

ATTITUDE IS EVERYTHING

Preamble

This paper explores through case study some of my past actions, lessons learnt, regulatory influence, in excess of thirty years' experience in emergency management as lead responder and crisis management professional and a workplace trainer & assessor across multiple disciplines. It has been the collective correlation of a lifetimes training and experience that granted me authority, credibility, acceptance and respect within the NSW rail industry to develop a process of risk based behavioural assessment which satisfies the requirements of the Rail Safety National Law 2012 and industry expectation. I have combined objective and subjective workplace assessment practises to deliver an assessment framework that not only validates the objective assessment aspects of qualifications and experience but also the attitude and behaviour of an individual towards safety and risk which, demonstrates a measurable outcome of fitness for work (mental & physical) for an identified roll within a specific discipline. The paper explores the development and deployment of the process over the past five years to the level of excellence now recognised by the rail industry.

When I think back on my life and some of the things I've done where attitude and behaviour could have very easily killed me, I often reflect on what might have been. Risk taking that often put myself and indeed others in seriously dangerous situations without giving an ounce of thought to consequence, my "Attitude and Behaviour" toward responsibility, really sucked. I was a young man, fit, six foot tall (*almost*) and bullet proof (*or so I thought*). So full of my own self-importance I couldn't see the forest for the trees. So what happened to turn me around? A passionate mentor and teacher and, several strategic direction changes in my career opening my eyes to consequence as a result of ones actions!

Glossary of Definitions

ASQA	Australian Skills Qualifications Authority
AQF	Australian Qualifications Framework
Cat 1 & 3	Category 1 and/or Category 3 Medical Examination in accordance with the National Health Standard for Rail Workers
ITSA	Independent Transport Safety Authority (now ONRSR)
LAW	Rail Safety National Law 2012
NRSA	New South Wales Rail Safety Act 2008
NSW	New South Wales
ONRSR	Office of National Rail Safety Regulator
RSNL	Rail Safety National Law 2012
RSW	Rail Safety Worker or Workers
RTO	Registered Training Organisation
SME	Subject Matter Expert for assessment purposes

Background

Transport in NSW, in particular the rail sector received its reality check in 2001 when, the final report into the 1999 Glenbrook train crash and followed in 2004 by the final report into the 2003 Waterfall train crash. Australia had experience a significant number of major train crash incidents resulting in numerous deaths and injuries, but sadly nothing had changed over decades as a result of numerous investigations. My first experience in rail incidents was the Granville train crash on January 18, 1977. I was just 21 years of age having grown up on a dairy farm still wet behind the ears, not really having experienced much in life. I was now an Ambulance Paramedic. By 9am that fateful day I was crawling around in amongst concrete slabs, crushed train carriages and broken bodies! 83 people died and 213 were injured in that crash. Glenbrook 1999, 7 people died and 51 injured whilst at Waterfall in 2003, 7 dead and 40 injured. Granville, Glenbrook & Waterfall were three very dark days in NSW rail history, so what had to legally, morally and ethically change to stop this from occurring again?

The industry had to have a serious look at itself and initiate a colossal change in attitude as to how risk and safety assurance is to be managed across all aspects of rail operations.

Attitude and behaviour, “Human Factors” is now a major influence in how rail infrastructure and operations are delivered. Reliable, maintainable, sustainable and safe transport infrastructure was identified as the key, all of which is influenced by human factors.

Legislative Change

The NSW Rail Safety Act 2008 (*now repealed*) mandated the way forward and how the Government expected public transport operators to do business. It changed to the point that, The Rail Safety National Law 2012 was enacted and has brought about the most significant change in rail operations management and regulation since 1788 when the first fleet arrived in Port Jackson. Harmonisation of everything rail, even the gauge of tracks. It is interesting to note that in 1898 all the States of Australia at a meeting, agreed to adopt a National set of Network Operating Rules for rail operators across the country. Every delegate walked away from that meeting agreeing it was the best for Australia. But attitude, ego and economic influence from the northern Victoria and southern NSW areas overruled the meeting outcome and nothing changed. The national network rules sat on a shelf for ever. Because the States went about adopting their own rules with sufficient differences to make them incompatible with each other, the border blocks came up.

