on organisations being able to translate worker knowledge into evidence, interpretation, learning and action.

3.0 Methodology

3.1 Research design

This paper draws on data collected through the 2025 Safety Culture Pilot Programme, a workplace assessment initiative designed to evaluate organisational health and safety maturity. The study is exploratory and descriptive in nature. It does not test causal relationships or evaluate a specific intervention. Instead, it identifies patterns and themes across participating organisations and considers their implications for contemporary health and safety practice.

The Pilot was selected as a suitable source of data because it provided a structured and consistent assessment of multiple dimensions of health and safety culture across a group of New Zealand organisations. This paper draws on findings from the Pilot, which assessed twelve New Zealand organisations across Auckland, Northland and Waikato using the Safe365 ten-module safety culture framework.

3.2 Participants

Twelve organisations participated in the pilot programme across Auckland, Waikato and Northland. The organisations represented a range of industries, organisational structures and maturity levels. Participation was voluntary and undertaken for organisational development rather than regulatory, compliance or certification purposes. Participating organisations agreed at enrolment that programme data could be used for reporting, research and programme development purposes, subject to organisational anonymity.

The assessment incorporated perspectives from multiple organisational levels, including governance representatives, operational and middle managers, and frontline workers. This multi-level approach was intended to provide a broader understanding of organisational health and safety culture and to capture differences in perception across governance, leadership and operational groups.

3.3 Assessment framework

The Pilot utilised the Safe365 Safety Culture Maturity Assessment (Safe365, n.d.), which evaluates organisational maturity across ten health and safety modules. The assessment comprises more than 80 questions directed at governance, management and worker participants. Responses are combined to generate outputs including a Safety Maturity Index, module-level maturity results and goal achievement reporting.

The assessment evaluates organisational capability across ten modules: Director Knowledge, Management Knowledge, Worker and Contractor Knowledge, Health and Safety Management Systems, Verification and Audit Activities, Emergency Preparedness, Health and Safety Data Collection, Management Reporting, Worker and Contractor Engagement, and Culture and Behaviours. Questions are directed to different organisational groups, enabling comparison between governance, management and frontline worker perspectives and providing insight into how health and safety is understood and experienced across organisational levels.

The Safety Maturity Index uses five levels: Early Days, Reactive, Systematic, Proactive and Leadership. These levels represent progression from basic health and safety management through to more integrated and continually improving approaches. Scores are aggregated by the Safe365 platform and presented through a maturity index, colour-coded module analysis and goal achievement reporting. The assessment is intended to evaluate the maturity, consistency and effectiveness of organisational health and safety practices rather than injury outcomes or regulatory compliance alone.

Participating organisations also selected a desired maturity goal at programme commencement. Safe365 uses three goal categories: Compliant, Beyond Compliance and Industry Leader. These goals represent increasing expectations of maturity across the ten assessment modules. Goal achievement is not determined by overall maturity score alone. Instead, all ten modules must meet the required threshold for the selected goal before achievement is recognised. As a result, organisations may demonstrate relatively strong overall maturity while still not achieving their selected goal if one or more modules remain below the required standard. This approach emphasises consistency across organisational capability rather than isolated areas of strength.

