



How to identify the Right Critical Controls

Christian Young – CEO

Tell us about you



- Where are you watching from?
- What's your 'one thing' about Critical Controls you would love to have discussed?
- Please name your profile to first name, last name



How to identify the Right Critical Controls

Christian Young – CEO

3 Gets

Get your
tools

Get rid of
distractions

Get in state

What is a Critical Control?

A Critical Control

A control that;

- Is crucial to preventing the event or mitigating the consequences of the event.
- It's absence or failure of a Critical Control would significantly increase the likelihood of the unwanted event or a material consequence despite the existence of the other controls.

ICMM Health and safety critical control management Good practice guide

- Any examples?

Where are we with CCM?



What's The
Problem?



How do we know
this to be true?



My Promise

I help you save lives at work



BHP

 **AngloAmerican**

Teck **GLENCORE**

 **NEWCREST**
MINING LIMITED

 **OCEANAGOLD**

 **AMPOL**

 **stanmore**

 **fitzroy**

 **ANGLOGOLDASHANTI**

 **SOUTH32**

Peabody
ENERGY

MMG **KESTREL COAL**
RESOURCES

 **Aeris**
RESOURCES

 **YANCOAL**
兖煤澳大利亚有限公司

 **sojitz**

 **Resources Safety & Health**
Queensland

 **Ensham**
RESOURCES

Coronado 

 **OZ**
MINERALS

 **Mitchell**
SERVICES

My style

UMM!!!!

Shorten it to “CCM”

We’ll move fast

I need you



Content

The Fundamentals

Q&A

My all won't be enough



Stick around

Slides

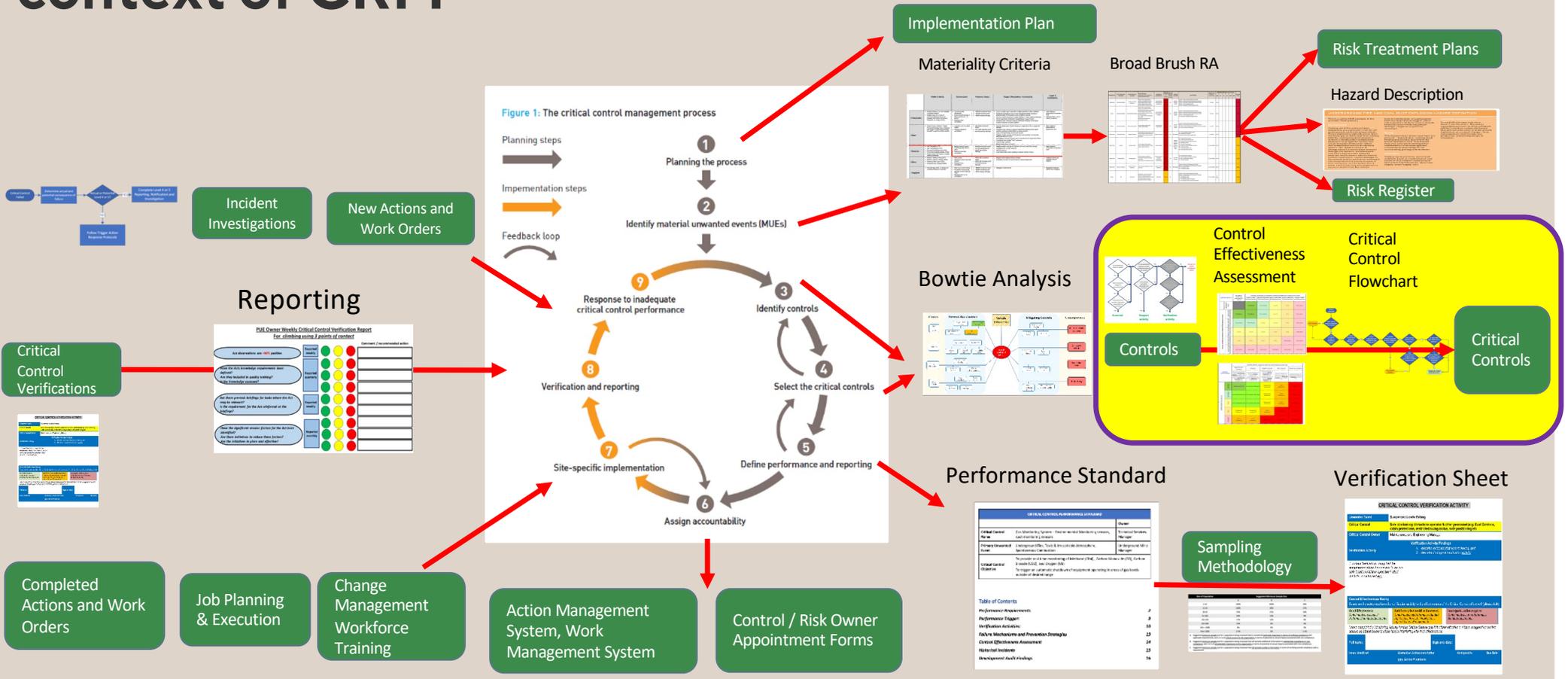
This Recoding

Free bonus?



Critical Control Management VS Critical Risk Management

Critical Control identification in the context of CRM





How specific is specific?

Are your Critical Controls even Controls?

Imagine If

- Control and Authorisation of Work
- Electrical Training and Competency
- Facility and Asset Design - Electrical
- Control and Authorisation of Work - Excavations
- Facility and Asset Design
- Management of Structural Integrity - Dropped Objects
- Asbestos Management
- Chemical Exposure Management
- Statutory Inspection Program

Does this sound familiar?

- Critical Control Verifications are broad and generic
- Critical Controls are broad or are a grouping of controls
- Frontline workers are not clear on what the Critical Controls are.
- Critical Controls are not even controls
- Critical Controls are hard to verify

Wouldn't it be nice if



You have absolutely clarity on your Critical Controls.



