



**WORK HEALTH, SAFETY, AND WELLBEING STRATEGY AND
EMPLOYEE ENGAGEMENT: A MIXED-METHODS STUDY**

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ABSTRACT

Research suggests that many organisations do not see how investing in workplace health, safety, and wellbeing (WHSW) adds value in terms of the indicators that are used to determine its value, as many relate to improvements in work-related injury and illness occurrence and workers' compensation costs. Furthermore, it has become clear that the reliance on traditional approaches and systems to WHSW alone is not going to achieve the desired level of workplace health and safety performance (Borys et al. 2012) as work-related injury and illness remains a significant problem (and cost) at around 5% of Gross Domestic Product to the Australian economy (O'Neill, Martinov-Bennie & Cheung 2013). Despite the emerging concern around employee wellbeing and mental health, there has been a distinct lack of research into workplace health and safety leading to calls for further research in this area from a business perspective (Zanko & Dawson 2012).

As a prominent business issue there remains limited evidence in the literature about the relationship between business strategy, workplace health, safety, wellbeing, and performance measurement that demonstrate measurable impact on organisational performance. Whilst the literature reports numerous studies into the relationship between employee engagement and efficacy, they hardly incorporate workplace health, safety, and wellbeing issues within this relationship. This mixed-methods study investigated the relationship between workplace health, safety and wellbeing strategy, employee engagement, and strategy efficacy. The study was also able to investigate the moderating effect of leadership on this relationship. A key assumption of the study as derived from the literature was that WHSW strategy and employee engagement are indicators of efficacy. Findings from the interviews and survey identified 17 key findings. These findings indicated that the WHSW strategy and employee engagement framework was deemed a suitable framework for high-risk businesses to improve individual and organisational performance.

Key Words: Workplace Health and Safety, Wellbeing, Strategy, Employee Engagement

CERTIFICATION OF THESIS

This thesis is entirely the work of Brent Marc Halliday except where otherwise acknowledged. The work is original and has not previously been submitted for any other award, except where acknowledged.

Principal Supervisor: Dr Luke Van der Laan

Associate Supervisor: Dr Aldo Ranieri

Student and supervisor's signatures of endorsement are held at USQ.

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ABBREVIATIONS

AS/NZS	Australian Standard and New Zealand Standard
BSC	Balanced Scorecard
CBA	Cost-Benefit Analysis
COS	Cost of Safety
CSR	Corporate Social Responsibility
EFA	Exploratory factor analysis
EE	Employee Engagement
EW	Eudemonic Wellbeing
EASHW	European Agency for Safety and Health at Work
HSE	UK Health and Safety Executive
HRD	Human Resource Development
HRM	Human Resource Management
HPWS	High-Performance Work Systems
ISA	Intellectual, Social and Affective Scale
IMR	Internet Mediated Survey
JDR	Job-Demand Resources Model
JDS	Job Diagnostics Survey
KPI	Key Performance Indicator
LTI	Lost Time Injury
LTIFR	Lost Time Injury Frequency Rate
LMX	Leader-member exchange theory
LOS	Line of Sight
MCS	Management Control Systems
MMR	Mixed Methods Research
NGO	Non-Government Organisation
OHSMS	Occupational Health and Safety Management System
OD	Organisational Development
OLC	Organisational Learning Climate
OSH	Occupational safety and health
OHP	Occupational Health Practice

OPM	Organisational Performance Metric
OHSA	Occupational Health and Safety Administration
PCBU	Person Conducting a Business or Undertaking
PDCA	Plan, Do, Check, Act
PM	Performance Measurement
PPI	Positive Performance Indicators
QWL	Quality of Working Life
QLD	Queensland
RA	Regression Analysis
RoP	Return on Prevention
RBV	Resource-Based View
ROI	Return on Investment
SHRM	Society for Human Resource Management
SWB	Subjective Wellbeing
SWA	Safe Work Australia
SME	Subject Matter Expert
SMS	Workplace Health and Safety Management System
SHE	Safety, Health and Environment
SPSS	Statistical Package for the Social Sciences
SSM	Strategic Safety Management
TFL	Transformational leadership
TL	Transactional leadership
UK	United Kingdom
USQ	University of Southern Queensland
WHSW	Workplace Health, Safety and Wellbeing
WRII	Work-Related Injury and Illness
WHS	Workplace Health and Safety
WHSQ	Workplace Health and Safety Queensland
WHO	World Health Organisation
WDQ	Work Design Questionnaire
WEES	WHSW and Employee Engagement Survey

OVERVIEW OF THIS THESIS

This thesis is presented in a traditional format comprising six chapters summarised below.