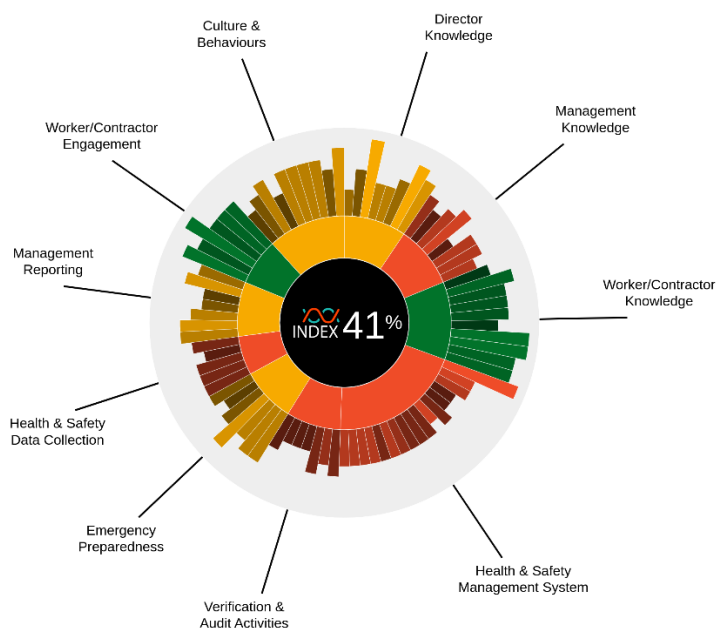
A note on Safe365's methodology

The [Safe365 Safety Culture Maturity Assessment](#) draws on Hudson's Safety Culture Maturity Model as its theoretical foundation. This enables organisations to assess capability, benchmark performance, identify improvement opportunities, and monitor maturity progression over time.

Figure 1 - Hudson's Safety Maturity Index



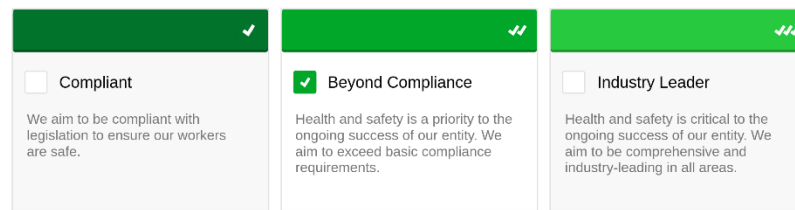
Figure 2 - Safe365 Starburst



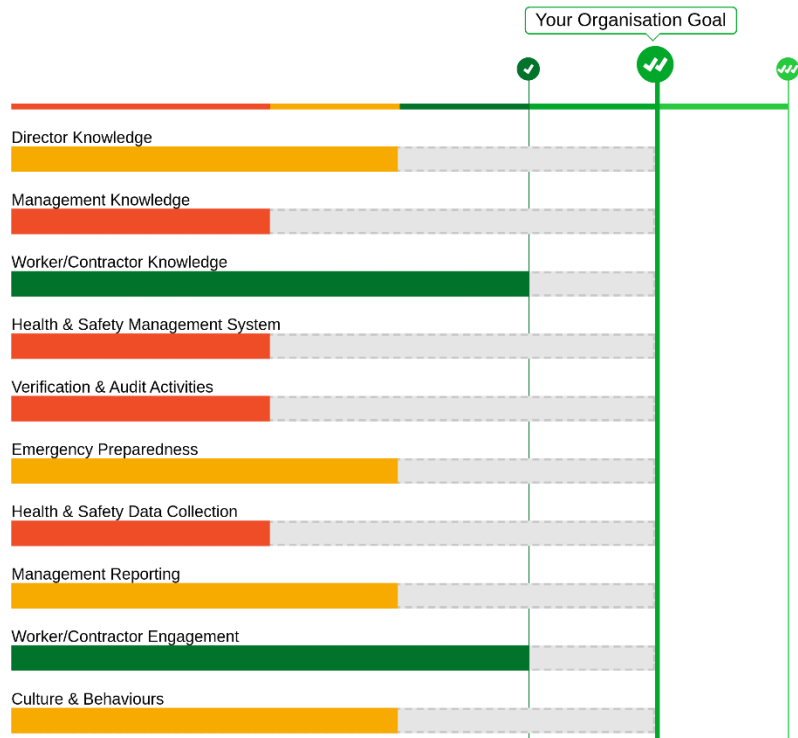
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Figure 3 - Safe365 Maturity Goal Bar Graph Health and Safety Objective

The desired state MBP (NZ) Limited has identified in Safe365 is **Beyond Compliance**.



The following graph outlines how MBP (NZ) Limited is tracking against its goal of achieving a level of **Priority** for each module.