Risk and risk management in rail has become the primary focus for rail design, construction, operation, maintenance and decommissioning. Safety in design, design and engineering assurance, life cycle operation, maintainability and sustainability coupled with a best for project ethos has become the norm in project delivery and sustainability in NSW.

Forming a major element of this shift has been a focus on the competency of people engaged to deliver rail infrastructure. The Law identifies that to build, operate, maintain or decommission rail infrastructure can only be undertaken by an Accredited Operator. Section 8 of the National Law defines what is universally consider “Rail Safety Work” whilst Section 52 & 117 defines that a Rail Transport Operator must be able to demonstrate that anyone undertaking rail safety work is, competent to do so and must be assessed as having the competency to undertake the task.

This begs the question, what really defines competence?

Case Study 1

In 1978 I achieved Senior Commercial Pilot flight status. I had been flying and training in my spare time for 3 years. By 1979 I owned a Cessna 172 and had clocked up 120 hours in command in fixed wing aircraft, gained jet and class one instrument endorsements and working towards rotary wing. I was well qualified having passed all my exams and experienced the 120 hours sitting at the pointy end drilling holes in the sky. But so far as risk, was I competent to be flying? Did I have the right attitude and behavioural tendencies of a competent pilot to be flying passengers? At that time in my aviation career, apparently absolutely NOT!

To give you a sense for what my attitude was actually like, I used to get in my Cessna, morph into a “Top Gun” then launch into the skies and proceed to harass and terrorise the world. Flying very very low level over farm houses, map of the earth at 50 feet above the surface of tree lined rivers and dive bomb rock fishermen along the NSW south coast just for the hell of it!

What was wrong with that? I obviously thought there was nothing wrong with that at the time. It was a hell of a lot of fun seeing the whites of people’s eyes as I swooped on them in a screaming dive at 120 knots and then pull away disappearing into the wild blue yonder. What could be wrong with that! I was taking serious risks with real potential and very likely catastrophic consequences. I was demonstrating classic “Conscious Incompetence” and certainly a bad attitude and behavioural tendencies. I wasn’t thinking beyond the control panel of my aircraft.

I was so cocky about what I was doing! A pilot with no subconscious respect for my teachers or the specialist skills and qualifications I had gained over the past three years. Reality found me. During a check flight with a senior and very experience Chief Pilot! I was being assessed for my instrument rating. I performed and responded exactly as I should have in every element of the assessment except one, my attitude.

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As a result I was assessed Not Yet Competent. He had the competence to evaluate my skills, attitude and behaviour. He knew I was becoming a very good pilot, in theory. But in practice, my attitude sucked and that made me dangerous! I was a Top Gun Cowboy, Not Yet Competent!

Competency Assessment Model

Lessons Learnt

The first assessment initiative undertaken by the NSW Transport Construction Authority (TCA) in 2009 was a process based on competency aligned with the Australian Qualifications Framework, an objective assessment model. The assessment process was developed around a web-based self-assessment questionnaire. The model quickly manifest as not being appropriate and very time consuming. Even more concerning was, that it didn't deliver any credible evidence of an individual's attitude and routine behaviour relative to safety and risk oriented tendencies (mental fitness for duty).

By 2010 significant research had been undertaken by TCA, Ballarat University (Frontiers of Thinking about Managing Safety), Industry and an independent RTO to establish what evidence must be demonstrated to validate competency.

Five assessment elements collectively demonstrate competency.

1. Cognitive Thinking Skills
2. Qualifications (AQF)
3. Experience
4. Attitude & Behaviour
5. Fitness for Duty

Earlier I eluded that some of the risk tendencies I demonstrated as a young man. During the research and consultation stages of developing the risk based assessment framework, the reality of my actions and the subsequent outcomes surfaced. The clear revelation for me was that the aviation industry has had its head around this very issue for decades. I experienced the process first hand way back in 1979!

It was resolved to change focus and develop a risk based competency assessment model that was measurable, reliable, fair and ethical. My challenge in the process was to develop and deploy an assessment framework by blending "Objective & Subjective" assessment methods that not only delivered the required outcomes, but a process that could be delivered by competent assessors in line with the Law and workplace assessment rules of ASQA.

