

# WORKPLACE HEALTH AND SAFETY, BUSINESS PRODUCTIVITY AND SUSTAINABILITY



A REPORT PREPARED FOR SAFE WORK AUSTRALIA

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## PROJECT BACKGROUND

This paper was commissioned by Safe Work Australia as part of the Australian Work Health and Safety Strategy 2012-2022. Safe Work Australia seeks to promote the benefits that work health and safety can bring to businesses and to ensure health and safety is integrated into all business decisions. This paper is intended to provide an assessment of the research evidence that healthy and safe workplaces are more productive and make businesses more sustainable. This evidence is intended to assist managers in developing appropriate and robust business cases for securing the necessary resources and commitment for safety interventions.

## EXECUTIVE SUMMARY

The paper provides a summary review of the available research investigating aspects that contribute to making a business case for investment in WHS practices and systems.

The paper is broken into 10 sections dealing with the following areas of research:

- the economic costs associated with workplace disease, injury and death;
- the concept of a business case for investment in WHS and how this differs from the broader economic case for government action designed to improve WHS outcomes;
- assessments of the cost and benefits to the business associated with a wide range of specific WHS interventions in the workplace;
- the business costs associated with WHS failures;
- the broader strategic value and benefits associated with investment in WHS;
- balanced scorecard assessments of the business value of WHS;
- the relationship between WHS and workplace performance;
- high performance work practices and worker wellbeing;
- the impact of WHS on other outcomes - notably management and worker attitudes and behaviours - that indirectly influence workplace performance; and
- the specific challenges of developing a business case in the SME workplace.

The paper concludes with an assessment of whether this evidence contributes to justifying a business case for better WHS.

In broad terms, the evidence is supportive of a general business case for investment in better WHS - that is, prior research supports the proposition that investments in better WHS will provide a positive return on that investment through reduced costs associated with poor WHS outcomes and improved productivity, or other outcomes that add value to the business.

There are, however, a number of important caveats to this general conclusion.

- Beyond the direct and more immediate economic costs and benefits, businesses need to look to the broader strategic and longer-term value associated with better WHS outcomes.
- The strength of the business case is likely to vary significantly and be contingent on a number of factors often outside of the direct control of the business in question. These factors include size, industry context and inherent risks in the production process.
- The strength of the business case for investing in better WHS may also vary over time with changing business conditions. As a consequence, the time period over which a business case is constructed needs to be sensitive to the dynamic nature of the business environment, economic fluctuations and changing needs of the enterprise.

These factors suggest that the capacity to develop a business case, using the same business methodologies deployed in other areas of business investment and decision-making, is a powerful means to induce greater awareness and commitment to improving WHS outcomes, but of itself may not be sufficient to achieve an optimal level of investment in WHS. These initiatives need to be complemented with design of WHS regulations that requires certain standards be maintained or to gain a better understanding of the broader responsibility to maintain a safe and healthy workplace.

# 1. INTRODUCTION

This report provides a summary review of the current state of research findings concerning the relationship between work health and safety (WHS), business productivity and sustainable business performance. In particular, the aim is to assess the extent to which the available research evidence supports a business case for Australian organisations to make investments in better WHS systems and practices.

It is often argued management commitment to investing in better WHS systems requires a 'business case' to be made. The concept of the business case, however, is often confused with a related question of making an economic justification for government intervention or investment in better WHS. This more general economic justification considers the full economic costs and benefits of a policy intervention or investment, irrespective of how benefits or costs are distributed across business, the workers involved and the community at large. More simply put, the economic case is concerned with determining the extent to which WHS is a public good. The business case seeks to establish whether investment in better WHS can provide a net economic benefit to business, irrespective of whether such investments might also be able to generate net benefits that directly accrue to individual workers or the public at large.

The distinction between the public good and private benefit justifications for investment in WHS is important to make for a number of reasons. Perhaps the most important reason is that the general economic justification (the public good argument) does not of itself provide a business case for private investment in WHS. Although economic analysis is useful for informing public policy designed to determine optimal policy settings, it does not provide an economic rationale for individual businesses seeking to make an optimal investment in better WHS based on standard return-on-investment (ROI) criteria. Moreover, it highlights potential limits associated with relying on a traditional business case to drive changes in management behaviour and business decision-making. Traditional cost-benefit methodologies may not provide an adequate basis for assessing the full costs associated with a business decision because of the 'negative externalities' associated with business choices concerning appropriate preventative investments in WHS systems.<sup>1</sup> Nor are they likely to reflect the full range of factors – including concerns about strategic alignment and protection of intangible assets (such as reputation and brand image) – that influence business decision-making.

Within WHS research, the term 'business case' has generally been operationalised using traditional cost-benefit analysis of a specific WHS initiative. More recently, however, this approach to constructing a business case has been subject to considerable debate among management scholars. The alternative conceptions of the business case have sought to incorporate the consequences of a broader range of factors that might influence the value proposition associated with new interventions or initiatives. These include the consequences of decisions (or non-decisions) on business intangibles such as reputation, customer sentiment and loyalty, brand image and other strategic concerns. **In short, the available evidence points to the value of using a broader conception of the business case for WHS that accounts for the immediate costs and benefits, as well as the longer-run strategic and business value that such investment is likely to create for the business.**



This paper examines the empirical evidence supporting the business case for better workplace health and safety. It commences with a brief overview of what we know about the economic costs associated workplace injury and illness. While important for understanding the grounds for making a business case, this does not provide sufficient rationale or evidence for doing so. The body of the report considers research evidence that enables a broader consideration of factors that contribute to making a strong business case for investing in better WHS. The discussion commences with a review of cost-benefit studies and the business costs associated with failure. This then leads to a consideration of evidence that enables WHS to be integrated into decision-making at a higher strategic level through consideration of its consequence for intangible assets. Finally we consider what might be termed a second-order business case, namely, a consideration of the consequences of WHS performance for outcomes that research has demonstrated drive better business performance. These include leadership, management and employee attitudes and behaviours at work. The final section of the report draws these different streams of evidence together by addressing the question of whether the evidence supports the general proposition that there is a business case for WHS.

## 2. THE ECONOMIC JUSTIFICATION FOR BETTER WHS

Workplace illness, injury and death impose large costs on national economies. These costs accrue to individual workers who suffer, their families, the businesses that employ them, and society at large due to the costs associated with health care and treatment. Within the Australian context, an estimated 128,050 serious workers' compensation claims were submitted during 2011-12, equating to 12.2 claims per 1,000 employees. Employees who claim for a serious injury are absent from work, on average, for a period of 12 weeks, with one-quarter of serious claims requiring more than 12 weeks off work (Safe Work Australia 2014). During this same period, 228 workers died due to a workplace injury or accident equating to 1.99 deaths per 100,000 workers.<sup>2</sup>

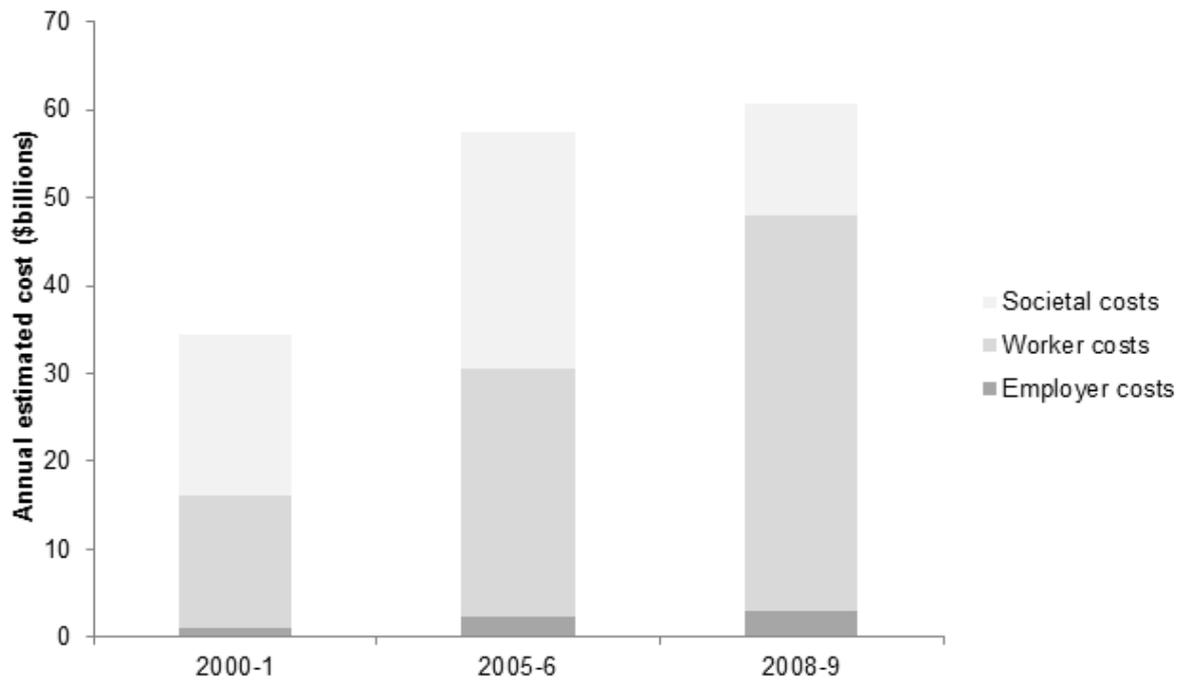
**Although Australia's WHS performance rates favourably internationally,<sup>3</sup> the costs to the Australian economy associated with work-related death, injury and illness are significant.**

Economic analysis of WHS has, for example, consistently shown that jobs or occupations associated with lower levels of workplace safety typically attract a wage premium (Heaney and Irlicht 2007). Economists have also sought to estimate the marginal costs associated with work related death. Using Australian data, Miller, Mulvey and Norris (1997) estimate the economic cost associated with a work-related death to be between \$A11 million and \$A19 million.

