

# CASE FOR CONSULTATION: A MANAGERS PERSPECTIVE.

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## ABSTRACT

This research supports the hypothesis that consultation, team work and congruence is a strategy to reduce risk, and that effective consultation reduces the potential for outrage when things do not go to plan. The research sought the opinion of managers on these matters, and if they were aware of own-biases that undermine the effectiveness in which they engage, and of antidotes to such “hazardous thoughts”.

To understand what influences consultation (“upwards listening” as such) we conducted 4 preliminary one-on-one interviews. We then surveyed a total of 20 senior managers and other stakeholders in the coal mining industry, in an on-line survey. 100% of respondents (17/17) believe that access to information improves chances of making a correct decision; 78% of respondents (13/17) believe that managers are conscious of a socially divide (class-stratification) from subordinates; 100% of respondents (17/17) believe that managers must consult with employees in order to reduce Occupational Health and Safety (OH&S) risk; 58% (11/19) believe that someone should be held to account for an OH&S disaster; 94% (15/16) believe that distributed decision making results in more resilient operations; 65% (11/17) agree that it is important for employees to have representatives to act as a channel of communication with management on safety and health matters; 71% (11/17) believe that elected safety and health representatives are likely to abuse their powers if they are a member of a union; 82% (14/17) believe that very close co-operation between mine managers, the Mines Inspectorate, and the workmen's inspectors reduces OH&S risk.

The research demonstrated that managers are conscious of own-biases<sup>2</sup>, and of behaviour that is capable of undermining consultation and system safety. Managers also understand why mismanagement of information can be promoted by others as prima-facie-evidence-of-neglect, or malfeasance, when disaster strikes.

It is hypothesised that managers in safety system are akin to jurors in the judicial system; ethics apply, and both managers and jurors are expected to represent the interests of community, not themselves.

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<sup>2</sup> I have associated the concept of own-bias with the term “hazardous thoughts”, after Lester and Bombaci (1984).

# TABLE OF CONTENTS

Abstract .....	3
Table of contents .....	4
List of tables and figures .....	5
INTRODUCTION.....	6
Explanation of Disaster .....	6
Case study: Pike River Mine Explosion 2010.....	6
Hardest, Dirtiest and Most Dangerous .....	8
Triangle of Mistrust.....	8
LITERATURE REVIEW .....	9
Promise of Leadership and Consultation.....	9
Solipsism .....	10
Weak and Diffuse Signals .....	10
Expertise.....	11
Leadership Style .....	11
Jury System Parallels.....	12
Statutory Requirement to Consult .....	12
Unconscious Bias .....	13
Accountability .....	13
Dealing with Outrage .....	14
Fiduciary Trust .....	14
Teamwork.....	15
Trust.....	16
Culture of Denial .....	16
Acceptable level of Risk.....	17
Power.....	18
The Art of Conversation.....	20
Decision Making .....	21
Heuristics, and priori and a posteriori justifications.....	22
Hazardous Thoughts.....	23
METHOD .....	24
FINDINGS AND DISCUSSION .....	25
Local Rationality and bona fide claim of right.....	25
What Managers think about Consultation .....	26
Ultra Ego .....	27

Hazardous Thoughts.....	28
Zero Harm .....	29
Social Divisions.....	29
Compliance versus Commitment .....	30
Motivators and Stressors .....	30
Outrage .....	32
What do Managers think about Accountability?.....	33
Strategies to Improve Consultation .....	34
DISCUSSION .....	35
CONCLUSION .....	36
REFERENCES .....	36

## LIST OF TABLES AND FIGURES

Table 1: Causal Analysis (should have/failed to).....	7
Figure 1: Histogram of Emotions.....	26
Table 2: Solutions to Hazardous Thoughts.....	28

# INTRODUCTION

This research provides some insight into the management perspective on consultation; of its value in reducing risk of disaster, and of factors that can undermine the effectiveness in which managers engage with subordinates and others. The survey also asked managers about strategies they use to control their hazardous thoughts, and to promote team work and congruence. The research supports the hypothesis that consultation is a strategy to reduce risk of disaster, and of minimizing outrage when things do not go to plan. It adds to epistemology on bias, class, communication, decision-making, elitism, leadership, risk management, and stakeholder relations in system safety.

## **Explanation of Disaster**

Safety scientists have sought to understand systems surrounding the production of error and the role of expertise in accidents (Dekker, 2011a; Leveson, 2011; Hollnagel, Woods and Leveson, 2013; Rochlin, La Porte, and Roberts, 1987; Reason, 2009). Bergström, Dekker, Nyce and Amer-Wählin; (2012) for example proposed that organisational choreography, and interplay of factors such as power, professional identity, organisational accountability, and experience influence outcomes. Yet despite developments in the safety sciences, disasters still occur; and we continue to seek explanation as to why espoused foreseeability based on cause-and-effect principles remains elusive. Some explanations reside in unparalleled organisational complexity (Vaughan, 1999), faster-cheaper-better initiatives that are required to compete for limited resources (Nasa, 2001), and social and commercial pressures (Kouabenan,1990; Rasmussen, 1997).

Dekker (2014) contended however that research in accident investigations is an exercise in political sensemaking, and nailing a cause; because of an existential impulse to locate the source of suffering, sacrifices the complexities and contradictions of the multiple interleaving narratives that build towards a bad outcome. Epistemologically, at least in a complex world, suggests that truth does not reside in a single story; it lies in acknowledging and celebrating the multiplicity and diversity of perspectives and stories. Perrow (1999, p 327) even postulated that despite advances in technology some industries are so risky that we should abandon them; for example the transformation processes such as nuclear power and DNA research;

“the dangerous accidents lie in the systems, not in the components... the nature of the transformation process eludes the capacities of any human system we can tolerate (p 351)”.

## **Case study: Pike River Mine Explosion 2010**

Following the death of 29 miners on 29<sup>th</sup> November 2010, a Royal Commission into the Pike River mine disaster revealed that the mine had generated a lot of information about the safety of critical mine systems and practices underground; but much of the information was not analysed and responded to, and despite pleas from coal mine workers for the manager to intervene the mine manager responded in the Commission;

“I think it’s fair to say that having never actually considered the possibility of the mine blowing up ... it was not a matter that overly concerned me (Panckhurst, Bell, and Henry, 2012, p. 177)”.

Historically, mining disasters have formed a part of mining’s social firmament: mines have been exploding for centuries (Duckham and Duckham, 1973), and for whom the bell tolls are many. The methane transformation process is not new, it is well known to coal miners;

*Methane is a colourless, odourless, and tasteless naturally occurring gas; it has been a scourge of human life for centuries. It waits in ambush; fermenting for over 200 million years, until one day it mixes with a mines ventilation system as miners exploit its economic riches. At between 5-14% volume in air, and in the presence of an ignition source, the fire triangle forms. The temperature of the mixture rises rapidly, to over 2000°C; twice the temperature needed for cremation. The explosion propagates away from the ignition source as the insatiable hunger of the flame-front chases more methane, at over twice the speed of sound. The mine atmosphere expands at a ratio of about 5 to1, leaving a violent trail of destruction and a pressure wave that erupts ear drums and damages lungs. As the explosion consumes oxygen the level of carbon monoxide rises the level of toxicity, rapidly; the first gasping breath results in death, and the atmosphere is asphyxiating; the prospects of survival are remote.*

The youngest to die at Pike River mine was Joseph Dunbar: it was Josephs’ first shift underground after celebrating his 17th birthday the previous day<sup>4</sup>. Some workers at the mine are reported to have informed the manager of their concerns about safety at the mine, yet efforts to communicate upwards appeared ineffective. The Royal Commission of Inquiry (Panckhurst, Bell and Henry, 2012) referred to management failures on at least 72 occasions (Table 1). It is not uncommon to find incident reports using counterfactuals and normative language as such. This explanation is however not consistent with a just culture (Dekker, 2012a).

**Table 1: Causal Analysis (should have/failed to)**

<b>% of times “should have” was used</b>	<b>% of times “failed to” was used</b>
Machine should have: 3%	Machine failed to: 5%
Worker should have: 3%	Worker failed to: 5%
Management should have: 62%	Management failed to: 40%
System should have: 14%	System failed to: 7%
Inspectorate should have: 21%	Inspectorate failed to: 43%

The Commissioners’ rhetoric reflected the indignation of Management;

- “Pike River had a culture that put short-term production before safety; hydro mining began, and that management failed to act on the explosion risk (p. 176)”.
- “...methane levels rose to explosive levels in the return twice in the days leading up to this deadline. It was hazardous to continue extraction in those conditions, and Mr Nishioka recommended that the operation stop until the main fan became operational. This did not happen until the bonus had been achieved (p.162)”.
- “get the dam ventilation sorted out so we can cut coal, this ventilation issue has dragged on for 2 ½ bloody years (p. 105)”.
- “Very inadequate ventilation. Poor stoppings, poor ventilation management.....require immediate feedback within 4 days- or I will write a formal letter to the mines inspector (p. 98)”.
- “Pike generated a lot of information about the safety of critical mine systems and practices underground. This included information about contraband, bypassing of safety devices, ventilation problems, methane spikes, sensor failures and information on numerous other topics. But much of the information was not analysed and responded to. If it had been, some of the problems discussed in this report would have been

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<sup>4</sup> Retrieved from <https://www.youtube.com/watch?v=v4sMKm088G8>

highlighted, and a number of warning signs that pointed to the risk of an underground explosion would have been notice (p. 79)”.

The prospect of an explosion had never occurred to the manager, however. When questioned about the absence of an alternative escapeway, the mine manager responded;

“I think it’s fair to say that having never actually considered the possibility of the mine blowing up ... it was not a matter that overly concerned me (p. 177)”.

Why was it that the mine Manager had not considered the prospect of a mine blowing up, and why had the Manager not satisfactorily resolved the pleas’ of coal mine workers?<sup>5</sup> The Manager declined my invitations to give his version of events; consequently local-rationale in that respect remains undiscovered. The Commission too had not resolved those questions; it is noted that we often tend to blame and forget professionals who “cause” incidents and accidents, and move on. But they are victims too, following the associated guilt, fear, anger, embarrassment, depression and humiliation (Dekker, 2012b).

### **Hardest, Dirtiest and Most Dangerous**

My informants are from the coal mining industry; an industry that has had a long history of acrimonious industrial relations and fatality (McColl, 1982; Thomas, 1986). The tug-of-war on wages, dismissals and employment conditions pre-dominated early history of strikes, yet in parallel there was disquiet and sometimes anger over the (apparent lack of) commitment of management to improve safety. According to some, accidents are an inevitable part of mining. Speaking on the need for added safety measures in the coalmining industry for example, leftwing NSW Labor MLA George Petersen said in the NSW Parliament for example;

“coal mining is still the hardest, dirtiest and most dangerous occupation”, in which any man - particularly those who worked at the coalface; he will have an accident sooner or later; that seems to be the cold hard fact of the matter (Thomas, 1986, p. 498)”.