Your Critical Control Verification process was detailed and specific



Your frontline workers had clarity on Critical Controls relevant to them



**Are your Critical Controls
real Controls?**

A Control

- Is;
 - An act, or,
 - An object (engineered), or,
 - A technological system (combination of act and object),
- Must be;
 - Intended to arrest or mitigate an unwanted event.
 - Specifiable, measurable and auditable.
 - Defined within a Management System (Impress Solutions)

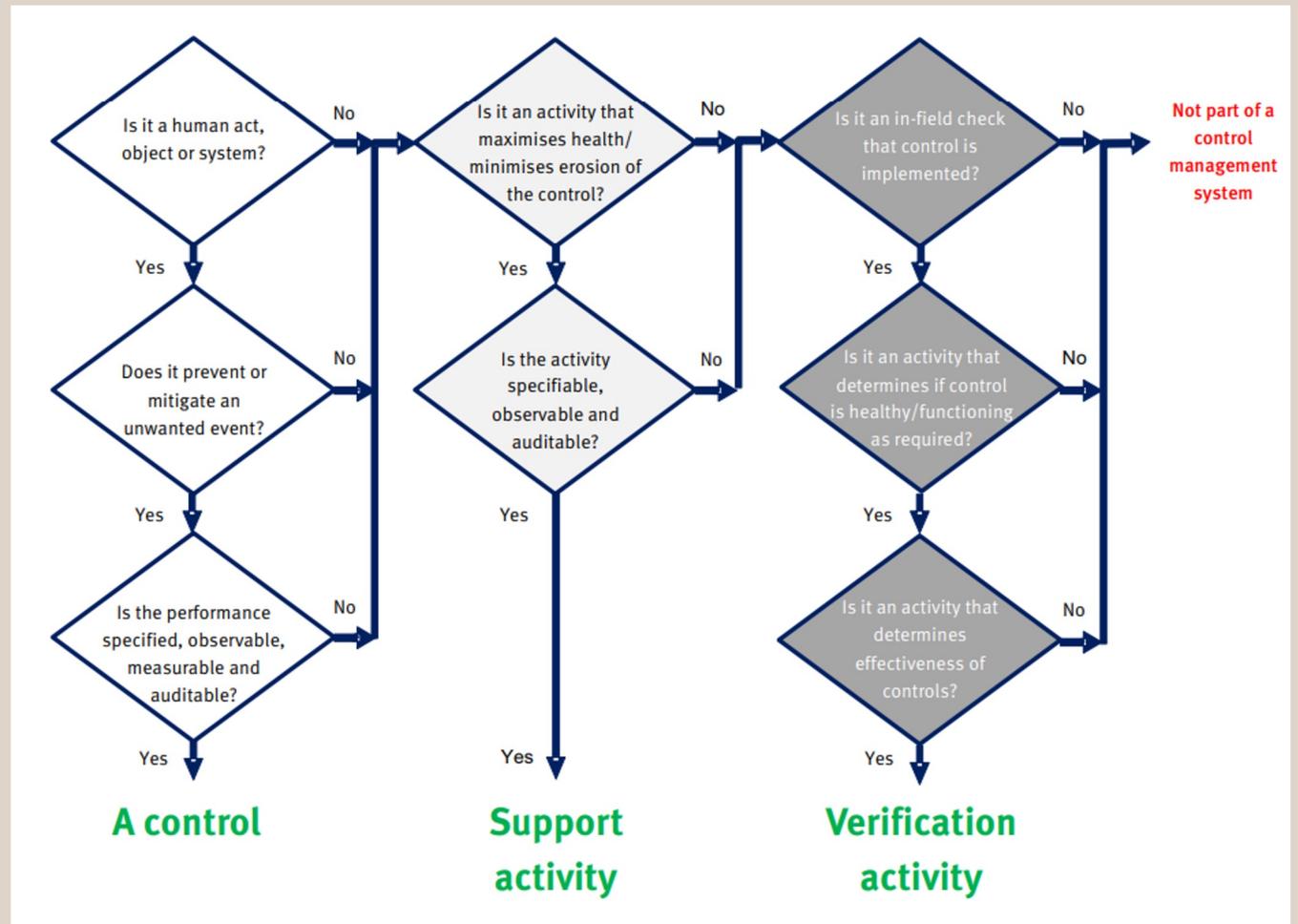
Would your
critical controls
pass this test?
(Yes / no)



Is it a Control?

Control Decision Tree

- Statutory Inspections
- Hazard Reporting
- Housekeeping Inspections
- Conveyor Design
- Trigger Action Response Plan (TARP)
- Installation Standard
- Monthly Surveys
- Gas Monitoring System
- Supervision
- Induction