More recent estimates of the economic costs of workplace injury and illness focus on estimating the cumulative cost to the national economy as a whole (Safe Work Australia 2012). Figure 1 provides estimates of the total costs of work-related injury and illness in Australia for three periods: 2000-1, 2005-6 and 2008-9. The most recent estimates (2008-9) indicate that the direct and indirect costs associated with workplace injury and illness stands at more than \$60 billion annually - a cost that represents 4.8 percent of Australia's annual GDP.

Although estimates vary significantly from country to country, the International Labour Organisation (ILO 2006) has estimated that the costs associated with workplace death, injury and illness is approximately 4 percent of annual global gross domestic product. More recently, the World Economic Forum (2012) has estimated that cardiovascular disease alone results in productivity losses of \$US389 billion globally, whilst mental illness is estimated to reduce economic output by \$1.6 trillion.

**Figure 1.** The economic costs associated with work-related injury, Australia, selected years



**Source:** Estimates of economic costs of workplace injury and illness are taken from Safe Work Australia (2012).

Other research suggests that workplace health and safety may have more far-reaching macroeconomic consequences. The ILO (2012), for example, also finds a strong correlation between national workplace fatality rates and the WEF Global Competitive Index, suggesting that inadequate WHS practices place a heavy burden on national economic growth. In a study investigating the relationship between reported levels of work stress and economic performance in 31 European economies, Dollard and Nesar (2013) found that after controlling for a range of other determinants, worker health accounted for 13 percent of the variance in gross domestic product (GDP) across their sample of countries.

### 3. THE BUSINESS CASE FOR WHS

While these estimates of the economic costs and benefits to national economies are useful for determining the economic case for regulatory standards relating to WHS (the public good case) this evidence alone does not provide an adequate basis to make a business case for investing in better WHS. Whilst the general economic case relies on identifying a net positive economic benefit to society from collective investments in better WHS, the business case relies on individual businesses demonstrating that investments in additional WHS practices and systems yield a positive economic return to the business alone.<sup>4</sup>

The allocation of costs and benefits across different individuals or groups will therefore have significant consequence for the extent to which the general economic case translates into a business case. The greater the extent to which the costs of poor WHS outcomes accrue to employers (as opposed to employees or society at large), the stronger the business case is likely to be.

Yet the evidence indicates that a relatively small proportion of the costs associated with adverse WHS outcomes in fact accrue to business. As Figure 1 demonstrates for Australia, the vast majority of the total estimated costs associated with injury and illness at work accrue to the community in general and directly to workers themselves, rather than to the workplaces and businesses in which injury and illness is experienced. In 2008-9, for example, the economic impost on employers of workplace injury and illness represented just 5 percent of the total costs associated with WHS failure.<sup>5</sup>

The argument that investment in WHS systems and practices makes sound business sense is widely made by government agencies around the world, practitioners and consultants in the field, and academic literature (Hart 2010). **The business case is usually based on the assessment that investing in WHS can result in improved business performance and profitability in a number of different ways**, including:

- lowering WHS compliance costs (e.g., reduced Work Cover premiums);
- reducing sickness on-the-job (presenteeism);
- reducing costs associated with workplace accidents and fatalities;
- reducing the costs associated with return-to-work processes;
- reducing labour costs associated with absenteeism and turnover;
- higher levels of employee productivity as a result of improved morale, motivation, commitment and/or engagement;
- more efficient work processes;
- better risk management;
- protecting intangible firm assets (e.g. brand image and customer loyalty); and
- improving business reputation.

The objective of reframing the economic argument in terms of the costs and benefits that accrue directly to the business has obvious advantages. To begin with, reframing WHS as a business issue enables considerations of future investments in WHS using the same investment and business decision-making frameworks applied to other investment decisions – for example, investments in new plant and equipment. In doing so, it also serves to sensitise businesses to the direct bottom-line effects of poor WHS outcomes associated with increased employment costs, higher insurance premiums and penalties arising from prosecutions for breaches of WHS laws (Heaney and Irlicht 2007). Reframing the imperative to improve WHS as a business issue may also provide added incentives to allocate scarce resources to improving WHS systems and practices in order to avoid potential future costs associated with WHS failure (Verbeek, Pullianen and Kankaapä 2009; Carroll and Shabana 2010).

Few studies investigating the impact of different types of WHS systems and practices however, seek to make a comprehensive business case in these terms. Researchers tend to focus attention on one particular element that only partially justifies a business case through the potential gains that can accrue to workplaces from better WHS. These studies have sought to establish the business case for making WHS improvements using a traditional cost-benefits approach (Uegaki, de Bruijne, van der Beek, van Mechelen and van Tulder 2011).

## COST-BENEFIT ANALYSES OF WHS INTERVENTIONS

The attempt to establish a business case for WHS has a long history, with seminal studies undertaken as far back as the 1930s.<sup>6</sup> Most of the subsequent research seeking to demonstrate the business case for WHS interventions has followed the general approach adopted in earlier studies, focusing on identifying direct costs (such as employer insurance premiums) and indirect costs related to production losses (Panopoulos and Booth 2007). The savings associated with improvements brought about through better WHS practices are then measured against the costs associated with implementing such practices.

Over the last decade a number of important reviews of these studies have been published. A summary of the most important of these review studies is provided in Table 1. In addition to the studies included in these reviews, our search of the academic literature yielded a further seven studies published since 2000 employing a cost-benefit analysis to assess the economic benefits of a variety of WHS interventions.<sup>7</sup> Of the many cost-benefit studies published over the last 30 years, three Australian studies are worth specific mention.

- Edkins (1998) evaluated the implementation of a safety program adopted by a regional Australian airline. He concluded that the program had a positive impact on safety performance, with improvements to organisational safety culture and employees' understanding of safety risks, as well as an increased willingness to report safety hazards and incidents.
- Alsop and LeCouteur 1999 examined the implementation of an integrated OHS management system in a local government authority in Victoria.
- Pearse (2002) reported on the implementation of an OHS management system in a SME metal fabrication company.

Given the bias against publishing null or negative results, it is not surprising that the overwhelming majority of cost-benefit studies of WHS interventions report a net benefit outcome, thereby providing a business case for the intervention.<sup>8</sup> Arguably, however, the support that these cost-benefit evaluations provide for making a sound business case needs to be treated with some degree of caution for a number of reasons. These include variations between studies in terms of:

- the assumed rate of return on initial investments costs, and the time period over which the returns are calculated;
- the specification of direct and indirect costs and savings that might be associated with pre-intervention WHS systems;
- the approach to measuring productivity;
- the specification of other benefits that impact on the net outcome; and
- the quality of study design and data collection methods, with many studies over-estimating the likely benefits that could reasonably be attributed to the intervention.

These observations are of particular concern because of the consequences for any advice provided to businesses concerning the economic merits of investing in WHS interventions (Uegaki et al. 2010). In one of the most recent – and most rigorous – of these review studies, Baxter, Sanderson, Venn, Blizzard, and Palmer (2014) provide a detailed econometric assessment of prior studies reporting cost-benefit analyses of workplace health promotion programs implemented in workplaces spanning nine industries across 12 countries. They provide an assessment of the return on investment in workplace health programs weighted by two independent measures of study quality. Whilst their analysis confirmed an overall net benefit associated with programs examined, the general conclusion across all studies is that the rate of return was reported to be significantly higher in studies assessed to be of a lower quality. That is, studies utilising more rigorous methodological measurement techniques were associated with less significant ROI findings.

**Evidence drawn from other research examining the factors likely to influence investment choices made by firms also demonstrates why business may be cautious in making investments in WHS programs.** In understanding this more cautious approach to WHS investments beyond regulatory minimum standards, a number of factors are likely to be important, including:

- difficulties in estimating the economic value of benefits and costs that accrue to programs in future periods;
- the potential for delayed or variable benefits that flow from new WHS programs, against upfront or fixed costs associated with the initial investment; and
- uncertainty in estimating the impact of future business conditions or requirements in moderating the costs or benefits associated with such programs.