Some do not agree with Petersen; Toscano (1997) for example revealed that mining did not appear in the top 20 most dangerous jobs. Feyer, Williamson, Stout, Driscoll, Usher and Langley (2001) used data to support Petersen’s claim. Endeavouring to compare apples-with-oranges and the use of lagging indicators needs to be treated with caution (Dekker, 2015).

### **Triangle of Mistrust**

Tripartite consultation is important according to the regulator (Harrison, 2014);

“To achieve the objectives of the coal mining safety legislation we need to work together in true tripartite fashion to enable all mine workers to return home safely to their families each and every day. Industrial matters that have no legitimate bearing on, or role in, mine safety should be put aside for other arenas. I encourage all sides of the industry to focus on mine safety and health and not allow industrial disputation matters to detract from our primary

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<sup>5</sup> Pike’s incident/accident reporting system did contain at least 14 reports of gas sensors being bypassed. One such report in March 2010, shown here, was a plea to the mine manager to ‘stop people from overriding safety circuits’ (p. 141).....On 10 September 2010 .....expressed his frustration in an email to (the Manager) and others, writing in capital letters ‘CAN THIS ISSUE PLEASE BE ADDRESSED ASAP’, noting the information was required to ‘ensure the assumptions in strata control designs, windblast and caving characteristics is correct (or at least acceptable).

focus of safety and health in mining operations. Mine safety and health must not become a causality of deteriorating relationships in the Queensland mining industry".

The formation of "three sides" is the considered to be strongest: a triangle for example is the most stable geometric shape; many bridges are built from triangles. Metaphorically, a triangle is also depicted as advantageous in system safety; Klein, Feltovich, Bradshaw and Woods (2004): a triangle was depicted when describing the choreography of joint activity and team coordination; entering into a joint activity requires the participants to coordinate because at least some of their actions affect the goal directed activities of others. Triangles are however associated by some with disaster, and distrust. The sentiment that management cannot be trusted is articulated by the Miners Federation (Thomas, 1986, p. 500);

"No matter how well qualified or well-motivated an individual mine manager be, total reliance on management for safety would be to invite trouble.....the major responsibility for safety rested with colliery management, but, because the system was based on profit-making, managements were concerned with maximum production for maximum profits; therefore, mineworkers could not rely on managements or even mines inspectors".

An antagonistic and confrontational industrial climate is reported to be counter to optimal safety outcomes (ACIL, 2005), yet a NSW Safety review (Wran and McClelland, 2005) revealed tenuous relations between unions, regulators and companies, stating the Unions belief that tripartite processes does not work, accusing both the regulator and the companies of not being worthy of their trust. The Unions' accusation is perhaps analogous to a coal miners apprehension and distrust of *a flame*, which is a precursor of an explosion; a flame is formed when three sides come together (fuel, heat and oxygen).

## LITERATURE REVIEW

### **Promise of Leadership and Consultation**

Silbey (2009) stated;

"Lower-level actors are often repositories of critical information and counter-hegemonic views, yet are often unable to persuade higher-ups on the organisation either the credibility of their knowledge or relevance of their perspectives".

While leadership holds a promise of influence over subordinate (Fairfield, 2002), the inability of subordinates to influence their leaders choices during consultation processes is often implicated in disasters. Vaughan for example commented that 'hierarchy and power are profoundly implicated in accidents' (1999); Michalopoulos and Michalopoulos (2006) reported that positive social action such as team work, consultation and risk assessment holds a promise of improving teamwork and lowering risk in the workplace: Sandman stated that outrage is one symptom of ineffective consultation (1999)<sup>7</sup>.

The study of leadership and it relationship to accident causation (or prevention) is useful place to start (Pfeffer, 1977), for the social construction of realities has elevated the concept of leadership to a lofty status and level of significance (Thompson and Tuden, 1959; Weick, 1979; Mendyl, 1985; Berger and Luckmann, 1966; Watzlawick, 1984; Weick, 1979; Gardner, Avolio, Luthans,

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<sup>7</sup> There are no winners after the fact however, there are only second victims and learnings (Dekker, 2012b).

May, Walumbwa, 2005; Kernis, 2003; Kishi, Ito, Sugiura and Kinoshita, 2012). It is reported for example that management is responsible for accidents, and that communication between managers and others is found to be inadequate preceding almost any disaster (Goulielmos and Goulielmos, 2005; Sheen, 1987).

### **Solipsism**

Brocata and Gold (2010) refer to leadership ambiguity and ambivalence, and promote the need to move away from individualism as causal factors in disaster towards improved group properties such as teamwork and consultation, perspectives; applying the *Peter Principle*, Romaine (2014) examined why promotions fail when aiming for optimal individual and organisational performance.

Applying one's personal identity into the context of others can however introduce the problem of solipsism (Glas, 2010). Nagel (1974) studied how "others" experience things, and how we can gain access to the inner world of "the other". By exploring conscious mental states and events that cause behaviour, Nagel stated that fundamentally an organism has conscious mental states if and only if there is something that it is like to be that organism- something it is like for the organism (p. 436). The research enquiry therefore asks managers about factors that influence their choices in complex real world situations; not as perceived or calculated by "economic-man" (Simon, 1978, p 504), or from a hypothetical new-rational-manager perspective (Kepner and Tregoe, 1981), or potentially as a hierarchical elite where the position of authority or bias might corrupt how decision makers account for otherwise effective decision-making and social process.

Robbins and DeNisi (1994) decided to have a closer look at interpersonal affect as a distinct influence on cognitive processing in performance evaluations, as did Phillips, Mannix, Neale and Gruenfeld (2004). Phillips et al found that minority opinions attributed to out-group members (such as a manager) are less influential than are minority opinions attributed to in-group members; which in the context of a disaster might see the in-group turn on a manager. Why is it so? The concept of asymmetry would seem contrary to a contemporary safety management system where everyone has a role to play. My research enquiry is consistent with this approach, as it is interested in embracing naturalistic decision making theory by listening to what managers believe and how they behave, and not what they should believe or behave; of cognition in the wild (Hutchins, 1995).

### **Weak and Diffuse Signals**

The concept of resilience would seem to require both the capacity to anticipate and manage risks before they become serious threats (McDonald, 2013). Yet despite efforts to communicate upwards (subordinate-to-manager) some signals become weak or diffused and concerns remain unresolved to the group's satisfaction. The obligation to effectively process information translates to what Sharpe (2004) refers to *forward accountability*; managers have an obligation to consult, address employee concerns, and reduce the prospect of foreseeable events crystallising into disaster.

Studies of discourse across boundaries seek to understand how diverging safety-related understandings are managed by personnel in high-risk workplaces (Rasmussen and Lundell, 2012; Phillips, Mannix, Neale, and Gruenfeld, 2004); and Linell (1998) states that different interpretations of the world and the asymmetry of stakeholder knowledge is both real and apparent, or there would be no point in communicating at all. Linell places a special focus on constructions of "us" and "them"; arguing for an analytical approach that resists the notion of

homogeneous groups, stressing instead the value in demonstrating collective social construction processes, and commonalities and linkages so as to facilitate inter-group solidarity.

According to some leadership theories, leader self-awareness and self-regulation processes are vital mechanisms in the leader/follower exchange (Eid, Mearns, Larsson, Laberg and Johnsen, 2012; Quinn, Anderson and Finkelstein, 2005). May, Chan, Hodges, and Avolio (2003) posit the advantages of what they call authentic motives;

“It is ultimately about the leader knowing him or herself, and being transparent in linking inner desires, expectations, and values to the way the leader behaves, in each and every interaction.”

Axelsson (2013) referred to a structure for management which helps, given the above, turn weak and diffuse signals into a safety issue. Schreurs, Van Den Broeck, and Guenter (2014) examine the relationship between work values and work engagement within teams, and the mediating role of need-satisfaction.

## **Expertise**

Managers are often recruited on their expertise and gazetted competency<sup>8</sup>. Weick and Sutcliff (2007) discuss resilience and the merits of deferring decisions to expertise when managing the unexpected in an age of uncertainty: which they describe as an assemblage of knowledge, experience, learning and intuitions that are seldom embodied in a single individual. Some researchers posit that evidence-based practice is a paradigm for making decisions that integrate the best available research evidence decision maker expertise and client/customer preferences to guide practice toward more desirable results (Mullen, 2004; Sackett, Straus, Richardson, Rosenberg, and Haynes, 2000).

“Deference to expertise is as much collective as it is individual. And it is as much a structural issue as it is an issue of process..... if people in a High-Reliability-Organisation get into situations they don’t understand, they’re not scared to ask for help (Weick and Sutcliff, 2007, p. 78-80)”.

The requirement of management to cooperate and defer to the expertise of their subordinates and other industry experts is a requirement of mining legislation<sup>9</sup>.

## **Leadership Style**

Various authors provide tools to help map work preferences (Margerison, 2007; Jung, 1928), and descriptive approaches have been used to summarize team behaviour (Ning, Bradley, Kirkman, Christopher, and Porter (2014). According to May, Chan, Hodges, and Avolio (2003) the three components of “authentic leadership” are moral capacity, courage, and resiliency. Dekker and Hollnagel (2004) warn safety scientists however about folk models that are immune to falsification and so resist the most important scientific quality check.

Kernis (2003) wrote about a pattern of information processing and outcomes apparent for relatively “authentic” leaders who possess optimal self-esteem; driven by self-verification motives to make accurate and “balanced” self-assessments, as well as social comparisons; and subsequently act upon these assessments to pursue core beliefs and end values, without getting

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<sup>8</sup> Section 62, Queensland Coal Mining Safety and Health Act 1999

<sup>9</sup> Section 32, Cooperation to achieve objects of the Act. Queensland Coal Mining Safety and Health Act 1999.

side-tracked by ego-defence motives such as self-enhancement and self-protection. Others have provided similar advice to managers and decision makers (Rousseau, 2006; Koriat, Lichtenstein, and Fischhoff, 1980; Mellers, 2000; Mellers, Schwartz, and Ritov, 1999; Hastie, 1993)

Rousseau (2006, p 261) explored the failure of organizations and managers to base practices on best available evidence and wrote that evidence-based management can threaten managers' personal freedom to run their organizations as they see fit; a similar resistance characterized supervisory responses to scientific management nearly 100 years ago, when Frederick Taylor's structured methods for improving efficiency were often repudiated because they were believed to interfere with management's prerogatives in supervising employees (Wren, 2011). Part of this pushback stems from the belief that good management is an art—the “romance of leadership” school of thought (e.g., Meindl, Erlich, and Dukerich, 1985), where a shift to evidence and analysis connotes loss of creativity and autonomy.

Weick (2007) stated that personal traits such as overconfidence and self-satisfaction can lead to a reduced awareness of danger, state of confidence plus contentment's, low index of suspicion, unjustified assumption of satisfactory system state, loss of situation awareness, and under preparedness to react in timely manner can lead to system failures; “complacency and hubris are two of the biggest enemies (to the success of a high reliability organization”, p 2). Weick and Sutcliff (2007) discussed effective relationships as a means of keeping managers informed; it does not necessarily transpire that effective relationships will alter decisions of managers, however. In Vaughan's *Dark Side of Organisations* (1999) we are reminded that the same relational ties within organizations that generate trust and control also potentially result in malfeasance or misfeasance, and may provide members with opportunities for deceit and misconduct.