Assessing Competency – Risk Based

Competence is defined as the ability to undertake responsibilities and to perform activities to a recognised standard on a regular basis. Competence is a combination of practical and thinking skills, experience and knowledge. When coupled to behaviour and fitness, allows work activities to be undertaken in accordance with agreed standards. In combination, these aspects help to provide an individual and/or a team with the judgement required to carry out rail safety work and the associated tasks.

Competence can also be affected by operating conditions, context and environment in which the safety tasks are performed and by the prevailing safety culture within an organisation.

Many tasks require more skills and knowledge than one individual possesses. In this case, tasks are undertaken by a team, making it necessary to specify the required collective competence for that team. Therefore, rail safety work team competence needed to be considered along with individual competence. TCA needed to make sure that all personnel are competent to fulfil their safety responsibility and that all of their people can work together effectively to deliver project safety and safe infrastructure.

Competence can be viewed as a continuum, with people being at various stages of competence along the continuum. Therefore, the need to develop and manage a mentoring process was also identified. The stages of the continuum can be described as novice, not yet competent, competent, proficient and expert.

The progressive and ongoing approach assures an effective and consistent performance from an individual or team. When people undertake new tasks or advance to higher duties, they will, to some extent, be unaware at transition of their own true abilities. This is known as “unconscious incompetence”.

Through mentoring, learning and development, candidates will advance to the stage of knowing what they don’t know, which is “conscious incompetence”.

Individuals can learn to complete a task. Initially, they need to think consciously about the task in order to perform at a competent level. This is called “conscious competence”.

As people perform tasks they gain experience and competence in completing the task increasing efficiency and productivity. Most people reach a level of almost automatic performance, where the only significant recall on their underpinning knowledge and experience will occur when they have to deal with extreme abnormal situations or an emergency. This is known as “unconscious competence”.

However, there is a real risk that people can unwittingly regress returning to a level of “unconscious incompetence”.

To avoid this, a system of continuous monitoring, assessment and reassessment of performance and competence is required and should include individuals, and validation audits and system reviews at an organisational level to ensure competence requirements are identified, validated, verified and managed.

A key component for safe working and working safely is the application of sound judgement. Judgement is the cognitive process for reaching a decision or drawing a conclusion.

An individual's or team's judgement is the cognitive process of the mind, involving comparison and discrimination. In this process, knowledge and previous experience of the value and relationship of things, whether it relates to safety, moral quality, legal requirement, intellectual concept, logical proposition or material fact, is obtained to make a decision or determine a course of action.

Behaviour and attitude along with the overall fitness of a person can have an effect on the exercise of judgement. In understanding behaviour and attitudes, it is important to look at an individual's approach to safety. To examine their attitude toward risk, we must consider and assess their mindset, self- management and control of emotional responses (eg. stress, anger or other negative responses), motivation, general leadership, management, teamwork and communication, as these can all have an effect on judgement and safety performance. It is important to establish fitness that enables work to be carried out competently and to reduce, as far as possible, the risk of pre-existing conditions, disabilities and any other factors which could compromise the safety of the individual, others in the workplace or the public.

The term “**fitness**” encompasses the interrelated areas of physical, mental and medical fitness.

Physical fitness standards are required in order to determine an individual's physical capability to perform a task to expectation safely.

Mental fitness implies that there are no existing psychological conditions that may adversely affect concentration, decision making or behaviour which could compromise competence and safety.

Fitness may be impaired through drugs (i.e. prescribed, non-prescription, illicit), alcohol and fatigue, all of which can adversely affect competence and safety.

The following competence model takes into consideration all the factors mentioned to provide the basis for developing and maintaining competence and has been applied in the NSW rail industry since 2010. The rest of Australia is still in catch up under harmonisation.

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All of the components of the model, when developed and practised, will assist in developing good judgement on safety and risk-related matters.