**Table 1.** Major reviews of cost-benefits studies, 2002-2014

STUDY	NUMBER OF STUDIES REVIEWED	KEY FINDINGS
Niven (2002)	Not disclosed	Future research should assist the National Health Service (NHS) make valid decisions about health and safety investment and risk control methods. Research should aim to improve the health of those affected by or working within the healthcare sector.
Tompa, Dolinschi & de Oliveira (2006)	Not disclosed	There is a need for economic expertise in the multidisciplinary research teams evaluating workplace-based occupational health and safety interventions.
Lamm, Massey and Perry (2007)	Not Disclosed	Focus on literature highlighting the links between WHS and firm productivity and performance. Much of the evidence is tenuous and not easily quantified. There is a tendency to focus on large organisations.
Robson, Clarke, Cullen, Bielecky, Severin, Bigelow, Irvin, Culyer & Mahood (2007)	23 studies (1990 - 2004)	Ten of the 23 studies were of low or poor methodological quality; only one study was rated as being of high quality. All demonstrate a positive net economic benefit resulting from a variety of WHS interventions.
Verbeek, Pullianen & Kankaapäa (2009)	18 studies (1992 - 2009)	Excluded studies identified as having significant design flaws in calculating costs and benefits. Included studies employing a variety of methodological designs. All studies demonstrate a positive net benefit resulting from a wide variety of WHS interventions. The majority of cases report a positive return on investment within 1 year following the intervention.
Uegaki, de Bruijne, Lambeek, Anema, van der Beek, van Mechelen & van Tulder (2010)	34 studies (1993 - 2007)	Focus on health-related interventions. Less than half of the studies included met the criteria for quality study design or measurement bias.
Uegaki, de Bruijne, van der Beek, van Mechelen & van Tulder (2011)	34 studies (1993 - 2007)	Half of all studies examined related to interventions designed to address physical health issues. Identified significant differences in the types of direct and indirect costs/benefits estimated.
Dongen, Proper, van Wier, van der Beek, Bongers, van Mechelen and van Tulder (2012)	Not disclosed	Focus on the cost-effectiveness of worksite nutrition and physical activity programs. Substantial need for improvement in methodological quality in studies of this nature. Definitive conclusions were not possible based on available evidence.
Baxter, Sanderson, Venn, Blizzard and Palmer (2013)	51 studies (1984 - 2012)	Focus on health promotion programs including return to work and workplace injury prevention studies. A higher methodological quality employed in studies was found to have an inverse relationship with ROI. However, the overall mean weighted ROI associated with health promotion interventions was positive.
Cagno, Micheli, Masi & Jacinto (2013)	30 papers (2000 - 2010)	Focus on studies that have some consequences for evaluating WHS interventions in small- and medium-sized businesses.
McCoy, Stinson, Scott, Tenney and Newman (2014)	84 studies (prior to July 2013)	Focus on small business and worksite health promotion programs. Only 19 of 84 studies met the inclusion criteria and of these a further 2 met the criteria for high rigor.

## THE BUSINESS COSTS OF WHS FAILURE

In addition to consideration of the costs and benefits associated with investment in new WHS interventions, researchers have also sought to identify and measure the business costs of WHS failure. Arguably, understanding the potential downside associated with non-intervention – and the potential exposure to risk that WHS failure represents – is an important element in justifying the business case for investing in better WHS systems and practices.

Considerable research effort has been applied to assessing the costs associated with WHS failure on different scales, including ‘outlier’ cases of catastrophic failure such as the Seveso (1976) (Margerison, Wallace and Hallenstein 1981), Bhopal (1984) (Gupta 2002; Hopkins 1999) and Texas BP (2005) (Hopkins 2011) disasters, as well as the 1998 Esso Longford gas explosion in Australia (Wheelright 2002).

Studies examining the costs associated with WHS failure on a less catastrophic scale have focused particular attention on the direct costs associated with compensation claims and rising insurance premiums (Rikhardsson and Impgaard 2004), and the indirect costs associated with employee responses (absenteeism, ‘presenteeism’ and turnover). A report released by The Work Foundation in 2010 found poor WHS performance to be a significant predictor of low levels of employee engagement. Right Management (2009) also report that when organisations fail to manage health and wellness well, they are four times more likely to lose talent within the next twelve months. The loss of key personnel in a business also brings into focus the indirect costs associated with both productivity loss and the expenses associated with finding and training a suitable replacement.

Independent reports released by the European Agency for Safety and Health at Work (2009), the Work Foundation (2010) and the National Pharmaceutical Council (2011) have sought to identify a number of indirect costs associated with WHS failure, including: (a) production delays and lost time; (b) litigation expenses and fines; (c) additional wage costs, sick pay and temporary labour replacement costs; and (d) repairs to plant and equipment.

Comprehensive estimates of the costs associated with WHS failure are not without challenges and controversies; with considerable difference in views as to how best to measure them.<sup>9</sup> **The costs associated with workers’ compensation claims alone have been estimated by the Health and Productivity Institute of Australia to amount to more than \$A1.1 billion annually (HAPIA 2008).** A number of studies here in Australia, as well as internationally, also observe that the costs are likely to be significantly higher than such estimates due to the underreporting of WHS incidents, uncompensated illnesses or injuries, as well as other indirect and hidden costs (Leigh and Robbins 2004, Rikhardsson and Impgaard 2004, Smallman and John 2000).

Of particular interest has been a willingness to consider a broader range of potential economic and business consequences of WHS failure, which serve to strengthen the business case for investing in WHS systems and practices. More specifically, prior research has consistently shown a significant relationship between poor WHS performance and:

- lower productivity (Lamm, Massey and Perry 2007);
- poor competitiveness (Smallman and John 2001);
- reduced shareholder value (Larsson, Mather and Dell 2007; Heaney and Irlicht 2007); and
- greater public scrutiny (Comcare 2011).

**In the Australian context, a study conducted by Medibank Private in 2005 reported survey data that found the healthiest employees in the sample were three times more productive than the least healthy,** while a ratio for the average days of sick leave was estimated to be 9:1 (Medibank Private, 2005).

## WHS AS STRATEGIC VALUE: WHS PERFORMANCE AND CORPORATE REPUTATION

It is perhaps in consideration of WHS practices as a cornerstone of corporate social responsibility (CSR) that the full costs of WHS failure can be most appreciated (Smallman and John 2001; Hart 2010; and Carroll and Shabana 2010). Smallman and John further argue that, at a strategic level, WHS outcomes can be considered a “determinant of firm status, specifically corporate image and identity” (2001: 231). In this sense, the case for investing in better WHS outcomes may represent strategic value to the business, rather than simply an avenue for immediate economic value. This view is best captured by the former CEO of BHP Billiton, Chris Goodyear, when speaking of the disadvantage a poor CSR image (including WHS outcomes) can create, stated that:

*...there is no doubt our profitability would be hampered and shareholder value destroyed... It's a powerful competitive differentiator. It has the potential to establish us as the company of choice, giving us better access to markets, natural resources and the best and brightest employees” (Goodyear 2006 cited in Young and Thyil 2009: 170).*

Research exploring the link between WHS performance and organisational value in terms of customer sentiment concludes that while non-compliance with WHS standards is likely to be highly visible amongst consumers, ‘super-compliance’ or initiatives beyond the limit of what the law strictly requires is often less likely to attract consumer attention or enhance reputation (Smallman and John 2001). Nevertheless, poor WHS practices are widely considered as a driver of competitive disadvantage, reduced status in the eyes of stakeholders, and potential profit and reputational losses (Smallman and John 2001).

Recent research has begun to explore the ways in which voluntary WHS investment beyond legal compliance might be used as a business strategy to enhance organisational reputation, profitability and customer satisfaction. Just as green businesses have differentiated themselves in the marketplace through sustainable environmental production practices. It has been suggested that products and services made under favourable WHS conditions could be similarly utilised as a means to position a business in competitive markets, with businesses tapping into the ethical consumerism movement and promoting themselves as an ‘ergo-brand’ (Neumann, Dixon and Nordvall, 2014). Initial research testing the ‘ergo-brand’ proposition has found some support for the suggestion that consumers prefer goods made by organisations committed to good working conditions. A study of the electric utility industry by Willis, Brown and Prussia (2012) found that WHS performance is linked to customer satisfaction. Recent research

by David Rechenthin (2014) has concluded that organisations with successful safety programs within high-risk industries, such as construction, can promote safety alongside other performance records as a sustainable competitive advantage. Notwithstanding these findings, Neumann et al. (2014) also report that this preference for 'ergo-brands' does not necessarily serve to overcome consumer considerations of quality and cost in their purchasing decisions (Neumann et al, 2014).

## THE BUSINESS VALUE OF WHS - THE BALANCED SCORECARD PERSPECTIVE

Kaplan and Norton (2001) among others suggest that many of these factors require a different approach to assessing the value that a business may derive from making a particular investment choice. They propose organisations employ a 'balanced scorecard approach'. Such an approach in their view is superior for a number of reasons. First, it accounts for the likely strategic value to the organisation that investments in WHS can contribute. Further, they argue that reliance on narrow financial measures of value traditionally associated with business investment decision-making is inherently backward looking, in that it measures the outcomes of past actions. This over-reliance on financial measures is also geared toward encouraging short-termism – sacrificing value in the long-run, for short-term performance.