### **Jury System Parallels**

The research revealed that there are some potential jury-system-parallels: it is hypothesised for example that managers in safety system are akin to jurors in the judicial system; ethics apply, and both managers and jurors are expected to represent the interests of community, not themselves (Tamkin, 2012; Tappura, Syvänen and Saarela, 2014; Tindale and Nagao, 1986). Just like *voir dire* in the judicial system, forward-looking-accountability suggests therefore that managers ought to be subject to the scrutiny of processes that ensure managers process information responsibly; in consultation with subordinates, ahead of calamity to be avoided.

### **Statutory Requirement to Consult**

In 1833 the first Factories Act was passed in the UK and four factory inspectors were appointed to enforce it (Wigglesworth, 1978). These inspectors recognised the importance of fencing the ubiquitous dangerous machinery to prevent serious injury and deaths resulting from their use, and as result in 1844 a revision of the Act created first legislation to guard machines. However those requirements were resisted by the employers on the basis that accidents were a normal part of work and that they could not be held responsible for the acts of their employees (Viner, 1994).

Legislation continues to change in response to accidents and the role of consultation has gained a larger and larger role; in Queensland coal mining legislation changed as a result of a calamity of disasters in the Moura district (Windridge, 1994). The existing legislation is based on UK reforms (Roben, 1972); in Roben's time the fatality rate in the UK was 17 deaths per 100,000 workers. The UK, along with Norway, Sweden, Switzerland and Queensland now has a fatality rate of less

than 2 per 100,000 workers (Panckhurst, Bell, and Henry, 2012, p. 248). A principle of Robens' reforms included the requirement to consult<sup>10</sup>;

“It is generally accepted that there is no credible way of measuring the value of consultative and participatory arrangements in terms of their direct effect upon day-to-day safety performance. Nevertheless, most of the employers, inspectors, trade unionists and others with whom we discussed the subject are in no doubt about the importance of bringing workpeople more directly into the actual work of self-inspection and self-regulation by the individual firm. ... We recommend, therefore, that there should be a statutory duty on every employer to consult with his employees or their representatives at the workplace on measures for promoting safety and health at work, and to provide arrangements for the participation of employees in the development of such measures (Robens, 1972, p. 21-22”).

Queensland legislation places obligations on the Site Senior Executive to develop withdrawal “triggers” in consultation with the workforce<sup>11</sup>. The provision of trigger-action-response-plans (TARPs) effectively takes decision making authority away from a manager; a manager therefore does not have a right to veto these plans (for jury system parallels see Crocker, Otis, Busso, Kennard, Bull, Kovera and Greathouse, 2014; Stevenson and Caldwell, 2009; Takada and Murata, 2014).

## **Unconscious Bias**

The self-reporting of bias by managers is of interest to this research. Kernis (2003) uses the term unbiased processing to refer to an absence of denials, exaggerations, distortions, or ignorance of internal experiences, private knowledge, and external evaluations of the self which he posits is a basic component of authenticity. Evidence suggests that humans are inherently flawed and biased as information processors, particularly when it comes to processing self-relevant information (Tice and Wallace, 2003; Nickerson, 1998).

## **Accountability**

Accountability is fundamental to human relationships, and the call for heads-to-roll aligns with the old view of backwards accountability (Dekker 2014). Backward accountability is associated with hindsight bias and counterfactual reasoning. Managers for example are often blamed as proxies for a culpable organisation (Zemba, 2006; Bennett, 2012; Windridge, 1994). Guilty by association and summarily indignation appear par for the course; ‘should have’ and ‘failed to’ occupy space in investigation reports; some argue that *Ceteris Paribus* applies – all other things being equal the future is predicable (Steinberg, Layne and Steinberg, 2012). Dekker (2014a) states that a just culture is getting to an account of failure that can do two things at the same time; it satisfies demands for accountability and contributes to learning and improvement (Dekker, 2014).

“The strength of an organization depends on the strength of its community (Alford, 2000)”.

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10 Queensland legislation (CMSHA, Section 32) now states that cooperation is an important strategy to achieve the objectives of the Act, and requires risk to be at an acceptable level. Managers now have “obligations”, along with coal mine workers, and others. One of those obligations is for all workers to participate in risk management practices of the mine. The changes to mining legislation in Queensland represented a change to a “system” (statutory law).

11 Coal Mining Safety and Health Regulation 2001. Section 171 Safety and health management system for emergency evacuation (2) The system must provide for the following— (b) the trigger points for evacuating the mine or a part of it; (3) The site senior executive must consult with workers at the mine in developing the part of the safety and health management system that provides for the trigger points mentioned in subsection (2)(b) (the trigger point provisions).

Virginia Sharpe (2004) studied the problem of medical harm and captured dual demands for accountability; both forward and backwards accountability. Forward looking accountability captures the essence of a Just Culture (Dekker, 2012);

“Accountability is about looking ahead. Not only should accountability acknowledge the mistake and the harm resulting from it, it should lay out the opportunities”.

Accountability is never really resolved in everyone’s view, several versions of the same event will inevitably be reflected in separate incident investigation reports; “where you look for causes depends on how you believe accidents happen” (Dekker, 2011a, Chapter 10).

## **Dealing with Outrage**

Sandman, Miller, Johnson, and Weinstein studied risk tolerance (1993) and Sandman (1999) stated that “whenever people are overly concerned about a risk, there has to be a reason - and by far the most common reason is outrage.” Joy and Kizil (1999. p11) defined that Risk of an unwanted event = Likelihood of event + Consequences + Outrage. Sandman (1999) and provided advice on how to ameliorate outrage after the fact;

1. Stake out the middle, not the extreme
2. Acknowledge prior misbehaviour
3. Acknowledge current problems
4. Discuss achievements with humility
5. Share control and be accountable
6. Pay attention to unvoiced concerns and underlying motives.

An example of outrage manifested when no fewer than 439 men and boys were killed at Universal Colliery (Duckham and Duckham, 1973, p 146);

“The mood of the village...was one of outrage and anger. It was strongly felt that management was in some measure to blame for such catastrophes. The embers of an old and bitter resentment could so easily be fanned into the flame of riot and lawless desperation.

There must be some reckoning for this; justice demanded it.....it is to the credit of the Home Office that it decided, if only at the eleventh hour, to institute proceedings against the manager and the owners of the Universal Colliery”.

The demands for justice were appeased, in part one suspects, to ameliorate societal anxieties provoked by the disaster. This tendency towards nonfeasance makes the management and injury causation problem intractable; an accident being evidence of neglect was transparent in Queensland mining legislation for 75 years<sup>12</sup>;

The occurrence of any accident in or on a coal mine shall be prima facie evidence of neglect on the part of the owner and the manager.

## **Fiduciary Trust**

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12 Section 75. Coal Mining Act 1925 (Superseded). Queensland. Australia.

Colvin, Block, and Funder (1995) reported that individuals are capable of promoting their own interests above others; a premise counterproductive to system safety according to some. They state that those who exhibited a tendency to self-enhance displayed behaviours, independently judged, that seemed detrimental to positive social interaction (consultation); Pellegrino (2004, p 87) reported that culpable error is a violation of such an implicit promise that entities make when offering itself as an instrument of help and healing.

Bosks' (2003) ethnographic account of cognition provides insight into fiduciary trust (p 17); it explores how surgeons themselves deal with medical surprise and how housestaff decide if a subordinate was good or bad, and what they consider to be an "unforgivable error". A normative error for example occurs when a surgeon has, in the eyes of others, failed to discharge his role obligations conscientiously. Bosk (2003) categories varieties of normal action in surgery (p. 116). Cell 3 would seem appropriate to risk assessment when someone gets hurt, although paradoxically a risk assessment might reveal that there was always a chance of failure.

## **Teamwork**

Cuveliera, Falzon, Granryc, Mollid, and Orliaguete (2012) concluded that ultra-safe performance in highly variable systems cannot be achieved through standardization but also through the possibility and ability of the subjects to adapt their practices to their own skills and to that of their colleagues. Others too have studied the importance of congruence and the role of team work (team-an acronym for together-everyone-achieves-more) in system safety (Lee and Allen , 2002; Sorensen and Stanton, 2013; Flin, O'Conner, Meares, 2002; Phillips, 2003; Phillips, Mannix, Neale, and Gruenfeld, 2004);

"Teams are widely used in safety critical environments to deal with high levels of complexity. The ability of teams to develop relevant and appropriate situational awareness (SA) has been considered a vital part of safe operation with breakdown in SA acknowledged as a contributing factor in human error and fratricide (Sorensen and Stanton, 2013)".

The role of the leader in a team is that they exercise of authority and direction over assigned resources in accomplishment of a common goal. For example, a function of the leader is to seek contributions, listen to critical issues and constraints, and make decisions (Friga, 2009). According to Vroom and Yetton (1973) groups with assigned leaders can have more effective decision-making processes than those without leaders. It is also reported that more effective processes arise when leaders place greater emphasis on the contributions of group members with relevant expertise (Larson, Christensen, Abbott, and Franz, 1996); it is reported that more effective leaders are able to better synthesize advice and integrate it into the groups' final decisions. Nembhard and Edmondson (2006) found for example that 70 percent to 80 percent of medical errors are related to deleterious interactions within the health care team. Effective leadership is viewed by some as an emergent quality resulting from specific behaviours such as cooperative participation that increases bonding and demonstrates task-related knowledge and interpersonal concern for the team (Mitropoulos and Memarian, 2012; Kaifi and Noori, 2011). Miller and Monge's (1986) review of laboratory studies concluded that the context in which Participative Decision making (PDM) was observed determined PDM effectiveness. Simard and Marchand (1994) commented however that there is not necessarily a demonstrated link between the behaviour of the front line supervisors and lower frequency of injuries.

The crashing of United Airline Flight 173 was one of the events that gave birth to Cockpit Resource Management (Kim and Byun, 2011; NTSB, 1978). Cockpit Resource Management is a methodology to improve communication in teams including reducing the probability that weak

signals will not be heard by airline pilots. Engaging the social capabilities of leaders including nontechnical competencies (associated non-technical skills; ANTS) is reported to be effective coordination and adaptation of leaders to social requirements of the role.

## **Trust**

Trust has been described as an individual's or group's belief that another individual or group will make good-faith-efforts to behave in accordance with explicit or implicit commitments, and not to take excessive advantage of the other, even when the opportunity arises (Cummings and Bromley, 1996; Conchie, Donald and Taylor, 2006; Risk Analysis, 2006).

Reason (2009) promoted trust; often referred to as the lubricant for open and frequent safety communication. Reason's (2009) model of safety culture places trust at the core of its success; Cox, Jones and Collinson (2006) concurred by stating 'managers who are willing to share information signal to their employees that they can be trusted'. Grabowski (2006) too supported the link between trust and safety performance; stating that safety performance is highly dependent on levels of trust, and Jeffcott, Pidgeon, Weyman and Walls (2006) studied how trust influences safety culture of the UK railway industry post privatization. They concluded that despite workers' dissatisfaction with certain issues, the existence of "rule-based" trust within the industry allows employees to operate together in a high risk work context.