3.4 Data analysis

The analysis focused on recurring organisational patterns rather than detailed comparison between individual participants. Three forms of analysis were undertaken:

- Overall maturity distribution across participating organisations.
- Comparison of module-level strengths and weaknesses.
- Achievement of selected organisational maturity goals.

The findings were interpreted alongside contemporary health and safety literature with particular attention to safety culture, work-as-imagined and work-as-done, organisational learning, assurance and leadership capability.

3.5 Limitations

Several limitations should be acknowledged. First, the sample was relatively small, comprising twelve organisations and was not intended to be statistically representative of all New Zealand workplaces. Second, participation was voluntary, creating potential for self-selection bias. Participating organisations may have been more motivated to improve or more engaged with health and safety than non-participants. Third, the assessment framework measured organisational maturity rather than actual safety outcomes. As such, findings should not be interpreted as direct measures of injury performance or risk exposure. Fourth, the analysis reflects an assessment period and therefore provides a snapshot of organisational capability rather than evidence of long-term trends.

Despite these limitations, the pilot offers a valuable opportunity to examine patterns across multiple New Zealand organisations and to explore the relationship between worker knowledge, management understanding, verification and confidence in health and safety performance. The conceptual model proposed in this paper has not been empirically validated and should be considered a framework for further discussion and testing.

4.0 Results

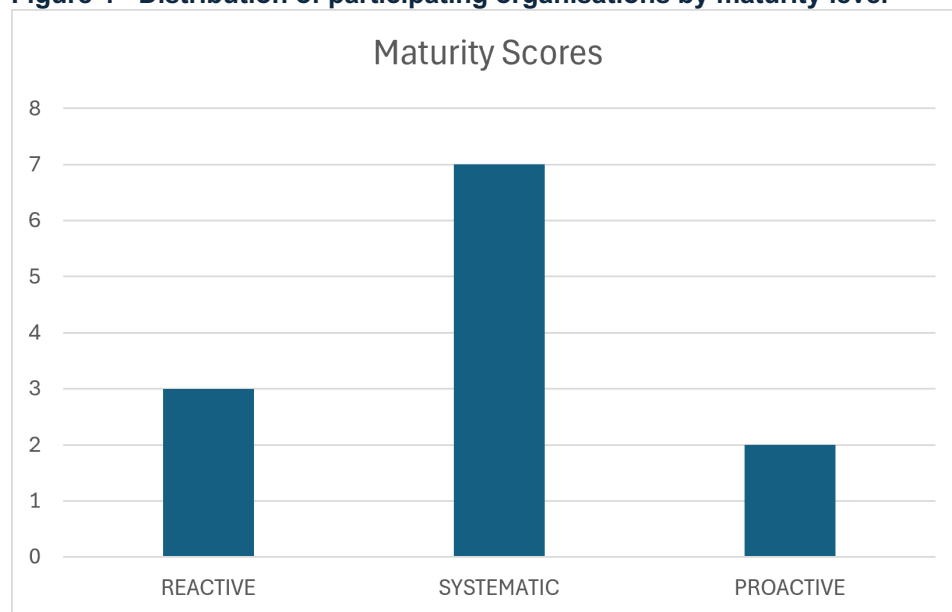
4.1 Most organisations were classified as Systematic

Analysis of Safety Maturity Index scores showed that most participating organisations operated at a Systematic level of maturity. Smaller numbers were classified as Reactive, and only two organisations achieved Proactive maturity. No organisation achieved the highest Leadership category.

Organisations at the Systematic level typically demonstrated established policies, documented procedures, reporting mechanisms, governance structures and formal risk management processes. Some smaller organisations operated functioning health and safety systems that relied more on relationships, practical knowledge and day-to-day operational management than on extensive formal documentation. From a traditional health and safety perspective, this reflects substantial investment in structured management systems and a shift away from purely incident-driven or reactive approaches.

This finding is important because it indicates that the participating organisations were not generally struggling due to the complete absence of health and safety systems. Many had already built the foundations of formal safety management. The challenge was not whether systems existed, but how those systems were understood, verified and used to support decision-making.