A number of researchers have suggested investments into WHS has often suffered from the same bias, with most evaluations attempting to find short-term outcomes over and above more substantial long-term gains (Ozminkowski et al. 2002). The measurement of WHS is further complicated because the value (or relationship to value creation) can elude outdated financial measurement approaches. As Kaplan and Norton (2001) highlight, the value of intangible assets is often indirect, potential, contextual, and bundled. While there is a surfeit of studies focusing on highlighting the direct links between WHS investment and firm productivity/performance outcomes, much of the value derived from a safe and healthy workforce is likely to affect such measures indirectly, through cause-and-effect relationships. Similarly, safety performance measurement systems are often regressively orientated; intent on assessing WHS by its failures – accident rates, frequency of lost time injuries and workers' compensation claims (Mohamed 2003). Measurement of this nature is unhelpful because it is a record of accidents after they have occurred. Moreover, these statistics fail to recognise near-misses and potential WHS outcomes (Mohamed 2003).<sup>10</sup>

The contextual value of WHS investment needs little explanation. WHS is desirable across all industries and workplaces; however, it is clear that the value derived from the deployment of resources needs to align with the organizational context. For example, investment in a program designed to realise a zero-accident target might be desirable in an industrial plant with significant safety risks (for example, an industrial smelter), however, such an approach is unlikely to represent a valuable investment within an office setting (Young 2014). **The balanced scorecard perspective demonstrates that it is often essential to bundle intangible assets together with other tangible and intangible assets to create value** (Kaplan and Norton 2001). In terms of WHS, this might involve leveraging ergonomic interventions to improve productivity and efficiency,<sup>11</sup> and using the resultant ability for

promoting WHS outcomes to attract and retain talent (Right Management 2009), to improve or protect corporate reputation (Smallman and John 2001), and to leverage workplace practices to promote products and services (Neumann, Dixon and Nordvall 2014; Rechenthin 2014).

A lack of consensus surrounding the strategic value derived from WHS initiatives also creates a lack of insight into the establishment of effective performance measures essential in achieving a comprehensive safety management system (Koper, Moller and Zwetsloot 2009; Mohamed 2003). A number of studies have attempted to rectify this situation through the application of a more holistic balanced-scorecard. This approach attempts to align human resource initiatives with organisational performance (Mohamed, 2003: 80). The use of a balanced scorecard aids in translating organisational vision into selected health and safety objectives and performance measures from a financial, customer, internal business and innovation perspective (Gunduz and Simsek 2007).

A recent case study applying a balanced scorecard approach suggests that health-related interventions contribute significantly to organisational performance through increased quality, productivity, and cost reduction (Koper et al. 2009: 413). Furthermore, Gunduz and Simsek (2007) propose the inclusion of a balanced scorecard to develop safety objectives as the basis of an organisation-wide safety performance framework.

Whilst a balanced scorecard approach provides opportunity for inclusion of multiple stakeholder perspectives toward WHS objectives, WHS outcomes and associated performance are not easily measured (Gallagher, Underhill and Rimmer 2001). Mohamed (2003) advocates 'selection of only a handful of measures reflecting policy and lines of business, without leading to information overload', however, WHS complexity is such that simplified measures are often inadequate (Gallagher et al. 2001). Consequently, a contextual approach to WHS balanced scorecard adoption is recommended, one which permits tailored implementation of WHS characteristics to an organisational context, and which combines multiple measures and reflects different stakeholder interests in workplace health and safety.

## WHS AND SUSTAINABLE WORKPLACE PERFORMANCE

Linking WHS to a larger strategic purpose within the business also implies that the business case for investing in WHS systems and practices may also be reflected in the potential links between WHS improvements and performance.

### **The problem of measuring productivity**

Of particular concern among researchers is the nature of the relationship between WHS and workplace productivity. One immediate problem faced by both researchers and practitioners is the challenge of ascertaining how best to measure productivity. In its broadest sense, productivity measures the ratio of inputs to outputs. As this definition suggests, the concept derives principally from a manufacturing context where tangible inputs and outputs can be quantified and their values measured. In more diverse production and service environments a range of factors make measuring productivity a more difficult proposition (Prasad, Wahlqvist, Shikar and Shih 2004). In particular, the quantification of the inputs and outputs is difficult in many service and public sector work environments.

However, even in manufacturing environments, quality plays some role in shaping the value of production alongside the quantity of inputs and outputs (Gronroos and Ojasalo 2004). On the input side of the production process for example, employee creativity and application of skill may be more important than the number of hours worked. Similarly, quality outputs that encourage customer satisfaction and brand loyalty may be seen as adding more value and being more productive, than the quantity of goods or services sold in a given period (Oeij, de Looze, ten Have, van Rhjin and de Graf 2012). Yet, as Evan (2004), and Lamm, Massey and Perry (2007), have highlighted, the inclusion of these more subjective elements is likely to involve reliance on increasingly subjective data, which in turn increases the likelihood of errors and difficulty in determining a common metric in which it can be measured or used to augment traditional objective quantity and value measures.

Nonetheless, numerous studies, including many of those reported as cost-benefit studies rely on measures of productivity. While there is some variation in the manner in which studies measure and value productivity, most deploy a measure of labour productivity, as opposed to a measure of total factor productivity. Labour productivity is typically defined as the value of outputs (goods or services produced) per employee or work hour. In contrast multi- or total-factor productivity measures seek to account for variations in the role of labour as well as other inputs in generating a given value of output. While we are not aware of any studies deploying a total-factor productivity measure at the workplace level, there are a number of methodologies for doing so, often in specific production or service environments.<sup>12</sup>

### **The Causal Link between WHS and Workplace Performance**

It has already been noted that poor WHS has been linked to lower levels of workplace productivity and profitability. However, we have also noted the potential asymmetries that may be associated with WHS outcomes – whilst some forms of WHS failure may attract a negative response from customers; it is not always the case that high levels of WHS performance will be met with an equal positive response.

A number of studies have sought to identify positive linkages between WHS performance and firm performance. Again, however, this work traverses a range of different WHS variables and performance outcomes. This relationship is evident in a number of the WHS

cost-benefit studies reviewed earlier; for example, in a study of a Malaysian electronic factory, Yeow and Sen (2003) examine the development of a participatory ergonomic intervention designed to improve workstations. The primary aim was to address an ongoing issue with back pain and operator discomfort. A key driver of the economic return, however, was not associated with the reduction in absences or time off due to injury (although that was a significant outcome), but the improvement in work processes which lead to reductions in reject rates and manual reworking and a reported increase in client satisfaction and sales per employee. Similarly, in a study of a WHS intervention in wood-processing and automotive plants in the United States, Lahiri, Gold and Levenstein (2004) similarly reported significant improvements in workplace productivity following implementation. In a retail workplace, DeJoy et al. (2010) report on a controlled intervention during a recession and identify that intervention stores reported a significant improvement in store performance (sales) over the control group.

Other studies have sought to test whether investment in WHS management systems and external safety standard certifications can predict business performance using larger samples. For example, studies have reported on consequences associated with OHSAS 18001 certification in different national contexts – the United States (Lo, Pagell, Fan, Wiengarten, and Yeung, 2014), Spain (Abad, Lafuente and Viajosna 2013) and small and medium enterprises (SMEs) in Portugal (Santos, Barros, Mendes and Lopes, 2013). Although using different measures of business performance, these studies report significant performance effects associated with the implementation of OHSAS. In a larger sample of Spanish firms (n=455), Fernández-Múniz, Montes-Peón and Vázquez-Ordás (2009) confirm a positive relationship between the implementation of a comprehensive WHS management system and three measures of firm performance (safety performance, competitiveness and financial performance). However, it has been identified that barriers do exist for widespread adoption of standards certification amongst SMEs, such as increased bureaucracy and the high costs of certification (Santos et al., 2013).<sup>13</sup>

**Overall, the evidence consistently supports an association between WHS and performance measures.** While the quality of data in a significant number of studies has been open to question, where attempts have been made to control for this issue, evidence supports a positive relationship between WHS and performance. The available studies nonetheless suggest a need for some degree of caution in drawing strong inferences from this body of work. Many studies rely on cross sectional data, suggesting that reverse causality may play some role. Better performing employers may be more likely to invest in better WHS. Few studies examine whether any effects are stable over an extended period of time. Furthermore, studies vary in the extent to which they control for other confounding factors. It may also be the case that both workplace performance and better WHS are a product of higher-order factors that simultaneously operates to improve both – for example the quality of management and leadership within the organisation. To some extent, the discussion of work examining management attitudes towards WHS provides suggestive evidence, as do case studies that report the significant role of key individuals or well planned and executed management processes for developing and implementing workplace changes designed to improve WHS.