- **Chapter 1** provides an outline of workplace health, safety, and wellbeing practice with clear distinctions between each of these elements. From this, an original work wellbeing construct and definition emerges. WHSW is considered as a ‘state facilitated by the organisation which enables good work-related social connection, promotes physical and psychological health, job satisfaction, and personal growth. This leads to optimal worker motivation and engagement resulting in positive outcomes in an employees’ working and social life, and organisational performance’. This definition is a clear departure from the traditional focus of accident prevention and workplace exposure control which affects employee health. Furthermore, this chapter defines the problem under investigation and the aims of this doctoral research.
- **Chapter 2** outlines the current trends and gaps in the literature relating to the study of WHSW strategy and employee engagement. It establishes that worker wellbeing has become a priority at the individual, organisational and societal levels representing a material issue that businesses must address as part of their broader strategy. Many of the approaches outlined are firmly grounded in management principles through the application of WHSW management frameworks. As such, scanty strategic models and frameworks have been outlined in the literature. Finally, as the outcome of this chapter a conceptual framework for WHSW strategy and employee engagement and the operational definitions for each construct and sub-variable is presented in the chapter.
- **Chapter 3** outlines the research questions, research framework and methods used to explore and validate the conceptual WHSW strategy and employee engagement framework that emerged from the literature review. This chapter outlines the objectives of this study to determine the acceptability of a business approach for the strategic management of WHSW that adds value beyond work injury and illness and individual wellbeing. Hence bridging the gaps in current approaches. It also discusses the Pragmatic Paradigm and the mixed methods research strategy consisting of Qualitative phase (Semi-structured interview) and Quantitative Phase (Internet Mediated Survey) and justifies its suitability for this research. Despite being relatively new this method has been extensively used in social sciences, organisational and management research and workplace health and safety,

and was therefore suitable for the study. Also outlined are the ethical considerations relating to the research process, participants, and USQ and the controls employed to minimise the risks.

- **Chapter 4** outlines the results, themes, and statistical analysis results to validate the conceptual WHSW strategy and employee engagement model through interview and the online survey. It examines the themes emerging from the Semi-Structured Interviews and survey data and outlines proposed amendments to the framework and its operationalisation and validation.
- **Chapter 5** provides a discussion on the study results from both the semi-structured interviews and online survey and summarises the key findings.
- **Chapter 6** outlines the conclusions from this study and contribution to practice in addition to the limitations of the research methodology and future research requirements arising from this mixed methods study into WHSW strategy and employee engagement.

CHAPTER 1 – INTRODUCTION

This chapter outlines the current knowledge and approaches to workplace health, safety, and wellbeing (WHSW).

The aims of this chapter are to:

- Outline the background and need for this study into work health, safety and wellbeing strategy, and employee engagement.
- Establish the scope and discipline areas that makeup work health, safety, and wellbeing.
- Establish the focus, aims, objectives, and research questions of this study.

1.1 Background of the Study

Research suggests that businesses seldom see how investing in workplace health, safety, and wellbeing adds value to employee performance as many of the indicators used to determine its value relate to improvements in work-related injury and illness (WRII) occurrence and workers' compensation costs.

Furthermore, it has become clear that the reliance on traditional approaches and systems alone is not going to achieve the desired level of workplace health and safety (WHS) performance (Borys et al. 2012) as WRII remains a significant problem (and cost) at around 5% of Gross Domestic Product to the Australian economy (O'Neill, Martinov-Bennie & Cheung 2013). More specifically to Queensland, there were 61,077 accepted non-fatal workers compensation claims for WRII in 2012-13; 78,795 in 2011-12 and 80,647 in 2010-11, suggesting further intervention to reduce to WRII and disease and improve wellbeing is still required.