Figure 4 - Distribution of participating organisations by maturity level



4.2 Worker knowledge, engagement and reporting were strongest, while management knowledge and verification were weakest

Analysis of module-level performance revealed clear organisational strengths and weaknesses. The strongest-performing modules included Management Reporting, Worker and Contractor Engagement, and Worker Knowledge. The weakest-performing modules included Verification and Audit Activities, Management Knowledge, Health and Safety Data Collection, Emergency Preparedness and Health and Safety Management Systems.

The strong performance of Management Reporting suggests that participating organisations generally had established mechanisms for communicating health and safety information through operational and governance structures. High scores in Worker and Contractor Engagement and Worker Knowledge indicate that workers were often participating in health and safety activities and held important practical understanding of workplace risk.

The most significant finding, however, was the disparity between these strengths and the weaker areas of Management Knowledge and Verification and Audit Activities (see below figures). This suggests that while workers were engaged and knowledgeable, organisations were less consistently able to translate that knowledge into leadership understanding, verification and confidence in assurance.

Figure 5 - Module Strengths

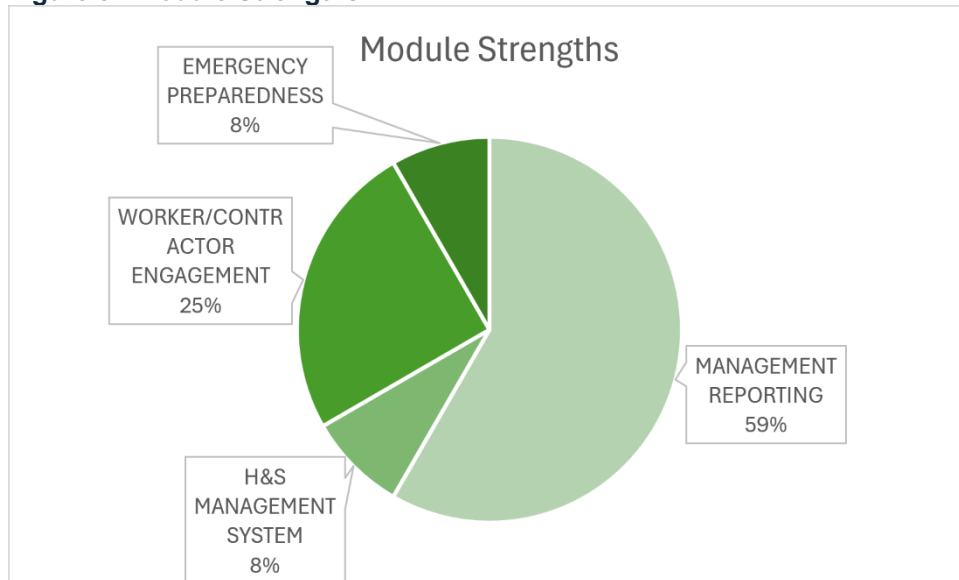
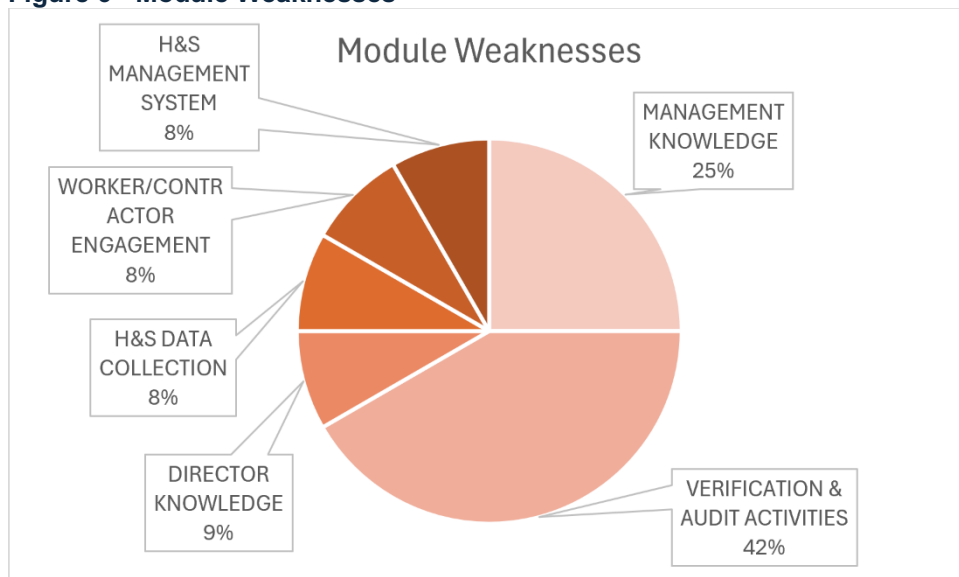