Overall, this assessment provides confidence in concluding that there is a *significant relationship* between WHS performance and workplace performance. However, there remains a question as to whether WHS performance is a significant causal factor in promoting workplace performance.

## HIGH PERFORMANCE WORK SYSTEMS AND WORKER WELLBEING

The focus on understanding the relationship between WHS and performance reflects a more general focus within management and organisational literature. One area of particular interest has been the successive attempts to identify a clear relationship between human resource management (HRM) and labour management practices, and workplace performance. Since Arthur's (1994) seminal study, there has been a large body of work published across a variety of industries demonstrating that many different HRM practices can have a significant and positive impact on firm performance. Since the 1990s in particular this work has sought to identify whether particular bundles of HR practices are associated with superior economic performance – often referred to as a 'high performance work systems' (HPWS). While this work has proceeded ahead of understanding the mechanisms through which HRM influences performance, it is a generally accepted understanding of the general features of HPWS practices – how they work, and under what conditions (Jiang et al. 2013).

Nonetheless, high performance work systems have also attracted growing criticism. In particular, studies critical of HPWS have identified a number of ways in which HPWS may undermine employee wellbeing and contribute to adverse WHS outcomes. In a seminal review of the HPWS literature and findings on employee outcomes, Goddard reports that a number of studies found HPWS associated with a range of negative effects, including high levels of work intensity and stress (Landsbergis, Cahill and Schnall 1999 and Smith 1997). Seemingly contradictorily, Ramsay et al. found that HPWS were associated with both higher levels of employee commitment and work strain.

Studies have also suggested the intensity of adoption of HPWS may also matter for employee wellbeing. Drawing on survey data of Canadian employees, Godard (2001) found that HPWS were positively associated with a range of employee attitudes and behaviours (belongingness, empowerment, task involvement, job satisfaction, self-esteem, commitment, motivation and organisational citizenship behaviour). However, these positive effects were found to be significant only at low to moderate levels of adoption. As the adoption of HPWS intensified, Godard's study indicated that the positive effects of HPWS declined and, at high levels of adoption, became negative. Significantly, this research found HPWS were also associated with significantly higher levels of stress, irrespective of the intensity of adoption (Godard 2001). The negative associations between HPWS and stress have been supported by a number of other studies (see Jensen, Patel and Messersmith 2013; Wood and de Menezes 2011 and Godard 2004).

Such findings are consistent with other research within the WHS literature that relate to 'production pressures' and links to occupational injury rates and incident reporting. Recent findings from Probst and Graso (2013) indicate that both actual and perceived production pressures effect employee injury rates and lead to a greater level of unreported WHS incidents. A construction project case study by Han, Saba, Lee, Mohamed and Pena-Mora (2014) similarly reported that schedule delays and rework were critical factors in the occurrence of occupational accidents. This work finds further support within the operations management research, which suggests that there are natural limits to achieving optimal manufacturing systems based on lean principles and waste minimisation. These studies find that at a high intensity of implementation, lean systems are generally associated with negative consequences for worker health and WHS risks (Brenner, Fairris and Ruser 2004; and Lewchuck, Stewart and Yates 2001).

Production pressures may also account for the apparent contradictory findings of both positive and negative consequences of HPWS reported by Godard (2001; 2004). In a laboratory study Probst (2002) sought to simulate the effects of both heightened production targets and the threat of layoffs to assess its impact on employee productivity and product performance and adherence to safety policies. Her study found that whilst these conditions were associated with an increase in productivity, they were also associated with a significant decline in quality and violation of safety rules compared with participants who did not face the conditions for increased output under the threat of layoff. Although their study did not assess whether HPWS were associated with higher productivity, Jensen et al (2013) found that HPWS had a significant effect on employee perceptions of role overload, burnout and heightened performance pressure. Of particular interest for understanding the relationship between production pressure and WHS performance, Jensen et al (2013) also show that these negative associations between HPWS and employee wellbeing measures are moderated by employee sense of control or perceived discretion over work.

## INDIRECT PATHS TO IMPROVED BUSINESS PERFORMANCE - THE IMPORTANCE OF MANAGEMENT AND EMPLOYEE ATTITUDES AND BEHAVIOURS

Much of the research examined thus far has sought to establish a *direct* link between WHS and levers of performance – costs, productivity, sales, financial performances and related outcomes. **Researchers have also been concerned to assess the extent to which WHS may impact *indirectly* on performance outcomes via their effects on the attitudes, perceptions and behaviours of managers and employees.**

### Manager perceptions and commitments to WHS

As we have seen so far, there is considerable evidence to suggest that in many circumstances, investments in improved WHS systems and practices can yield significant cost reductions and other economic benefits to the business – including having a positive impact on productivity and firm performance. The available research indicates that decisions to make such investments are likely to be influenced by the perceptions of employers and managers who hold responsibility for formally approving decisions to invest in WHS initiatives (Fernandez-Muniz et al. 2009). A number of studies demonstrate that where top management report a stronger commitment to WHS it is associated with higher WHS performance (Huang et al. 2007). Rundmo and Hale (2003) for example show that managers who display a positive attitude towards workplace safety are associated with a more proactive managerial approach to WHS. Barling et al (2002) report similar result for frontline managers. In a study of the offshore oil and gas sector, however, O'Dea and Flin (2001) find that managers may have an understanding of the importance of safety leadership in influencing employee safety behaviours, but do not always act consistently with these beliefs and understandings.

**WHS interventions have generally been perceived by managers as an expense required to avoid government penalty, rather than representing a productive or profitable investment** (Linhard, 2005). Managers and employers have tended to perceive resources dedicated to occupational safety as expenditures rather than investments (Fernandez-Muniz, Montes-Peon and Vazquez-Ordas 2009), with improvements in health and safety beyond those required to meet compliance obligations often delayed (Linhard, 2005).

Australian evidence presented by Roberts-Yates (2002, 2006) supports this finding, and suggests that where adverse WHS performance results in an increase in insurance premiums, injured workers are typically viewed as a liability to the business. Moreover, Roberts-Yates (2006) finds some evidence that employers are also willing to allocate blame for many injury events to worker negligence. Drawing on evidence from the offshore oil and gas industry, O'Dea and Flin (2001) find that these views are more prevalent among less experienced managers and managers in SMEs.

It also remains difficult to convince management of the benefits of investing in WHS because of a tendency to overestimate the costs associated with implementation and undervalue the costs associated with WHS failure (Amador-Rodendo 2005). Gallagher and Underhill indicate that there are clear gaps in the knowledge surrounding the 'enablers and barriers' for incorporating WHS into more comprehensive workplace management systems (2012). Moreover, it remains unclear how employers and senior management, particularly in SMEs, can be more effectively persuaded of the business case for WHS.

Perceptual bias is also reflected in research examining the adoption of safety management systems certification. This is particularly so for SMEs where the benefits associated with certification are more likely to be outweighed by a concern with the significant financial cost involved in the process. In a study of the safety management system certification process in Portugal, Santos, Barros, Mendes and Lopes (2013) found that 68 percent of SMEs did not pursue certification due to respective costs:

- 29.5 percent stated the investment required to implement certification was too high;
- 23.5 percent considered certification as a superfluous cost; and
- 14.7 percent indicated that anticipated benefits did not outweigh necessary costs.

**The perception among employers and managers that WHS represents an unnecessary cost is more prevalent among smaller companies than larger ones** (Holmes 1999; Wilson and Koehn 2000; Huang, Leamon, Courtney, Chen and DeArmond 2011). This is attributed to a number of factors, including the lack of adequate resources to fund WHS interventions, as well as attitudes concerning who has primary responsibility for managing WHS risks. Wilson and Koehn (2000), for example, find that small business employers have a tendency to think that risk control is the responsibility of individual employees rather than the employer or the company management system.

Yet the research also indicates that these views are not all pervasive, even within particular organisations. In two related studies of senior financial executives and decision-makers in a national sample of medium-to-large US employers, Huang Leamon, Courtney, Chen and deArmond (2007, 2011) found that the majority of respondents had an accurate understanding of the most common types of injuries, as well as the direct and indirect costs associated with these injuries. Moreover, financial managers reported an understanding of a broader range of positive benefits that might be associated with more effective WHS systems and generally reported a positive attitude towards investing in WHS initiatives.

Other case studies have explored the extent to which management commitment to WHS, influences WHS outcomes and workplace performance more generally:

- Michael, Evans, Jansen and Haight (2005) investigated the importance of manager commitment to WHS on employee perceptions and behaviours. Using a survey of 641 employees in three wood processing plants, they found employee perceptions of management's commitment to WHS was positively associated with job satisfaction, commitment, and job performance and negatively associated with employee withdrawal behaviours.
- Das, Pagell, Behm and Veltri (2008) find that where organisations take shortcuts which involve violations of established safety rules and procedures they are more likely to put efficient operation outcomes at risk, thereby defeating the intended purpose of taking shortcuts in the first place.
- In a study of 312 Canadian manufacturing firms, Geldart, Smith, Shannon and Lohfeld (2010) found reduced lost-time frequency rates were associated with the deployment of formal WHS policies and measures, involvement of workers in decision-making, and more positive managerial attitudes towards WHS.
- Drawing on evidence from 10 in-depth case studies, Veltri, Pagell, Johnston, Tompa, Robson and Amick (2013) find that the synergies between production requirements for improved efficiency and preventing these requirements had an adverse impact on safety. They also conclude that outcomes are optimised where considerations of safety risks are integrated into process design and the management systems for continuous improvement.