None the less, the reported benefits of effective workplace health and safety (WHS) and wellbeing risk management are related to reduced injuries, reduced workers compensation costs, and improved productivity, presenteeism, absenteeism, job satisfaction and employee engagement (Zwetsloot & van Scheppingen 2007; Bevan 2010; O'Neill, Martinov-Bennie & Cheung 2013; Hafner et al. 2015). However, these benefits still appear to have a singular focus on mitigating WHSW risk, without demonstrating any broader value to business. Approaches to determining the business case for WHSW has received a great deal of attention in the literature (Oxenburgh & Marlow 2005; Markey et al. 2008; Gahan, Sievwright & Evans 2014; O'Neill, Cheung & Holley 2014). Its application has generally seen its operationalisation through traditional cost-benefit analysis (CBA) methods to determine the value of a specific

initiative or intervention (Gahan, Sievwright & Evans 2014). From a health perspective, ‘the traditional push has [...] been triggered by legislation which has been found to be insufficient to really demonstrate the value of health management from a strategic business perspective as most cost-benefit assessments have little impact on company strategy’ (Zwetsloot & van Scheppingen 2007, p. 29). The chronic disease limiting the capacity and availability of workers (Royal Australasian College of Physicians 2013) and declining levels of employee engagement affecting cooperation and discretionary effort at work, are collectively impacting on business performance in a broader way than originally projected (Kular et al. 2008). As such, these issues represent a societal, organisational, and individual challenge for businesses requiring a move from illness to wellness thinking (World Economic Forum 2008). Indeed, this conclusion is reflected in the Australian Work Health and Safety Strategy 2012-2022 which promotes the vision of ‘healthy, safe, and productive working lives’ (Safe Work Australia 2012, p.3).

Another factor driving the need for a business approach is the significantly greater awareness of corporate governance and personal wellness obligations owed to various stakeholders. WHSW has been identified as an area of risk where adverse outcomes could materially impact on businesses (Kercher 2007). Recognising this, Boardman and Lyon (2006) outline key principles around corporate governance which business needs to be cognisant of that include well-established performance measurement systems and more resilient business controls. It has been shown that from a strategic perspective investment in WHS is associated with improved business performance (Gahan, Sievwright & Evans 2014) as further illustrated by Hesapro (2013, p. 11) who report that ‘integrating health and safety in company strategy and policy can be seen as a key to business excellence and success’.

There are, however, limitations with existing business case approaches (Gahan, Sievwright & Evans 2014). The view that CBA makes as a sound business case needs to be treated with some degree of caution for several reasons, among those, the variations between studies that have been completed. In addition to the inconsistent use of metrics, such as lack of ‘national and international benchmarks for assessing health and safety related productivity, and for the quantification of the fiscal impact of health and safety on the firms bottom line’ (Lamm, Massey & Perry 2007, p. 79). Adding to the complexity, CBA is not necessarily a straightforward process, as interventions may not result in any financial benefit. According to some commentators, any viable approach to CBA needs to link three concepts together: ‘(1) Return on Investment, (2) Making the Business Case, and (3) Leading and Trailing Metrics’ (Cecich 2005, p. 38).

Given these concepts, there are limitations with existing CBA approaches in terms of the notion of what constitutes the business case which has been started to be expanded upon through investigations into the role of safety management systems, high-performance work systems, leadership and culture, and performance measurement (Gahan, Sievwright & Evans 2014; O'Neill, Cheung & Holley 2014). Much of the focus remains consistent with the traditional approach to CBA. Despite this, there is a role for performance measurement (PM) in demonstrating the business value of WHSW. Especially as many organisations use progress against metrics as the determining factor for investments in WHSW or using them as the basis for judgment on improvements to WHS performance. To make informed decisions around WHSW, senior executives and leaders need access to reliable performance information and data (Sinelnikov, Inouye & Kerper 2015). Typical sources include injury, illness, and workers' compensation data delivered through performance measurement. Government organisations and insurers also use data sets largely derived from epidemiological data to inform policy setting, intervention targets, and practice. As such, both public and private sector organisations require 'measurement systems capable of informing about work health and safety issues in order to enable the evaluation and continuous improvement of effective work health and safety policy, regulation and practice' (O'Neill, Martinov-Bennie & Cheung 2013, p.6). Measurement of WRII remains a significant issue as there are multiple ways of dissecting, analysing, and reporting on it. This includes frequency, severity, body area effected, the cause, and capacity to work (O'Neill, Martinov-Bennie & Cheung 2013).