Risk Based Competency Model developed in 2010

Competence	Capability delivered through			Capacity delivered through	
	Skills	Knowledge	Experience	Behaviours / Attitude	Fitness
	Practical & Thinking	Education <i>(qualifications)</i> Training & Development Continuous Professional Development	Application of Knowledge & Skills	Approach to Safety <i>Attitude to risk self-management and control, fatigue, drugs & alcohol, emotional response, stress, anger or other negative emotional responses.</i> Motivation General leadership, management, team work and communication	Fitness to perform all safety work

Assessment Methodology

Traditional “objective” assessment models will only demonstrate competence so far as knowledge and knowledge based skills. Attitude and behaviour can only be assessed in one of three ways.

1. Observation – Assessor observes candidate over time undertaking tasks (eg; train drivers and pilots)
2. Psychometric – Electronic media based question & answer evaluation benchmarked against industry average, not task specific. (Common practice for pre-employment screening of undesirable tendencies)
3. Subjective – Interview assessment process aligned to functional task & procedural oriented

National Rail Laws require people undertaking rail safety work to be assessed competent before they undertake functional tasks considered to be rail safety work as defined by Law.

Rail Safety Work *(Rail Safety National Law 2012, Sect 8)*

- (1) Any of the following classes of work is rail safety work for the purposes of this Act:
- (a) driving or despatching rolling stock or any other activity which is capable of controlling or affecting the movement of rolling stock,
 - (b) signalling (and signalling operations), receiving or relaying communications or any other activity which is capable of controlling or affecting the movement of rolling stock,
 - (c) coupling or uncoupling rolling stock,
 - (d) maintaining, repairing, modifying, monitoring, inspecting or testing:
 - (i) rolling stock, including checking that the rolling stock is working properly before being used, or
 - (ii) rail infrastructure,
 - (e) installation of components in relation to rolling stock,
 - (f) work on or about rail infrastructure relating to the design, construction, repair, modification, maintenance, monitoring, upgrading, inspection or testing of the rail infrastructure or associated works or equipment, including checking that the rail infrastructure is working properly before being used,
 - (g) installation or maintenance of:
 - (i) a telecommunications system relating to rail infrastructure or used in connection with rail infrastructure, or
 - (ii) the means of supplying electricity directly to rail infrastructure or to any rolling stock using rail infrastructure or to a telecommunications system
 - (h) work involving certification as to the safety of rail infrastructure or rolling stock or any part or component of rail infrastructure or rolling stock,
 - (i) work involving the decommissioning of rail infrastructure or rolling stock or any part or component of rail infrastructure or rolling stock,
 - (j) work involving the development, management or monitoring of safe working systems for railways,
 - (k) work involving the management or monitoring of passenger safety on, in or at any railway,
 - (l) any other work that is prescribed by the regulations to be railsafety work.

Sections 1(f)(h)(j)(k) & (l) are predominantly undertaken without supervision. These are subject matter, technical and certification expert positions primarily viewed as high risk positions and their work is conducted largely unsupervised. As such to conform to the Law they must be assessed as competent prior to undertaking any work.

Many rail organisations throughout the world have used qualification frameworks and/or vocational standards as the baseline for establishing, defining and measuring competence.

Whilst this approach does provide benefits, using it as a primary driver and method of competency assessment can also have significant drawbacks. This is apparent in a high-risk industry such as rail, where safety requires constant assessment and assurance, as the environment, conditions and context are subject to change, altering the risks the business and individuals face, whether through the lifecycle of a project or in everyday rail operations and maintenance.

Drawbacks can include:

- assessments not being risk based – low-importance issues are treated equally to those of high importance
- being generic – they do not necessarily address industry specific or local requirements
- undertaking great effort to collate evidence for generic treatment, which can be disproportionate in terms of establishing and improving safety working attributes.

The following table provides a high-level view of the two approaches.

Qualification/Vocational Approach to Competence	Risk Based Approach to Competence
Based on generic national standards	Based on organisation and activity risk
Complex documentation for assessment	Easier documentation
Single pre-announced assessment encounter	Continuous assessment & ongoing development
Evidence based on observation and questions	Range of assessment methods
Can lead to qualification	Can lead to qualification

While qualifications provide a basis to demonstrate prior learning and knowledge as well as training and development, they need to be incorporated into a risk-based competency management system. The risk-based approach will assure the business and the individuals within it that constant review of the environment, conditions, context and the resulting risk exposure will constantly identify the response required to provide a continuous, consistent approach to maintain competency.