## Leadership and WHS performance

These findings highlight the role of managers as key influencers of how WHS practices are implemented and integrated into processes that drive production and performance. These studies also suggest that managers play a critical role in signalling to employees the business' expectations around safe and healthy work behaviours.

**One of the most significant factors shaping employee perceptions of risk and their behaviours is the behaviour of management.** In a recent meta-analysis of more than 50 studies examining the relationship between safety climate and injuries, Beus, Payne, Bergman and Arthur (2010) conclude that the strongest predictor of occupational injuries is management commitment to safety. This finding is echoed in a number of studies that specifically address the relationship between leadership behaviours and styles, and WHS outcomes. Early studies in this vein have generally focused on assessing whether leadership styles matter. A growing number of studies find consistent evidence that transformational styles of leadership are associated with better WHS outcomes, including reduced rates of injury in the workplace.<sup>14</sup> Zohar (2003) shows that some aspects of transaction leadership focusing on extrinsic incentives can also play some role in improving safety outcomes. In a major study of acute-care nurses (n=600) Squires, Tourangeau, and Doran (2010) examine the effects of quality of nurse-leader relationships on work environment, safety climate and patient outcomes. They concluded that 'resonant leadership' and interactional justice influenced the quality of the leader-nurse relationship which, in turn, was associated with a higher quality work environment and safety climate. These outcomes were found to be correlated with fewer reported medication errors, a lower intention to leave and less emotional exhaustion.

In contrast, Kelloway, Mullens and Francis (2006) show passive styles of leadership can prove to be detrimental for WHS outcomes. Clarke and Ward (2006) explore the relationship between different leadership style and influence tactics on employee participation in WHS initiatives. They find that tactics associated with both transformational and transaction leadership styles directed towards WHS may be effective at building trust in WHS systems and encourage employee participation in them, although transformational styles of leadership appear to have a stronger effect.

## Employee perceptions of WHS risks, attitudes and behaviours

It has already been observed that, when faced with production pressures and threats of dismissal, employees are willing to forgo safety in order to meet production targets. This finding indicates that under conditions of pressure and economic insecurity, employees are more likely to discount the risks associated with violating safety rules. Prior research has generally found that WHS risks are generally perceived by workers (as well as employers) as risks over which they have some responsibility and control. In their review of these studies, MacEachen et al. (2010) indicate prior studies have suggested a number of reasons why this is the case:

- Employees felt a personal sense of responsibility to 'do the right thing' by their employer;
- Employment arrangements (for example subcontracting) fostered a sense of self-reliance; and
- Taking responsibility for safety formed part of their job control as a trade group of skilled workers.

Moreover, the research consistently shows that where workers develop a stronger sense of the risks associated with tasks or jobs, they are more likely to lead to better safety behaviours and, consequently, lower rates of injury in the workplace (Basha and Maiti 2013).

This relationship is not straightforward, however. It has already been noted that the evidence indicates that even where employees have a clear understanding of risks of injury, production and other pressures may nonetheless induce behaviours that expose them to such risks (Gyekye 2005). Other researchers have also explored how risk perceptions are formed. Zohar and Luria (2005) provide evidence to suggest that employee perceptions are likely to vary depending on the safety referent from which risk signals are derived. Luria and Yagil (2010) extend this work by showing that whilst permanent full-time workers are typically able to develop referents through their interaction with team members or at the organisational level, temporary workers generally do not. Rather, the evidence suggests they rely on their own sense-making. Moreover, temporary workers are typically less trustful of management and the organisational commitment to protecting them from WHS risks. It is perhaps not surprising then that workers are more likely to discount the personal risk they face while more accurately estimating the WHS risks faced by others; and that within the same organisational settings different groups of workers and managers may develop significantly different perceptions of the WHS risks they face (Hallowell 2010).



Our review of the literature has identified a number of factors that have an influence on employee behaviours – either in the direction of reinforcing safety performance or undermining it. Of particular interest is the now voluminous work undertaken on safety climate – commonly defined as ‘employee perceptions of the work environment relating to safety’ (Clarke 2006: 553). This includes employee perceptions of policies, procedures and safety practices in the workplace. A strong safety climate is said to be one in which employees believe the organisation places a high priority to ensuring workplace safety over other organisational concerns. Over the last 30 years since the concept was first operationalised, a large body of research has emerged which consistently shows a strong link between safety climate – employee perceptions of risk – and safety performance<sup>15</sup>

This work has also identified the causal links between safety climate and a range of other employee outcomes, including: job satisfaction (Neilsen et al 2011), employee commitment (DeJoy et al. 2010), motivation (Neal and Griffin 2004), employee engagement (Wachter and Yorio 2014), and organisational citizenship behaviours (Clark and Ward 2006). This ‘positive spillover’ associated with a strong safety climate– much of which has been found in the HRM research to be important predictors of employee, team and workplace performance – has particular importance for constructing a business case for better WHS systems and practices.

## 4. WHS IN SMALL AND MEDIUM-SIZED ENTERPRISES

While a serious WHS incident can be financially disastrous for any business, the impact of inadequate WHS interventions can be felt to a much greater extent by small and medium-sized enterprises (SMEs). The ability to easily or quickly replace key personnel, pay fines and litigation costs, or cope with interruptions to business can be much more difficult for the less resource secure SMEs (EU-OSHA 2009; MacEachen et al. 2010). The financial vulnerability and comparatively short life-cycle inherent to most small businesses only serves to maximise the impact of costs related to WHS failure. This situation is further compounded by deficits in WHS expertise and formal occupational health and safety management systems (OHSMS) common to most small businesses (MacEachen et al 2010). While the current trend in the promotion of WHS practices to small business is to go beyond the cost-benefit of interventions and to tell the story that 'Safety Pays' (Biddle, Ray, Owusu-Edusei Jr and Camm 2005), it may be equally important to tell the story that 'WHS failure costs'.

The limited data on injuries within Australian SMEs creates the appearance that they outperform larger companies (Brooks, 2008). However, this impression can be misleading. It is commonly accepted that under-reporting of workplace injuries is significant amongst small businesses, and that this contributes to the statistical limitations of such assertions (Brooks, 2008). This is particularly true of occupational injuries that fall below the threshold of compensation (Champoux and Brun, 2003).

The unique social relationships that occur between employer and employees in small businesses can also affect the likelihood of reporting workplace injuries. MacEachen et al. (2010) found that the close-knit working relationships commonly found in small business allows workers to gain an intimate appreciation of a firm's financial position. This dynamic has been seen to foster empathy amongst workers in small businesses which can result in a higher tolerance of workplace hazards and inadequate WHS investment (Champoux and Brun 2003; MacEachen et al. 2010).

The more comprehensive body of international studies looking at WHS outcomes in SMEs is consistent in finding that **the WHS performance of SMEs is significantly poorer when compared with the performance of larger firms** (Cagno, Micheli, Jacinto and Masi 2014; Champoux and Brun 2003; Micheli and Cagno 2010; Sinclair and Cunningham 2014). Occupational accidents within smaller firms have been found to both occur more frequently and result in more severe consequences (lost-days for instance) than larger firms (Cagno et al. 2014; MacEachen et al. 2010; Micheli and Cagno 2010).

A number of factors contribute to the overrepresentation of small businesses within workplace illness and injury statistics. Small businesses often have a recurrent presence in high fatality-rate industries such as construction (MacEachen et al. 2010; Lingard and Holmes 2001), there are higher frequencies of physical, ergonomic and chemical hazards associated with small business workplaces (MacEachen et al. 2010), and small business workforces are often younger, less educated and less experienced (Champoux and Brun 2003). This point has been reiterated in a recent Australian study which highlighted the relationship between firm size and the probability of structured work-related training occurring, particularly in areas such as health and safety (Waddoups 2011). This research found that SMEs typically provide significantly less training than in larger businesses, particularly in the area of WHS. Other research indicates that smaller businesses are less likely to adopt workplace health promotion programs (McCoy et al. 2014) or workplace safety activities (Sinclair and Cunningham 2014).

