



WORK SCIENCE

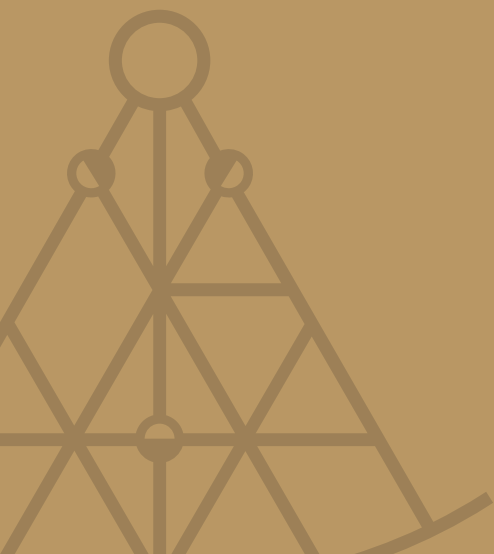
Clarifying the landscape of work health and safety innovation: What has been done and what stands in our way?

DR TRISTAN W CASEY, CHIEF SCIENTIST, WORK SCIENCE



"Innovation is the ability to see change as an opportunity - not as a threat."

Steve Jobs



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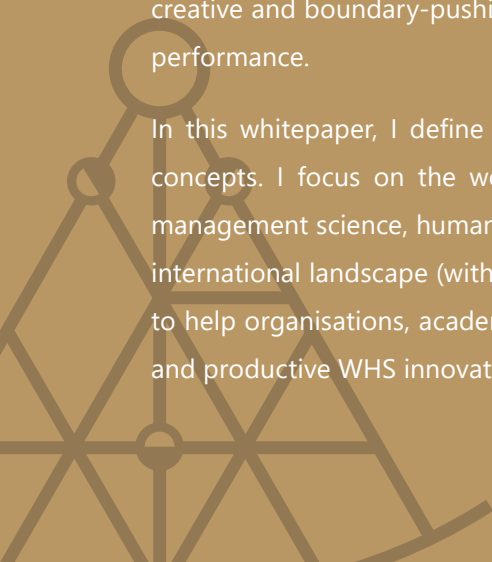
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In Australia, a 'golden age' of work health and safety (WHS) stands before us.

To industry outsiders, this might be a surprising statement as WHS is usually seen as a conservative discipline. Safety practices tend to be applied systematically to constrain, confine, and generally restrict employee proactivity, reducing innovation capability (Dekker, 2017). To most people, WHS does not convey the notion of 'cutting-edge innovation'.

Yet, Australia is arguably world-leading in the quest to cast off the iron shackles of so-called 'bureaucratically-entrepreneurial' (Dekker, 2014) safety management. From Griffith University's Safety Science Innovation Lab through to RMIT's Construction Safety Centre, government incubators of innovation such as the Centre for WHS, and forward-thinking consulting firms like us here at Work Science, Australia is a melting pot of creative and boundary-pushing entities driving towards radical WHS change and wholesale improvement of performance.

In this whitepaper, I define the WHS innovation landscape, beginning with a brief overview of the core concepts. I focus on the workplace component of health and safety innovation, which has its roots in management science, human resources, and organisational psychology, but is currently sweeping across the international landscape (with the epicentre firmly planted in Australia). I conclude with some practical points to help organisations, academics, and government regulators identify opportunities to facilitate meaningful and productive WHS innovation.



First things first: What is innovation?

At its best, innovation is an over-used word; at its worst, it is an 'abused' word. Almost certainly a business buzzword, innovation has become enshrined as a core organisational capability that will help us usher in and cope with the modern world of work (Gaskell, 2016). But what exactly does it mean to innovate in a business context?

As you might have expected, there is no generally agreed definition of innovation (Prus, Nacamulli & Lazazzara, 2017). It has been defined from multiple perspectives, such as new ideas/concepts/practices, an action such as adopting something new, an outcome (the results of organisational change), and even as a process (Van de Ven et al., 1999).

Innovation can be done within a range of business contexts. Originally, innovation was synonymous with technology, product, and service development. However, the targets for innovation have expanded into domains like industrial relations, sustainability, and of course, WHS (Eeckelaert et al, 2012).