The risk based competency assessment framework model follows a straight forward approach that sits outside traditional “objective” assessment methodologies. It’s a process that brings a number of traditional and non-traditional assessment processes together, collectively demonstrating competence from a risk based analysis to undertake a specific task.

To go back to the five elements of a subjective assessment;

1. Cognitive Thinking Skills
2. Qualifications (AQF)
3. Experience
4. Attitude & Behaviour
5. Fitness for Duty

These actions need to be followed to deliver the collective evidence based outcome of “Subjective Assessment.

The Process

The organisation must establish a Core Competency Matrix and definitive Position Descriptions for every identified roll within the business. The core competencies should include minimum qualifications (AQF), experience commensurate with the level of responsibility and accountability, minimum medical fitness assessment standard in accordance with either a Job Dictionary or Standard such as the National Health Standard for Rail Workers. Additional areas to consider should include suitably qualified Subject Matter Experts and experienced competent accredited Assessors.

Candidate qualifications and experience are mapped to the core competencies for the position and verified as meeting the core competencies. Actual qualifications must be validated as a true and correct record of what was awarded and the elements assessed meet the core requirements. Experience is mapped from a validated resume of employment history and demonstrated experience.

The candidate is subjected to a formal medical assessment by an authorised and approved medical practitioner and in the case of rail, registered under the National Health Standard for Rail Workers, to validate physical fitness to undertake the task. In NSW rail, medicals are usually Cat 1 (rail safety critical) or Cat 3 (non-railsafety critical) every 1, 3 or 5 years depending on age and position.

That brings us to the last two elements to assess, Cognitive Think Skills and Attitude/Behaviour. Under a risk based subjective assessment model the assessment must explore understanding and interpretation of standards and procedures related to specific tasks routinely undertaken. This is particularly relevant to disciplines pertaining to engineering, assurance, design, safety, operation reliability and maintenance.

Human factors and design system failures were identified as significant contributing factors of the Glenbrook and Waterfall train crashes. Whilst poor track maintenance and seriously worn leading wheels on the front locomotive were major contributing factors in the Granville train crash, an incident that may have had far less serious consequences had the derailment occurred anywhere other than the underpass of the Bold Street Bridge. Safety in design and engineering assurance demand stringent systems engineering protocols, all practices that an individual can be trained to undertake. However, if the attitude and behaviour of an individual in the diligent application of those systems is less than focused can result in catastrophic systems failure, through conscious or unconscious incompetence, at any point in the lifecycle of transport infrastructure.

By developing a series of questions oriented towards organisational standards and procedure related to the accountabilities of the individual, the unconscious competence of an individual and collectively a team, can be successfully explored and assessed. Questions should be relative to specific accountabilities, function and/or systems, compiled in a manner that turns a traditional knowledge based objective question into a question provoking a subjective answer revealing understanding and interpretation of process. The assessor, SME and in some cases a Corporate Safety Rep conducting the interview, evaluate the evidence given as to how the candidate understands and interprets the intent of a standard or procedure. The behavioural manner of the Candidate during the assessment provides key markers of attitude and behaviour.

For example, a subjective question that may be asked, “Please explain the design review stages and, how safety and reliability assurance are implemented throughout the design process for a project?”

This question provokes the candidate to explain the process as they understand and interpret intent. Fluent, cohesive well-constructed answers delivered easily can validate how well the candidate understands and applies the process in daily practise. The assessor and SME monitor and evaluate the key points forthcoming in an answer and align them to the expectation of the standard or procedure. If that same question was to be asked in a traditional objective knowledge based format it might read as “How is safety assurance and reliability implemented in the design and review stages as defined in Standard XYZ.” Traditionally, the question should provoke an answer more oriented toward reciting retained factual knowledge of scripted content.