Further areas of concern around current PM practices relates to the inconsistent terminology used to describe types of WRII and the ability of measures to measure what they are intended to do, as many are subjective and easily manipulated. As such, data 'must be valid, relevant, and reliable as it is critical to informing strategic and operational decisions that drive the effective management of WHS' (O'Neill, Martinov-Bennie & Cheung 2013, p. 5). Although there are established shortcomings, PM has been consistently identified and reported as a significant factor in safety excellence, best-practice organisations, corporate governance, and strategy execution (Micheli & Manzoni 2010; Gahan, Sievwright & Evans 2014). In a more contemporary sense with more mature organisations aligning reporting with corporate social responsibility and sustainability, the traditional areas of measurement used do not appear to have the scope to accommodate reporting on more holistic measurement categories such as lifestyle, psychological health, physical health, and engagement (Right Management 2009).

Despite WHSW being a prominent business issue, there was limited evidence in the literature about the relationship between business strategy, WHSW, and performance measurement

being brought together within a single cohesive framework that demonstrates a measurable impact on organisational wide performance. Lamm, Massey and Perry (2007, p. 73) note that ‘investigating this area is not a straightforward task as the relationship between business performance and productivity and OHS interventions aimed at reducing illness and injury is strongly contested’. Similarly, Markey et al. (2008, p. 516) report that ‘wellbeing, participation and productivity have rarely been brought together in research’. From a business perspective this gap was further emphasised by Zanko and Dawson (2012) who reported that OHS is increasingly viewed as a key operational and strategic concern of business organizations, it requires greater conceptual development, empirical study, and theoretical reflection to balance the existing concerns of OHS specialists.

As such, the need for this investigation into a business approach to WHSW has emerged because these traditional interventions have only had some impact in reducing WRII occurrence frequency and severity and there is a paucity of studies and empirical evidence into WHSW from a business perspective (Zanko & Dawson 2012).

1.2 Positioning Work Health, Safety, and Wellbeing Practice

Workplace Health and Safety (WHSW) is a young multidisciplinary science with a focus on the physical, physiological, and psychosocial aspects of an organisation’s workforce. In terms of application, it is generally recognised that the delineation of practice and organisational risk control strategies is in the terms of:

- Work safety: which deals with accident prevention and has been defined as ‘the systematic application of principles to reduce incidents, accidents or the accident potential of a system or organisation’(Hesapro 2013, p. 27).
- Work health: which deals with all aspects of health in the workplace and has a strong focus on primary prevention of hazards. The health of workers has several determinants, including risk factors at the workplace leading to cancers, accidents, musculoskeletal diseases, respiratory diseases, hearing loss, circulatory diseases, stress related disorders and communicable diseases and others (World Health Organization n.d.).
- Work-related wellbeing: which is that part of an employee’s overall well-being that is perceived to be determined primarily by work and can be influenced by workplace interventions (Hesapro 2013, p. 29).

1.2.1 Work safety

The work environment consists of a broad cross-section of hazards when not controlled can diminish safety and result in harm to people and organisations. Defining safety, however, is not straightforward as there is no universally accepted definition. One accepted definition of safety is ‘a state in which the risk of harm (to persons) or damage is limited to an acceptable’ (Standards Australia & Standards New Zealand 2001, p. 5). This is comparable with the early definition derived from the French word *Sauf* meaning ‘unharmful or unhurt’ (Hollnagel 2013, p. 1). The traditional focus of occupational (or work) safety has been to minimise the potential for unexpected outcomes or ‘the maintenance of a work environment that is relatively free from actual or potential hazards that can injure employees’ (Industrial Accident Prevention Association 2007, cited in Hesapro 2013, p. 28). Typically, this has been measured by the nature, incidence, and prevalence of injuries should they materialise. Erik Hollnagel (2013) describes the current state of work safety as follows:

Safety has traditionally been defined as a condition where nothing goes wrong. Or rather, since we know that it is impossible to ensure that nothing goes wrong, as a condition where the number of things that go wrong is acceptably small. This is, however, an indirect and somewhat paradoxical definition since safety is defined by its opposite, by what happens when it is missing. As a consequence of this definition, safety is also measured indirectly, not by its presence or as a quality in itself, but by the consequences of its absence (Hollnagel 2013, p. 1).

