

Delivering Real-world Risk and Control Management Outcomes Using the Control Framework Approach

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Abstract

New Zealand's decarbonisation commitments and the resulting transformation of the energy system are redefining the roles of frontline teams, system operators, and asset managers.

At a business level, good decision making improves efficiency, flexibility, and service quality while reducing incidents, losses, and other costs.

Risk and control management is a foundational process across all industry roles—yet many current approaches remain analogue, one-size-fits-all, and based on flawed logic. This paper challenges these assumptions by asking: how can legacy frameworks support the scale and complexity of decisions now required for a low-carbon, resilient New Zealand?

Through practical case studies, this paper illustrates how digitised, connected, and operationally integrated risk and control management processes—applied across all business levels—can respond to the sector's most pressing challenges. These include:

- *Skills shortages and workforce turnover*
- *Business scale-ups and capital expansion;*
- *Safety and due diligence obligations;*
- *Climate volatility and changing regulatory expectations;*
- *Evolving customer demands and public trust;*
- *Development and integration of digital business ecosystems.*

Using the Control Framework (CFw) approach, the case studies show how risk and control processes can be embedded in daily operations, reviewed for performance, and improved over time—while aligning “work as documented” with “work as done” and supporting the integration of enabling technologies.

The application of the CFw approach across New Zealand's electrical distribution sector, and in global mining and processing environments, has consistently delivered:

- *Embedded public and workplace safety controls that are understood, owned, and monitored by frontline workers;*
- *Measurable workforce upskilling outcomes;*
- *Stronger collaboration across leadership, technical, governance, and operational teams;*
- *Digital integration via desktop and mobile apps to support work execution, control verification, and data capture;*
- *Active compliance assurance and due diligence.*

By combining structured control methods with digital tools and workforce empowerment, the CFw approach offers a scalable path to safer, smarter, and more resilient energy networks.

INTRODUCTION

Boyle, et. al. 2024 identified the strategic challenges facing EDBs and generators in New Zealand – triggered by broader electrification of transport, heating and industry. This paper addresses the tactical aspects of applying and operationalising a more people-centric and digital-friendly approach to Risk Management, the Control Framework approach.

This paper provides an overview of why current risk management approaches are not delivering required outcomes and provides some specific examples of how a different approach proves effective for addressing some of these failings.

Current approaches work with teams of people to break down the subject area into tasks, aspects, impacts, hazards, causes and controls – typically in a spreadsheet format. Time is then invested in ranking the risks using subjective tools and stating the controls intended to address them – and then re-ranking the issue with the controls in place.

The CFw approach inverts the traditional process—prioritising controls based on credible failure modes and consequence severity, rather than perceived inherent risk. This leads to the team review being much more productive and generating value adding improvements to business activities (controls).

When this approach is extended to achieving field work with deployed crews – the integration of the control framework approach is achieved through:

1. Development of a workflow that addresses key requirements of the organisation's health and safety management system AND draws knowledge from experienced team members to describe the key process steps and measures to undertake
2. Generation of a digital memory aid for team members that prompts consideration of the controls identified in the workflow development, and
3. Captures information on how the work has been performed so that work crews can demonstrate their professionalism – which provides regular confirmation that organisational commitments are met (and provides early drift signals if process steps are being missed)

WHAT'S BROKEN: LEGACY RISK AND CONTROL MODELS

Before describing the control framework process and typical outputs – it is worth reflecting on the current approaches taken to assessing risks in organisations.

An unstated goal of the risk assessments prepared is to confirm that all issues have been considered, and the planned work presents a tolerable level of risk.

Many of these analyses (e.g. *WA Department of Energy, Mines, Industry Regulation and Safety*, accessed March 2025) guide towards ranking an issue in its inherent state and again after considering the relevant Risk Treatments or controls. Industry guidance, as provided by *ICMM 2019* – in Tool 8 also considers risk analysis as a key aspect of preparing a closure plan.

There are multiple problems with this approach. From a facilitation perspective the rankings are so fuzzy that the process of conducting a risk assessment frequently becomes more a case of mediating a dispute than a sober assessment of any real measure. *Hubbard, 2009 pp 68-71 and at Exhibit 4.2 pg 74* provides a detailed, and frequently scathing, assessment of these processes. Some key failings are that:

- Inputs are subjective and so are error prone
- Scoring magnifies the input errors, and

- The approach fails to consider basic mathematics.

The basic mathematics in question is that there are essentially four ways that anything can be measured:

1. Nominal – this is a basic grouping such as Male or Female, Preferred to Not-preferred, Alive or Dead, etc.
2. Ordinal – this is a scale of qualitative merit or impact for example a 5-star hotel, or a 4-tomato film. All risk matrices in common use adopt this approach with a 1 to 3, 4, 5, 6 or 7 scale invoked – and some prose to describe the basis of the ranking provided. Frequently, the prose will include a reference to a frequency or a percentage impact.
3. Scalar – measurable quantities that start from a notional base position – for example degrees Centigrade or degrees Fahrenheit.
4. Real – measurable quantities with a zero start point – for example degrees Kelvin, where 0°K represents the absence of atomic movement. Other real quantities such as distance, speed or acceleration which can be measured in agreed units from a nominated baseline.