A series of 15 to 20 questions asked over a 50 to 60 minute interview will serve to demonstrate attitude, behaviour and cognitive thinking skills. Questions sets should start by exploring how a candidate maintains their currency in a chosen field of expertise, advancing through general safety accountabilities and responsibilities before, actual task specific questions. This allows the assessor to evaluate behaviour while the candidate answers questions within their comfort zone, before progressing to the more task specific questions traditionally asked by the SME. The assessor and SME should record contemporaneous notes as the interview progresses. The assessor also maintains a focus on the behaviour of the candidate in order to demonstrate competency toward core behavioural attributes. At the end of the assessment the candidate is asked if they wished to add anything further to any of their responses before being excused from the interview room for a few minutes. The Assessor and SME compare notes on the candidates performed and come to a consensus, identified skills gaps, behavioural observations and assessment outcome as to Competent, Not Yet Competent or Competent with Provisions.

The candidate is invited back into the room and asked how they think they performed, having had a few minutes to reflect on their own performance in the assessment. It offers the opportunity to divulge in hindsight any areas they feel they could improve. This also forms part of the attitude and behavioural aspect through how confident a Candidate is about their capability.

Core behavioural attributes for assessing behaviour, attitude and cognitive thinking skills in this assessment model include;

Good Communication Skills

The candidate answered questions with clear easy to understand comments that related to the question and didn't use words that needed a dictionary to define and was at a level that all present could understand.

Analytical/Problem solving Skills

The candidate listened to the question, formulated an answer that was relevant, informative and answered the question either in fact or opinion.

Positive approach in the workplace

Was it obvious from the candidates responses that he/she walks the talk in the workplace and is not providing lip service (was the candidate enthusiastic and clearly comfortable with what they do on a daily basis). Did they demonstrate a positive attitude for a safety culture within themselves and the workplace?

Teamwork

Did the candidate frequently reflect “I” or “We” in their responses? If Candidate comments and answers had a focus on “I” would indicate they are not necessarily a team player but rather focused on themselves over the team. However, where there is an obvious use of “We” indicates a team player, he/she is identifying with a team environment.

Ability to deal with Pressure

How did the Candidate perform during the interview? Did the candidate appear uncomfortable in the position they found themselves, shifting in the chair, perspiring, dry mouth, things that identify either discomfort with being in an interview environment or they are challenged with in themselves when confronted with questions they cannot confidently answer, demonstrating a potential skills gap. (Reliance can be placed in the opinion of the SME if they have a working familiarity with the candidate and can confirm the behaviour was out of character for the RSW.)

Ability to motivate team and colleagues

How did the candidate respond to the questions? Was it in a positive enthusiastic manner or was the response laid back and lacking encouragement for the assessor?

Ability to adapt to change and new situations

What was the attitude of the candidate towards the assessment? The assessment process is a significant change in the way the organisation does business. What did the candidate say or do to indicate “I can understand the need for all this and that it’s all good with me!”

Ability to manage time and priorities establishing clear goals and time frames

The assessment is time limited to one (1) hour in duration (in most cases). Did the candidate keep time in mind, stay focused and deliver informative answers that addressed the question or, did the Candidate move off in tangents delaying the scheduled finish time of the assessment?

Use a range of technologies

When the candidate answered questions was there any reference to using different technologies such as IT in the form of programs, devises, methodologies in engineering and modernization?

Setting personal goals

Did the candidate when outlining what they have been doing to remain current, indicate that they are goal setters who tend to finish courses, mention any personal development management with a supervisor, tendencies to undertake further training of their own initiative, attend certain functions or meet any personal goals in life?

Where a candidate is found Competent there is no further action required at this time and they are issued a certificate of competency.

Where a candidate is assessed as Not Yet Competent any identified skills gaps are discussed and an action plan is agreed to with the Candidate and SME. The Candidate is tasked with addressing skills gaps in consultation with their professional development manager to be completed over a mutually acceptable time frame, before re-assessment shall be scheduled.

Where a candidate is assessed as Competent with Provisions the outcome may result in the candidate entering a formal mentoring program with a qualified Mentor, or tasked to include specific actions as part of their very next Professional Development Review. At the end of the mentoring period the Mentor is required to submit a report on the progress the candidate has made. If all aspects of the mentoring have been satisfied, the candidate is released from provisional competence to fully competent.