WHS innovation encompasses many dimensions because it can include technological breakthroughs that accomplish both efficiency and safety goals (e.g., a new load lifting system that reduces task time and improves the safety of manual handling), new products (e.g., substitution of a production chemical for a less harmful alternative), and services (e.g., providing staff with client/customer de-escalation and service training to reduce psychosocial hazard exposure).

I argue that WHS innovation refers to the creation or application of new ideas, concepts, practices, and/or methods that result in created value for organisations. It is the business of departments like Human Resources and WHS. It is a strategically-induced and participatory intervention (or series of interventions) that change an organisation's practices of organising, managing, and deploying human resources that lead to improved performance and employee wellbeing (encompassing both psychological and physical health and safety; Eeckelaert et al, 2012).

In sum, WHS innovation involves either new or creative ideas, derived from a 'conscious inventive effort', must include the actual use of the information in practice (i.e., knowledge transfer activities), and creates organisational value in areas that aren't necessarily limited to just health and safety, but this is its primary purpose (Prus et al., 2017).

Why innovate?

It's almost a rhetorical question; why innovate? Trade and industry publications abound with the message that innovation is almost a universal minimum requirement to do business in the modern world (Bahcall, 2019; Podolny & Hansen, 2020; Rigby, Elk & Berez, 2020). Regarding WHS innovation, mounting evidence shows that empowering, questioning, and collaborating practices introduced into organisations lead to better business results, enhanced health and safety outcomes, and bolstered employee engagement (Totterdill, 2015).

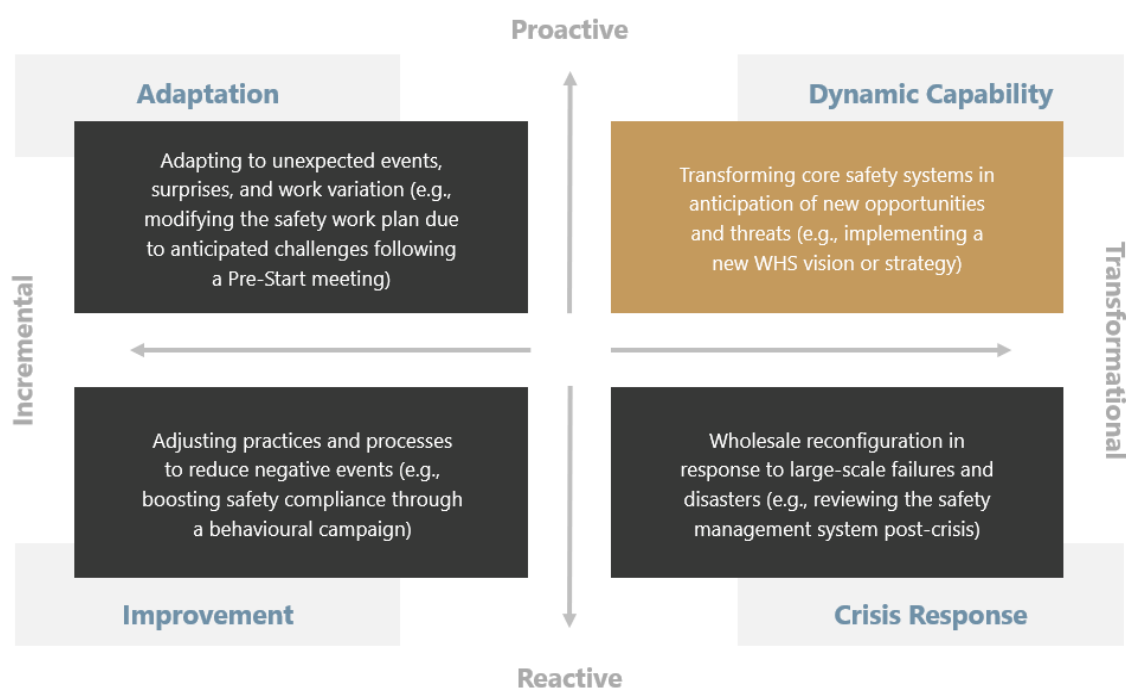
Most recently, the world has successfully innovated its way through a global pandemic (Ebersberger & Kuckertz, 2021). Businesses have not only reacted and responded to the crisis using innovation capabilities but have also capitalised on opportunities by using innovation proactively. My research team found that the hospitality sector pivoted to maintain their business income while protecting employee and customer health (Hu et al., 2021). Others have shown that manufacturers identified new product lines to tap into previously unrealised markets (Christa & Kristinae, 2021). Corporate workplaces

have even innovated their HR practices and systems to capture new value from employees (Kutieshat & Farmanesh, 2022). The jury is still out, but all evidence points to innovativeness predicting recovery and resilience to the pandemic.

