EFFECTIVE CONTROL PARTNERS

S T A T E M E N T O F

C A P A B I L I T I E S

Vehicle Interaction Safety & Risk Management
Specialist Consulting Services

Effective Control Partners Pty Ltd

ABOUT EFFECTIVE CONTROL PARTNERS

Effective Control Partners Pty Ltd is a specialist consulting company established in Australia, founded by three directors with deep expertise in vehicle interaction safety and risk management.

Effective Control Partners was formed to address a clear industry need: organisations managing vehicle interaction risk require independent, operationally grounded advisory support that bridges risk management, control design, technology and assurance.

The team brings together multi-disciplinary experience across mining engineering, systems engineering, functional safety, risk management and technology deployment, to provide clients with integrated vehicle interaction solutions that are both technically sound and practically implementable.

Effective Control Partners work across the resources, processing, construction and logistics industries, supporting clients from risk identification and control design through to implementation, verification and ongoing assurance.

OVERVIEW

Effective Control Partners provides specialist consulting services in vehicle interaction safety and risk management. The company supports organisations to reduce vehicle-related risk through the design, implementation and assurance of effective controls, combining industry leading-practice approaches with practical, operationally grounded solutions.

With multidisciplinary capabilities, Effective Control Partners delivers solutions that are structured, repeatable and proven to perform in complex operating environments. The team works in partnership with clients across the full value chain, ensuring that safety improvements are not only well designed, but demonstrably effective and sustained over time. This includes the execution of Pre-feasibility and Feasibility studies to support safe system design and implementation.

OUR APPROACH

The team's work is grounded in a simple, structured philosophy that ensures safety improvements are targeted, effective and sustainable:

- **Risk-led**
  Prioritisation is based on consequence and exposure, focusing effort where it has the greatest impact rather than applying blanket solutions.

- **Controls-based**
  Effective Control Partners designs and implements structured, layered controls to manage identified risks across operational, engineering and technology domains.
- **Assurance-driven**
  The effectiveness of controls is verified in the field, ensuring they operate as intended and remain effective over time and under real operating conditions.

This approach ensures that safety outcomes are practical, measurable and consistently delivered, with a focus on embedding change within operational environments.

CORE SERVICE OFFERINGS

Vehicle Interaction Risk and Control Assurance, Verification and Strategy

- Partner with clients to assess and strengthen existing risk management approaches utilizing ISO 31000 standards
- Develop assurance frameworks aligned to critical control effectiveness, ensuring clear linkage between identified risks, defined controls and expected control performance
- Define expected control performance standards, including measurable performance criteria, tolerances and failure conditions
- Design and implement structured verification activities to confirm that controls are:
  - In place
  - Fit for purpose
  - Operating as intended
  - Effective in managing the defined risk
- Support the uplift of first and second line assurance through the development of practical, repeatable verification processes and tools
- Facilitate control effectiveness and verification workshops to align stakeholders on control intent, performance expectations and assurance approaches
- Develop verification guidance, inspection routines and field-based validation activities that can be practically executed by site teams
- Conduct independent assurance activities, including audits and deep-dive reviews of safety systems, controls and supporting processes
- Assess control interactions and dependencies to ensure layered control strategies function collectively, not just individually
- Identify control gaps, failure modes and degradation mechanisms, including behavioural, procedural and technological factors
- Support the establishment of leading and lagging indicators to monitor control performance over time

- Define data requirements and reporting frameworks to enable transparent visibility of control effectiveness
- Support integration of assurance outputs into existing governance, risk and reporting structures
- Provide ongoing advisory to support continuous improvement, ensuring controls remain effective as operational conditions, systems and risks evolve