Conclusion

The process has been reviewed by the ONRSR and found to be robust and measurable. ASQA has audited the process as a part of an RTO Audit finding the process unique, robust, measurable, fair and ethical in accordance with assessment standards and expectations. The assessment process has not yet been tested in a Court of Inquiry investigating an incident or, where an individual's competence to undertake a task has come into question.

Success of the process is reliant on a goal structure notational system, just the same as systems engineering models. The competency assessment framework is measured in a goal structure systematic approach.

Competency goal 1 - Identify rail safety work, tasks and assess risks

Identify the work activities and assess the associated risks to determine those which have the potential to affect rail safety.

Competency goal 2 – Select a standard

Select or develop standards to ensure that the identified risks are controlled consistently.

Competency goal 3 – Develop processes, procedures and methods

Quality assurance processes, procedures and methods should be developed which are designed to ensure the Competence Management System consistently achieves the intended results.

Competence goal 4 – Decide how to meet the standards

Establish the most suitable methods for the assessment and ongoing development of staff in order to meet the required levels of competence.

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Competence goal 5 – Establish learning and development needs

Establish the training and development needs and competence requirements of staff, recruits and managers through skills gap analysis matrix.

Competence goal 6 – Maintain managers' competencies

Maintain the competence of the managers operating the Competence Management System and ensure that they understand their responsibilities.

Competence goal 7 – Select and recruit staff

Staff should be recruited and selected using suitable selection standards and methods and clearly identified minimum competency essentials combining skills and experience.

Competence goal 8 – Train, develop and assess staff

Train, develop and assess the competencies of existing staff and new recruits using methods appropriate to the relevant competence standards.

Competence goal 9 – Manage the activities undertaken

Control processes should be established to assure that staff and contractors are only asked to undertake work for which they have been assessed as competent to undertake.

Competence goal 10 – Monitor and re-assess staff performance

Monitor and reassess the competence of staff to ensure performance is being consistently maintained and developed.

Competence goal 11 – Update competence of individuals

Update the competence of individuals in response to all relevant changes. Competency assessments must be amended to include changes in responsibility or position descriptions, prior to appointment.

Competence goal 12 – Manage sub-standard performance

Identify sub-standard performance and restore competence through effective learning and development and mentoring.

Competence goal 13 – Keep records

Maintain adequate records of assessments and make them available on request. A vital component of any competency assessment is to have a robust Competency Management System to underpin the documentation of processes and outcomes.

Competence goal 14 – Verify and Audit the Competency Management System

Verify and audit the Competency Management System through scheduled auditing and compliance testing.

Competence goal 15 – Review and feedback

Review and analyse safety performance data and any process feedback into the Competency Management System.

Each element of the assessment is individually evaluated and mapped to the core competencies and when combined with the interview results collectively demonstrate the overall subjective competence of the individual.

To ensure ongoing compliance, positions are subjected to cyclic re-assessment at either two or four years depending on the discipline. As a result of a risk based analysis of various disciplines in transport it is generally considered that Engineering, Technical and Safety related disciplines are more volatile and subjected to continuous change. As such a greater focus on currency is crucial to managing risk and demonstrating continued competence. Management positions however are generally more stable in practice and as such four yearly re-assessments are considered sufficient to effectively manage risk and demonstrate continual competence.

The systematic approach to risk based assessment introduces outcomes closely aligned to Hollnagel's Theory W and Theory Z, which is summarised in the following table.

Theory W : Managerial perspective (technological optimism)	Theory Z: Systemic perspective (technological realism)
Things go right because: Systems are well designed and scrupulously maintained Procedures are complete and correct People behave as they are expected to – as they are taught Designers can foresee and anticipate every contingency	Things go right because people: Learn to overcome design flaws and functional glitches Adapt their performance to meet demands Interpret and apply procedures to match conditions Can detect and correct when things go wrong
Humans are a liability and variability is a threat. The purpose of design is to constrain variability, so that efficiency can be maintained.	Humans are an asset without which the proper functioning of modern technological systems would be impossible.