Other research I conducted showed that many health and safety professionals throughout Australia engaged in innovation-generating practices like 'job crafting' (going beyond formal role definitions to design one's own job) to adapt, improvise, and create new value for their organisations, as documented in a recent OHS Body of Knowledge chapter (Pryor, Provan, Casey & Hu, 2021). Safety managers across 12 different industries were expanding their roles into procurement, organisational development, stress and health, and technology domains to assist their employers to adapt to workplace changes. Many unexpected and positive innovations resulted; new work-from-home policies and practices, novel applications of technology to communicate and deliver WHS services remotely, and new styles and approaches of safety leadership.

At a macro level, government departments in Australia, such as the CSIRO, have released numerous reports outlining various megatrends that will shape the WHS landscape over the coming years. Automated systems and robotics, psychosocial hazards, sedentary behaviour, work-home boundary blurring, the gig economy, and an ageing workforce were all identified as key challenges that will require significant innovation to overcome successfully (Horton et al., 2018).

Into the future, innovation capability will certainly be required for organisations to manage WHS considering increasingly, dynamic, uncertain, and interdependent environments (Griffin et al., 2014). Dynamic safety capability, a concept developed by Prof Mark Griffin from Curtin University, summarises the types of WHS innovation that organisations can engage in (Griffin, Cordery & Soo, 2016). As shown overleaf, his model varies across two axes: the source of change (proactive or reactive) and the scope of change (transformational or incremental). Although all types of change can be generated through WHS innovation, Griffin argues that the top right quadrant (proactive and transformational change) will be increasingly required for high-risk organisations as they seek to modify core safety systems and practices in anticipation of new ways of operating.



Adapted from Griffin, Cordery & Soo (2016)

WHS innovation

A myriad of WHS innovation initiatives arose from the culmination of ideas building momentum over at least the past 30 years (if not longer, if one traces the development of safety as a science from the late 1970s onwards). Most WHS professionals will by now at least be aware of these movements, some scientific, some more practice-oriented: Safety Differently (Dekker, 2014b), Human and Organisational Performance (Conklin, 2012), and Resilience Engineering (Hollnagel, Woods & Leveson, 2006), to name but a few.

These innovation efforts have repositioned, deconstructed, challenged, and downright reinvented traditional management science models that have dominated WHS for so long. Interestingly, WHS management science has lagged general business and human relations developments, with one foot planted firmly in older organisational designs such as Scientific Management (Dekker, 2019). For over 100 years, WHS management has operated from an often-implicit philosophy that prevention of harm and loss requires control to be exerted through prescription and constraints over human agency.

During the early 20th Century, when work was simpler, the linear, reductionist, and centralised approach of Taylorism worked wonders. As documented global injury statistics show (e.g., ILO, 2022), the performance of many high-risk industries significantly improved due to the application of Tayloristic methods applied to WHS management, such as prescriptive work procedures, direct supervision of work, and workforce specialisation. However, as technologies became intractable, work intensified, and paradoxically, organisations were safer, new ways to manage WHS were needed.

Enter the suite of what is collectively and colloquially known as 'New View' safety. Derived from the repackaging of many seminal safety science theories and models such as cognitive-systems engineering, High Reliability Organising, the broad field of safety culture, and Normal Accident Theory, New View safety has stimulated a tidal wave of WHS innovation (Casey, 2022). Core principles of the New View are summarised below, but generally, they are based on humanistic, positive psychology, and resilience-oriented ideas that seek to reposition people as a solution to be harnessed.

Example New View Safety Principles

1. People make mistakes. Accept that people are human, so errors and mistakes are inevitable. Build systems that are 'safe to fail', error-tolerant, and forgiving of mistakes.
2. Blame fixes nothing. People seek simple explanations and focus heavily on retribution rather than repair and restoration.
3. Context drives behaviour. Identify the deeper story underpinning why things go wrong and emphasise the role of broader organisational and work system factors.
4. Learning is vital. Learn from both what goes wrong and what goes right. Examine everyday work to understand how things are really done at the frontline and how this may be different to plans and procedures.
5. Response matters. Be mindful of the response to error and failure. Reactive and simplistic responses are usually less effective.