The segregation is important as it determines what mathematical functions can be performed. For the list above:

1. Nominal – no mathematical functions are valid
2. Ordinal – no mathematical functions are valid
3. Scalar – addition and subtraction can be performed, and
4. Real – all mathematical functions can be performed in line with preservation of unitary coherence (which just means that the result can be expressed in the relevant units or clearly describe a feature in percentage terms e.g. m/sec for speed and m/m=% for elongation or strain).

Risk, by definition, is the product of probability and consequence. Actuaries apply this approach extensively to determine the appropriate level of insurance premium that applies to an unwanted outcome (that can be presented in \$ terms).

The accepted approach to risk management that prevails in industry and certainly amongst the majority of regulators is based on the flawed combination of ordinal numbers to produce a risk score or level (event outcomes per time period) upon which decisions can be made.

It is for this (and other) reason(s) that well-meaning professionals and work team members end up in fruitless debates over what level to score a risk at. The measure is meaningless. As a case *ad absurdum* consider my recent night out where I went to a 3-star restaurant and then went to the movies and saw a 2-star film. I did NOT have a 6-star night. I had a reasonable meal and suffered through a worse than average movie.

To put this in perspective consider FIG 1 below. This is the suggested risk matrix for considering threats to achieving mine closure outcomes. It is based on textual prose around what constitutes likelihood with Improbable less than 3%, Unlikely 3% to 10% up to Almost Certain at greater than 90%. Similarly for Consequence where impacts are Insignificant at less than 1%, Minor at 1-3%, up to Major at >30%. The matrix in FIG 1 taken from the original reference shows each of the risk zones of equal size and offers a numerical score of the risk from 1 to 25.

FIG 2 on the other hand presents the same risk zones shown at a linear scale. In many of the risk matrices in use the scale presented is similar to FIG 1 which is effectively log-log so that small values close to zero appear the same as larger values further from the zero point. This must contribute to the confusion – and it is alarming that so many issues rated by teams inhabit the vanishingly small section at the bottom left of these matrices. Rating items Low or Medium risk can lead decision makers to

assume that they require no follow-up or on-going monitoring of controls. This is frequently a flawed assumption.

FIG 1 and FIG 2 illustrate the contrast between conventional risk matrices and a linear, to-scale representation.

Likelihood	Consequence scale				
	Insignificant	Minor	Moderate	High	Major
Almost certain >90%	11 (Medium)	16 (Significant)	20 (Significant)	23 (High)	25 (High)
Likely 30%–90%	7 (Medium)	12 (Medium)	17 (Significant)	21 (High)	24 (High)
Possible 10%–30%	4 (Low)	8 (Medium)	13 (Significant)	18 (Significant)	22 (High)
Unlikely 3%–10%	2 (Low)	5 (Low)	9 (Medium)	14 (Significant)	19 (Significant)
Improbable <3%	1 (Low)	3 (Low)	6 (Medium)	10 (Medium)	15 (Significant)

FIG 1 – The ICMM Tool 8 Scoring Matrix (courtesy ICMM 2019, Pg 107)