Clarke and Payne (1997) postulated that trust toward a leader comprises a number of dimensions that relate to both the modality of trust (e.g., beliefs, feelings) and specific leader qualities (e.g., availability, fairness), and Fishbein and Ajzen (1975) state that trust attitudes comprise a cognitive, emotional, and behavioural component, and that trust toward leaders is most strongly predicted by the leader's perceived competence and consistency and lesser so by his or her openness.

Yet while evidence to support a link between trust and safety performance is somewhat scant, Gunningham and Sinclair (2011) that low safety performance was linked to a cluster of characteristics strongly associated with a heightened presence of mistrust (p. 545)<sup>13</sup>;

“There is growing evidence that trust between corporate and site management, and between management and the workforce, is crucial to improved safety outcomes”.

Turner and Pidgeon (1997) however challenged the benefit of trust; they encourage employees to maintain mistrust in the institutional design of safety culture. The ICM (2012) report also supports value in distrust as did Joy and Kizil (1999).

## **Culture of Denial**

The concept of safety culture arose in the aftermath of the Chernobyl disaster (Pidgeon, 1991); years later Hopkins (2000, p30) referred to management's culture of denial after several mining disasters as;

“a contributing factor common to both disasters was that mine management mistakenly believed that the mine was protected from the hazard in question and that therefore it can't

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<sup>13</sup> The use of lagging indicators (referred to as error counting by Dekker, 2015, Chapter 3) in deciding which were the "safest mines" may not necessarily provide insight into where the next mine disaster might occur however. As Leveson (2011) pointed out, "systems will tend to migrate toward states of higher risk. Such migration is predictable and can be prevented by appropriate system design or detected during operations using leading indicators of increasing risk (p. 52)". For more on leading indicators see Health Safety Executive (2006) and ICM (2012).

happen here”<sup>15</sup>. In both cases (management) accepted the validity of information collected by others, even though the safety of their operation depended critically on this information”.

A key feature of a company's safety culture is shared perceptions among managers and staff concerning the importance of safety (Clarke, 1999). The rationale for ignoring warning signs, according to Hopkins, involved the normalisation of evidence, the use of ad hoc criteria and the idea that intermittent signs can be dismissed or ignored. Pidgeon and O’Leary (2000) state that incubation period for disaster is accompanied by a collective failure of organizational intelligence; one barrier to learning being information difficulties. Daly and Mort (2014) infer that the lack of priority given by some managers to safety hinders culture and safety;

“A lack of cultural change and leadership prioritization have been identified as formidable barriers with a 2009 study showing that only half of the chairmen or more than 700 hospitals surveyed identified quality and safety as one of their top two priorities”.

For further information on attitude theory as related to safety culture see Aronson, Wilson, and Akert,(1997); Aronson E (2007) and Eagly and Chaiken (1993).

### **Acceptable level of Risk**

Risk assessment is a decision making tool used by organisations in safety and health programs, and accidents are increasingly seen as failures of risk control (Beck, 1992). Nasa (2008) state that managers are responsible for risks within their respective programs and projects. This is consistent with Roben (p 7, 1972,) reforms;

“The primary responsibility for doing something about the present levels of occupational accidents and disease lies with those who create the risks and those who work with them”.

Risk science still is an evolving field. It involves applying a defined methodology<sup>16</sup> that includes taking into account the risk context and the range of available risk management decision-making options (Krewski, Westphal, Andersen, Paoli, Chiu, Al-Zoughool, ... and Cote, 2014; Joy and Kizil, 1999; Joy, 2000). Risk managers for example may select a combination of suitable strategies to balance risks, costs and benefits, taking into account social values and political considerations. It is unlikely therefore that two risk assessments will yield the same outcomes; pure mathematical operationalised in a world of fuzzy logic and chaos means that in practice a knowledge engineer often has to make semi-optimal choices using his past experience which is not formalized at all (Dohnal,1992).

We turn our attention to the personal characteristics and choices of the manager, as a driver of a machine in a socio technical world (Alkov and Borowsky, 1980; Lewis, 1975). A manager, like a pilot at the controls of an aircraft, makes decisions as a function of both personal and situational variables; presiding over risk-management-process-control and who is ultimately in control of a highly refined mechanical and electronic technology. Managers and other coal mining statutory officials in Queensland are required to successfully complete an examination in Queensland mining law<sup>17</sup> that has foundations in lessons of the past; centuries of fatalities and serious

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15 Hopkins is commenting on findings into the Moura Number 2 mine explosion in 1994 (11 men killed), and the Gretley Mine inrush in 1996 (4 men killed).

16 A process of Risk Management is outlined in the Australian Standard 31000.

17 <https://www.business.qld.gov.au/industry/mining/safety-health/mining-safety-health/competencies-certificates/coal>

injuries<sup>18</sup>. The Act (CMSHA) requires the risk of injury or illness to any person resulting from coal mining operations be at an acceptable level<sup>19</sup>. It does not mandate zero harm per se<sup>20</sup>; the evaluation of risk is a process of deciding whether the risk is acceptable or should be controlled, according to Rowe (1977)<sup>20</sup>.

Slovic (2010) posits a scientific approach to analysing and making decisions about risk based on the ways ordinary people perceive and respond to risk. Slovik highlights the importance of trust as a determiner of perceived risk. It describes relatively new research on "risk as feelings" and the "Affect Heuristic": that factors such as gender, race, political worldviews, affiliation, emotional affect, and trust are strongly correlated with risk judgment. Equally important is that these factors influence the judgments of experts as well as the judgments of laypersons. Viner (1994) proposes that risks are best evaluated by those who will experience the adverse consequences and those who have authority to make the proposed changes happen; for example, managers with the financial power. This is consistent with contemporary safety legislation that requires cooperation, and the process of involving coal mine workers in the management of risk<sup>21</sup>. Those having authority to manage risk include the authority of workers to withdraw in case of danger<sup>22</sup>.

Dake (1991, 1992) provides a social construction of risk stating that risk is politically negotiated transcendent human values, placing blame for untoward deaths, and appealing to moral imperatives to save lives; and that cultural biases of Hierarchy, Individualism, and Egalitarianism are predictive of distinctive rankings of possible dangers and preferences for risk taking. A major accident, for instance, may be described as resulting from operator error (implicitly blaming individuals), or alternatively, as caused by institutional neglect or poor policy decisions (focusing blame on larger social units). In short, how does one myth of nature—one set of beliefs about what the world is like, what its risks are, and who is to blame for untoward events—come to seem more sensible than another?

Risk has been defined as an opportunity cost for the creation of wealth, and encouragement of risk taking was thought to be necessary for business enterprise because individuals were assumed to be risk averse (Friedman and Savage, 1948). The proverb "nothing ventured, nothing gained" reflects the dominant ethos of that time. The next generation of risk assessment are likely to be faster, less expensive, and more scientifically robust; the NexGen framework of health risk assessments for example is structured to support decision making, with up-front consideration of a broad array of risk management options (Cote; Anastas; Birnbaum; Clark; Dix; Edwards. 2012, pp 796; Edwards (1977).

## Power

"Dictatorial" and "megalomaniac"<sup>23</sup> were terms reportedly used by managers to describe the General Manager of Pike River mine (Panckhurst, Bell, and Henry, 2011).

Power is a social phenomenon that is ancient and as ubiquitous as one could find (Dahl, 1958). Dahl (1957) described it as the illegitimate use of authority, influence and control. Mechanic

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18 Fatalities in Queensland coal mines. 1882-2012; Department of Natural Resources and Mines. [http://www.nost.edu.au/icms\\_docs/144020\\_Fatalities\\_in\\_Qld\\_Coal\\_Mines1882-2012.pdf](http://www.nost.edu.au/icms_docs/144020_Fatalities_in_Qld_Coal_Mines1882-2012.pdf) accessed 28/1/15.

19 Coal Mining Safety and Health Act 1999, Section 29.

20 Refer also to ISO 31000:2009. This standard defines a standard of Risk management – Principles and guidelines, provides principles, framework and a process for managing risk.

21 Queensland Coal Mining Safety and Health Act 1999, s32.

22 Queensland Coal Mining Safety and Health Act 1999, s273

23 Webster's definition of dictatorial is a person who tries to control other people in a forceful and unfair way, and megalomania is a condition or mental illness that causes people to think that they have great or unlimited power or importance.

(1964) stated that power is also a function of the extent to which a person controls information, and Vaughan observed that hierarchy and power are profoundly implicated in accidents (1999, p. 294).

Dahl's intuitive idea of power (1957) is;

“A has power over B to the extent that he can get B to do something that B would not otherwise do<sup>24</sup>”.

Theoretically emancipatory projects such as cockpit-resource-management training in aviation and healthcare were introduced as a change to power relations, and the supposed asymmetrical leverage held by managers (Dijksterhuis, 1987). Other emergent strategies that attempt to counter power exist such as the devolution of conceptualizations of risk to local operational experts rather than management (Weick and Sutcliffe, 2007). Dekker (2011b) and Heimer (1988) also have tried to counter the concept of asymmetrical influence and the hierarchical position and accountabilities of managers; claiming that while power is a catalyst of drift or a deprivation of resources there is empirical evidence to suggest that the power and influence of senior position holders is constrained by the countervailing influence of others inside and outside their own organizations; as well as by rules, traditions, and other social arrangements, both inside and outside the institution.

Silbey (2009) too discussed the notion of normative heterogeneity and inequalities in power and authority, and called for further research in ways to counter differentially situated interests (p. 362). Vaughan (1999) too observed that there are both dark and bright sides to power, and Mechanic (1964) describes several ways by which lower order participants<sup>25</sup> can interdict or thwart the edicts of the executive, but can also bring strengths to these edicts. This perspective is also shared by McDonald, Waring and Harrison (2006).

“the differential interests of upper-level managers and lower-level workers are systematically elided through popular ideologies and representational practices that insist on our mutual self-interest. By assuming a similarity of interest, managers fail to address the differential positions and, more importantly, fail to recognize the differential resources workers bring to the organization that can be mobilized in the service of greater safety (Silbey, 2009)”.

Dekker and Nyce (2014) however point out that power has an emergent property;

“There is ‘safety in power’; it is safe for one’s position, team, patient, process, and so forth, to have power; The goal is to make all members of team (in particular those lower in the hierarchy) feel safe to question the activities of the attending surgeon and to convince these surgeons that such questioning is acceptable behaviour”.

However the ability of power to undermine *common shared values* is apparent at times, as evidenced when a nation's grief turned to anger and dismay following the Pike River Mine disaster (Panckhurst, Bell, and Henry, 2011);

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24 Dahl deliberately steered clear of the possible identity of “power” with “cause” because of the host of epistemological problems that this might give rise to because scientists have not formulated a statement of the concept of power that is rigorous enough to be of use in systematic study (p. 201). Dahl therefore advances his case based on power being a relation, and a relation amongs players.

25 The term "lower participants" was used by Amitai (1961) to designate persons in positions of lower rank: employees, rank-and-file, members, clients, customers, and inmates.

“...some started questioning whether Rockhouse had done everything in his power to keep the mine's work force safe. Rockhouse, the Manager of Safety and Training, had lost his son, Ben 21, and the elder son Daniel, then 24, was one of just two to make it out of the mine alive”.

Under cross examination Rockhouse stated his view about the behaviour of his superiors<sup>26</sup>

Q. At paragraph 2 and 8 of your brief, you talked about Mr Whittall's management style and in your view said that he stifled communication?

A. Yes

Q. So this is the presentation that you talked about walking up and slamming the whiteboard with his finger and he ripped the presentation to pieces, humiliated you in front of your peers and eventually walked out of the meeting?

A. Yes, yes I've seen similar behaviour before, not as dramatic as that particular occasion but with other managers and it's just inappropriate. If you're going to do that you do it in private or you know, you don't do it in front of everyone's, all the departmental managers, it's not a good look at all.

### **The Art of Conversation**

I once participated in a leadership summit; 100 managers were asked “where does your organisation exist?” A few people responded “in Middlemount<sup>27</sup>”. “Well yes, physically responded the speaker”; however the speaker proposed that an organisations exists “in its conversations”; in how people talk about the organisation, of its leadership, stories in hallway conversations, in meetings, and at the coal face. Bruner (1990) discusses the cognitive revolution and reality in the acts of meaning that shape what people say and do. Fords' (1999) article is also relevant; it denotes organisational change as shifting conversations and explores producing-and-managing change within conversationally constructed realities;

“... the job of change managers is to create the conversational realities that produce effective action rather than to align organizations with some “true” reality..... The efficacy of these interventions is seen both as a demonstration of a change agent's ability to accurately mirror reality, i.e. the world is as the agent knows it to be”.

Nevile and Walker (2005) utilise conversation analysis of black-box flight recorders to demonstrate loss of crew resource management. After a light aircraft fatality in Australia for example, it was revealed that the interaction between crew members helped to create an environment conducive to making, and not detecting, an error. By not interacting to work together as a team, pilots create a context for error. There are opportunities therefore to improve inter-crew coordination and performance to enhance safety. A specific strategy is to ensure that leaders breathe sufficient life into organizational shells rather than undermine its (see Snook, 2000:21/55 and his insight into a lack of positive intervention by the AWACS crew in the shooting down of two Blackhawk helicopters by friendly fire in 1992). Orasanu (1994) also proposed training programs that improve the gathering of information, leadership, decision making and collaboration with others.

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26 Transcript of Phase Three Hearing Commencing on 5December 2011 at Gremouth. Retrieved from <http://pikeriver.royalcommission.govt.nz/Phase-3-Hearing-Transcripts>

27Middlemount is a town in Central Queensland, Australia, located 242 kilometres (150 mi) inland (by road) from Mackay and Rockhampton. It is a mining town servicing two coal mines, Foxleigh and German Creek. At the 2011 census, Middlemount had a population of 1,914.

Rogers and Roethlisberger (1991) and Rogers (1958) discuss gateways and barriers to communication and the characteristics of a helpful relationship. Their advice is that we need to check our natural tendency to judge others, if communication is to be effective.

## Decision Making

Assuming that people do not come to work to hurt themselves, or to make a decision that results in harm to others, there is a need to comment on the pre-emptive struggle of decision-making ahead of time, and after-the-fact. Recall for example that the manager of Pike River mine commented “never actually considered the possibility of the mine blowing up ... it was not a matter that overly concerned me (p6,8,26)”, yet the commission of inquiry argued counterfactually that it was obvious to them (p 7).

Applying mental processes, like perception, attention, memory, language, reasoning, decision making and problem-solving is called cognition (Rogers, Pak and Fisk, 2007; Varvatsoulas, 2014). The context for applying cognition, and framing decisions, has been researched by many including Barris (2014), Bruner (1990), Craig and Snook (2014), Dekker (2015), Edwards (1954), Karelaia and Hogarth (2008), Snook (2000), Tversky and Kahneman (1981), Vaughan (1999), and Varvatsoulas (2014). The responsibility that comes with decision-making is articulated by Sieck and Klein (2007, p 195);

“...decision-making is a pervasive, consequential activity, from lay people dealing with their own daily events, to tactical professionals... whose responsibilities extend beyond themselves...to others who are charged with the fate of all of us”

Kruglanski and Ajzen (1983), Fischhoff (1975) and Simon (1955) researched processes in which people form views about themselves and the world in which they live, and of systematic biases and errors that might influence their decisions; this is relevant to risk management and decision making where uncertainty exists. Kruglanski and Ajzen analysis<sup>28</sup> reported; 1). There exists no secure criteria of validity. 2). Psychological factors that bias inferences away from any currently accepted criteria need not enhance the likelihood of error. 3). The inference process may be considered unitary rather than pluralistic.

There is a long list of motivational and cognitive factors, including knowledge of performance that is assumed to influence human judgement (Staw, 1975). These include motivational biases, participation, satisfaction and productivity (see also Miller and Monge, 1986), bias in human inference, ego enhancement and defence, effective control, hedonic relevance, belief in a just world, physical avoidance of harm, cognitive bias. Cognitive biases are assumed to arise because of people's limited ability to attend to and properly process and assess all the information potentially available to them. Kruglanski et al state that regardless of whether a person is an actor or an observer, when attention is drawn to the actor there is an increase in attributions of behaviour to dispositional factors (see also Taylor and Fiske, 1975). When the environment is made more salient, there is an increase in attributions to external (situational) factors (Arkin and Duval, 1975).

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<sup>28</sup> Kruglanski and Ajzen (1983) analysis runs contrary to the views of human inference that 1). There exist reliable criteria of inferential validity based on objectively veridical or optimal modes of information processing 2). Motivational and cognitive factors bias inferences away from these criteria and thus enhance the likelihood of judgemental error 3). The layperson's epistemic process is pluralistic

The pre-emptive struggle dealing with judgment ahead of decision, and the unanticipated consequences of purposive social action has also been studied by Linden (2010), Merton (1936), Friedman (1953) and Rasmussen (1997);

“It must not be inferred that purposive action implies *rationality* of human action (that persons always use the objectively most adequate means for the attainment of their end). One acts rationally by selecting the means which, on the basis of the available evidence, has the greatest probability of attaining this goal and yet the goal may actually not be obtained (Linden, 2010).”

Kouabenan (2009) too spoke about results from different readings of the same situation, and from poor quality communication about risk and methods of overcoming it. Kouabenan comments that interplay between people’s behaviour and mental representations often play a major role in accidents and dangerous situations. It was hypothesised that prerequisites for effectively managing risk and designing preventative measures include a consideration of the beliefs people hold about risk and the need for safety.

Descartes (1850) would not be wooed by the poesy of psychology in decision making; he was delighted with the mathematics of decision making on account of its certitude. This is consistent with others who have critiqued as folk models things like “situational awareness” arguing these as non-falsifiable hypotheses or a type of etiological myth; models not grounded in good science; an argument that merely substitutes one black box for another; one that is of no practicable use to accident prevention; constructs that stultify advancement; are words to proportion blame towards human error (Dekker, 2011a; Dekker and Hollnagel, 2004; Brocata and Gold, 2010; Raja et al, 2008; Dekker, Nyce, Winsen and Henriqson, 2010).

“Good sense is, of all things among men, the most equally distributed; for everyone thinks himself so abundantly provided with it, that those even who are the most difficult to satisfy in everything else, do not usually desire a larger measure of this quality than they already possess..... to be possessed of a vigorous mind is not enough; the prime requisite is rightly to apply (Descartes, 1850)”.

### **Heuristics, and priori and a posteriori justifications**

Other factors to potentially undermine decision making, or consultation, is heuristics and priori and a posteriori justifications. The term heuristics applies when we make decisions based on “automatic” or simplifying processes, rather than cognitively intensive analysis or information-processing demands (Bazerman, 1990; Bazerman and Moore, 2013; Hogarth, 1987; Tversky and Kahneman, 1973). Applying Occam’s razor<sup>30</sup> to the unpredictable nature of complex systems (Dekker, 2011a, p. 125; Dekker and Nyce, 2011), heuristics are sometimes referred to as “rules or thumb”, intuition, or judgement, and they reduce the complexity of information which must be integrated to yield a decision. Heuristics is said to be influenced by past experiences or even biases (Bazerman and Moore, 2013). It is often noted by that all knowledge is inevitably biased in that it depends on subjective factors in the epistemic process (p. 23), particularly the individual’s capacity and motivation for hypothesis generation (Kruglanski and Ajzen, 1983); generally affective reactions to stimuli can occur without extensive perceptual and cognitive encoding, thus

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<sup>30</sup> Occam's razor is a problem-solving principle devised by William of Ockham (c. 1287–1347), The principle states that among competing hypotheses, the one with the fewest assumptions should be selected. Other, more complicated solutions may ultimately prove correct, but—in the absence of certainty—the fewer assumptions that are made, the better

are made with greater confidence than cognitive judgments, and can be made sooner (Zajonc, 1980)

Pedigrew (1992) demonstrated the gap between the judgments people make intuitively and the probabilities yielded by explicit calculation (or by empirical observation of actual outcomes). Because these “errors” of intuition are systematic and lawful, they are called biases. Because these biases result from the simplifying strategies used by decision makers, whose cognitive capacities cannot otherwise efficiently process the information, they are known as heuristic biases.

By providing managers with efficient ways to deal with complex problems, heuristics frequently produce effective decisions. However, heuristics also can lead managers to make biased judgements. Bias results when an individual inappropriately applies a heuristic (Zajonc, 1980, p 31). Simplified processes are therefore a double-edged sword; simplifying strategies exposes the fact-finding process to heuristic biases of intuitive decision making (Saks and Kidd, 1981, p. 123; Tversky and Kahneman, 1974, Cohen-Charash and Spector, 2001). Consultation and risk management provides a mechanism to resist heuristics.

When subjects justified a priori they justified independently of experience, while subjects justified a posteriori are justified by appeal to at least some experience-based evidence (Watson, 2014). Warenski (2009) argued that the subject matter of the a priori knowledge is platonic and that rational intuition, however often the alleged means by which we have knowledge of platonic truths, is mysterious and occult.

Taylor realised that just making people work as hard as they could was not as efficient as optimising the way that work was done; he developed four principles of scientific management on the basis of his experiments and insights (Getler, 2001). Taylor said “almost every act of the workman should be preceded by one or more preparatory acts of the management” (Dekker, 2015), and Getler (2001, p. 26) said a worker “should not be left to his unaided devices”;

“Do not allow people to work by heuristics (“rule of thumb”), habit, or common sense. Such human judgement cannot be trusted, because it is plagued by laziness, ambiguity, and unnecessary complexity. Instead, use the scientific method to study work and determine the most efficient way to perform a specific task”.

### **Hazardous Thoughts**

Lester and Bombaci (1984) studied the relationship between personality and irrational judgment in civilian pilots. They found that invulnerability to be the most common hazardous thought pattern, being strongest in 43% of the subjects. The concept that bias exists as “hazardous thoughts” in one’s mind<sup>31</sup> either consciously or sub consciously, suggests that one’s thoughts have the potential to undermine consultation and other decision-making processes;

“Once you can spot your biases, and if you desire, you will be able to improve your ability to consult; by learning consciously how to override some of the faulty intuition that you automatically use on a regular basis”.

Wright and Goodwin (2002) suggest that framing bias does not necessarily need to be an important factor in strategic decision making. They show that the framing bias can be removed

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31 The term one’s mind eye is borrowed from Scott Snook (2000) in his book Friendly Fire.

by a simpler 'think-harder' manipulation of data and frame and that the bias is not present in the decisions of experienced respondents.

## METHOD

This study is mostly a qualitative enquiry (Blaxter, Hughes and Tight., 2010), with a social constructionist approach to the survey and subsequent narratives. The qualitative movement is said to bring with it a pluralist orientation to knowledge and to practices of inquiry. The traditional view of knowledge as empirically supported theory lends itself to this research practice; being congenial with dealing with varying accounts of knowledge, including, for example, knowledge as hermeneutic understanding, social construction, and practice based experience (Gergen, Josselson, Freeman, 2015). The qualitative movement is also thought to inspire new ranges of theory, fosters minority inclusion, and invites interdisciplinary collaboration.

The social constructionist approach to the research seemed logical as the interviews and surveys provide witness accounts that fit somewhere between Emile Durkheim work on positivism<sup>32</sup> through to social constructivism where social reality exists; while truth is worth striving for (Smith 2008), and the concept of the social construction itself is socially constructed (Durkheim, 1982; Hacking, 1999; Giddens 1972).

The initial 4 one-on-one (trial) interviews helped to shape the subsequent on-line questionnaire. The interviews lasted between 1 and 3 hours were conversational yet semi-structured; based on previous research in this area including Jensen (1997); Berlin, Gruber, Holmes, Jensen, Lau, Mills and O'Kane (1984) for example used what appeared to be an appropriate methodology in which to conduct this research. Frenkel-Brunsvik (1950) discussed interviews as an approach to the Prejudiced Personality which potentially had relevance here. I discovered during this phase however that the more experienced informants took me a journey away from the pre-structured interview guide, and into their paradigm; drawing time-and-time again on examples of how they controlled their hazardous thoughts, and of how they mentored others to manage their potential biases; it was apparent to me that the experienced and seasoned industry proponents were conscious that they needed to manage both their own biases, and influence the thought and conversations of others.

30 participants were invited to participate in the subsequent on-line questionnaire (including the initial 4 participants). The survey consisted of 75 questions: I was advised by some of my informants that the on-line survey took longer than anticipated, and they were unsure of they could log-back-in to complete the survey at a later time; I had unintentionally demanded a lot from my informants. Questions were framed in such a way to explore theories of reasoned social action (Bogozzi, 1992) and planned behaviour, and to a lesser extent to understand the theory of how "trying harder" delivered outcomes (risk reduction); Implicit in the theories is the risk that of assumption that individual psychological reactions become aggregated into singular constructs (Dekker et al, 2010).

The survey data is presented as the percentage of responses to each question, and some of the comments made by informants to clarify their responses. Due to the limited sample size (<30 informants), roles were not demographically characterised in the analysis; they were collectively

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<sup>32</sup> Positivism is the philosophy of science that information derived from logical and mathematical treatments and reports of sensory experience is the exclusive source of all authoritative knowledge, and that there is valid knowledge (truth) only in this derived knowledge

pooled as manager(s) into the one domain to provide anonymity and to prevent manipulation bias (Otis, Greathouse, Busso Kennard, and Bull Kovera, 2014). Only descriptive statistics are presented, and themes or a sample of the responses to elaborated responses are cited. I have also cited relevant researchers and scholars to provide further insight into theories and research that align with the responses.

There was an issue with the analysis tool I used in the survey; percentages were not resolved prior to the research being published. I focused on themes rather than absolutes. I took a view that consultation is a social process, and that there is value in assisting social groups to consult when negotiating risk (a hypothesis evaluation where Bayesian principles might apply; Fischhoff and Beyth-Marom, 1983). To understand the differing points of view, we studied an issue investigated in many other studies, that is, diverging safety-related understandings between people representing various occupational groups- mostly however from a manager's perspective – a perspective which has not been as studied as extensively as others involved in safety processes and negotiations.

## FINDINGS AND DISCUSSION

Dahl (1957) wrote that access difficulties have been and remain a source of constraint on studies of elites, and that “those who sit amongst the mighty do not invite sociologists to watch them make the decisions about how to control the behaviour of others”. There were 20 respondents<sup>34</sup> to the 30 on-line survey invitations (a 67% response rate). Several respondents identified themselves as having multiple safety and health obligations<sup>36</sup>, and 75% of respondents (15/20) associated themselves with only underground mines. When asked how management consultation (or lack of) affects stakeholder sentiment when things do not go to plan (Question 70), respondents stated<sup>37</sup>;

- *If people don't feel part of the decision they will not feel they are accountable in any way and will blame another.*
- *The better the consultation the better defence one has. The quality of the process means that stakeholder confidence is usually high*
- *Blame game and supports miss-trust. Made decision, decision was wrong therefore management at fault - they have someone to blame*
- *Management must not be undermined by an overriding need to consult for consultation's sake*
- *Ultimately the manager holds the responsibility. By using correct consultation processes things should go to plan.*

### **Local Rationality and bona fide claim of right.**

According to s.31 of the Criminal Code Act 1989<sup>38</sup> ignorance of the law does not afford any excuse; although bona fide claim of right exists. The possibility of mistake or that an ordinary person might not have reasonably foreseen as a possible consequence stands in judgement. But who gets to judge? I put this to the test: respondents were asked about their feelings towards the

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34 9 Managers, 7 Site Senior Executives, 3 Inspectors, and 2 Safety Representatives.

36 Qld Coal Mining Safety and Health Act 1999, Section 35 Person may owe obligations in more than 1 capacity; <https://www.legislation.qld.gov.au/OQPChome.htm>

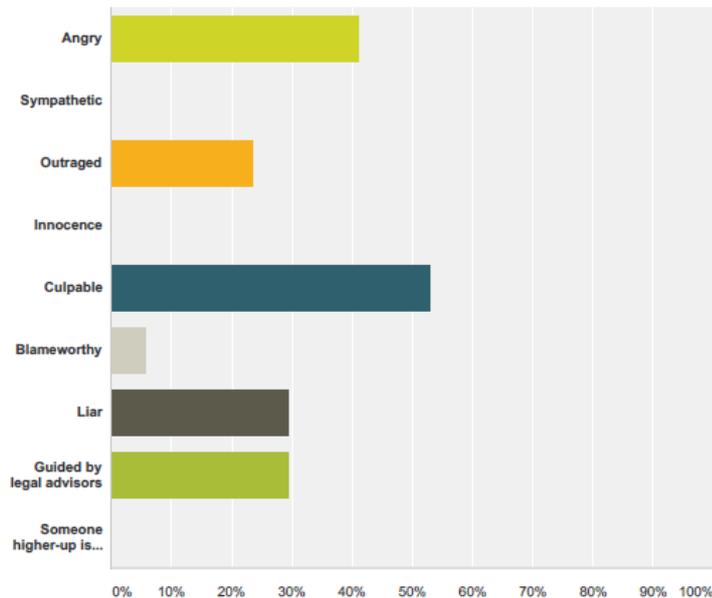
37 Throughout representative information statements will be given in each section in bold and italics .

38 Qld Criminal Code Act 1899; <https://www.legislation.qld.gov.au/OQPChome.htm>

Mine manager and comments made in the Royal Commission into Pike River Mine disaster (Question 7);

“I think it’s fair to say that having never actually considered the possibility of the mine blowing up ... it was not a matter that overly concerned me”.

**Figure 1: Histogram of Emotions**



None of the respondents felt sympathetic or associated innocence towards the mine manager; angry and culpable were the predominant feelings; 13% believed the manager when he stated that he not considered the possibility of the mine blowing up.

Some believed that the mine manager may have been overwhelmed prior to the event (too busy, workload), was avoiding accountability, was being self-defensive, or was following legal advice when he made those comments (Question 8).

- *Worst possible consequences should be a factor in every decision.*
- *Society expectations and overwhelming faith in the mine for their prosperity influenced personal and collective decisions.*

### What Managers think about Consultation

100% of respondents (17/17) believe that managers need to consult with employees in order to reduce OH&S risk (Question 30); 81% of respondents (13/17) do not believe that consensus is mandatory in a risk assessment (Question 49);

- *This facilitates the understanding of the manager to all potential concerns and issues that they may not be aware of.*
- *Absolutely, not only from a legal perspective but also from a moral viewpoint.*
- *They must talk to the people who understand the hazards and can evaluate the controls.*
- *Seek to understand the non-consensus issue and address appropriately.*

The prospect that managers reduce risk through consultation might therefore presuppose the notion that managers possess skills in social processes such as team work; 87% of informants believe that managers that have technical knowledge based on personal experience to make better risk-based decisions and 88% of respondents (14/16) stated that competencies in associated-non-technical-skills (ANTS) are also extremely important to a manager, during consultation (Question 56);

- *If you cannot communicate you cannot consult. If you don't regard those you are consulting as part of the team you are consulting the wrong people.*
- *I don't believe I have self-control issues; I acknowledge that consultation and knowledge sharing is the key to success (Question 66).*
- *Managers are often high trained technical people. Leadership skills are rarely recognised as an essential tool within the highly stressed mining industry. Unfortunately leadership skills are most often learnt through experience.*

Bergström, Dekker, Nyce and Amer-Wählin (2012) and Siu, Nikki, and Paterson-Brown (2014) also reported the importance of non-technical skills in improving safety and performance;

“Poor communication and teamwork across the whole OR team had a generally large impact on intra-operative incidents. Leadership was shown to be an essential set of skills for the surgeons as demonstrated by the high correlation of poor leadership with intra-operative incidents (Siu et al, 2014)”.

“Yet in a strange and costly anomaly, most enterprises reverse this priority in their training and systems development expenditures, focusing virtually all their attention on basic (rather than advanced) skills development and little or none on systems, motivational, or creative skills” (Quinn et al, p. 78). The result is what they call a predictable mediocrity, and a failure to match training with value creation or profits”.

100% of respondents (17/17) believe that access to information improves chances of making a correct decision (Question 58); they stated that the type of information available to managers and not necessarily available to mineworkers included;

- *Schedules, financial information operational wide perspective.*
- *Consultation reports; technical information, expert advice*
- *Experience over a wide variety of Operations and functions*

82% of respondents (14/17) believe that very close co-operation between managers, the Mines Inspectorate, and workforce inspectors reduces OH&S<sup>39</sup> risk (Question 31), and there is no place for a strictly industrial agenda;

- *The recognition by all that Industrial Matters have no place in OH&S..... It convolutes the conversation and brings distrust; Too often workers reps are union orientated and look for ways to get at management; It is our statutory officials responsibility to ensure that the requirements of the ACT, regs and SHMS are complied with. Too often they are not held accountable for this thus the feeling that we need a checker to check the checker.*
- *You can decide who defines the workplace reps' role; if you create a real role then it'll be a team effort. If you seek confrontation you will get it.*
- *Breakdown of barriers. Managers have to lead by example and take the initiative to 'cross over' to improve communications.*
- *Management need to take the lead in improving engagement*
- *Sometimes not all people agree, and definitely having people that have a different opinion is essential.*

## Ultra Ego

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<sup>39</sup> Occupational Safety and Health: refer to literature review for further discussion on risk

93% of respondents (14/15) believe that some Managers do not want to back down, even if there is sufficient evidence to discredit their position on a matter (Question 62);

- *Don't want to be seen as weak. Can't accept another's opinion.*
- *Believe that they are better than others or have an elitist attitude. Sometimes the manager is correct and the experience they have substantiates their position. This is particularly evident when dealing with relatively inexperienced management and mine workers.*
- *A feeling of superiority. Class distinction. Inability or unwillingness to admit error. Perception as a sign of weakness.*
- *I have always had a good relationship with all managers. The most interesting case was during the (mine) beating event. Some managers firmly believed there was no risk. Expert opinions were obtained and this advice was checked and used to make decisions.*
- *ego, pride, lazy to name a few.*

### Hazardous Thoughts

Jensen and Benel (1997, p 3-4) reported that invulnerability ("It won't happen to me") as the most common hazardous thought pattern;

"Pilots who think this way are more likely to take chances and run unwise risks thinking all the time, it won't happen to me!"

Similar to Jensen and Benel's findings, my informants ranked invulnerability as the predominant hazard though pattern pervasive to system safety (47% of the total for the 8/9 respondents: Question 63); Invulnerability 33%; Anti-authority 20%; Macho 20%; External control 27%

- *Many people feel that accidents happen to others but never to them. They know accidents can happen, and they know that anyone can be affected*
- *They never really feel or believe that they will be the involved.*

Respondents provided the following solutions to hazardous thoughts (Question 64);

**Table 2: Solutions to Hazardous Thoughts**

<p><b>Anti Authority</b></p> <ul style="list-style-type: none"> <li>• <i>Consultation and communication</i></li> <li>• <i>Strong supervisor</i></li> <li>• <i>Discipline</i></li> <li>• <i>What would you do in my position?</i></li> <li>• <i>Honesty and coaching</i></li> <li>• <i>Engagement</i></li> </ul>	<p><b>Impulsivity</b></p> <ul style="list-style-type: none"> <li>• <i>Effective planning</i></li> <li>• <i>SLAM; take 5 process to slow them down</i></li> <li>• <i>Coaching</i></li> <li>• <i>Stop and smell the roses</i></li> <li>• <i>Slow down</i></li> </ul>
<p><b>Invulnerability</b></p> <ul style="list-style-type: none"> <li>• <i>Improved hazard awareness and experience</i></li> <li>• <i>Communicate incident to prove it can</i></li> <li>• <i>Education</i></li> <li>• <i>Honesty and coaching</i></li> </ul>	<p><b>Macho</b></p> <ul style="list-style-type: none"> <li>• <i>Use the energy for implementing the outputs</i></li> <li>• <i>Humble; ask for help</i></li> <li>• <i>Stop and get someone else to do it</i></li> <li>• <i>Honesty and coaching</i></li> </ul>

<ul style="list-style-type: none"> <li>• <i>Engagement</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>Engagement</i></li> </ul>
<p><b>External control</b></p> <ul style="list-style-type: none"> <li>• <i>Remove from business</i></li> <li>• <i>Coaching</i></li> <li>• <i>Internal Locus of Control</i></li> <li>• <i>Consultation; Engagement</i></li> </ul>	

## Zero Harm

Bessant (2008) shows how language is deeply political and integral to the shaping of the policy agenda. In doing so Bessant revealed how social problems are constructed. Do people for example believe in the metaphor “zero harm”, does it really matter, and does it work to demand accountability as zero harm means zero tolerance?

“Countering the reformation halfway through the 20th century, behaviour-based safety programs and practices focused on worker behaviour rather than hazards on the work place. Zero vision turns all this on its head. Managers are expected to manipulate a dependent variable- an oxymoron (Dekker, 2015, p. 239).”

47% of respondents (10/19) in my survey revealed that they do not believe that “zero harm” is achievable (Question 5).

- *We can never completely remove all risk and in fact operate at times knowing some risk exists*

This is at odds with corporate goals that aspire for zero harm. While Zero Target programmes may inspire increased commitment to safety for some, they may also cause detachment in others who feel it an unattainable goal for a high-risk industry (Sherratt, 2014).

## Social Divisions

78% of respondents (13/17) believe that managers distance themselves socially from subordinates (Question 17);

- *Sometimes the reasons may involve industrial matters ongoing at the operation. Some Managers simply do not see the association with subordinates in a social context as acceptable. Some Managers seem to want to perpetuate the air of mystery around themselves and use the distance as a way to maintain this.*
- *They are better able to operate as autocratic if they are distanced.*
- *This can be driven by both the manager and the subordinate due to peer pressure. A manager may do this to eliminate social feelings influence business decisions.*
- *It is hard to manage someone and be their friend that afternoon, at times I believe it the maturity of individuals that see if they are the drinking buddy of the manager than that gives them a free ride to do whatever they want.*
- *They become consumed by the importance of the role and lose contact with people.*
- *Some managers have not worked as mine workers and as such do not believe they need to have close contact with operators*
- *Don't want to be compromised when hard decisions are to be made.*

50% of respondents (8/16) agreed with a statement that free participation will not happen if there is a class separation (Question 54). 50% did not agree;

- *Barriers have to be dropped by both parties although the managers have the greater responsibility to develop a working relationship based on mutual trust and respect.*
- *Many countries around the world have examples where there are benchmark safety outcomes, where there exists a class difference. ie Chile, Germany, USA.*
- *There are some who still believe in the them and us situation*

56% of respondents (9/16) had seen a situation when class separation between managers and subordinates had undermined system safety (Question 55);

- *Throughout my career, significant years ago and significantly reduced as of now.*
- *More importantly I have seen systems where it was removed. One was called the Crinum Standard.*

64% of respondents (9/14) believed that Managers consider themselves elite, or more important than others (Question 72);

- *Some most certainly do. They are the ones who normally have poor management skills and also contribute negatively to other areas of a business*
- *Some do. People might form this view as some are followers and some are leaders.*

### **Compliance versus Commitment**

94% of respondents believed that risk management processes are undermined if workers feel that they have not been effectively engaged (Question 57);

- *Failure to include all stakeholders such as the most experienced and knowledgeable workers for the risk or exposure to the risk, like the Site Safety and Health Representatives.*
- *Failure to provide adequate expert knowledge.*
- *Failure to adequately communicate.*

### **Motivators and Stressors**

94% of respondents (15/16) believe that distributed decision making results in more resilient operations (Question 21);

- *Distributed decision making reduces the likelihood of an individual opinion shaping an outcome. Consultation supported by periodic independent audits further reduces risk.*
- *The aim of consultation is to make sure all available options, ideas, are tabled to achieve the best possible outcome. The manager role is to ensure effective consultation occurs while also having a good understanding of the issue at hand in order to ensure the right outcome is achieved.*
- *Only with appropriate delegating and skills.*
- *Different people have different views of the world. Listening to others expands your knowledge and decision making capacity.*

### **Representation**

65% of respondents (11/17) agree that it is important for employees to have representatives to act as a channel of communication with management on safety and health matters consultation (Question 36).

- *It is a mine workers responsibility to report up through their supervisor as required under legislation. We have an entrenched risk management culture which is totally removed from the way things were when Robben's was making his comments. Time we all moved on.*
- *In a direct relationship model there is no need for appointed representatives.*
- *Many employees are natural introverts who would not voice their opinion without the ability to do so through a peer.*
- *A good relationship with the SSHR will go a long way, some committees that I have been involved with fail due to multiple reasons and do not get results.*
- *Other industries and jurisdictions, with lower fatality rates don't have regulated employee safety representatives.*

71% of respondents (11/17) believed that elected safety and health representatives may, or are likely to abuse their powers, if they are a member of a union (Question 38).

- *I have seen ISHR's deliberately use their powers under the Act to abuse a position on safety taken by a company..... When the ISHR did not achieve the outcome he wanted he returned to the mine the following week and directed a suspension of mining activities due to a trivial matter.....*
- *It depends on the individual and relationship between the 'boss' and the workforce.*

100% of respondents (17/17) believe that prejudice, or bias, could undermine system safety (Question 40), and 35% stated that they themselves have biases or prejudices when it comes to consultation (Question 41);

- *Bias to ensure that industry experts are used for assessment of principle hazards. Do not have a cross section just for the sake of it. Must get it right.*
- *Where prior interactions with an individual indicate the person does not have the best safety outcome in mind.*
- *Must include genuine consultation with persons involved in the process / risk if a meaningful outcome is to be achieved.*
- *I like to make sure I can talk to people who are genuine*
- *I believe that more open communication creates more meaningful outcomes.*

100% of respondents (17/17) believe that bias and prejudice can be revealed in the ways that people communicate with each other (Question 42), a study of transcripts, a voice recorded, might reveal deeper analysis of how people interact and difficulties in relationships.

- *Embarrassment of being wrong. Bowing down to seniority. Avoiding conflict. Strength of personality.*

63% of respondents (10/16) were able to recall examples where someone had influenced them to change their mind about a safety matter (Question 43);

- *Recently after a discussion with a supervisor I handled the safety matter more urgently*
- *Using someone else's personal experience*
- *As an inspector I have asked people to demonstrate why something is safe. Sometimes this has been demonstrated and others it has been upheld.*
- *It happens all the time; I try to start without a preconceived solution and alter my thinking as the evidence accumulates.*

Respondents claim that effective communication between managers and subordinates is eroded by (Question 44);

- *pressure, lack of trust, not being told the full story; preconceptions about the motives of the other person*
- *Not including people in the process of management . All levels must have a clear understanding of their place and responsibilities in the business barriers*
- *Not honouring commitments, one way communications, abuse of power, inability to make a decision,*
- *Personality differences; Attitudes of individuals ; Arrogance*
- *Lack of respect to the process. We have plenty of examples of Bully boy tactics in our industry. If the work place has a culture of not doing what they say and pay lip service to HandS and the welfare of their workers the communications are likely to become antagonistic.*
- *Competition, Ignorance, Incompetence.*

63% of respondents (10/16) believe that contradictory information presented to manager can undermine his ego, status, authority etc, and this in turn can, undermine consultation (Question 45).

- *A manager should have a strong discipline in this area and be consistent with the way things are managed and procedures applied*
- *Contradictory information reduces ability to make an informed decision and consequently reduces self confidence.*
- *A good manager has an open mind and needs to consider all information available at the time as well as know what additional information he needs to seek to make the correct decision.*

The survey revealed that some motivations behind managerial behaviours which can undermine consultation include (Question 47);

- *Master/ slave approach. Lack of respect. Some Managers ego, Arrogance.*
- *Thinking you are better than others; not respecting the workforce; not realising that the guys at the face pay the bills and provide the coal to be sold ;My way or the highway.*
- *Personal agendas; Divided objectives*
- *Distrust*
- *Getting it right*
- *Observed that where a manager believes that the work force will use safety issues to pursue an industrial agenda the manager is reluctant to consult.*
- *There needn't be. Self-confidence prevents them taking over.*

82% of respondents (14/17) believe that a person is more likely to be persuaded by another person's opinion if they have had a past and positive relationship with them (Question 29);

- *I trust people I respect. I listen to people I don't know. I ignore people I don't respect..... not promoting this as a model just disclosing my style.*

## **Outrage**

Informants chose the following outrage factors (Sandman, 1999) that influenced their decision making during consultation (Question 67- the higher the rating, the higher the influence); Acknowledge prior misbehaviour (2.00), Stake out the middle (1.92), Acknowledge current

problems (1.15), Share control and accountability (1.23), Pay prior attention to unvoiced concerns and underlying motives (1.31).

Respondents were presented with the proposition that “It was stated that in a democracy people choose a leader in whom they trust. Later people can sit in judgement. If the leader makes a mistake- to the gallows with him! (Question 71). 86% of respondents understood why people might form this view. Comments included;

- *But I don't agree with it.*
- *They would rather have someone else to blame instead of taking their own responsibilities seriously.*
- *Hindsight is a wonderful thing to have.*
- *The leader is chosen based on stated intentions and entrusted based on their skill and knowledge. If stated intentions do not eventuate and skills and knowledge are found wanting, then look out.*
- *The leader is expected to make the right choices.*

### **What do Managers think about Accountability?**

Although 58% of respondents believe that someone should be held to account for an OH&S disaster, 37% of respondents clarified their answer with a causal dependency (Question 3);

- *Only where a clear case can be proven that Proper Diligence (where predominant practice within the industry is documented and accepted) has not been exercised of where there is a clear case of Gross Negligence.*
- *Yes, if they have been found guilty of their responsibilities*
- *Logic for attributing culpability must be applied having regard for intent, knowledge and experience.*
- *Depends on what the root cause was. If attributable to human factors, then yes.*
- *In general terms most OH&S disasters are a multiple failure mechanism, however where there are clear failures in terms of the legislation then accountability should fall with that person*

This majority response is consistent with 89% of respondents (17/19) believing that the community expects investigators to find someone accountable for a disaster (Question 4);

- *Unfortunately society opinions are not necessarily justly based. High level accountability usually results from precedence, law often influenced by society opinions.*
- *This is not only a community expectation but more importantly an expectation of the Families whose loved ones were victims of the disaster. When people accept positions that have Responsibility they should also be Accountable for their actions -Where these actions are, after applying the Legal Obligations relating to the responsibility can be proven beyond reasonable doubt.to be caused by the failure of a person or persons that has been found to have been guilty of " Failing to Respond Responsibly".*
- *We have been appointed to positions of responsibility, these responsibilities are for the production of coal and for the health and safety of the mine workers, if a mining disaster occurs and mine workers are directly impacted then we have not discharged our obligations.*
- *It all depends on the circumstances of the disaster and what was the cause*

94% of respondents (16/17) believe that it is very important for a Manager to consider others' point of view, if they are to gain the trust and respect of the workforce (Question 28);

- *You cannot be a leader without considering the viewpoints of the followers.*

## Strategies to Improve Consultation

Wright and Goodwin (2002) proposed strategies for eliminating framing bias; their studies suggest that decision makers need gain experience and that bias is not present in the decisions of experienced respondents. My informants offered the following strategies that they apply to OHandS consultation (Question 46);

- *The way we operate is defined in our SHMS and operational standards. All are developed using risk management practices. Management have the tools to manage, don't have to go anywhere else to find out how things are to be done*
- *Get people to explain why they think like that*
- *Facts; Use of facts to demonstrate*
- *Ask the question "what could possibly go wrong?" Drive standards. Encourage input from everyone. Involve SSHRs and workers directly affected.*
- *Fear of prosecution and linking safety to financial and efficiency benefits*

The self-regulation of attitudes, intentions, and behavior is discussed by Bogozzi, (1992); there are jury system parallels here; a manager is required to make a decision on behalf of community (Winter and Greene, 2007; Saks and Kidd, 1981; Saks, 1976). When asked what it would take to improve consultation between managers and the Inspectorate (Question 33), informants reported;

- *Some inspectors feel they need to have a pissing contest with mine management. Quassey legislation is also becoming more apparent in the industry with the excuse that another mines practice suddenly becomes best practice and therefore should be the standard at all mines irrespective of the differences between mines*
- *Inspectorate assist the mines a little more instead of being police*
- *Development of mutual trust and respect. Do what we say. Maintain regular dialogue. Involve as a stakeholder.*
- *The style of engagement makes a world of difference.*

When asked what it would take to improve consultation between Managers and Industry Safety and Health Representatives (Question 34);

- *Clear demarcation between industrial and safety issues on the behalf of both parties. Both have been guilty of blurring these lines in the past.*
- *Some managers need to understand that the ISHR's are there to help not to impact again be honest and have a good relationship with the inspectorate*
- *Recognition of the role of the rep - which is not an alternate inspectorate but a conduit to on-the-ground intelligence that must be considered. They can usually identify the problem or the symptom. They should not expect or be expected to manage the solution.*

The following responses were given when asked what it would take to improve consultation between Managers and Site Safety and Health Representatives (Question 35);

- *Intelligence and a realisation that consultation with the SSHR is a positive management tool.*
- *Respect for each others positions and a correct reporting culture e.g. in to many mines miners report hazards to the SSHR or ISHR YET under legislation they are to report hazards to their supervisor if they are not competent to mitigate the risk. This rarely happens in union orientated SSHR. In affect they break the law every time they accept a report from a miner*

- *Inclusion in the process of ensuring safety. Time and space to carry out his tasks*

Kakabadse, Lee-Davies and Kakabadse (2009) stated that where leaders have power, they also have choice (p. 111);

“Although many have tried to develop ‘a code of established choices’ to limit executives’ corporate discretion, with a prescriptive outline (code of conduct) for how agency must abide, it has been unsuccessful as the nature of the agency itself — moral agency — is an autonomous, self-examining basis for exercising discretion for corporate managerial decision-making”.

## DISCUSSION

An aim of this research was to learn of managers views towards consultation and team homogeneity (versus heterogeneity); of impacts to system safety: and if consultation is capable of appeasing social outrage through “solidarity”, compassion and understanding when things don’t go to plan. Most of those surveyed revealed a view that consultation is an effective strategy in lowering risk in the workplace, and that a manager did not have a bona fide right of claim if things did not go to plan- when consultation had been perceived as ineffective. The research intended to add to the pool of research associated with naturalistic and rationale choices; in no way did it seek to be a rush to formalization, as this often undermines important aspects from key player’s mental representations (Seick and Klein, 2007, p. 203). We also did not seek to infer a connection breakdown between some normally well-functioning organizational systems leading to unanticipated suboptimal outcomes Vaughan (1999).

The research assists in understanding self-regulatory strategies (proposed by Managers themselves) aimed at improving the effectiveness of consultation (Jensen and Benel, 1997; Jensen, 1982; Kochan, Jensen and Chubb (1997). It is noted that the objective of reaching “common ground” or improving choreography of joint activity supports Taylorism; where it is said that a worker should not be left to his unaided devices; a manager for example should not be allowed to work by heuristics (“rule of thumb”), habit, or common sense; such human judgement cannot be trusted, because it is plagued by laziness , ambiguity, and unnecessary complexity; consultation would appear to have a role to play, here.

Rasmussen and Lundell (2012) argued that researchers should hesitate to reinforce the notion of homogenous groups, and instead promote the value in demonstrating collective social construction processes and commonalities that facilitate inter-group solidarity. For example, consolation is very much a social process, and there is value in assisting social groups to consult when negotiating risk. Such positioning’s and employee criticisms are part of a democratic working life in which various interests are mobilized, and they certainly give a sense of group identity. My survey revealed that 37% of respondents are aware that their decisions do not always turn out to be right (Question 6). There is a parallel here; Theodore Roosevelt<sup>41</sup> confessed that would be humble if he could be right 75% of the time, this meant that he expected to be wrong 25% of the time. This is why consultation is important to system safety; the answer may reside in others.

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<sup>41</sup> 26th President of the United States

The research also revealed that 71% of managers (10/14) believed that their participation in risk assessment processes improved decision making; yet paradoxically only 50% of managers (7/14) had actively participated in a risk assessment in the previous 12 months (Questions 73 and 74). There is a potential application of *forward looking accountability* here (a leading indicator in system safety). Forward looking accountability also holds the promise of assisting in ameliorating societal anxieties after the fact (Tomlinson, Craig, Meehan, 2011; Rajendran, 2013).

An opportunity exists to further engage managers in responding to early-warning-signals of disaster, as they walk the tight rope of leadership accountability (Showry and Manasa, 2014). If managers are unable to consult, they can expect their messengers to mobilise others<sup>42</sup>; those who also have an obligation to listen, and to act on the safety case. During one of the four preliminary interviews for example, a General Manager reflected on an event when an Industry Safety and Health Reprehensive (ISHR) ordered the suspension of operations due to a “dangerous situation”; while some managers did not agree with the ruling, the General Manager did not pass judgement; he stated instead “at least people stood-up and listened”, and “we all listen now”.

Mining legislation therefore pro-actively provides the opportunity of “others” to order the suspension of operations, if managers do not act on feedback or upwards-listening<sup>43</sup>: the prospect of operations being suspended by others, due to inadequate consultation, potentially holds greater leverage than pattern-of-violation fines, or threat of prosecution<sup>43</sup>.

Decision making of leaders, leadership preference, and organisational context is relevant to system safety: Pfeffer (1977) for example observed how hard it was to change behaviour, suggesting that changing the situational characteristics rather than the person is more probable. Bias need not be pervasive to system safety therefore; managers are capable of self-regulating their hazardous thoughts if the situation is enabling; for example by corporate values reinforced.

## CONCLUSION

Most of the managers surveyed believed that consultation lowers risk in the work place: yet only 50% of managers had actively engaged in formal consultation processes such as risk assessment in the previous 12 months. Most managers surveyed are also aware of own-biases that need to be controlled: to ensure that consultation is not undermined, and that outrage is ameliorated if things do not go to plan. Own-bias includes feelings of elitism, and social stratification. Such biases have been reported to exist in jurors (Kaplan and Miller, 1978).

There is an opportunity to understand further how bias, unchecked, has the potential to undermine system safety, and of how training, employment selection, and performance appraisal systems might be used to support the promise of effective leadership.

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<sup>43</sup> The matters of prosecution as a deterrent was covered in this research enquiry. Feedback from my informants was that the threat of prosecution may not be a significant factor.

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