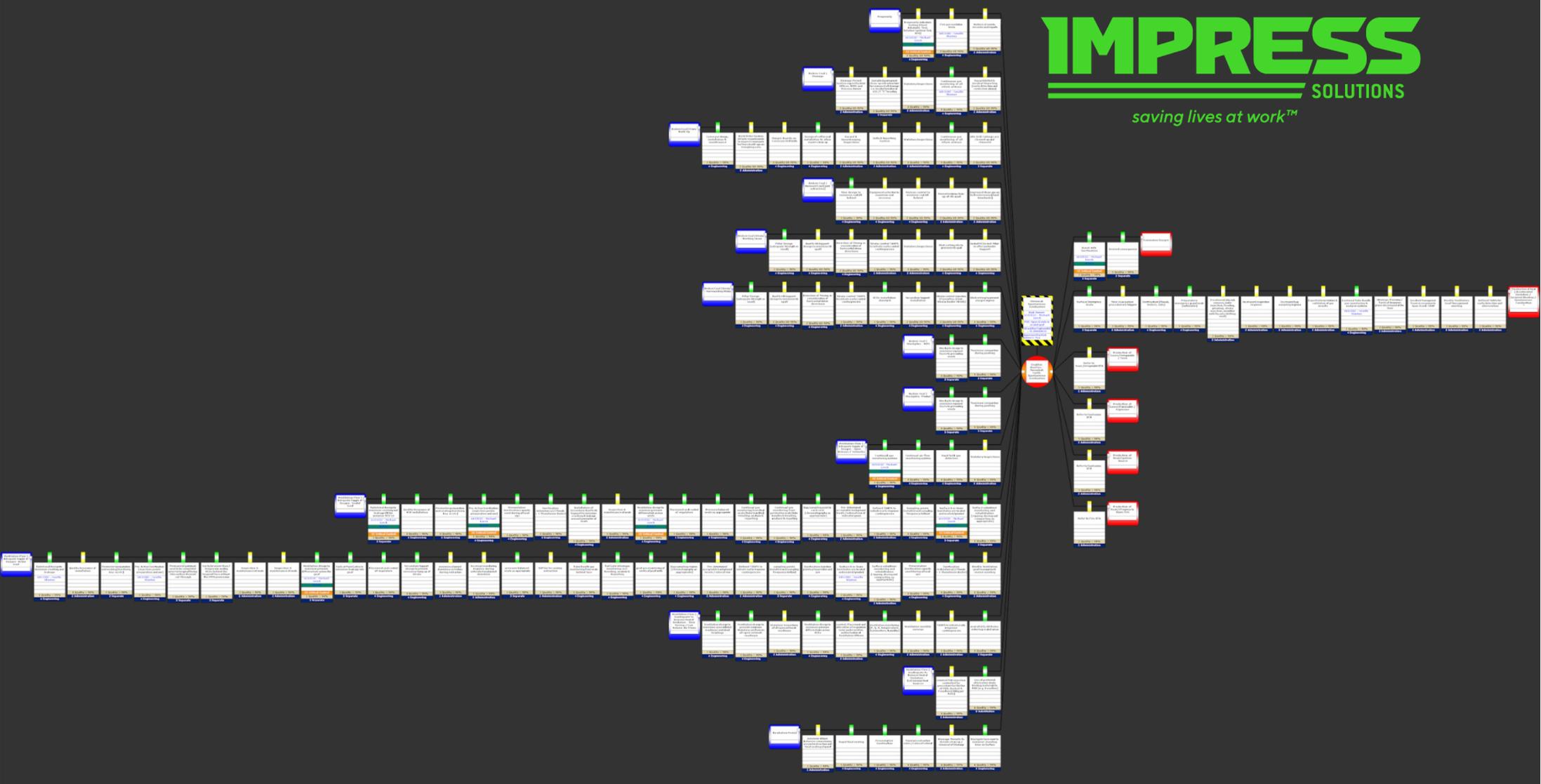


Source: The State of Queensland (Mining Safety and Health Advisory Committee) Risk assessment education resource.

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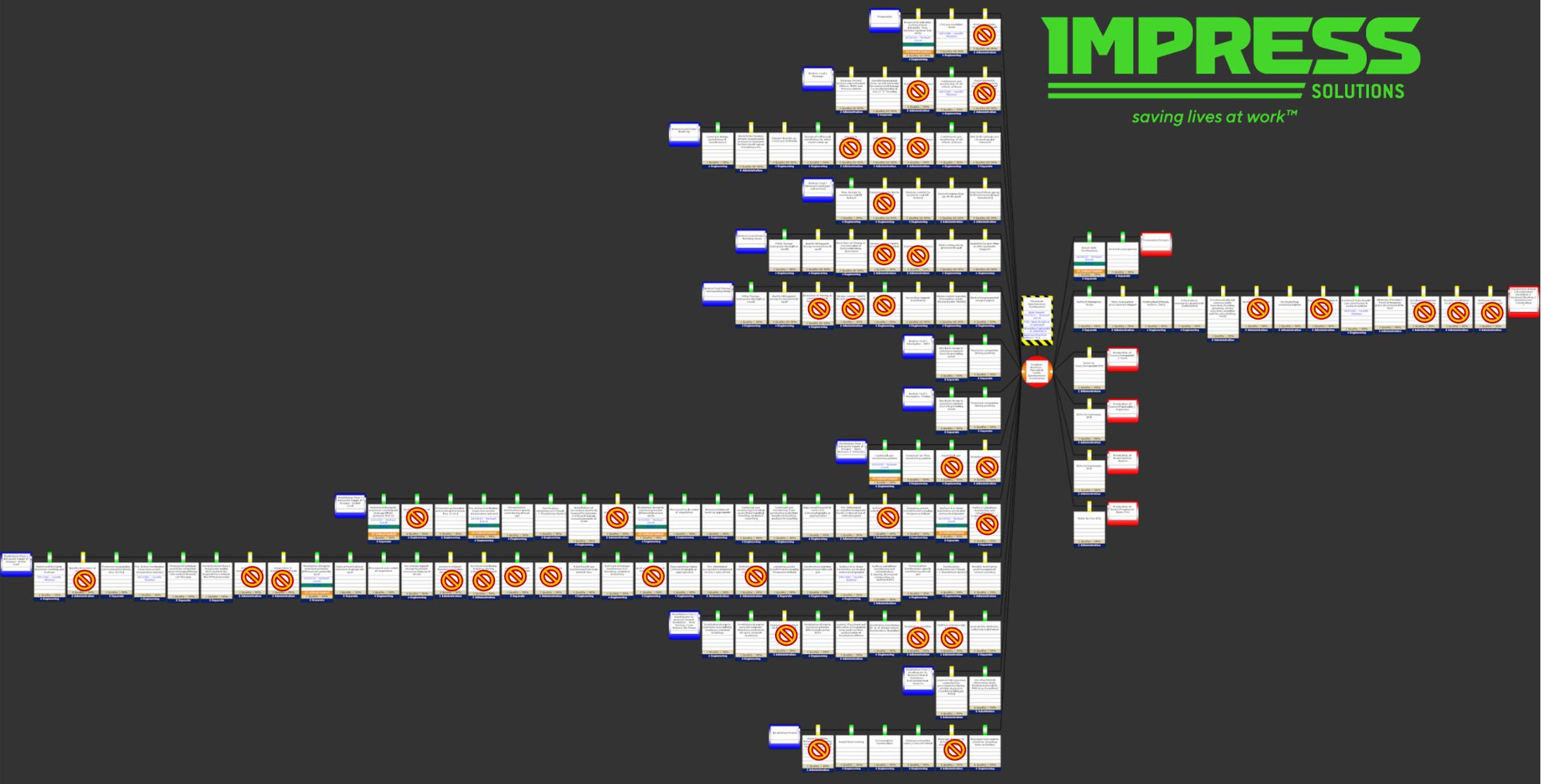
saving lives at work™



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Self Assessment

- Provide a rating of 1 to 10 on whether your organisations Critical Controls are true Controls.



Key Learning:

Ensuring your Critical Controls are meet the definition of a Control, is a foundation for identifying the right Critical Controls

**How are the chosen few
selected?**

Question

- Does your organisation have an objective, repeatable process for selecting Critical Controls?
- Yes / No

Imagine if

This was your process for selecting critical controls

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Does this sound familiar?