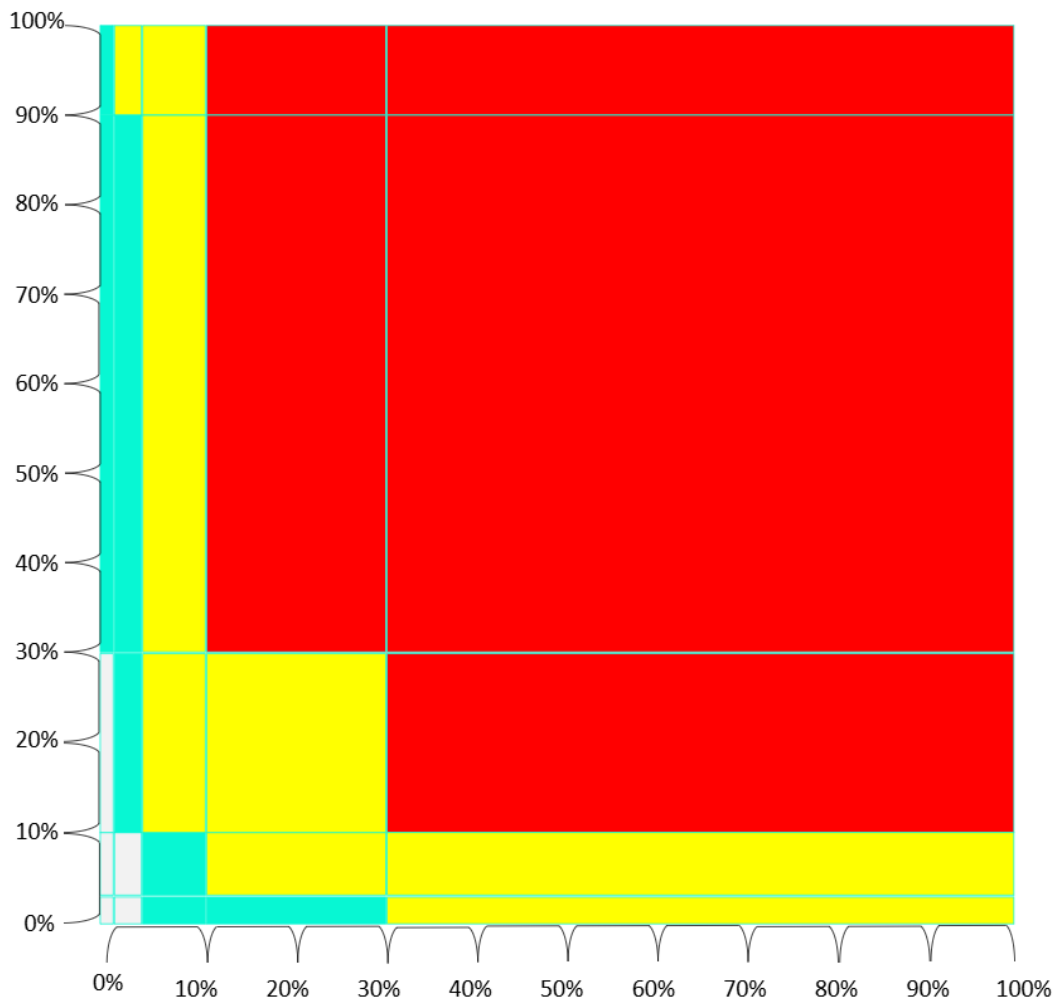


FIG 2 – Linear Representation of the ICM Tool 8 Scoring Matrix (100% by 100%)

It is also of interest to note that using these tools means that risk assessment scores vary significantly according to the make-up of the team which was in place at the time of the assessment to consider the subject. The scores can also be strongly influenced by the facilitator. In extreme cases this lends itself to a more correct term being ‘facipulator’ – a portmanteau of facilitator and manipulator – with groups guided to arrive at a pre-determined outcome (e.g. everything is low risk).

There is not zero value from these processes – but to prove useful they require extensive post workshop editing and correcting to ultimately produce a listing of credible causes of harm and connected controls that address and prevent them from being realised.

The information can also be presented in a bow-tie format – which has a more logical layout of controls acting to interrupt the causal pathways from a cause to an unwanted outcome. The challenge with these bow-ties is typically their ultimate complexity. A rigorous analysis of a type of loss will have many causes and correspondingly needs a significant number of controls to match them. This is useful for a safety professional in an office – but not of any practical value for a work team commencing work in the field.

Bow-tie risk analysis is an established semi-quantitative method favoured in power systems risk management. In the UK, HSL’s pilot on 11 kV networks highlighted its efficiency and credibility in utility contexts (de Ruijter 2016), while SINTEF’s work in Norway applied it to extraordinary transmission events, including wide-area blackouts (Gjerd 2025). EON has successfully deployed bow ties across its generation fleet—spanning CCGT, coal, hydro, renewables, and nuclear—to underpin its safety management framework (Baulch-Jones 2015). These examples show bow ties’ versatility

and legitimacy; however, CFw extends their value by integrating failure logic into digital workflows and embedding assurance mechanisms directly at the control level.

THE CONTROL FRAMEWORK (CFW) METHOD

A control framework (CFw) assessment is based on the principle that certain operating states must be maintained to meet the company's objectives. This approach can apply across many critical risk and subject areas – and the complete list of required operating states exhaustively describes what is needed to achieve safe and productive work in an organisation. A philosophy that sits behind the approach is to align with the MECE framework popularised by Barbara Minto in her 1987 book. MECE is an acronym for Mutually Exclusive and Collectively Exhaustive which is a useful paradigm for identifying that the operating states and identified business input activities (controls) are sufficient to address issues and deliver required outcomes.

In the Control Framework approach MECE is particularly helpful for:

- Structuring **Required Operating States** so they're clearly differentiated
- Confirming **Credible Failure Modes** are distinct and not duplicative
- Developing **Business Inputs** that fully cover operational expectations without redundancy

Some further logic is applied to the development of credible failure modes and related business inputs. This is to confirm that these elements of the framework address:

- System elements of:
 - People
 - Equipment, Materials and Consumables
 - Work Environment
 - Workgroup (and third-party) interactions, and
 - Sustaining Systems (addressing leadership, resourcing, information management, stakeholder liaison and contingency readiness)
- Life cycle elements of:
 - Design
 - Operation
 - System Control and Data Acquisition, and
 - Abnormal Threat Responses

Combining these system and life-cycle elements helps to confirm that principles of MECE are achieved and Control Framework elements are identified and implemented to achieve goals and avoid threats.

These operating states outline key elements necessary for successful business operations without specifying controls. The Required Operating States (ROS) form the backbone of the CFw model and support a structured breakdown of control expectations, as illustrated in FIG 3.

The reason the Required Operating States (ROS) are useful is that they provide a way of clearly articulating a robust set of business activities – which need to be in place to address the Credible Failure Modes which can impact this operating state.

FIG 3 below shows the relationship between operating states, failure modes, and business input activities.