Figure 6 - Module Weaknesses



4.3 No organisation achieved all selected maturity goals

No participating organisation achieved all selected maturity goals during the initial assessment period, although many achieved target levels in several individual modules and some came close to overall achievement. Achievement required all ten modules to meet the selected maturity threshold, meaning strengths in some areas were insufficient for overall goal completion. Consequently, organisations with relatively strong total maturity scores could still fall short of their selected goal where weaknesses remained in key areas such as verification, management knowledge, health and safety systems infrastructure or data collection.

This finding reinforces the variability observed in the module-level analysis. Organisations could appear relatively mature overall while still exhibiting significant weaknesses in specific areas. In particular, strengths in reporting and engagement were not consistently matched by equivalent maturity in verification, assurance, management understanding and organisational learning

4.4 Summary of results

Three key findings emerged from the pilot. First, most participating organisations operated at a Systematic level of maturity. Second, worker knowledge, worker and contractor engagement, and management reporting were among the strongest areas, while management knowledge and verification activities were among the weakest. Third, no organisation achieved all selected maturity goals at initial assessment.

Taken together, these findings suggest that the challenge facing many participating organisations was not a lack of safety activity or worker engagement. Their real issue was whether worker knowledge and system-generated information were being converted into organisational understanding, verification and confidence.

5.0 Discussion

Most participating organisations had progressed beyond reactive approaches and established formal health and safety systems. However, the findings suggest that system maturity alone does not guarantee confidence that critical risks are effectively controlled. The central contribution of the Pilot is that assurance remained weak despite the presence of many expected foundations. Organisations appeared stronger at demonstrating safety activity than demonstrating evidence of control effectiveness.

Worker Knowledge was one of the strongest findings from the Pilot. Workers often held practical knowledge about how risk was managed in day-to-day operations, including changing conditions, operational pressures and control effectiveness. Worker knowledge therefore represents more than participation; it provides operational intelligence about how work is actually performed and where controls may be vulnerable (Hollnagel E. , 2014) (Weick & Sutcliffe, 2015).

This may be particularly relevant to participating SMEs, several of which operated with lean structures, close working relationships and limited specialist health and safety resources. For many small and medium-sized organisations, the most practical source of assurance may not be another external audit or complex framework; but better use of the knowledge already held by workers and supervisors who understand the work.

The Pilot found that Management Knowledge was one of the weaker areas of maturity. This is significant because health and safety law, governance expectations and modern safety practice require leaders to understand risk, interpret information and verify that controls are effective (New Zealand Legislation, 2025). A manager may receive health and safety information without fully understanding what it means, while a board may receive performance dashboards without knowing whether indicators genuinely reflect control effectiveness. Management knowledge therefore extends beyond receiving information; it requires the ability to interpret what that information means for risk, control effectiveness and operational decision-making.

The result is a gap between what workers know and what the organisation understands. This has particular relevance for officers exercising due diligence. Receiving health and safety information is not equivalent to understanding the organisation's operations and associated risks. Officers must take reasonable steps to acquire relevant knowledge, ensure processes exist for receiving, considering and responding to health and safety information, and verify that relevant resources and processes are provided and used (New Zealand Legislation, 2025).