Technology Evaluation and Advisory

- Provide independent, vendor-neutral assessment of safety and operational technologies, ensuring alignment to client risk profiles and operational requirements
- Support the full lifecycle of technology selection and deployment, including market scans, Request for Capability (RFC) and Request for Proposal (RFP) processes
- Define risk-based evaluation criteria focused on functional performance, control effectiveness, human factors, integration requirements and long-term sustainability
- Develop structured evaluation frameworks and scoring methodologies to enable consistent, transparent and defensible vendor selection decisions
- Lead technical evaluation activities, including proposal reviews, vendor engagement and structured clarification processes
- Facilitate vendor demonstrations aligned to real operational scenarios and expected system behaviours
- Design and support Proof of Concept (PoC) and trial activities, including:
  - Definition of success criteria aligned to operational risk and control performance
  - Development of test plans and validation approaches
  - On-site support during trials and field testing
  - Independent assessment of system performance against defined requirements
- Provide advisory on integration between technology providers, OEMs and site systems, including alignment of data interfaces, control logic and system behaviours
- Support complex integration environments, including mixed fleets, autonomous systems and evolving technology landscapes
- Assess technology limitations, failure modes and operational impacts to ensure solutions are implemented with a clear understanding of residual risk
- Provide guidance on deployment strategy, including where and how technology should be applied to maximise safety benefit while avoiding over-alarming and unintended impacts to production
- Support post-deployment performance monitoring, including definition of key performance indicators, data requirements and continuous improvement pathways

Functional Safety and Compliance

- Apply IEC 61508 and related standards (including IEC 62061 and ISO 13849) across system lifecycles, from concept through to operation and modification

- Undertake pre-feasibility (PFS) and feasibility (FS) studies, including hazard identification, safety requirements definition and integration of safety functions into system design and control strategies.
- Develop and review Functional Safety Management Plans (FSMP), including definition of safety lifecycle activities, roles and responsibilities
- Support safety case development, including structured safety arguments, evidence management and independent verification activities
- Provide practical guidance on integrating functional safety into operational environments, including alignment with existing risk management and assurance frameworks
- Support organisations to build internal functional safety capability through coaching, mentoring and knowledge transfer

Systems Engineering and Testing

- Define and manage system requirements, including allocation, decomposition and traceability from operational needs through to design and verification
- Support the translation of PFS and FS study outcomes into system requirements, design specifications and verification activities across the system lifecycle.
- Develop test plans and execute structured testing for safety-critical systems, including factory acceptance, site acceptance and operational validation
- Support verification and validation of both technological and non-technological controls, ensuring alignment to defined requirements and operational intent
- Provide systems engineering oversight across the technology lifecycle, from concept definition through to deployment, sustainment and modification

Incident Investigation and Learning

- Lead structured investigations using ICAM, 5 Whys and Essential Factors methodologies
- Facilitate risk and learning workshops following incidents to identify contributing factors, control failures and improvement opportunities
- Assess the effectiveness of existing controls in the context of incident scenarios, identifying gaps and degradation mechanisms
- Support the development of actionable recommendations linked to control improvements and assurance activities
- Provide independent review of investigation quality and completeness to support organisational learning and governance requirements

TEAM CAPABILITY

Effective Control Partners is founded by three directors with deep expertise spanning the disciplines most critical to vehicle interaction safety. The team brings together over 50 years of combined experience, having delivered safety programs across multiple operations.

Team capabilities include:

- **Mining Engineering and Operations** – Experience across drill and blast, load and haul, mine planning, maintenance and production systems
- **Systems Engineering and Technology** – Expertise in autonomous systems, fleet management, safety technologies and systems engineering across the full technology lifecycle
- **Functional Safety and Risk** – Certified practitioners with practical experience applying safety standards and managing risk
- **Assurance and Governance** – Capability in auditing, verification and critical control management, including design of practical assurance frameworks

This integrated capability ensures a holistic approach, combining engineering, operational and governance perspectives to deliver sustainable safety outcomes.