There are a number of factors that contribute to the lack of investment and adoption of WHS practices within small businesses. To begin with, it is widely accepted that, compared with larger businesses, SMEs lack the economic, human and technological resources required to make WHS investment and manage WHS systems effectively (Cagno et al. 2014; Champoux and Brun 2003; MacEachen et al. 2010; McCoy et al. 2014; Micheli and Cagno 2010). The financial fragility of many small businesses – coupled with longer time period over which the returns on these investments are generated – make WHS investment unappealing to smaller firms (Champoux and Brun 2003; MacEachen et al. 2010). While there is evidence that large corporations are generally convinced of the WHS business case, lack of data, resources and knowledge have created a substantial barrier in attempts to make the case for SMEs (Cagno et al. 2013).<sup>16</sup>

A case study by Chapman, Newenhouse, Pereira, Karsh, Meyer, Brunette and Ehlers (2008), found that even a modest campaign to increase awareness of safety practices could be effective amongst small business owners. However, the actual adoption of such interventions required a much lengthier time period and uncertainty remained over whether the practices would be adopted at all. This occurred despite several of the interventions being modestly priced, associated with increased productivity, profitability, and reduced workload strain and injury risk. Factors affecting the adoption of practices were thought to be:

- uncertainty around the return on investment (ROI);
- the relatively short period over which the ROI was compared with competing investments; and
- the tendency for small business owners in the agriculture sector to be risk-averse (Chapman et al 2008).

By their very nature SMEs have obvious constraints surrounding human resources. Small firms are rarely in a position to hire a staff member dedicated to WHS, while programs coordinated by an external party may either be too costly or not available in the case of rural small businesses (McCoy et al. 2014). Furthermore, with fewer employees at their disposal, small businesses have less opportunity to engage workers in activities such as WHS committees (MacEachen et al. 2010; Sinclair and Cunningham 2014).

**It is also evident that production pressures contribute to the poorer WHS outcomes associated with small business.** A recent study by Lloyd and James (2008) explored the supply-chain pressures faced by the food processing sector in the UK. Their findings showed that although supermarkets had an interest in seeing that the WHS standards of their suppliers remained strong – as evidenced in the incentives they provided for improvements to health and safety – the price and delivery demands imposed on suppliers had the contradictory effect of being detrimental to WHS outcomes (Lloyd and James 2008).

Similar dynamics can also be seen in the Australian construction industry, where a vast majority of firms (97%) are small businesses (Lingard 2002). The industry is particularly notable for the highly competitive tendering system and pressures to deliver projects within time, scope and budgetary targets. Management of WHS outcomes within the construction industry is also challenged by other factors such as one-off projects, a changing work environment, and high staff turnover rates (Lingard and Holmes 2001). Small Australian construction firms also tend to conceptualise WHS risk awareness and

control as related to the individual, while overlooking or downplaying the technological and environmental controls for WHS risk (Lingard and Holmes 2001; Lingard 2000). More specifically, employers in small construction firms tend to consider occupational risk management as the personal responsibility of the worker and failures in WHS outcomes as attributable to personal carelessness or a lack of knowledge or experience (Lingard and Holmes 2001; Lingard 2000).<sup>17</sup>

WHS risks are commonly normalised or downplayed in small business due to distorted perceptions about risk common to many employers (Champoux and Brun 2003; MacEachen et al. 2010). Moreover, the lack of knowledge and expertise around WHS rules and approaches displayed by small business employers can be attributable to both inattention by regulatory inspectors (MacEachen et al. 2010) and employer isolation (Champoux and Brun 2003). Furthermore, research suggests that small business rarely seek out information on WHS programs and approaches (Olsen and Hasle 2014). Dissemination of WHS information is further hampered by reluctance amongst small firms to interact with WHS authorities. The most effective way of reaching a small business audience is through the more costly method of personal contact (Olsen and Hasle 2014).

**Despite these significant limitations, there is some support for the argument that WHS systems may be scalable to the SME context.** Walker and Tait (2004), for example, report on one such program in the United Kingdom designed to enable SMEs to develop and operate simple WHS systems. In a majority of the sample (n=24), the intervention was associated with the maintenance of effective WHS systems. They further conclude that one critical factor in the effectiveness of the program was the importance of building management knowledge and confidence in managing and maintaining the WHS system.

## 5. CONCLUSION: IS THERE A BUSINESS CASE FOR WHS?

This review of literature has traversed a wide range of research related to WHS and draws from a number of disparate disciplines. The primary aim was to assess the extent to which 'investment in WHS pays'; that is, to ascertain whether prudent investment in better WHS systems and practices can yield a return to the business making them.

This question has attracted considerable attention in the WHS literature, especially over the last decade as concerns about corporate social responsibility have heightened among the business community, regulators and the community at large. This same question has also become a major focus of academic research. Indeed, these two areas of research have been plagued by similar debates and concerns.<sup>18</sup> Of particular concern for translating an argument about the general economic benefits of better WHS is the extent to which the economic benefits that arise from doing so are in the form of a social good or private benefit. As was noted earlier, the greater the extent to which the costs (benefits) of poor WHS (better WHS) are generated as social costs and benefits, the more difficult it becomes to make a business case (Hart 2006). The available evidence indicates that this is so, at least for the largest proportion of costs associated with poor WHS performance.

Nonetheless, as the review of cost-benefit studies indicate, it is possible to construct a business case for a specific WHS intervention and demonstrate that it will generate enough economic value to more than pay for the initial investment – either in the form of reduced costs (greater than the cost of the intervention) or higher productivity. Whilst some studies show this was not always the case, the majority of published research (most single case studies) report that that the net benefit of interventions was positive.

This evidence, however, is not conclusive for making a general argument in favour of a general business case for WHS. To begin with, these studies do not provide any basis to assess how widespread a positive return on investments in WHS is generally experienced by businesses. As this report indicates, there is substantial evidence to show that many businesses do not pursue this course of action – either because they do not perceive the benefits of doing so exist, or because they do not have the knowledge, skills or expertise to be able to determine whether it is so. This was particularly evident in the case of SMEs who often report time and resource constraints on their capacity to invest in WHS systems and practices. The cost-benefit approach may, nonetheless, be seen as providing a useful means to understand the business drivers for investing in better WHS, as well as gauge how these drivers might apply in a particular business context.

Beyond this rational calculus of the immediate costs and returns, the research literature has suggested a wider basis for constructing a business case. To begin with, even where investments in better WHS systems do not yield a positive return on investment over the usual period that is calculated within a cost-benefit framework, protection of the business against the risk and liabilities associated with WHS failure in the long-term may provide a compelling business case for making such investments. This is so from both a risk management perspective (especially in industries where there is a heightened risk of more catastrophic failure), but also due to the adverse consequences for a range of performance indicators.

The evidence relating to the consequences of WHS performance for intangible business assets – including brand equity, consumer sentiment and reputation – may also lift any consideration of the business case to a higher level. Here, investments in better WHS systems may align with the strategic level concerns for the business. Whilst the direct evidence to support this concern is not well developed, as pressures on business to become more transparent generally grow, and consumers and the wider community show an increasing willingness to punish businesses that are not socially responsible, it is likely that this issue will gain salience within a broader business case argument. This view has found considerable support in the literature that draws on the balanced scorecard approach to assessing the value of a particular investment or strategy to the business. This view extends the narrow economic focus of cost-benefits analysis to adopt a future-focused perspective that assesses the strategic value of an outcome such as better WHS for maintaining intangible assets critical to the future success of the enterprise.

Perhaps most compelling is the direct evidence that links WHS interventions and systems to better business performance outcomes, including high productivity, lower costs, innovation and continuous improvement, and higher profitability. Again, however, while there are a growing number of studies which provide support for this proposition, the evidence remains uneven, as do the reasons for such effects and the factors likely to strengthen or weaken the links between WHS and performance outcomes. It was noted that this line of argumentation has been characterised by somewhat contradictory findings. This was especially evident in work examining the relationship between what have been termed high performance work systems and WHS outcomes. This work suggests caution because of the adverse effects reported on employee wellbeing and other negative experiences. These effects were particularly significant where lean systems were introduced at high intensity and workers experienced greater ‘production pressure’. Under these conditions, it was found that not only do workers tend to report negative wellbeing outcomes; they also tend to violate safety rules and expose themselves to higher risks of occupational injury. It is nonetheless worth noting that these adverse outcomes appear to be moderated by the extent to which employees felt they retained control over their work, and the extent to which WHS considerations were integrated into process design and production decisions.

Finally, this report considered work which supports what might be framed as a second-order business case; namely evidence that WHS systems and practices can have an indirect impact on performance through those factors often identified as important antecedents to performance. Here, this review highlighted two important strands of work: the relationship between leadership and WHS outcomes and the role of workplace safety climate in engendering a range of positive employee behaviours and attitudes. These lines of research are now mature, with perhaps the strongest empirical results linking better WHS to intermediate performance drivers. What remains is a consideration of whether good WHS and good employee outcomes are driven by the same antecedents, as opposed to being the product of a direct causal relationship of one to the other. Nonetheless, this work provides considerable support from a business perspective for co-investing in good WHS systems and practices, alongside better HRM practices within a workplace culture where leadership supports high performance.