- Disagreement on the final list of Critical Controls
- No objective process to identify Critical Controls
- Too many Critical Controls
- Some Critical Controls are not even controls
- Critical Controls have a poor level of adequacy

Wouldn't it be nice if



There is endorsement for the organisations Critical Controls



There was an objective process used to determine critical controls



Your organisation subscribes to the “less is more” approach to CCM.

To determine if a Control is Critical what are some factors that should be considered?

To be considered as a Critical Control it

1. Must be a Control

- An act, object (engineered), or technological system (combination of act and object), intended to arrest or mitigate an unwanted event.
- Specific, Measurable and Auditable
- Described within a Management System

2. Must be Critical

- **Critical** to preventing a Major Unwanted Event (MUE) or minimising its consequences.
- It's **the only control** to prevent or mitigate the unwanted event.
- It's **absence or failure** would significantly increase the risk despite the existence of the other controls.
- Prevents **more than one** cause leading to a loss of control event or mitigates more than one consequence. Or is across multiple bowties.
- It is **independent** of other controls to perform its intended function.

Criticality Test

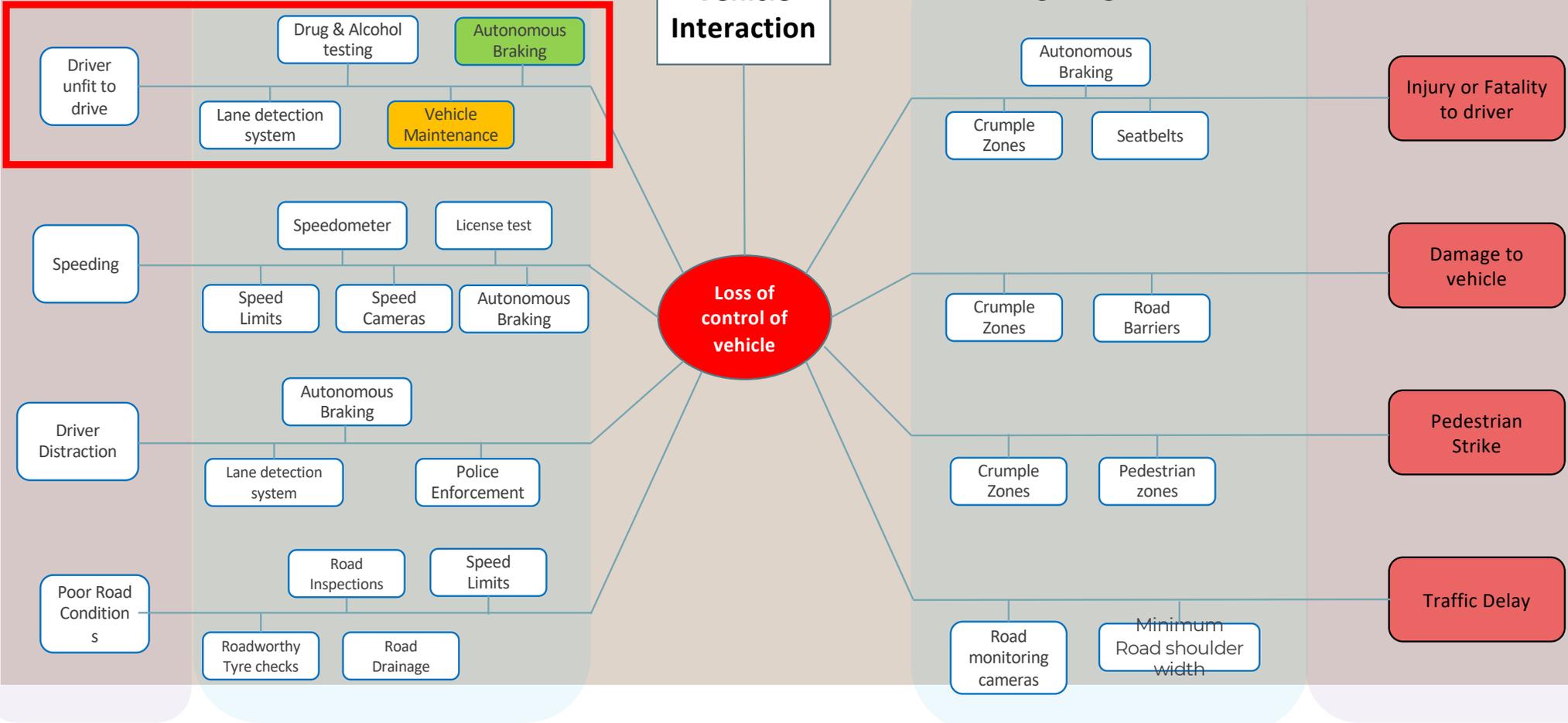
Causes

Preventative Controls

Vehicle Interaction

Mitigating Controls

Consequences



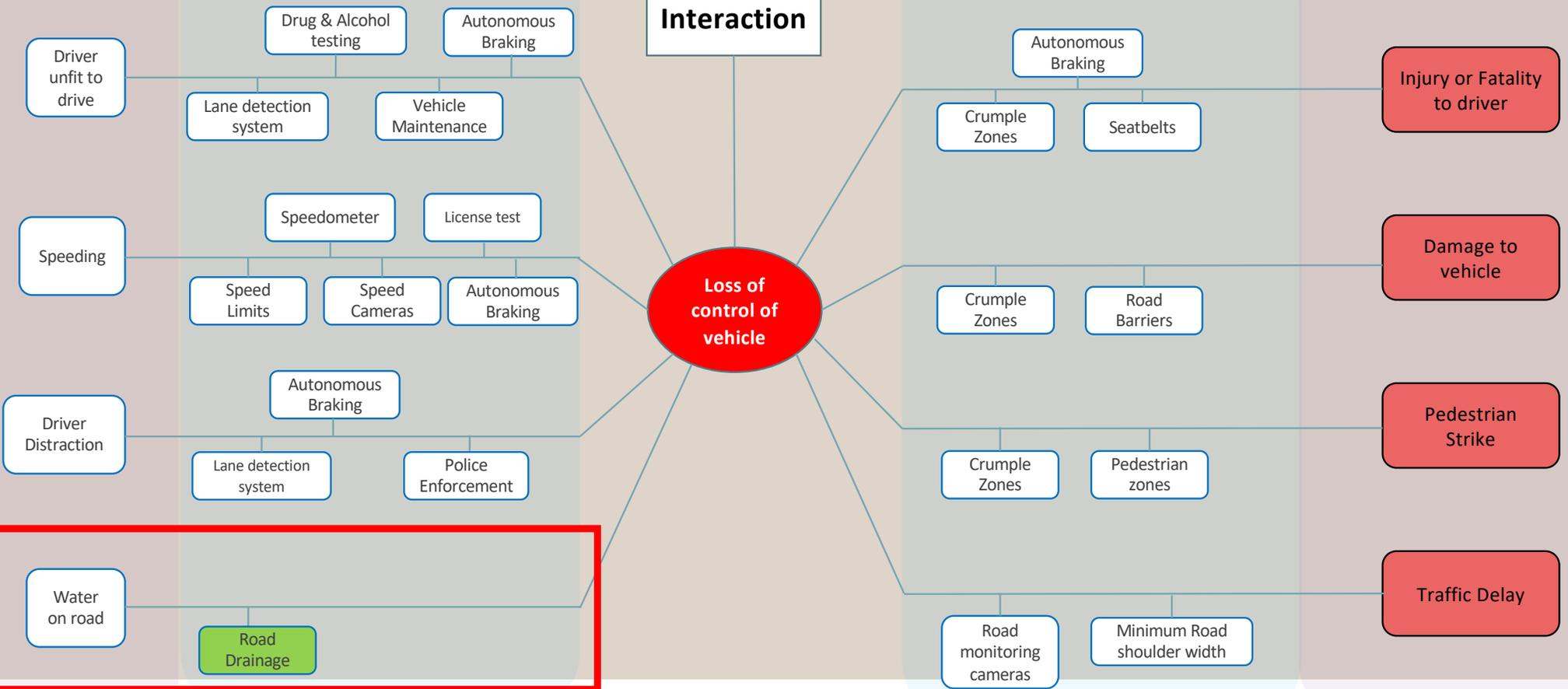
Singularity Test

Causes

Preventative Controls

Vehicle Interaction

Mitigating Controls



Absence / Failure Test

Causes

Preventative Controls

Vehicle Interaction

Mitigating Controls

Driver unfit to drive

Drug & Alcohol testing

Autonomous Braking

Lane detection system

Vehicle Maintenance

Speeding

Speedometer

License test

Speed Limits

Speed Cameras

Autonomous Braking

Driver Distraction

Autonomous Braking

Lane detection system

Police Enforcement

Water on road