108 assessments were conducted between the 1st October and 20th December 2010, under the new assessment model comprising engineers, project managers, technical managers, project directors and deputy directors general (all identified RSWs within TCA). The result was considered innovative, measurable and fair and, in the opinion of the ITSr satisfied the requirements of the Law then and now.

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In the opinion of an auditor from ASQA conducting the Registration Audit on PARASOL EMT Pty Ltd (my employer in 2010) to continue as an accredited RTO, it was fair, measurable and nothing else was currently available that could deliver the robust outcomes demonstrated.

Given the deliverable outcomes of this competency assessment process should it be considered for wider deployment across industry and other disciplines that through direct or indirect, action or inaction by an individual can have a catastrophic outcome. The construction, agricultural and forestry industry, transport both commercial and domestic all have significantly disturbing statistics pertaining to injury and death due to human factors.

Since 2010, an average 280 assessments per annum have been conducted while process and methodologies have been refined and enhanced achieving higher levels of excellence through a continuous improvement and quality assurance framework. Since 2009 only one worker fatality has been recorded as a result of rail operations, still one too many but it also reflects in the millions of man hours worked with no Lost Time Injuries.

Case Study 2

In NSW to obtain a Learner Driver Permit, a candidate is required to undertake a comprehensive knowledge test on the rules of the road and be 16 years or more of age. Learners are then required to undertake 100hrs driving in various driving conditions under the direct supervision of a competent full drivers licence holder. This regulatory requirement is to gain pre-requisite driving experience to qualify for a driver assessment with the local regulatory authority. Experience over the 100hrs is recorded in an official log book, but there is no validation process that the experience was actually undertaken. If they have reached 17 years of age, can follow the written rules, the instruction of the driving examiner and complete the driving test without losing the maximum demerits during the test, they are issued with a Provisional Licence to drive a motor vehicle and let loose on Australian roads without further direct supervision.

I challenge you to consider this current scenario! New drivers unleashed on our roads have successfully passed objective knowledge and practical assessments to drive a motor vehicle of a class for which they have been assessed. They are now authorised to use a potentially lethal weapon called a motor vehicle, but are they actually competent to be in control of a vehicle at this point in their driving experience?

In the eyes of the law they are. But, what if they have been poorly trained or even worse, coached on how to pass the driving test. The driving examiner is not necessarily competent to identify these traits.

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Combined with a poor attitude and most likely years of experience on a Play Station driving a simulator, with no real consequence for poor driving skill, “just hit the reset button and everything is back to normal”, at some stage in the near future how will it be likely to end?

Statistics clearly demonstrate, in tragedy and there is no reset button. Try to convince a young driver in this day and age of that consequence, good luck! But that in general is the attitude of our younger drivers that we legally allow on our roads.

We can legislate and regulate until the world stops turning but, will anything change? In my view the answer has to be no, because people will still behave as humans. There is little point in regulating what can't be effectively and practically enforced? Enforcement will not influence those who have an established attitude of conscious defiance and non-conformance.

We have to introduce systems and controls that identify and hopefully prohibit unacceptable tendencies toward risk and non-compliance as a result of attitude and poor behavioural ethics. In the NSW rail sector I believe we have transitioned significantly in the right direction over the past five years as a result of this competency assessment framework.

The challenge moving forward is twofold;

1. Defy those who object to the process for any arguable reason such as resourcing impost.
2. Expand the philosophy and methodology into the wider community.

The potential benefit for the wider community in my opinion is immeasurable and far out ways the impost of resourcing these risk based strategies. Improvements in reliability, productivity and safety assurance has to have a social and economic benefit to industry and the community. Focusing on attitude and behaviour adjustment rather than, enforcement by regulation is proactive and not reactive. In today's fast moving society where everything has to be done yesterday we don't have the luxury of time to wait and see how human factors will playout in any aspect of life.

Our attitude and behaviour will ultimately dictate our future. I was lucky, I got an attitude adjustment early enough in life to make a difference, will our current or next generation have that same good fortune?

Without a global change in attitude and behaviour, I doubt it!