Participating organisations entered the Pilot with selected maturity aspirations. Achievement required all ten modules to meet the chosen maturity threshold. No participating organisation achieved all selected maturity goals at initial assessment. While strengths were evident across many organisations, particularly in worker engagement, worker knowledge and management reporting; weaknesses in verification and management understanding were commonly associated with non-achievement of the overall selected goals.

From a systems perspective, this suggests that overall organisational performance depends not only on individual strengths within a system, but on how effectively different elements of the system interact and reinforce one another (Pandey, 2025). Organisations appeared more capable of demonstrating safety effort than demonstrating confidence in assurance.

The distinction between work-as-imagined and work-as-done remains central to understanding why systematic organisations can still struggle with assurance. Systems strengthen documentation, governance and reporting, but they do not necessarily improve understanding of operational reality. The Pilot findings suggest organisations were stronger at managing work-as-imagined than learning from work-as-done, creating a gap between what organisations believed was occurring and what was actually occurring where risk was managed.

From this perspective, the assurance gap is the distance between organisational assumptions and operational reality. The practical challenge is not eliminating variation, but understanding where adaptations enhance resilience, mask weakness or erode controls.

Controls rarely fail suddenly; they drift over time as work changes and conditions evolve (Dekker, 2011) (Rasmussen, 1997). Verification provides assurance that controls remain present, understood and effective in practice. The Pilot finding that Verification and Audit Activities were among the weakest areas suggests many organisations may be better at confirming safety activity than confirming risk control effectiveness.

Better questions to ask:

- Is the control present?
- Is the control being used?
- Is the control understood?
- Is the control practical?
- Does the control work under pressure?
- What evidence supports confidence?

The Pilot findings also invite reflection on traditional assumptions about management and work. Historically, organisations often assumed that management designed work and workers executed it. Contemporary systems thinking challenges this view, recognising that work is dynamic, adaptive and influenced by decisions across multiple organisational levels (Pandey, 2025). Workers frequently manage variability and respond to changing conditions in ways that cannot be fully anticipated by procedures (Dekker, 2014) (Hollnagel E. , 2014).

The Pilot findings were consistent with this perspective. Workers often demonstrated strong knowledge, while management understanding and verification were weaker. This suggests that important operational knowledge may exist within organisations but is not always translated into organisational understanding. The issue is therefore less about worker motivation and more about visibility, interpretation and learning. Organisations that reward activity and positive reporting without equivalent challenge, curiosity and verification risk developing confidence in a view of operations that differs from work-as-done (Weick & Sutcliffe, 2015).

Future research should consider how assurance, organisational learning and worker knowledge are understood through Mātauranga Māori perspectives and how these perspectives may contribute to more holistic understandings of health and safety practice in New Zealand.

6.0 Proposed model

From worker knowledge to assurance confidence

To support the shift from system maturity to organisational understanding, this paper proposes a practical model that positions worker knowledge as a source of assurance.

Figure 7 - Assurance Confidence Model

Assurance Confidence Model

CORE QUESTION	STAGE	PURPOSE
What do workers know about how risk is actually managed?	1. Worker Knowledge Operational Intelligence	Surfaces operational intelligence
How do we test whether that knowledge reflects control effectiveness?	2. Verification Evidence of Control Effectiveness	Converts insight into evidence
Do leaders understand what the evidence means?	3. Management Understanding Interpretation & Judgement	Creates interpretation and judgement
Does the organisation act on what it learns?	4. Organisational Learning Improvement & Adaptation	Drives improvement and adaptation
What evidence supports confidence that controls are working?	5. Assurance Confidence Justified Confidence in Controls	Builds justified confidence

This model does not replace existing safety maturity frameworks. Instead, it complements them by focusing on the pathway between work-as-done and decision-making. It recognises that worker knowledge alone is not enough. Verification is required to test assumptions. Leadership understanding is required to interpret evidence. Organisational learning is required to translate interpreted evidence into changes in assumptions, decisions and practice (Argyris & Schon, 1996) (Weick & Sutcliffe, 2015). Assurance confidence is the outcome.