Road Inspections

Speed Limits

Roadworthy Tyre checks

Road Drainage

Loss of control of vehicle

Autonomous Braking

Crumple Zones

Seatbelts

Crumple Zones

Road Barriers

Crumple Zones

Pedestrian zones

Road monitoring cameras

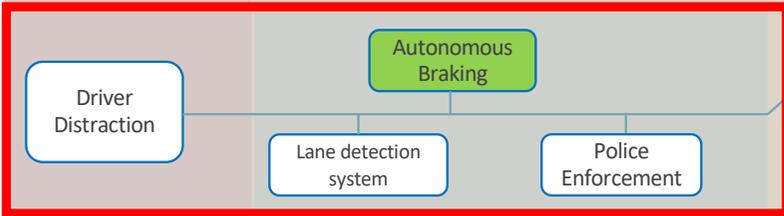
Minimum Road shoulder width

Injury or Fatality to driver

Damage to vehicle

Pedestrian Strike

Traffic Delay



Occurrence Test

Consequences

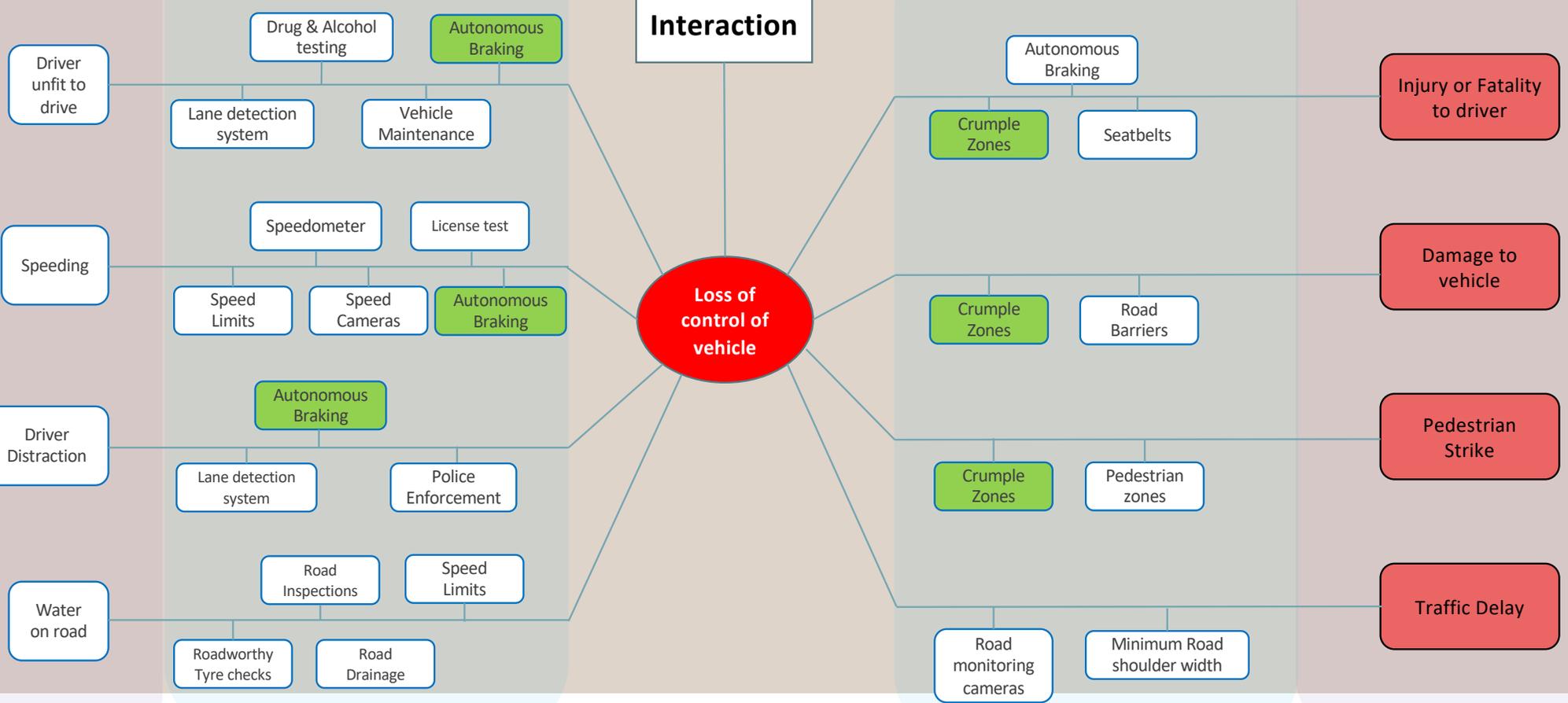
Causes

Preventative Controls

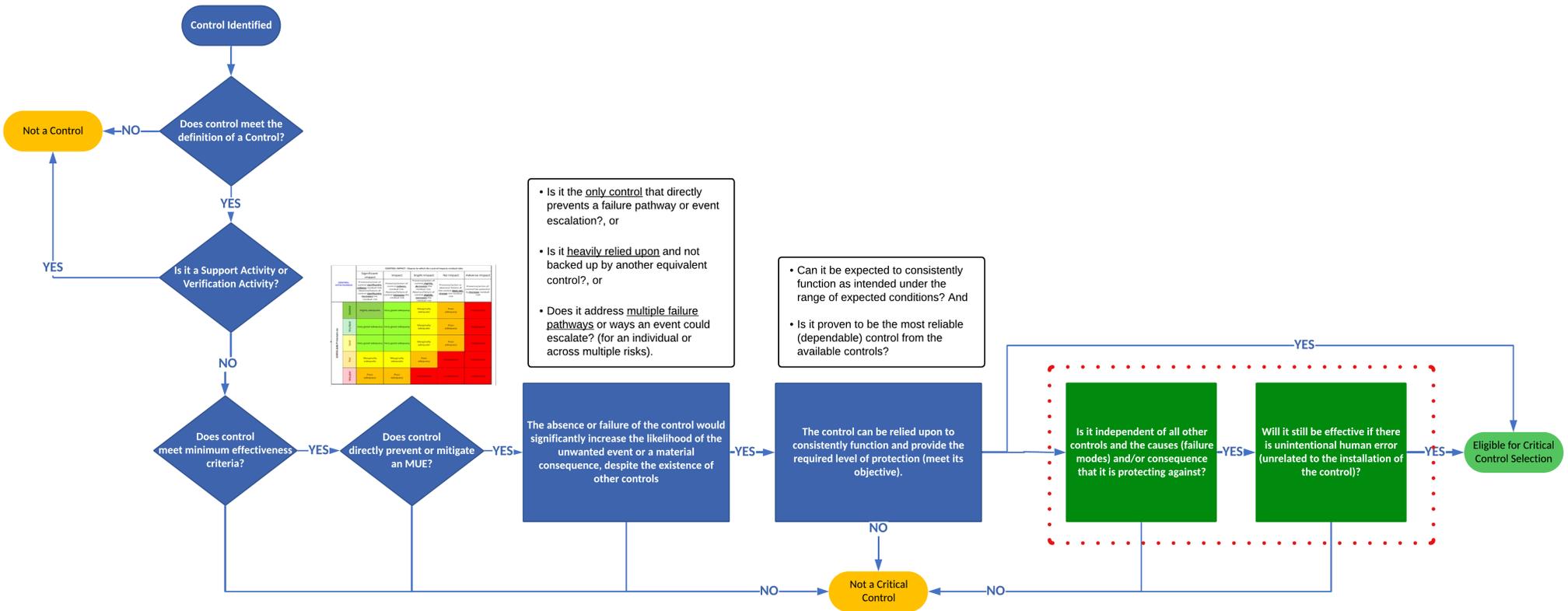
Vehicle Interaction

Mitigating Controls

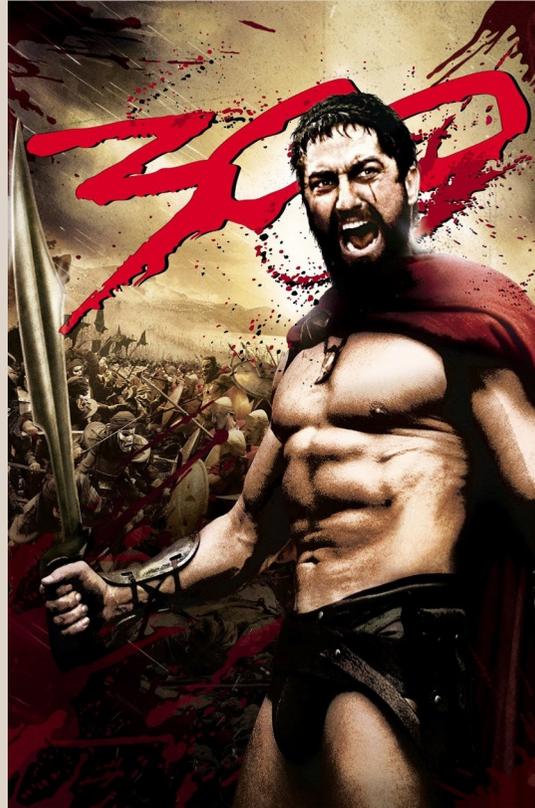
Loss of control of vehicle



Critical Control selection flowchart



300



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Self Assessment

- Provide a rating of 1 to 10 on whether you have an objective, repeatable process to select critical controls?



IT'S YOUR
DECISION

Key Learning:

Applying a robust selection process is essential for identifying the right Critical Controls