What, then, can be said about the extent to which the research evidence supports a business case for WHS? This discussion has sought to highlight that any business case is likely to require a consideration of range of factors that operate to influence business performance in different ways and at different levels. In general, evidence suggests

that there are inherent tensions between productivity and high performance, and the consequences of providing a safe and healthy work environment. Yet, the evidence also demonstrates that it is possible, in many business contexts, to construct a business case for providing a healthy and safe work environment beyond simply that which would be required under the new model WHS law in Australia.

This conclusion needs to be read with several important caveats in mind. First, the public good argument for higher WHS standards provides a stronger evidentiary and conceptual foundation to support WHS regulation. The social costs of poor WHS outcomes are not accrued by business, nor are the social benefits – both of which account for the larger proportion of the economic case for investing in WHS. This would imply that it is not appropriate to rely on a business case for determining the optimal level of WHS protection. Moreover, there may be social, not economic reasons, for requiring businesses to invest in WHS as part of their larger social responsibilities to the community in which they operate and make profit. In this context, then, it is important to clarify that the legitimacy of the business case needs to be viewed as one means to create awareness and provide incentives for commitment to and leadership of better WHS where this does not exist or is insufficiently realised.

Second, the strength of the drivers for supporting a business case – be it the traditional cost-benefit analysis or higher order strategic considerations – are likely to apply differentially to businesses of differing sizes, operating in different industries or facing different WHS risk profiles. This raises the difficult question of whether employees ‘deserve’ different WHS systems and outcomes based simply on the business case. Again, other factors may come into play, which do not strictly reflect business case considerations.

Finally, the concept of the business case is often presented as a somewhat static argument. Yet, many of the factors we have identified as critical to supporting a business case are dynamic in nature, such that over time the business value proposition of investing at a given level in WHS systems and practices may vary or, in some instances, dissipate. Again, it is not clear that making a business case should imply that the level of WHS protection afforded within a particular workplace or organisational context should vary as the costs and returns to specific interventions vary over time.

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## Endnotes

- <sup>1</sup> 'Negative externalities' refer to the costs that accrue to the public as a result of private decisions. For example, where an individual business engages in some economic activity that generates pollution into the environment, a negative externality is generated in that the private decision to produce has generated a cost that does not accrue to the firm but to public at large.
- <sup>2</sup> Agriculture, forestry and fishing industry reported the highest number of workplace fatalities (60 deaths), followed by the transport, postal and warehousing industry (51 workplace fatalities). The estimated number of work-related fatalities due to occupational illness has been conservatively estimated at 2,000 deaths per year (Safe Work Australia, 2014: 8).
- <sup>3</sup> According to the Productivity Commission (2012), Australia ranks seventh among the best OHS performing countries in terms of work-related fatality rates, with Australia's work-related fatality rate decreasing at a faster rate than the best performing countries in the world (Productivity Commission, 2012: 156).
- <sup>4</sup> There are a range of methodologies employed for determining the net benefit associated with an investment, however, these various methodologies are generally concerned with estimating the net

present value associated with an investment, given by 
$$NPV = \sum_{t=0}^n \frac{(Benefits - Costs)}{(1 + r)^t}$$

where NPV is the net present value of the investment,  $r$  = the discount rate,  $t$  = the year, and  $n$  = the time horizon (in terms of number of years over which the return on investment is calculated to flow). Business research indicates that most businesses are likely to supplement this narrow economic framework by accounting for other factors that other criteria like to influence the future value of an investment including: the strategic advantage that the investment may provide to the organisation in terms of long-term competitiveness; or an analysis of the quality of the investment under variable economic conditions our outlooks. For a more detailed description, see Frank, De Souza, Rebiero and Escheveste (2013).

- <sup>5</sup> Similar estimates have been made in other national contexts. For example, using a different methodology for estimating economic costs, the British Safety Council (2013) estimates for 2010-11 indicates that workplace fatalities, injury and illness cost the British economy between £12.5 billion and £15.1 billion. Of this total cost, approximately 57 percent was borne by affected workers, 21 percent by employers and 22 percent by government.
- <sup>6</sup> See, for example, the seminal work of Heinrich (1931) estimating the economic costs of accidents in US steel works.
- <sup>7</sup> These additional studies are: Abrahamsson (2000), Ozminkowski, Ling, Goetzel, Bruno, Rutter, Isaac and Wang (2002), Sen and Yeow (2003), Rempel, Krause, Goldberg, Benner, Hudes and Goldner (2006), DeJoy, Wilson, Vandenberg, McGrath-Higgins and Griffin-Blake (2010), Guimaraes, Rebeiro and Renner (2012), Tompa, Dolinschi and Natale (2013), Dewa and Hoch (2014).

- <sup>8</sup> There are, however, a number of important exceptions to this general finding of positive effects – see, for example, Albert and Hallowell, 2013; and Dongen, Proper, van Wier, van der Beek, Bongers, van Mechelen and van Tulder, 2012.
- <sup>9</sup> Approaches to measuring the costs of WHS overwhelmingly focus on productivity losses. Instruments such as the Health and Labour Questionnaire and Quantity and Quality tool (Meerding, Ijzelenberg, Koopmanschap, Severens and Burdorf, 2005), the Productivity Assessment Tool (Oxenburgh and Marlow, 2005), the Work Productivity Short Inventory and Work Limitations Questionnaire methods (Goetzel, Ozminkowski and Long, 2003; Ozminkowski, Goetzel, Chang and Long, 2004), and the Productivity and Disease Questionnaire (Koopmanschap, 2005) all attempt to measure various indicators of production loss (such as absenteeism and presenteeism) related to occupational injury and illness. However, there have been various instruments developed more recently, such as the Workforce Wellness Index (Goetzel, Pickens and Kowlessar, 2013) and HERO Scorecard (Goetzel, Henke, Benevent, Tabrizi, Kent, Smith, Roemer, Grossmeier, Mason, Gold, Noeldner and Anderson, 2014), which attempt to measure medical and health care related costs.
- <sup>10</sup> An interesting recent attempt to create a tool that captures the potential costs and benefits of WHS investment has been the formulation of the Return on Health, Safety and Environmental Investments (ROHSEI) software (Linhard 2005). While still overwhelmingly grounded in a framework of financial performance measurement, ROHSEI is nonetheless noteworthy for at least acknowledging the potential hidden value inherent to WHS investment.
- <sup>11</sup> See for instance, Hagg 2003; Dul and Neumann 2009; Goggins, Spielholz and Nothstein 2008; Yeow and Sen 2003.
- <sup>12</sup> See, for example, the approach described by Holcomb, Hoffart and Fox (2002) for measuring nursing productivity.
- <sup>13</sup> Australian research of this nature is scarce, however, it might be reasonable to suggest that, based on these findings, the equivalent safety management system standard (AS/NZS4801) may generate a similar set of outcomes.
- <sup>14</sup> The following represent the major studies undertaken since 2000 that find a positive relationship between the transformational style of leadership and WHS outcomes (the specific measure is indicated in parentheses): Barling et al. 2002 (occupational injuries); Zohar 2002 (occupational injuries); Huang, Chen, Krauss and Rogers 2004 (occupational injuries); Clarke and Ward 2006 (safety participation); Michael et al. (2006 (occupational injuries); Storseth (2006) (risk taking behaviour); Matsubara, Hagihara and Nobutomo 2008 (rule compliance); Conchie and Donald 2009 (safety citizenship behaviours); Kelloway et al. 2009 (occupation injuries), Mullen and Kelloway 2009 (safety compliance, occupational injuries); Inness, Turner, Baring and Stride 2010 (safety participation, safety compliance), Lu and Yang 2010 (safety participation and safety compliance); Lee, Coustasse and Sikula 2011 (occupational injuries); Mullen et al. 2011 (safety participation, safety compliance); Conchie et al. 2012 (safety citizenship behaviour). Also see the comprehensive report produced by the European Agency for Safety and Health at Work (2012)

- <sup>15</sup> For extensive reviews of this literature, see Beus et al (2010).
- <sup>16</sup> A recent study on the construction industry confirms such concerns, indicating that safety initiatives and investment do improve safety performance, but that the effects are only realised over time (Hoonakker et al, 2005).
- <sup>17</sup> Research also suggests that the high rates of occupational injury and illness in the construction sector is influenced in some way by the complex contractual arrangements often in place. Small-scale Australian construction firms are often limited in their capacity to exert inter-organisational influence due to being typically engaged as subcontractors (Lingard and Holmes, 2001). Flexible work practices (such as subcontracting and temporary agency work) and their implications for WHS outcomes within the broader Australian labour market have also been the subject of recent research Findings in extant literature tend to highlight that flexible work arrangements can significantly obscure the WHS regulatory responsibilities of employers (Burgess, Rasmussen and Connell, 2004; Johnstone, Quinlan and Walters, 2005; Scott, 2004).
- <sup>18</sup> For recent reviews of the CSR business case literature, see Carroll and Shaban (2010), Hart (2010), and Dixon-Flowler et al. (2013). These concerns about making a business case are not restricted to these specific areas, but also apply to the areas such as diversity, work-life balance and fair employment practices.