The model also reframes worker participation. Worker engagement is not simply a consultation mechanism or compliance obligation; it provides a means of accessing knowledge about how safety is created, maintained and adapted in practice (WorkSafe New Zealand, 2023). The critical issue is not only whether workers are willing to speak up, but whether organisations are willing and able to learn from what workers know. When concerns are dismissed, filtered or left unexplored, organisations risk losing access to the operational intelligence about control drift, emerging vulnerabilities and changing work conditions. Responsive leadership therefore becomes a key capability for assurance; helping convert worker knowledge into organisational understanding, learning and action (Argyris & Schon, 1996) (Weick & Sutcliffe, 2015).

Model development and future validation

The Assurance Confidence Model should be viewed as a conceptual framework rather than a validated predictive model. It was developed through interpretation of the Pilot findings and synthesis of literature relating to work-as-done, organisational learning, assurance, verification and leadership sense-making. The model reflects a recurring pattern identified in the Pilot: worker knowledge, worker engagement and management reporting were generally stronger than management knowledge and verification capability; suggesting that the obstacle was less about generating information and more about translating operational knowledge into organisational understanding.

Furthermore, no participating organisation achieved its selected maturity goal despite many demonstrating strengths in individual modules. This indicates that organisational confidence depends on integration between capabilities, rather than isolated areas of good performance.

Further research could test the model across a larger and more diverse organisational sample, examine the relationships between the proposed stages, and determine whether improvements in verification and management understanding are associated with stronger assurance capability and organisational confidence in control effectiveness. While the model is presented as a practical framework for contemporary health and safety practice, its value ultimately depends on future empirical testing and refinement.

7.0 Practical implications

7.1 Governance: from receiving reports to testing confidence

Governance bodies have a key role in overseeing health and safety performance. Rather than focusing solely on reports and compliance activity, governance groups should also test the confidence they have in the information presented and the assumptions that underpin it (New Zealand Legislation, 2025) (Weick & Sutcliffe, 2015) (WorkSafe New Zealand, 2019). Useful questions include:

- What do workers tell us that reports do not?
- What assumptions are we making about control effectiveness?
- How do we know our critical controls are working?
- What evidence supports our confidence?
- Where is work-as-done different from work-as-imagined?
- What has changed since this control was designed?

7.2 Leaders: from directing work to understanding work

The findings highlight leadership capability as a critical factor in organisational performance (Weick & Sutcliffe, 2015). Leaders do not simply need more health and safety information. They need capability to interpret information, understand operational risk and challenge assumptions.

Leadership discussions should increasingly focus on questions such as:

- What are our most critical risks?
- Which controls are most vulnerable?
- What has changed in the work?
- What concerns are workers raising?
- What weak signals are emerging?
- What evidence tells us controls remain effective?

This represents a shift from directing work to understanding work. In dynamic workplaces, leaders should not assume that the documented system fully reflects reality. Leaders need feedback loops that connect them to work-as-done.

7.3 Health and safety professionals: from system custodians to interpreters of work

As systems become more established, the value of health and safety professionals may increasingly lie in helping organisations understand whether systems remain effective in practice. This includes:

- Translating worker knowledge into organisational insight
- Designing verification activities
- Supporting critical control checks
- Detecting control drift
- Identifying weak signals
- Challenging assumptions
- Coaching leaders to interpret safety information
- Connecting work-as-done with governance and decision-making

In this shifted-focus role, health and safety professionals could become interpreters of work. They help close the distance between worker knowledge and management understanding. They support organisations to move from confidence based on system presence to confidence based on evidence (Dekker, 2014) (Hollnagel E. , 2014).