3. Have you boiled the ocean?

Right sizing the number of Critical Controls



**How many Critical Controls
should you have?**

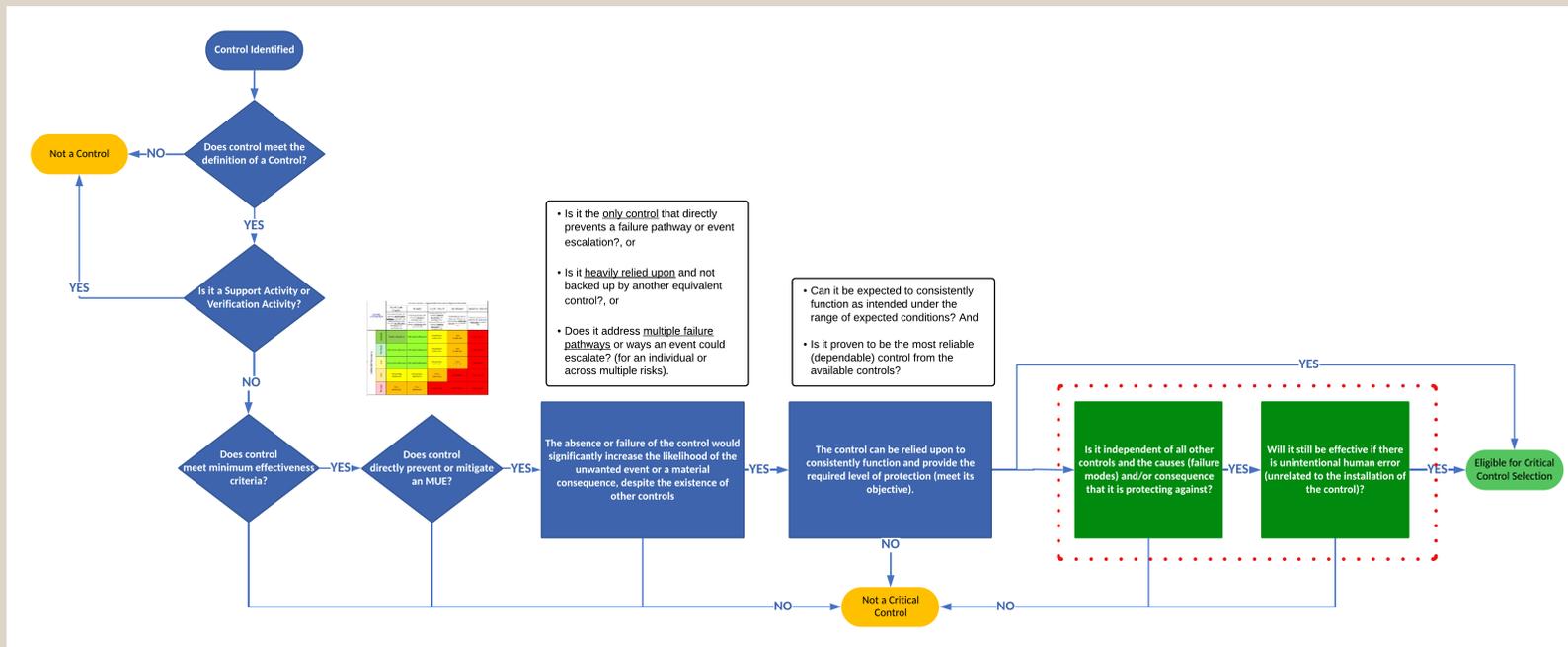
It Depends...

What are some considerations?

**What do we do if we know
we have too many Critical
Controls?**

Confirm they meet all Criteria

- Run each CC through the flowchart to confirm they meet all Criteria



Review Hazard Description

- Review the Hazard Description document to confirm the hazard context requires a full suite of CCs
- (e.g., snake bite Vs LV collision).

UNDERGROUND FIRE AND COAL DUST EXPLOSION HAZARD DEFINITION

This is a safety MUE example of the outcome from Action 4.

Background

Underground fire and coal dust explosions are a prevalent risk for all underground coalmining operations. These explosions typically occur from methane gas or from coal fines mixing with the underground atmosphere to form a combustible composition. Exposure to an ignition source can result in rapid combustion. When this combustion occurs in confined spaces, the sudden release in energy causes a shock wave to travel through the tunnels. Accumulated coal fines may become airborne from the shock waves, which leads to further explosions. Severe damage to equipment and/or personnel and death can result from the pressure wave or from shrapnel carried by the shock wave. Personnel may also experience injury or death from the radiant

heat of combustion, or asphyxiation from the depletion of oxygen. Other consequences of these events include financial losses from equipment damage, litigation or process shutdown.

Scope

This hazard exists where coal fines are present – in particular, underground mining and surface operations for brown and black coal. This hazard may also exist when mining other commodities in an underground environment depending on the surrounding geology and methods.

Boundary

Underground activities, associated activities (such as maintenance) and systems that support underground operations (eg ventilation, electricity supply, water supply, etc).

Potential consequences

Immediate damage, injuries or death from the event. Secondary consequences such as mine collapses will be treated as a separate hazard (but give consideration to underground explosions as a cause). Longer-term consequences may include lost production, processing delays or shutdown.

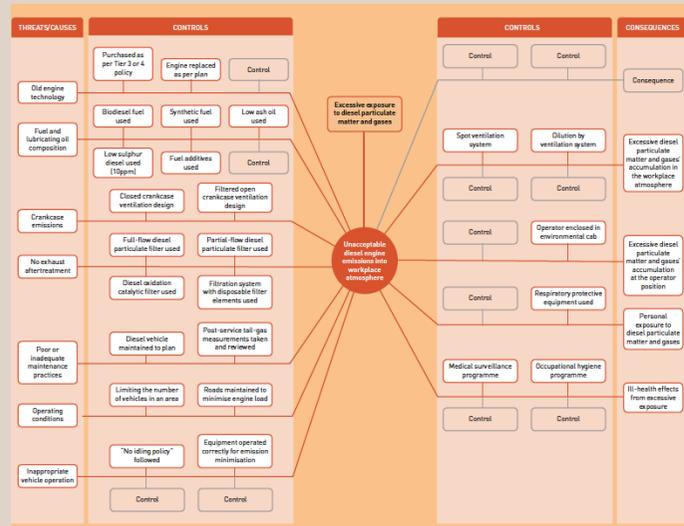
Consider grouping and consolidation



- Consider grouping and consolidation.
- Emergency Response System
 - Emergency Response Equipment for Vehicle Extraction
 - Emergency Response Personnel extract person from Vehicle

Review likelihood

- Consider likelihood of the pathways (i.e., cause & consequence) [scenarios]
 - Not all will have the same likelihood.
 - Are there CCs on low likelihood pathways that could be downgraded?



Downgrade and retain assurance strategies



- Some CCs can be downgraded; however, their failure prevention strategies can still be implemented

Self Assessment

- Provide a rating of 1 to 10 on your organisations right sized approach for number of Critical Controls

Another decision



Key Learning:

Right sizing the number of Critical Controls is essential to identifying the Right Critical Controls

What has been your
biggest “ah-hah”
moment?



Company rating

- Based on the content we've just been through what rating out of 10 would you rating your organisations quality of Critical Controls and their management?