RELEVANT EXPERIENCE

The team has collectively delivered vehicle interaction safety outcomes across a range of industry contexts, including:

- Delivery of vehicle interaction safety programs across multiple mining operations, including development of site risk profiles and critical control frameworks aligned to the EMESRT Control Framework Model
- Implementation of layered control strategies across large-scale operations with mixed fleets and complex operating environments, integrating operational, engineering and technology controls
- Advisory and validation support for emerging technologies, including automation and electrified fleets, ensuring alignment to defined risk scenarios and control objectives
- Development and execution of assurance and verification activities for safety-critical systems, including design of practical, field-based verification approaches
- Deployment and evaluation of fleet safety systems across thousands of assets, including support for vendor selection, integration and operational readiness
- Demonstrated improvements in safety performance and operational reliability through structured, controls-based approaches underpinned by assurance

KEY DIFFERENTIATORS

Sustainable Change and Adoption

Recognition that effective controls only deliver value when they are understood, adopted and consistently applied in operational environments. The team works with clients to embed change through practical implementation, stakeholder engagement and alignment to site behaviours, ensuring solutions are sustained over time rather than treated as one-off initiatives.

Technology Applied with Purpose

Ensure technology is used to support clearly defined control objectives, avoiding over-deployment, unnecessary complexity and unintended impacts to production.

Deep Integration and Evaluation Capability

Strong experience supporting technology selection, validation and integration across mixed fleets, OEM systems and complex operating environments.

Operationally Grounded

Solutions are designed for real-world production environments, with consideration for operator behaviour, site constraints and practical implementation challenges.

Independent and Vendor-Neutral

Provision of objective advice aligned to client outcomes, enabling confident and defensible decision-making.

C R E D E N T I A L S

- Tertiary qualifications in Mining Engineering, Systems Engineering and related disciplines
- Certified Lead Risk Managers (PECB)
- Certified Risk Facilitators (coal and metalliferous mining industries)
- Certified Functional Safety Engineers (TÜV Rheinland)
- Certified Machine Safety Experts (TÜV Nord)
- Certified Mining Supervisors (Queensland, Australia)
- Industry-recognised training in innovation
- Accredited Chartered Professional (Mining Engineering)
- Professional memberships including AusIMM

E N G A G E M E N T M O D E L

Effective Control Partners offer flexible engagement models tailored to client needs, supporting organisations at any stage of their risk management and safety improvement journey. Support is scaled from targeted advisory through to full lifecycle delivery.

Advisory and Strategic Support

- Targeted input to support decision-making across risk, controls and technology initiatives
- Risk reviews, control framework development and technology strategy
- Executive-level guidance on complex or high-consequence decisions

- Review of key documents and deliverables, including risk assessments, technical proposals and implementation plans
- Independent input into critical decisions, including technology selection, deployment strategy and integration approaches
- Continuity of expertise across project phases, reducing reliance on fragmented or vendor-driven advice

Project Delivery

- End-to-end support for defined initiatives
- Risk assessment, control design and implementation planning
- Technology evaluation, deployment support and integration oversight
- Verification and validation of implemented solutions

Independent Assurance

- Objective review of existing controls, systems and processes
- Development of assurance frameworks and verification methodologies
- Execution of audits, deep-dive reviews and control effectiveness assessments

Proof of Concept and Trial Support

- Design and execution of structured PoC and trial activities
- Definition of success criteria aligned to risk and control performance
- Test planning, on-site support and independent performance assessment
- Support for informed, defensible go/no-go decisions

Embedded Support

- Integration within client teams to provide hands-on support
- Contribution across risk, controls, assurance and technology workstreams
- Practical support to accelerate delivery while building internal capability

Effective Control Partners approach is collaborative and practical, working closely with operational, safety and technical stakeholders to ensure solutions are aligned to site realities and can be effectively implemented and sustained.

The team tailors each engagement to suit the scale, complexity and risk profile of the client environment, ensuring the right level of support is applied where it delivers the greatest value.

VALUE TO CLIENTS

Effective Control Partners supports organisations to reduce vehicle interaction risk through a structured approach that ensures safety improvements are targeted, practical and sustained over time.

The company focus is on helping clients make better decisions about where to invest effort, how to design effective controls, and how to verify that those controls are performing as intended in operational environments.

This enables our clients to achieve meaningful reductions in high-consequence risk, improved operational reliability, and increased confidence that critical controls are working, not just in theory, but in practice.

Effective Control Partners welcomes the opportunity to discuss how it can support organisations to achieve these outcomes.

C O N T A C T

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