7.4 Workers: from consultation participants to operational intelligence

Workers should be viewed as more than participants in consultation processes. They are a source of operational intelligence (International Council on Mining and Metals, 2026). Workers often know:

- Where procedures do not match work
- Which controls are hard to use
- What pressures affect decisions
- Where workarounds are emerging
- What has changed recently
- Which weak signals need attention

Organisations can strengthen assurance by actively incorporating worker knowledge into risk management and verification activities. Practical approaches include:

- Involving workers in critical control verification
- Conducting regular work-as-done conversations
- Including frontline perspectives in investigations and reviews
- Asking workers where controls become difficult
- Providing feedback on actions taken
- Using worker observations to test assumptions

This shifts worker engagement from consultation alone toward organisational learning.

7.5 New Zealand SMEs: practical assurance without excessive bureaucracy

The findings are particularly relevant to New Zealand SMEs, where assurance must often be achieved through practical learning rather than additional bureaucracy. A useful starting point is one critical risk and five questions:

- What control are we relying on?
- Who experiences this control in practice?
- What would workers tell us that reports do not?
- When did we last verify this control in the field?
- What has changed since the control was designed?

This approach builds on strengths commonly found in New Zealand workplaces: close relationships, practical knowledge, adaptability and informal communication. The opportunity is to turn these strengths into deliberate learning and assurance.

8.0 Conclusion

This paper set out to explore what the 2025 Safety Culture Pilot reveals about the relationship between worker knowledge, management understanding and organisational confidence in safety performance. The findings suggest that participating New Zealand organisations have already achieved an important milestone. They have built systematic approaches to health and safety; formal processes, management reporting, worker engagement and worker knowledge were generally well established across the Pilot organisations.

However, the Pilot also revealed a significant inconsistency. Worker knowledge and engagement were among the stronger areas, while management knowledge and verification activities were among the weaker areas. This suggests that the people closest to the work often held important knowledge about how risk was actually controlled, while organisational capability to verify, interpret and act on that knowledge was less developed.

The finding that no participating organisation achieved all selected maturity goals reinforces this concern. Organisations often demonstrated significant safety activity and established management systems yet still struggled to demonstrate consistent maturity across all dimensions of the framework. This suggests that organisational confidence may depend less on the presence of systems and more on the ability to verify, interpret and learn from evidence about how work is actually performed.

This finding highlights the blind spots impacting systematic safety cultures. The issue is not whether systems exist, nor is it whether workers are engaged. The missing component is whether organisations can learn, and improve, from work as it is actually performed. The analysis suggests that work-as-imagined and work-as-done remain central to contemporary safety practice. Systems describe work-as-imagined, but workers experience work-as-done. Assurance depends on the organisation's ability to understand the gap between the two, test assumptions and respond before control drift leads to harm (Hollnagel E. , 2014).

For New Zealand workplaces, particularly SMEs, the solution is unlikely to be more bureaucracy. The more practical opportunity is to strengthen the feedback loops between workers and leaders, between controls and verification, and between reporting and learning. For health and safety professionals, this represents an important shift. The profession's future value may lie less in creating additional information and more in helping organisations understand the information and knowledge they already hold.

Practitioners can become translators between frontline reality and organisational decision-making, helping leaders understand how safety is created, sustained and adapted in real work environments. The future of safety may therefore depend less on the sophistication of our systems and more on our ability to understand the people who make those systems work.

Declarations

Conflict of interest statement

The author was involved in design and delivery of the Safety Culture Pilot Programme. No financial or personal conflict of interest is declared.

Pilot confidentiality

The twelve participating organisations in the Pilot are sufficiently anonymised and no commercially sensitive results are identifiable. Participation agreements authorised the use of programme data for reporting, research and programme development purposes.

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Author contribution statement

The author is the sole author of this paper and was responsible for conceptual development, analysis, drafting and final preparation of the manuscript.

Artificial intelligence declaration

Artificial intelligence tools were used to assist with drafting, structuring, editing and refinement of this manuscript. The author reviewed, edited and approved the final content and remains responsible for the accuracy, integrity and originality of the work.

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