The 'red thread' running through WHS innovation

Unbeknownst to many safety professionals, the groundswell of New View safety has its roots in concepts and practices originally invented in the 1960s and 70s. A recent review of general workplace innovation (Prus et al., 2017) succinctly summarises this original research, as outlined below.

Systems	From control through rigid mechanisms and standardisation of work to high-performance teams founded on high commitment, engagement, and trust.
Democracy	From collective rights regarding working conditions and general welfare to individual needs such as profit-sharing schemes and increased employee voice.
Technology	From efficiency by reducing costs and increasing productivity to flexibility by removing constraints to work – when, how, and with who it is done.
Boundaries	From fixed and sharply defined job role boundaries to blurred and highly interconnected and dynamic relationships between employers, employees, clients, and suppliers.
Workspaces	From rigidity and inflexibility to workspaces optimised for collaboration and cooperation (e.g., open-plan offices).
People	From administrative practices that were organisationally centred to a greater focus on employees (participation and involvement) and experience management.
Work	From fulfilling one's duty to a deeper sense of meaning and purpose.

Other models and theories, already well-established by the time New View safety came along, lend support and drive to this innovation momentum. Ryan and Deci's (2000) self-determination theory, founded on the notion of fundamental human needs (competence, autonomy, and belonging) and their role in fostering intrinsic motivation; Cameron and Quinn's (2011) landmark organisational culture model with its emphasis on a 'balanced' profile (and for WHS, an emphasis on the 'human relations' profile seems to produce the best performance; Colley, Lincolne & Neal, 2013), and finally, strategic HR systems and approaches founded on employee commitment (with commitment-based practices resulting in superior safety outcomes; Zacharatos, Barling & Iverson, 2005).

Barriers to WHS innovation

But it's not all rosy when it comes to WHS innovation in the workplace. Numerous barriers exist and must be overcome for the potential of WHS innovation to be realised by organisations. Several of the barriers I have observed over a 15-year

consulting, academic, and government regulator career are outlined below.

1. Polarisation of views. The way new ideas are introduced can be perceived as a threat; we know this from models of change psychology developed in the 1970s and 80s. Models such as Prochaska and DiClemente's (1986) transtheoretical framework suggest that change follows a psychological cycle. People move through from a precontemplation phase through to contemplation, then preparation and finally action. Different persuasion and influencing tactics are required at each stage for change to be successful. Further, if the perceived risks or costs of the proposed change are seen to outweigh the benefits, then the change is much less likely to be adopted. The WHS field is a minefield filled with passionate, if not evangelical proponents. Ideas are communicated enthusiastically, sometimes with limited supporting evidence. Delivery in this way stifles innovation by increasing the perceived costs of change, triggering threat or defensive responses, and mismatching the message with the recipients' change readiness.

2. Multiple stakeholders. Across the government-industry-academia tripartite relationship there exist many different views, goals, and priorities; sometimes complementary and synergistic, and sometimes conflicting and antagonistic. Government regulators in some Australian jurisdictions have adopted a hard compliance approach centred on issuing fines and other sanctions (Lyons, 2017); indeed, many inspectorates around the country even have internal targets for these actions. This strategy runs counter to the need for closer industry collaboration to stimulate and encourage safety innovation – why would a business take the risk of changing their practices if the regulator may be more likely to penalise non-conformance? Further, academics are oftentimes working under the hammer of the 'publish or perish' mantra. Academic journals require increasingly sophisticated research designs that are often impractical or too costly for industry to adopt. Add this to the drying up of research funding nationally, even the academia-industry partnership looks set to languish somewhat, reducing science-to-practice projects.

3. Safety as a moral imperative. One of the fascinating side-effects of safety's deep moral obligation is that this makes it difficult to remove or change existing practices. Putting the legal hesitations aside, senior leaders may feel discomfort and hesitation to engage in WHS innovation out of a fear of failure and potentially, harm or loss occurring as a result. Although this often-deep value for safety serves as a powerful normative influence and can be considered as the backbone of a 'safety culture', it can be counterproductive to WHS innovation by acting as a brake on transformative and proactive innovation activities.