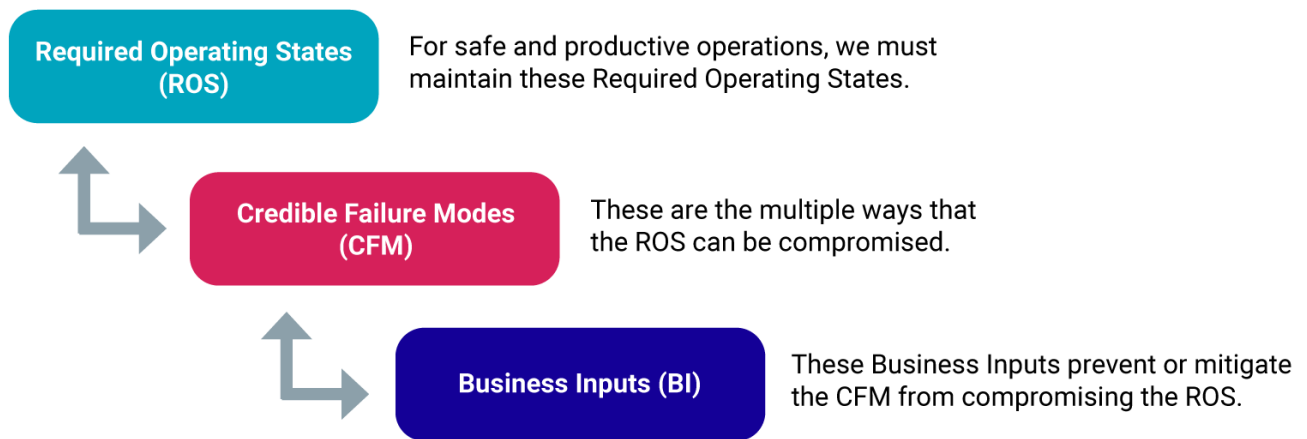


FIG 3 – Graphical Representation of a Control Framework

A key aspect to the Control Framework for a subject area is the exhaustive way in which it has been prepared. The approach draws on:

1. Defined using the MECE principle (Mutually Exclusive, Collectively Exhaustive) after *Minto 2009*, the operating states are structured to avoid overlap and ensure completeness. They also consider the requirements of critical control thinking after *ICMM, 2015*.
2. Developing Credible Failure Modes based on the collected knowledge from incident data and the principles contained in *IEC 2018*.
3. Clearly described Business Input activities (controls) which are presented in sufficient detail to allow a business to confirm that the measures will be valid and maintained. To this end, activities have a nominated accountable role as the owner, with one or more responsible roles tasked with execution and they have these four elements:
 - a. Expectation statement – which gives the why of the activity;
 - b. Specification – providing detail about what is required to meet the expectation;
 - c. Implement details – which describes how the specification is operationalised eg the training, skills, engineering controls (maintenance etc.), construction activities and procedures to follow, and;
 - d. Monitoring – the measures by which the quality and quantity of the ‘work-as-done’ is communicated within the company.
4. Management of the whole through the generation of a ‘single source of truth’ (as popularised by *The Open Group 2018*) where elements of the business inputs provide:
 - a. Components of standards, equipment and design specifications, management plans, procedures, training modules, and assessment tools;
 - b. Governance measures – with links to requirements of internal standards and external statute and standards;
 - c. Linkage to other business systems, and;
 - d. Support for successful moves to wider digitisation of business process guidance and monitoring.

Current approaches work with teams of people to break down the subject area into tasks, aspects, impacts, hazards, causes and controls – typically in a spreadsheet format. Time is then invested in ranking the risks using subjective tools and stating the controls intended to address them – and then re-ranking the issue with the controls in place.

The CFw approach inverts the traditional process—prioritising controls based on credible failure modes and consequence severity, rather than perceived inherent risk. This leads to the team review being much more productive and generating value adding improvements to business activities (controls).

The paper also discusses how the controls identified can be best considered as business inputs – activities which prevent losing required operating states and yield desired outcomes. Adopting this approach to a mining operation can yield multiple benefits:

- Consistent conduct of activities – sound planning of the mine and mining to the plan;
- Simplifying management systems and improving conformance;
- Generating early signals that activities are not occurring in line with site requirements, and;
- Providing workers at all organisational levels with the information they need to perform their tasks.

CASE STUDY – WORKING AT HEIGHTS

Working at Heights is a common operation in many aspects of the electrical generation and distribution industry’s activities. The following information covers how this is addressed through applying a Control Framework approach. For brevity the acronyms of ROS for Required Operating State, CFM for Credible Failure Mode, and BI for Business Input (control) are used.

A good practice model is developed for the situation that provides guidance on the elements to consider.

Required Operating State

This general statement gives some guidance on the set of critical controls (ROS) needed around Working at heights.

Table 1 – Working at Height Required Operating State with related CFMs

Name	Description	Related CFMs
ROS 04 - Heights: Personnel work safely and productively in elevated positions while constructing and maintaining the electricity distribution network	ROS Intent - Nil fall from height incidents and injuries including those caused by dropped objects.	CFM01.08 Significant change required in original work plan, but work continues without adequate consideration of impact of change CFM03.03 PPE is inadequate through wear or damage CFM03.04 People know but do not wear minimum required PPE CFM04.01 Elevating equipment failure CFM04.02 Structure failure CFM04.10 Working at height unwanted worker/operator action error CFM04.11 Roll over of elevated platform CFM05.10 Operator or co-worker error during lifting operations CFM05.11 Co-worker or other person in drop zone (drop zone violation) CFM06.01 Inadequate vehicle/mobile plant set-up CFM09.01 Poor location selection by arborist CFM09.03 Arborist falls while climbing tree CFM09.05 Arborist struck by falling tree or branch CFM10.03 Inadequate emergency response to an incident or accident involving injury CFM14.01 Visual Impairment caused by environmental events CFMA7 Worker impaired (driver, and or operator)

Name	Description	Related CFMs
		CFMA8 Worker not competent or authorised (including trainees being adequately supervised)

Credible Failure Modes

A subset of the CFMs related to the ROS are presented in Table 2 below.