The early approach to accident prevention has largely been based on the seminal work of Heinrich (1931), drawn largely from established scientific disciplines such as management, psychology, engineering, and medicine (Zanko & Dawson 2012). Heinrich’s research contributed to the understanding of accident causation through his “domino model”, a sequential linear model that posits five metaphorical dominoes labelled as social environment and ancestry, fault of the person, unsafe act or mechanical or physical hazard (unsafe condition), accident, and injury (Toft et al. 2012, pp. 4-5); and the adoption of the behaviourist “fault of the person-unsafe acts” approach to safety management. Whilst more recently James Reasons (1997) “Swiss cheese” model has been prominent and proclaims that the origins of incidents are firmly entrenched in organisational culture and managerial decision-making; and that there are multiple barriers or defences that need to fail for an incident to occur. These underlying origins he referred to as “latent causes”, as distinct from “active causes” (which is a clear departure from Heinrich’s behaviourist approach) of workplace and individual levels of causation. Notable commentator Andrew Hopkins (2008,2012) has reported on the role and significance of these “latent causes” in his analysis of several major incidents in modern times. Yet despite the advancements that this approach has garnered, the evolving nature of work, improved technologies, and further emergence of complex systems have led to the suitability

of composite causation models to describe accident causation being questioned in the literature (Difford 2011). Hence this, and the preceding models fit with what Hollnagel (2013) describes as the “Safety 1” approach. Accordingly, current thinking and models recognise that:

accidents result from combinations of mutually interacting variables which occur in real world environments. And that it is only through understanding the combination and interaction of these multiple factors that accidents can truly be understood and prevented (Hollnagel 2010, cited in Toft et al. 2012, p. 3).

Consequently, theories such as high-reliability organisations have emerged to examine and explain organisational safety, incident causation, and redefine safety management (Weick & Sutcliffe 2007). Such models have been expanded on by Dekker et al. (2008) through the Resilience Engineering approach. This is an approach that:

...looks for ways to enhance the ability of organisations to create processes that are robust yet flexible, to monitor and revise risk models, and to use resources proactively in the face of disruptions or ongoing production and economic pressures (Dekker et al. 2008, p. 2).

Attempts to define resilience have been posited in the literature by key commentators such as Hollnagel (2013), Dekker et al. (2008) and Hollnagel, Woods and Leveson (2006) with a recent definition being: ‘The intrinsic ability of a system to adjust its functioning prior to, during, or following changes and disturbances, so that it can sustain required operations under both expected and unexpected conditions’ (Hollnagel 2010, p. xxxvi). Such models of safety have coincided with what Hollnagel (2013, p.1) describes as the “Safety 2” approach, which suggests among other things ‘...that it [WHSW] must look ahead, not only to avoid that things go wrong but also – and more importantly – to ensure that they go right’. Despite the efforts and advancements in work safety practice, WRII continues to occur requiring further development of new knowledge, models, and frameworks for WHS in the business environment.

This section has introduced the workplace safety component of WHSW practice outlining the need for further research and new models into organisational safety. The study contributes to this requirement for new models and knowledge by integrating approaches such as resilience engineering and “Safety 2” within WHSW strategy. The next section introduces the workplace health area of practice.

1.2.2 Work health

Work health is an objective state that has been defined as ‘the state of complete physical, social and mental well-being, and not merely the absence of disease or infirmity’ (World Health Organization 2020, p. 1). In the work environment, health can be affected by a broad range of hazards, in addition to social and individual determinants that often result in disease, illness, or

disorders. Traditionally, work-related disease, unlike injuries, has been explained in terms of effect leading to a biomedical explanation of health and disease. Criticisms of the biomedical model have been identified and reported on in the literature by various commentators (Waddell & Burton 2006; Ellis 2012). It has been related to the lack of recognition of the psychological aspects of disease, the inability to cope with emerging health issues; and the lack of distinction of the origin of impairment as many common health issues ‘have a high prevalence within the adult population, [that] are essentially subjective and have limited evidence of objective disease or impairment’ (Waddell & Burton 2006, p. 3).

Furthermore, Ellis (2012) emphasises that there are clear differences between disease, illness, disability, and disorders that occupational health practice needs to accommodate. Consequently, an alternate perspective was sought, and a more comprehensive model emerged representing a more holistic construction of health outcomes by recognising the complex interactions between biological, psychological, social determinates, and the work environment. This biopsychosocial model was first introduced by Engel (1977) with a focus on both disease and illness (e.g., stress, heart disease, musculoskeletal disorders) governed by the body’s ability to cope with stress and the impact of behavioural influences on health such as ‘self-efficacy, emotional reaction, social pressure, environmental constraints, skills and intention’ (Rogers, Evans & Wright 2009, p. 31). Table 1 provides examples of common definitions that have been reported in the literature for health.

Table 1 – