

Driver training: applying lessons from elite performance environments

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One truism about safety programs and driver training is that success of initiatives will always be vulnerable to the physical and mental state of the driver at any given time. Regardless of the level of training, experience and awareness, any individual may experience impaired driving skills as a consequence of a broad range of physical and mental factors that influence skill execution.

Research evidence clearly indicates that driver distraction, fatigue, speed, alcohol, drugs and poor driving attitudes have been, and will continue to be, a problem on public roads and in the mining environment (Qld Transport, 2007; MIHSC, 2007). As a result, the mining industry must consider the effectiveness of safety and driver training programs for employees and contractors, not only for mine site access and haul roads but also public road use, because of the potential for an incident or accident to occur in either of these environments. Regardless of the legal requirements that may or may not exist, the death or injury of any worker has a significant impact on members of the organisation who were friends or worked with the individual involved, or who had to be involved in the rescue or investigation of the incident in any way. So although the actual vehicle operation and rules may be somewhat different between public and haul roads, the fundamental driving skills and human factors required to maintain a high performance standard are the same for both conditions, and the potential outcomes for those involved will be significant regardless of the circumstances.

If one was to consider the Queensland mining industry as an example, the driver related issues that are of paramount importance at this time are the large influx of inexperienced operators, employment of young workers who have limited overall driving experience, and the increasing number of workers who are travelling longer distances between worksites and homes. In a recent review of 2007 Queensland road fatalities, Queensland Transport (2008) indicated that 95 fatalities (26.4%) were as a result of speeding drivers or riders and 65 fatalities (18.1%) were involved in fatigue related crashes. The statistics also indicated that there was a significant increase in the number of fatalities within the Central and South East Police regions, and although there was a significant reduction in the North Police region, it still accounted for 21.7% of the overall Queensland road toll. Whilst these statistics do not provide any direct data relating to commuting mine workers, the overall patterns are of some significance given the number of mining employees and contractors who are travelling on Queensland country roads at any given time.

Also of note is the evidence provided by various road safety and insurance bodies which clearly indicates the high potential risk that a worker is likely to be involved in a driving accident at some stage, and the overwhelming evidence of driver error or poor judgement as the cause. The 2007 AAMI Crash Index indicated that most Australians (79%) have experienced a crash while driving a vehicle or occupying it as a passenger. The survey identified driver inattention to the road as the most common contributor to a crash (48%), followed by speeding (20%), fatigue (13%) and alcohol (9%). Most Australians admitted to exceeding the speed limit (85%), with almost one in 10 (8%) drivers admitting to speeding "most of the time". A further 26% admitted to having momentarily fallen asleep at the wheel. The majority of Australians (91%) think drivers are becoming more aggressive, and one quarter of Australian drivers (24%) have been identified as being "reckless and aggressive".

Similarly, an RAC (WA) investigation of common driver mistakes included holding a mobile phone while in control of a vehicle, failure to leave enough distance between cars travelling on the road; cutting in between cars travelling at the correct distance apart; speeding, particularly through school zones and in rural areas; not planning ahead and stopping or turning suddenly; being impatient in merging traffic and incorrect use of indicators in roundabouts (Watts, 2008). The New South Wales experiences are no different, with the NSW RTA 2007 report regarding roads and traffic crash statistics indicating that the number one contributor to motor vehicle crashes was distractions outside the vehicle, followed by swerving to avoid an animal, distraction inside the vehicle, sudden illness, tyres, brakes, insecure load, wheels/axle/suspension, steering or towing problems.

If attention is turned to driver or operator performance in the mining industry, the statistics paint a similar picture. A Minerals Industry Safety and Health Centre survey, The Mobile Equipment Incident Causation Survey 2005-6 indicated that each incident viewed had evidence of human error. It was found that the most prevalent cause of unsafe acts was associated with 'lost attention' that was characterised as either the wrong or absent action. Statistics relating to competent people deficiencies illustrated that shortfalls in operator competence included:

- fatigue due to lack of rest (25.5%);
- inadequate advanced knowledge transfer and embedding (6.3%);
- Inadequate opportunity to maintain skills (4.8%);
- emotional disturbance (2.8%);
- lack of reasoning skills (1.9%);
- conflicting directions / demands (1.7%);
- excessive frustration (0.4%); and
- height, weight, size, strength, reach issues (0.5%).

There is no doubt that these statistics are neither shocking nor particularly groundbreaking as far as information goes. There would be very few individuals or organisations that are not well aware that flaws in human performance are generally behind driving/operating accidents and incidents. It is mostly because of this continuing threat that there has been a significant increase in the development of various strategies to reduce the potential for incidences and accidents, including safety initiatives, technologies that measure driver performance, fatigue and vehicle performance/handling, and technologies that assist the learning process such as simulators. Along with the safety aspect of driving performance, there has also been an increase in education, systems and technology to improve productivity, and the handling of mobile equipment to minimise wear and tear on machinery and tyres. But is this going far enough?

When one considers the complexity of driving and the importance it plays in everyday operations and lifestyles, how much attention has really been directed to looking at ways of tackling the human characteristics that underpin the driving performance flaws that lead to risks, reduced productivity or unnecessary wear and tear on equipment? How many of the following do current driver training programs acknowledge and address effectively?

The impact of a person's **EGO** on their driving habits:

- We all have an ego and it is 'not a dirty word' – a healthy ego is necessary to achieve and most people want to believe they are a good driver/operator.
- People generally have a belief in our own competency and ability, whether it is realistic or not.
- Many people like to prove themselves to others, sometimes disregarding safety to do so.
- Some people have a high need for attention (eg: hooning, showing off).
- Some people have a strong desire to win or outdo others in a task.
- Some people get a sense of 'bravado' or power when driving.
- Some people are self-absorbed resulting in a disregard for the safety and rights of others.
- Some people have a strong disrespect for authority and rules.
- Some people believe they are better performers than the rules allow or the driving conditions indicate.

The impact of a person's **EMOTIONS** when they are driving:

- Experiencing negative emotions such as anger, frustration or boredom.
- Experiencing positive emotions such as excitement or nervous anticipation.

- Feeling stressed, rushed or pressured.
- Feeling nervous about the driving task itself.
- Negative emotions such as anger or depression can lower the priority placed on prevention of physical harm to self and/or others.
- Some people need to experience sensations associated with risk (adrenaline symptoms).
- Some people have high emotional impulsivity which makes them act on impulses (eg: speeding, drinking/driving).
- Very few people know how to consciously manipulate their emotions to improve performance and reduce risk.

The impact of a person's **MENTAL** and **PERFORMANCE SKILLS** when they are driving:

- Insufficient technical expertise in the skill.
- Experience in similar skills which causes skill application 'confusion' (eg: car to haul truck).
- Poor quality of initial training.
- Inefficient learning style.
- Poor memory skills.
- Impaired intellectual capacity.
- Inappropriate learned behaviours through exposure to others doing the same skill (picking up bad habits; someone re-training or telling a person to ignore a rule/procedure; shortcuts).
- Low innate concentration ability and/or high distractibility.
- Poor decision-making and problem-solving ability.
- Slow speed of information processing (how information is used in the brain).
- Mismatch between individual mental abilities and task demands.
- Mismatch between individual learning style and coach instruction style.
- Mismatch between individual attention control style and the task demands.
- Arousal levels that are too high or too low (stress, anxiety, excitement, nerves, boredom).
- Slow reaction time and/or poor co-ordination.
- Impaired perceptual abilities (eg: judging distances or speed).
- Psychological effects associated with alcohol/hangovers, illicit and legal drugs/prescriptions.
- Dysfunctional or poor mood state (eg: depression, suicidal).
- Significant mental health disorders (eg: schizophrenia; bipolar disorder; anxiety disorder).

The impact of a person's **PHYSICAL** state when driving:

- Poor fitness levels.
- Poor balance/proprioception.
- Poor visual mechanics (eg: peripheral vision, acuity).
- Insufficient or poor quality sleep resulting in fatigue/microsleeps.
- Presence of sleep disordered breathing.
- Poor nutritional intake (daily and long term) and/or insufficient hydration levels.
- Illnesses (eg: colds/flu).
- Disease states (eg: untreated/poorly managed diabetes).
- Acute health event (eg: heart attack) or chronic health issues (eg: migraines, smoking).

- Physiological effects associated with alcohol/hangovers, illicit and legal drugs/prescription.

The impact of **ATTITUDE**, **BELIEFS** and **EXPERIENCE** relating to driving:

- Over time people habituate to the same message. We get used to it so the brain filters out the message because it is no longer a novel or new concept (eg: tick and flick safety paperwork; ignoring safety signs, 'tune out' in toolbox talks; don't read safety bulletins).
- A person can believe that they already 'know it all' and it doesn't apply to them.
- Safety initiatives such as videotaping or fatigue monitoring can be viewed as a tool to '*catch me out when I do something wrong*' rather than a safety or training initiative.
- Safety campaigns that are based on emotion (eg: fear of death) or ego (eg: sexual inadequacy – *no-one thinks big of you*) may evoke a defensive ego response that is the reverse of what is intended (eg: it won't happen to me because I'm a good driver; new advertisement for a leading television show that takes-off the *no-one thinks big of you* ad).
- Not everyone agrees that driving rules are necessary (eg: speed limits).
- Not everyone will have the same beliefs, particularly when it comes to what constitutes safe or competent driving behaviour.
- Previous experiences do not necessarily translate into attitude, belief or behaviour change.
- The 'blame someone else' defence (eg: *speed cameras are just about government fundraising* – even though speeding is a voluntary act committed by the individual).
- The rules only count when it suits me (eg: a person who speeds, but then is devastated and angry if another speeding driver causes an injury or fatality to someone they know).

Considering these lists of individual characteristics, how many are currently addressed directly in your organisation's driver training? How many trainers/assessors and supervisors have been provided with the knowledge and skills to assist learners with overcoming any number of these potential contributors to poor driving performance, impaired learning or driver error? How many workers have had no driver training for public roads other than their original learner driver training? If we are still seeing the same driver error patterns repeated despite the already high level of safety and training initiatives, how does the mining industry do anything innovative that might be able to change the driving behaviours of workers, not only on-site, but at any time they are driving a vehicle?

If we turn to high performance environments for inspiration, organisation's can find innovative ways to continue to improve safety and training for anyone who operates mobile equipment or drives a motor vehicle, whilst still using existing knowledge, systems and technologies. Elite sport is a fundamental part of the Australian psyche, and as a consequence it provides us with an interesting avenue to re-ignite interest and re-engage the workforce in driver performance enhancement initiatives.

Our sporting exploits, teams and athletes provide entertainment, pride, inspiration and motivation. As a result of this love affair with sport Australia has developed one of the most effective methods in the world for identifying, nurturing and maintaining high performers. We are, per head of population, one of the most successful sporting nations in the widest array of sports. The Australian taxpayer has contributed many millions of dollars into research and training facilities to achieve this goal, including the development of groundbreaking knowledge, systems, technology and programming expertise that make it possible to help these individuals achieve high performance status (www.ausport.gov.au).

It is this very investment that all industries in Australia should be taking advantage of in order to improve the performance, safety and well-being of their employees and contractors. Whilst many organisations already look to elite sport for inspiration regarding leadership, the lessons that have been learned, trialled and refined at an elite level as to how people acquire and maintain skills, what human factors influence performance of skill based tasks, and what physical and mental skills can maximise performance potential and minimise risk, are all valuable insights that have yet to be fully taken advantage of.

These lesson are not only relevant to the practice of driving skills in any environment, but are of particular interest when considering the demanding environment in which the mining industry now finds itself. The competition for experienced operators, the need to train up larger volumes of

inexperienced operators, the long work hours, increased production demands and the ever present threat of fatigue and other fitness for work issues on driver performance, all points to a need to consider the place of high performance programming in driver training.

Lessons from elite sport successes

“The race for excellence has no finish line”

Excellence: The Australian Institute of Sport (Eggins 2002)

- The pursuit of excellence in individual and team performance is considered the primary goal. Individuals and teams are process focused, and the outcomes and rewards come as a result of that effort and focus.
- Every athlete is considered fundamental to the success of the team or institute of sport (just as every employee and contractor is required for the success of an organisation).
- The most effective elite teams and institutes are positively focused - what we want to achieve rather than what we need to avoid.
- Athletes and coaches embrace and train the ego as a means to develop motivation for wanting to do certain behaviours and avoid others, because the ego is one of the strongest predictor of actual behaviours.
- The goal is to help an individual achieve their full potential at a particular skill by providing the right motivation, knowledge, learning environment, coaching, support staff, technology and other resources required.
- Programs involve a joint effort by combining information and support from different disciplines (eg: coach, manager, skill expert, physical trainer, exercise physiologist, sport psychologist, dietitian, medical practitioner, biomechanist and physiotherapist). No-one can know everything about everything – it takes a team effort. Every physical and mental aspect is considered, and strategies are developed to enhance individual performance, even in team based sports.

Brisbane Broncos recently highlighted the benefits of teaching a breathing retraining program to assist with performance and health, with remedial therapist Paul Nash introducing a program with slowed, regulated breathing as a cornerstone of the program. Player Sam Thaiday said the breathing exercises “..have helped me out a lot because I feel like I have way more energy out on the field....they have also helped me sleep a lot better too, so I couldn't be happier with the results. I do the exercise before I get to the game, in the sheds before the game and even when I'm driving to training. They're pretty simple to do and it's all about controlling your breathing” (Davis, Sunday Mail QLD, 2008).

- Coaches make extensive use of real-time technology and science to identify individual strengths and weaknesses, including video feedback and statistical information from equipment sensors, physiological sensors, motion detectors, health/fitness and psychological monitoring tools.

“The (Australian Institute of Sport) Applied Sensors Unit designs and develops advanced sport-specific software for coaches and scientists typically utilising sensor and video technology. The Unit gives the AIS the capability of gaining competitive advantage” (www.ausport.gov.au/ais,2008).

- Real-time feedback that combines technology and coaching input is used to enhance learning of new skills, and performance enhancement of even the most experienced and successful athletes and teams.

“..a huge plasma screen television was hauled into the practice net next to Ponting as he was video-taped facing deliveries from a bowling machine. The video-footage was fed through the plasma screen on a five second delay, enabling Ponting to play a stroke and then watch it replayed immediately on TV. Ponting said that it was possibly the most valuable net session of his career. ‘It's the first time I've used that. It is the best little coaching session you can have...To have it explained to you is one thing, to see it for yourself and identify yourself what you are doing during a shot is fantastic” (Dorries, Courier Mail QLD, 2008).

- Engaging the individual in the process is integral to success so that they are self-responsible and in turn more personally rewarded when they achieve the desired success or outcomes. Providing the right information to the performer helps them to help themselves (Burden, 2007).
- Performance analysis is improvement focused. The common theme amongst coaches, athletes and management is *What else can we be doing that we're not already doing yet? How can we get another 1% improvement that our competitors aren't getting?*
- The athlete focuses on improving all facets of their ability to perform the task at the highest level including technical, physical and mental attributes. They value and take pride in accuracy in their own technical, physical and mental skills, and the ability to achieve mastery within the 'rules of the game'.
- There is an open and positive engagement in the analysis of errors and weaknesses. Coaches and athletes work collaboratively to learn from mistakes and then trial new strategies. The use of error and experimentation as a means of finding ways to break new ground.
- If errors are repeated or common for a particular sport or performance scenario, then in-depth and multi-disciplinary feedback is sought regarding other potential strategies that may eliminate the error or risk.
- There is an awareness and preparation for worse case scenarios, but there is a daily focus on what needs to be achieved rather than what has to be avoided, even in potentially dangerous sports. A high performance focus results in more accurate skill execution which inherently reduces risks and increases safety, health and well-being.
- There is an expectation that an individual will be responsible for their own physical and mental preparation and maintenance - they turn up ready to perform.

Lessons from high performance training programs

- A high performance training program differs from typical industry based training programmes in that it is not only focused on teaching particular skills and techniques, but also constantly revisits core skills to ensure consistency, efficiency and continuing efficacy of those learned skills.
- The high performance training philosophy is focused on ensuring physical and mental capabilities and skills always match the required task.
- Coaches are required to progress through three stages of a National Coach Accreditation scheme that gradually increases their knowledge, not only in the technical skills associated with their chosen sport, but also leadership and the physical and mental factors that influence performance.
- Coaches are able to design and implement performance enhancing programs that suit their team/organisation needs because of this more extensive knowledge in human performance factors, and their ability to apply it to specific competitive needs, risks, equipment, environmental, individual or situational factors.
- A high performance training program would typically include knowledge, measurement, analysis and programming for the following aspects of performance:
 - Physiology of performance (eg: energy systems, cardiovascular, brain waves).
 - Functional requirements of the task and individual anatomy.
 - Biomechanics of human movement.
 - Medical considerations.
 - Nutrition (eg: daily intake, weight management, ideal performance weight).
 - Speed, strength, power and flexibility.
 - Performance psychology (eg: concentration training, arousal/emotional control).
 - Acquisition and maintenance of skills (how people learn; applying coaching skills).
 - Principles of training (how to maximise physical and mental training outcomes).

- Methods for measuring performance and individual physical/mental reactions.
- Risk identification and management.
- Planning and organisation systems.

Applying high performance to driver training – a mining example

The following information is a proposed model for delivery of a high performance driver training program, based upon the expertise and elite performance experiences of those involved with Confidence Australia and Vigil Systems. The emphasis is on teaching trainer/assessors and supervisors to become coaches in the same way that elite sport develops and mentors its high performance coaches, and to use real-time technology to provide feedback and enhanced learning. Through this process mining organisations will be able to maximise existing training programs, whilst at the same time creating a motivating, engaging and satisfying training environment for all drivers.

Step 1: Know what you are getting in to

The key program initiators and designers need to experience a high performance program themselves, even if it is only for a short period of time, in order to understand and grasp the concepts and potential benefits. This should involve access to experienced practitioners, technology and programmes that can teach elite sport principles in the context of driver performance. It is also imperative that leadership of an organisation embrace and support the initiative, including clear evidence that they are 'practising what they preach'.

Step 2: Trainer/assessors become coaches

Trainers/assessors and supervisors should participate in a high performance coaching program. It is proposed that a system similar to the one used in sport be applied to the mining industry, with those tasked with teaching others driving skills gaining additional qualifications in high performance coaching. These skills are not the same as those currently taught as part of trainer/assessor or leadership accreditation, and therefore provide an additional layer of knowledge, skills and experience onto the existing accreditation process. It is also recommended that organisation's seek such training from practitioners with experience in designing and delivering high performance coaching/programs. The coaching program needs to cover all the aspects described in the early lists of factors that can influence driver performance in order to provide participants with the knowledge required to act on the many potential issues that they could face in trying to teach or enhance driver skills and safety.

Step 3: Identify the organisation goals and objectives

It is essential to know exactly how the organisation will measure the success of a high performance training program. Mining industry goals and objectives should not just focus on LTI's, reduction in incidences/damage, production targets or other common key performance indicators, but should also include measurable goals associated with personal individual/team bests that are associated with improved skills or other physical or mental performance parameters. High performance specialists can work with the coaches to help an organisation to identify these parameters.

Step 4: Identify the target candidates for the driving program.

Which employees or contractors should be involved as part of the training program? Every member of an organisation who is required to perform any type of physical and/or mental task can benefit from high performance training, however if an organisation wishes to implement a driver based program, here are some potential categories to consider when thinking about suitable workers:

- operators of heavy mobile equipment and light vehicles on-site;
- operators of heavy mobile equipment off-site and on public roads;
- bus drivers who transport passengers/crews to and from work sites;
- anyone who has to drive a light vehicle on a public road in between a camp and a workplace; home and a camp/workplace; between workplace sites;
- erratic schedules where driving is required (eg: fly in, hire car, day site visit, fly out);

- anyone operating a vehicle in a remote or undeveloped area (eg: geologists); and
- any employee who is interested in improving their driving performance.

Step 5: Design the Program content

The Program content should be designed around the principle that training is not just about learning how to do a skill, but also how to constantly seek to reinforce, improve and innovate existing skills. The content must include a range of education initiatives, practical training, on-going experience, and real-time objective performance feedback and assessment of skills so that an individual has both the knowledge and opportunity to achieve the outcomes desired. To this end the following aspects should be considered.

- Skill acquisition: maximising the accuracy and speed of the learning phase, including matching learning styles with coaching techniques.
- Skill maintenance: reviewing and assessing core skills regularly, and refreshing skills that are commonly affected by performance issues (eg: lapses in concentration, stress, boredom), bad habits, indifference, inappropriate attitudes or changes in site/operating needs. Even core skills need to be revisited, evaluated and refreshed on a regular basis.
- Rules and procedures: knowledge and recall of rules and procedures should be incorporated into the training program as skills in themselves. Memory retention, recall and application of the information cannot be assumed to be learned and able to be used at any time. These skills must be trained and continuously practised and refreshed.
- Physical parameters: the physical capabilities of the driver need to match the required task, and this would include issues such as daily dietary intake, hydration levels, weight, health status, aerobic fitness, anaerobic fitness, strength, flexibility and biomechanics of movement.
- Mental parameters: the mental capabilities of the driver also need to match the required task, and this would include memory retention and recall, concentration control, visual skills, perceptual skills, arousal control, emotional control, kinesthetic awareness, proprioception, thought control, motivation, learning style, coachability and mood states.
- Outcome parameters: clear guidelines for participants about the anticipated outcomes of each phase of the program, which should include the expectations regarding competency and mastery levels of skill acquisition and maintenance, as well as personally identifiable program expectations that allow an individual to gain 'personal bests'.

Step 6: Identify the measurement and feedback strategies

Once the program content has been designed it will be necessary to document how performance will be measured to encourage learning, and to document and reward progress and achievement.

Pre-training screening

Baseline measurements of all the factors considered in the design of the program need to be taken into account in order for the coach and driver to have some data upon which to make judgements about strengths and weaknesses. The initial screening is quite comprehensive to ensure all aspects of performance are covered. After initial assessment only a small number of technical, physical and/or mental parameters may need to be reassessed based upon the initial findings, the number of potential weaknesses or risks, and the data that is acquired through measurement of the actual driving performance.

The information gained from the pre-training screening becomes the driver's personal profile, and they can then use this information to take personal responsibility for enhancing their own performance outcomes. This information may also be helpful to improve performance in other areas such as relationships, sport, personal hobbies, and teaching their own children to drive more competently and safely. Many of the skills that are covered in the learning and application of a complex skill, and the relationship and communication required between a coach and team member, are all skills that have a broad range of application in other areas of work and non-work performance and lifestyle.

During the driving session

As clearly established in elite sport environments, one of the most effective methods to improve performance is to collect data during the actual execution of the task, in the environment and under the conditions that a performer would be expected to do the task. From a driving perspective, this type of information may include data collected from the following:

- video footage of the driver whilst they are driving;
- audio of conversations, use of radios, or self-talk that occurs during the task;
- video footage of the vehicle's performance in relation to the environment;
- sensors to measure vehicle performance (eg: g-forces on cornering/braking/acceleration);
- GPS to monitor vehicle speed and direction;
- on-board vehicle monitoring systems associated with the specific vehicle (eg: haul truck);
- heart rate and blood pressure monitors;
- measurement of brain waves and body temperature;
- eye movement tracking;
- laptop to record audio and written data from an experienced driver trainer/assessor; and
- a computer based software that integrates the video, sensor and trainer measurements.

This degree of information collection provides a much more comprehensive and realistic snapshot of what a driver is actually doing and experiencing during the driving task. Software that allows this information to be integrated and then provided back to the driver as soon as possible after the task, in collaboration with the coach input, will provide the most effective engagement, learning and performance outcomes (Davids, Button & Bennett, 2008; Pyke, 2001; Williams 2006). Similarly, the availability of information relating to what is occurring within the body (biofeedback) provides important information about common physiological issues that have a direct impact on performance outcomes, in particular stress and fatigue. Biofeedback has proven to be an important support for influencing perceptions about performance and what causes errors, motor control learning and performance enhancement, and most importantly it can help an individual to identify issues that they were not aware of previously (Acevedo & Ekkekakis, 2006; Morris, Terry & Gordon, 2007).

In relation to driver training, there is growing evidence of the long term benefits of repeated exposure to feedback sessions, with organisations experiencing improvements in safety, reductions in insurance premiums and higher levels of driver awareness and input (Vigil Systems, 2008). The other advantage of this real-time data collection is that driver performance can be reviewed and compared in all types of conditions, including inclement weather, night and day shifts, different times of a rotation or shift, or in pressure situations. The data can be accumulated over time, stored and compared over many instances to see how performance is tracking, and as an overall gauge of the effectiveness of the driver training program at an individual and organisational level.

Step 7: Integrate the program into existing systems

It is important that the driver training program be integrated effectively into existing organisational, programming, scheduling and technological systems. In order to follow the high performance model effectively, the training program needs to be considered as an integral and permanent part of the organisation's key performance indicators for those identified as the target group for driver performance. The concept of revisiting and enhancing skills, even once they are well learned, should be considered during this integration phase.

Of final importance in the integration stage is the consideration of the collation and storage methods of data, legal issues, privacy of the data, and how the information is to be used. As this data would include a large volume of information that is pertinent to a worker's employment as well as their personal situation, it is imperative that the data is used only as a coaching and performance motivator to be used between the coach and individual driver, and not as a tool for punitive action in the event of driver error. As a consequence, an organisation must give consideration to how the system will be implemented whilst still maintaining the trust and willing participation of the workers involved. It has been shown in elite sport that where a trusting relationship exists between an athlete, coach and an organisation, detailed information can be collected in a non-adversarial way because all parties involved can see the value of maintaining trust to achieve a common and higher purpose goal.

Conclusion

The benefits that high performance sport experiences can bring to the improvement of driver training, performance and safety has yet to be fully appreciated and embraced by the mining industry. Whilst great strides continue to be made in the development of training and safety programs, there is still a vast area of coaching development, technological integration and skill enhancement that can tap into the potential of the broader workforce.

If we begin with the premise that most people care about being perceived as a 'good driver', and that the majority of mine operators take pride in being good at what they do, then it should not be too difficult to envisage driver training programs that create that same sense of achievement and pride that we value when our elite athletes perform at their best.

*Give people the knowledge, skills and motivation,
and then provide the resources and opportunity for them to rise to the challenge.*

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