Table 2 – Subset of Working at Height Failure Modes and Related BIs

Name	Date	BIs which address them
CFM01.08 Significant change required in original work plan, but work continues without adequate consideration of impact of change	Significant change required in original work plan (incl operating sequence, or approved procedure), but work continues without adequate consideration of impact of change	BI-E1.10 Change Management Process BI-D2.03 Management of significant changes to planned work BI-E1.13 Risk Management Execution on Out of the Ordinary or Complex Activities BI-E2.03A Task Level Risk Assessment (JSA) to Identify Key Controls to Implement BI-B2.09 Identification of health and safety controls BI-D3.02 Site Communication Activities - Start of Work
CFM03.03 PPE is inadequate through wear or damage	For example, a cut glove during live work, harness damaged	BI-C2.02 Only trained, competent and authorised people undertake live work BI-E2.03A Task Level Risk Assessment (JSA) to Identify Key Controls to Implement BI-B2.15 Personal Protective Equipment (PPE) BI-B2.15A PPE for Specific Tasks BI-B2.10 Correct use of tools, plant and equipment during live work BI-B2.52 Pre-use equipment checks BI-E3.06 Inspection of Work Areas and Worker Behaviours by Qualified and Appointed Officials

Business Inputs (Controls)

Each of the CFMs are addressed by one or more BIs. The specific Business Inputs then address multiple clauses of relevant instruments. Table 3 below presents some of the Business Inputs from Table 2 which address the Credible Failure Modes and includes some contextual information on the clauses of relevant SM-EI, NZ Regulations and International Standards that are addressed.

Table 3 – Business Inputs and the Clauses Addressed

BI Name	BI Expectation	Clauses Addressed
BI-B2.09 Identification of health and safety controls	Identification of all necessary controls at a work site prior to starting work, including the undertaking of a site risk assessment, Pre-Start / Pre-Use Activities and Inspections of plant, tools, vehicles, and equipment	ESR-020 022 - Identify defects which could lead to unsafe conditions HSWA-058 059 - PCBU to engage with works and give multiple ways for workers to raise H&S concerns HSWA-060 - Engage with workers whenever identifying risks, deciding on control strategies, when making a change in plant or process HSWR-008 1, 2 - PCBU to review control measures if an incident, change or unexpected monitoring result occurs ISO Common:6.1. Actions to address risks and opportunities... (9 more)

BI Name	BI Expectation	Clauses Addressed
BI-B2.10 Correct use of tools, plant and equipment during live work	Required tools, plant and equipment are available and used by trained, competent and authorised personnel to carry out live work on network assets.	ESR-103 - Working on Live Conductors may be performed using associated personal protective equipment S04 1.402 i (i-iv) Duties of a supervisor are to ensure controls are in place to manage S04 1.406 a All PPE tools and portable equipment provided shall be suitable for use S05 1.502 a - PPE, Tools and portable equipment: Employees must use the PPE... (12 more)
BI-B2.15 Personal Protective Equipment (PPE)	Personal Protective Equipment (PPE) for workers is available when needed, maintained and inspected before use.	HSWR-015 - PCBU to provide PPE where risks cannot be controlled by other means HSWR-016 - Workers may provide their own PPE but can change their mind and require the PCBU to provide the PPE HSWR-017 - PCBU must maintain any issued PPE and provide training to workers in correct storage, selection, fitment and use HSWR-018 - Workers must wear issued PPE and report any damage that occurs to it HSWR-019 - PCBU to provide oversight to confirm PPE is worn (correctly) HSWR-020 - Visitors and other persons have to wear PPE when on site IoD 01 - Demonstrating commitment to health and safety... (22 more)
BI-B2.15A PPE for Specific Tasks	Specific personal protective equipment for specialist or critical tasks is provided and used when required.	HSWR-015 - PCBU to provide PPE where risks cannot be controlled by other means HSWR-017 - PCBU must maintain any issued PPE and provide training to workers in correct storage, selection, fitment and use S09 2.902 b (iv) - Wear safety helmets when working with tractors, bulldozers, graders (15 more)
BI-B2.52 Pre-use equipment checks	Equipment does not fail in service.	ESR-077 - No Leasing or Hire of any vehicle, relocatable building or pleasure vessel is allowed without a current warrant of electrical fitness View in tabS05 1.502 b - Fall-arrest systems: employees must use fall-arrest systems when required View in tabS10 2.1001 b (i- iii) - Crane operators and riggers follow industry good practice: all.. View in tabS10 2.1001 c (i-vii) - Cranes, rigging gear and hauling equipment must be fit for use:... (7 more)
BI-C2.02 Only trained, competent and authorised people undertake live work	Only trained competent and authorised workers carry out live work on network assets.	ESR-102 - Working on Live High Voltage Overhead lines must be in accordance with ECP 46 ESR-103 - Working on Live Conductors may be performed using associated personal protective equipment HSWR-006 PCBU to implement and maintain controls for all identified risks applying the hierarchy of control HSWR-017 - PCBU must maintain any issued PPE and provide training to workers in correct storage, selection, fitment and use HSWR-018 - Workers must wear issued PPE and report any damage that occurs to it... (28 more)
BI-D2.03 Management of significant changes to planned work	Significant changes to planned work are recognised and well managed.	HSWR-008 1, 2 - PCBU to review control measures if an incident, change or unexpected monitoring result occurs HSWR-008 3 - PCBU to review control measures if a change occurs NZS7901:2014 - 5.2 - Processes to include all areas of business that are considered potential harm sources... (7 more)