4. Capability and capacity. The WHS cohort in Australia has undoubtedly come a long way. Although still fighting for professional status and formal recognition of the same (Provan & Pryor, 2019), WHS personnel have broadened their role, increased their status, and developed more advanced skills that are fundamental to driving WHS innovation. Nevertheless, my discussions with regulators, experts, and professional associations across 15 countries as part of a major review being conducted with the International Labour Organisation highlights just how far WHS professionals must come to support WHS innovation. From a capacity perspective, many WHS staff are bogged down in administrative 'safety work' activities that limits the time that can be devoted to discretionary strategic projects (Provan et al., 2020). Capability may also be lacking globally and within Australia with an education system that must cater both for experience-based qualification as well as advanced tertiary training. As recognised by the global INSHPO (2017) capability framework, non-technical skills essential for WHS innovation activities must continue to be built and maintained across the profession.

Doing WHS innovation

So, what can organisations do practically to encourage WHS innovation? Fortunately, thanks to successful industry-to-practice projects, Work Science and others have accumulated experiences that point in a helpful direction. A selection of these recommendations is summarised below, and organised into three different levels: organisation, industry, and government.

At an organisation level...

- Conduct micro-experiments (as pioneered by Griffith University's Safety Science Innovation Lab) whereby just one WHS practice or tool is either changed or removed to determine the effects on performance.
- Invest in capability-building for WHS professionals that includes non-technical skills, and consider incorporating global frameworks like the INSHPO model into recruitment and selection processes.
- Build the business case for WHS innovation and engage senior decision makers to discuss and debate new safety concepts emerging from academic sources; help them to 'sense-make' these new ideas and engage them in ways that fit their comfort level for change.

At an industry level...

- Professional associations can continue efforts to build WHS professionalism and enhance capability and capacity through initiatives such as the Australian Institute of Health & Safety's OHS Body of Knowledge.
- Industry associations can support academics and consultants to conduct applied research projects with their members, which will allow compelling evidence to be developed regarding the organisation-level benefits of WHS innovation.
- Associations can also work with academics and consultants to build evidence-based toolkits to stimulate the process of WHS innovation across industry.

At a government level...

- Deliver tripartite events that bring the different stakeholder groups together in ways that build trust and collaboration capabilities.
- Invest in applied research projects that stimulate WHS innovation both at policy and industry/organisational levels; an excellent model has been established by the Centre for WHS that has even resulted in successful commercialisation of WHS innovations in collaboration with academics and industry.
- Showcase case studies and stories from organisations engaging in WHS innovation to inspire others and signal a strong message that these activities are valued.
- Release clarifying statements regarding assumptions (and myths!) regarding WHS legislation to reduce industry's fear of stepping outside established traditional management systems and practices.

The landscape of WHS innovation is messy and complex, although producing much fruit.

This progress is being fueled through successful collaborations between consultants, academics, industry, and government. At present, we stand on the cusp of a WHS golden age, however, a currently fragmented and divided field across WHS ideas, concepts and practices will need to be carefully stitched together if the full potential is to be realised. Rather than thinking in divisive and polarising terms about WHS innovation, I implore a more integrative, synergistic, and contextualised approach.

Rather than seeing WHS innovation as exclusively transformative, consider instead your organisation's readiness for change and whether small steps in the form of micro-experiments or incremental improvements can be made. Critically examine the ideas, concepts, and tools emerging from the forge works of WHS innovators and determine which one(s) might be appropriate to experiment with and trial in your workplace.

Continuing to build WHS innovation capabilities and capacities will accelerate our position as a nation that is internationally recognised as a world leader in this space, and most importantly, drive safety performance even higher.



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About the author



Dr Tristan W Casey

PhD, DPsychOrg, GradDipOHS, BPsychSci

Chief Scientist, Work Science

tristan.casey@workscience.com.au

Dr Tristan Casey is an expert in safety leadership and organisational culture. With a career in workplace health and safety spanning over 15 years, he has consulted nationally and internationally across a diverse range of industries such as law enforcement, local government, utilities (water and power, including renewables), offshore oil and gas, construction, and manufacturing. Dr Casey is an endorsed Organisational Psychologist with two doctoral degrees, including his PhD that involved development and validation of the award-winning LEAD model. His passion is translating abstract/theoretical concepts into practical tools that have measurable impact. Dr Casey is skilled at forming collaborative and mutually beneficial partnerships between government, industry, and academia.



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