Key Learning:

Ensuring your Critical Controls are meet the definition of a Control, is a foundation for identifying the right Critical Controls

Key Learning:

Applying a robust selection process is essential for identifying the right Critical Controls

Key Learning:

Right sizing the number of Critical Controls is essential to identifying the Right Critical Controls

The obvious question

How do I do it?



**Slow or
Fast**

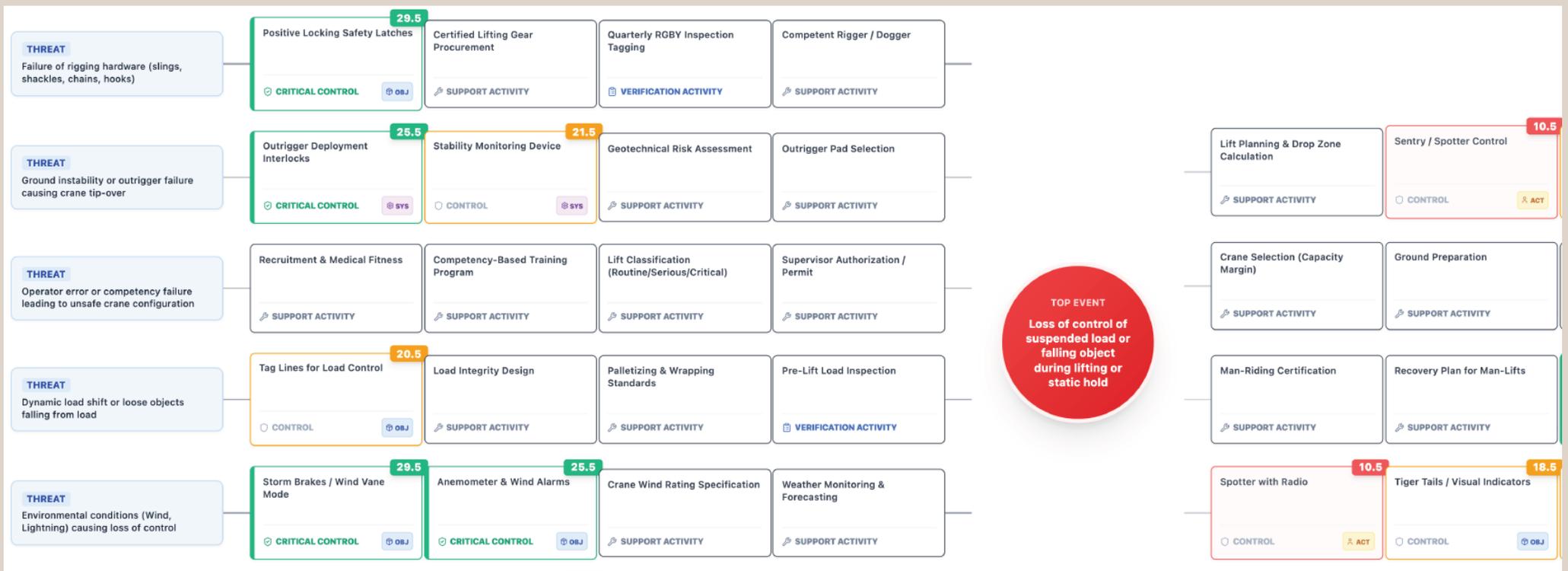
Trial and Error Vs system

Help is here – If you don't know how big the gap is

Free trial access to our
Critical Risk software
platform

It's not for everyone

Applies all these rules within a few button clicks





Save lives at work

Complete the application form



Receive your login details



Produce a bowtie with Critical Controls for 1 x Critical Risk

Request Free Trial License - Critical Risk
AI

Please read the full Critical Risk AI's help you help, terms and privacy policy, which are available on the website, before you proceed. You will receive an email with your login details once you have completed this form.

How do you intend to use Critical Risk AI? (Full or limited access) (Please select one)

1. Region *

Enter your answer

2. Name *

Enter your answer

3. Email *

Enter your answer

4. Company *

Enter your answer

5. Role *

Enter your answer

6. Business Department/line (Company, etc., etc.) *

Enter your answer

7. What does your organization most struggle with regarding Critical Risk Management? *

Enter your answer

8. What are you hoping to do in the next 12 months (choose 3 top priorities) *

Reduction in costs
 Streamline the business to reduce the burden
 Add customer face search
 Increase operational safety features
 Increase operational capacity



Control ID	Control Name	Control Type	Control Status	Control Owner	Control Description	Control Evidence	Control Frequency	Control Effectiveness	Control Review Date
CC-001	Control 1	Control Type	Control Status	Control Owner	Control Description	Control Evidence	Control Frequency	Control Effectiveness	Control Review Date
CC-002	Control 2	Control Type	Control Status	Control Owner	Control Description	Control Evidence	Control Frequency	Control Effectiveness	Control Review Date
CC-003	Control 3	Control Type	Control Status	Control Owner	Control Description	Control Evidence	Control Frequency	Control Effectiveness	Control Review Date
CC-004	Control 4	Control Type	Control Status	Control Owner	Control Description	Control Evidence	Control Frequency	Control Effectiveness	Control Review Date
CC-005	Control 5	Control Type	Control Status	Control Owner	Control Description	Control Evidence	Control Frequency	Control Effectiveness	Control Review Date
CC-006	Control 6	Control Type	Control Status	Control Owner	Control Description	Control Evidence	Control Frequency	Control Effectiveness	Control Review Date
CC-007	Control 7	Control Type	Control Status	Control Owner	Control Description	Control Evidence	Control Frequency	Control Effectiveness	Control Review Date
CC-008	Control 8	Control Type	Control Status	Control Owner	Control Description	Control Evidence	Control Frequency	Control Effectiveness	Control Review Date
CC-009	Control 9	Control Type	Control Status	Control Owner	Control Description	Control Evidence	Control Frequency	Control Effectiveness	Control Review Date
CC-010	Control 10	Control Type	Control Status	Control Owner	Control Description	Control Evidence	Control Frequency	Control Effectiveness	Control Review Date

Benefits



You get the right Critical Controls in 5 minutes not 5 years



Don't pay \$10K for a Consultants to do the same



Use our 25 years of CRM expertise and critical risk library.



Identify low hanging fruit for immediate implementation.

Questions?

Software platform application form



Resources

- Slides + Recording
- Once recording is edited, we will send through materials



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Thank you