BI Name	BI Expectation	Clauses Addressed
BI-D3.02 Site Communication Activities - Start of Work	Critical information is passed to workers prior to their work commencing	EEAHV-010 Management of Non-Compliances - All non-compliances shall be recorded and have a class of significance applied to them to which demerit points are assigned, along with an appropriate action.... (5 more)
BI-E1.10 Change Management Process	The consequences of organisational changes are systematically assessed and well managed.	HSWA-060 - Engage with workers whenever identifying risks, deciding on control strategies, when making a change in plant or process... (10 more)
BI-E1.13 Risk Management Execution on Out of the Ordinary or Complex Activities	The company has a process to effectively manage risk for unusual or complex activities	HSWA-048 PCBU is guilty of an offence if an avoidable fatality at work occurs HSWA-058 059 - PCBU to engage with works and give multiple ways for workers to raise H&S concerns
BI-E2.03A Task Level Risk Assessment (JSA) to Identify Key Controls to Implement	Risk Assessment is undertaken for all tasks to ensure key controls are implemented	NZS7901:2014 - 4.2 - Apply Standards to consider risks regarding internal and external contexts. Guidance AS/NZS ISO 31000 NZS7901:2014 - 4.7 - Assessment of Controls and Treatment of Risks to be assessed on a regular basis for effectiveness S03 1.302 c Supervisor delegation - hazards cannot be controlled by supervisors
BI-E2.03A Task Level Risk Assessment (JSA) to Identify Key Controls to Implement	Risk Assessment is undertaken for all tasks to ensure key controls are implemented	NZS7901:2014 - 4.2 - Apply Standards to consider risks regarding internal and external contexts. Guidance AS/NZS ISO 31000 NZS7901:2014 - 4.7 - Assessment of Controls and Treatment of Risks to be assessed on a regular basis for effectiveness S03 1.302 c Supervisor delegation - hazards cannot be controlled by supervisors
BI-E3.06 Inspection of Work Areas and Worker Behaviours by Qualified and Appointed Officials	Work area and the actions of workers are routinely reviewed by appointed personnel.	ESR-040 - Principal Owners are required to establish a routine safety checking system HSWR-007 - Control measures implemented should be monitored and maintained IoD 12 - Knowing organisation's performance ISO Common:9.1.1 Monitoring, measurement, analysis and evaluation - general ISO Common:9.2 Internal audit NZS7901:2014 - 6.2.4 - Internal Auditors to be Suitably Qualified

Overview

Shown together – this framework is represented in FIG 4 below and demonstrates the complexity being managed.

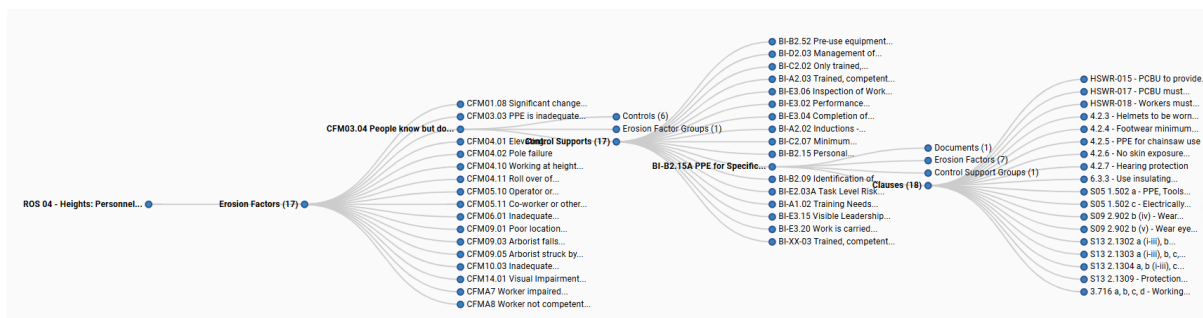
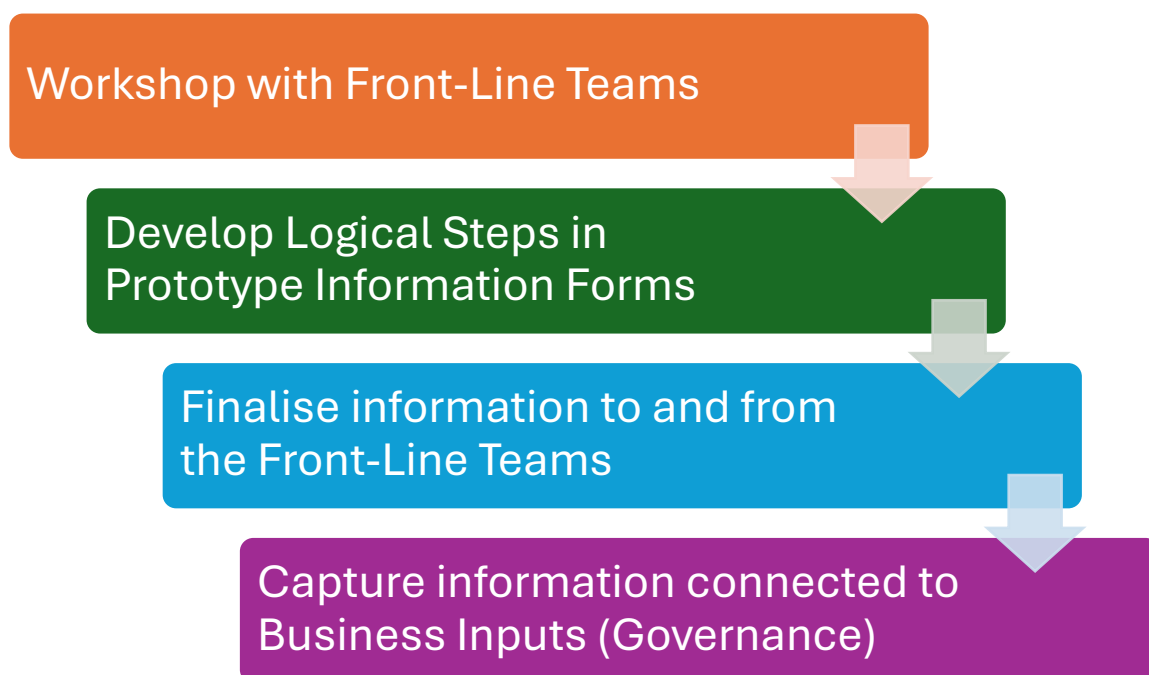


FIG 4 – Schematic of the Relationships between ROS, CFM, BI and Responding Clauses

The basis for sharing all this material in this case-study is to demonstrate the level of rigour that can be achieved.

The beauty of the approach is in the next step – where the activities conducted by front-line teams are connected back to the Business Inputs required to be in place.

Complexity made Simple



Workshop with Front-Line Teams

An essential starting point in applying the Control Framework approach is to conduct a workshop with frontline operators and workers. The workshop introduces the Control Framework structure and enables a critical review of the documented key controls, as imagined by organisational leaders. Through this process, the team works step-by-step through each Business Input, validating whether it accurately reflects field practice. Where misalignments are identified, changes are either made to the process (to align with safer or more practical methods) or to the documented control itself. This collaborative review helps bridge the gap between procedure and practice, ensuring the Control Framework is both practical and credible.

Develop Logical Steps (Form Prototyping)

Following the workshop, logical task steps are documented to match how work is actually performed. These steps are then used to map the required Business Inputs (controls) aligned with each part of the task. This mapping is used to develop a prototype digital form using the RM inForms platform. The form includes both structured prompts and supporting reference content, such as visuals (images of crane set-ups etc.) and critical steps. A review group from the frontline workforce tests the prototype in a controlled setting, confirming whether it reflects the expected and real workflows. Iterative feedback is used to refine the form before final implementation. The example of this approach can be seen in FIG 5 below.

10:56 Mon, 30 June

← 11. Work At H...

TARPS

Logged in as Peter

[SHOW SUMMARY](#)

COMPLETE

Job Information

This Section is only needed if you are filling in the form individually.

If you have filled in this information in the Main Workflow Form, please leave blank.

User	Active Work Orders
Work Order	Enter Description if Appropriate

MEWP Visual and Function Checks

This Section must be completed prior to the first use of the Elevated Work Platform each day.

☐ Hydraulic oil levels OK	☐ Air and oil hoses and connectors undamaged
☐ 6 monthly mechanical certificate valid	☐ Warning and operating label condition OK
☐ Leg stabiliser blocks available	☐ Outriggers (legs) functional
☐ Base and bucket controls functional	☐ Safety Switches / Interlocks functional
☐ Visible and audible alarms functional	☐ Emergency stop / start functional
☐ Slew brake functional	☐ Cables and wiring harnesses OK
☐ Deck equipment secure	☐ Attachments secure
☐ PPE anchor points OK	☐ EWP emergency rescue control functional
☐ EWP descent / recovery device OK	☐ EWP - periodic test current
☐ EWP – Acoustic Emission (AE) test current	☐ EWP - Current liner electrical certificate

Comment Section for any unchecked items

Form

FIG 5 – Sample Prototyping Form

Finalise Information to and From the Front-Line Teams

Once the prototype form is confirmed to match actual task performance, it is finalised for broader use. Information flows both ways—support is provided to workers through embedded instructions, updates on authorisation and visual guides (e.g., pre-start EWP checks), while completed forms return valuable insights to supervisors. For example, a completed form might show that emergency rescue

checks for elevated work have been verified, that adjacent work parties have been contacted, or that drop zones have been established and made visible.

A full version of the documented Working at Height Control Framework, including ROS, CFM, and BI linkages, is available on rmde.co.nz, with QR access provided in the final paper.

Capture Information connected to Business Inputs – Governance in near real-time

With real-time form usage, leadership and supervisory teams can begin to detect and act on early signs of control degradation or drift. For example, where forms consistently omit details about ladder anchoring, exclusion zones, or traffic planning, this may indicate process shortcuts or a need for refresher training. The visibility of conformance (or lack thereof) allows early intervention and supports ongoing governance through linkage to SMEI clauses, internal procedures, and performance reporting.

In this way, the Control Framework becomes a living system—not only supporting safe work execution but also providing an evidence-based foundation for monitoring, improvement, and leadership assurance.

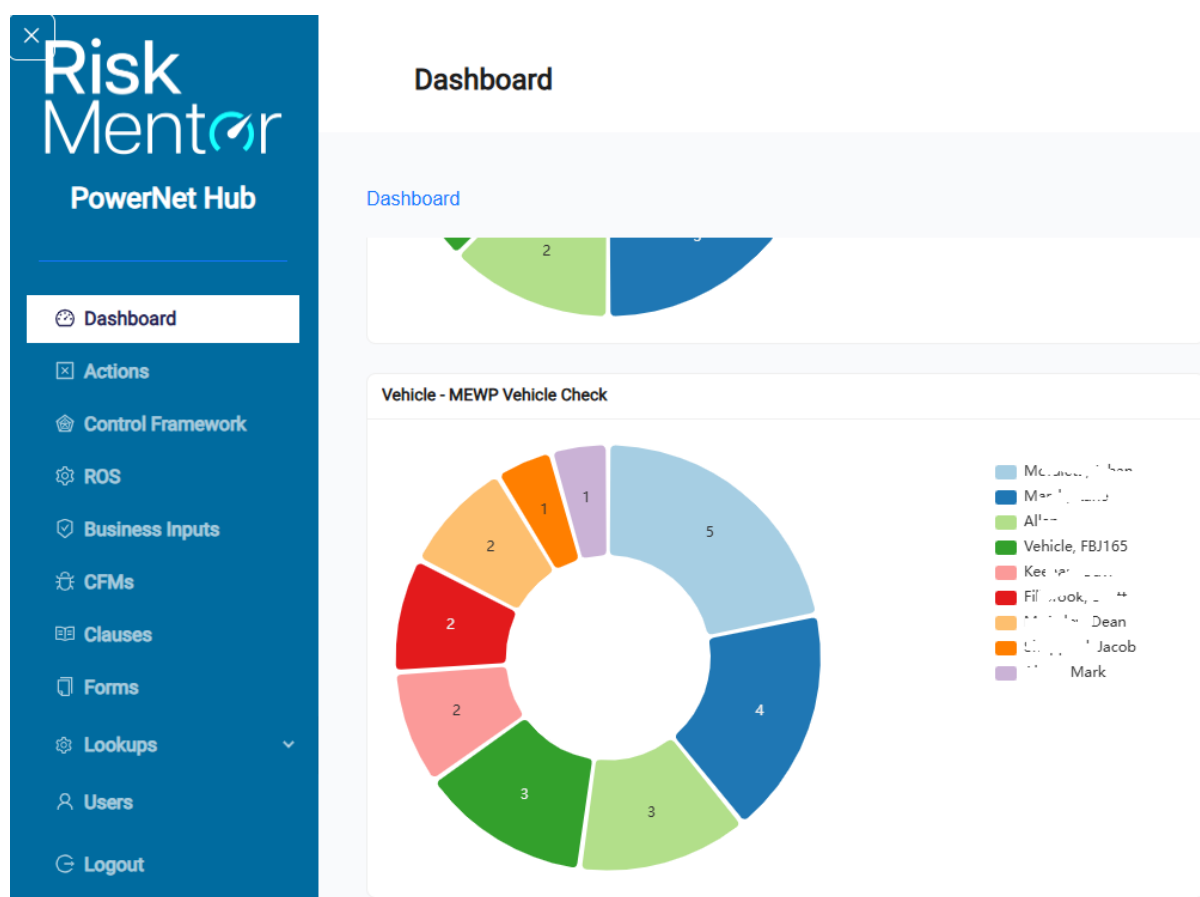


FIG 6 – Example of the data being returned (Frequency of EWP Checks in the period)

CONCLUDING REMARKS

The Control Framework (CFw) approach provides a practical, systematic, and evidence-based method for strengthening operational risk management in the electricity distribution sector. By starting from the *Required Operating State*, clarifying *Credible Failure Modes*, and linking directly to *Business*

Inputs, the CFw method achieves alignment between frontline execution, system design, and organisational governance.

The Working at Height case study illustrates how the CFw approach not only improves the clarity and confidence with which work is performed, but also enhances the ability of supervisors and leaders to detect drift, close gaps, and assure control effectiveness in real time. This bridges a longstanding challenge in safety and operational systems—connecting written procedures and expectations with what actually happens in the field.

Importantly, this method is not offered as a replacement to traditional tools such as bow-ties or risk matrices. Rather, it complements them by clarifying the ‘control logic’ behind safer outcomes and offering a consistent structure to embed those controls within digital workflows, assurance processes, and regulatory compliance frameworks such as SMEI.

As the industry navigates increasing complexity—from workforce changes to evolving standards, and from climate impacts to digital transformation—the ability to make *connected decisions* at all levels becomes essential. The Control Framework approach helps operational teams, engineers, and managers do just that—by making expectations explicit, making performance measurable, and making improvements actionable.

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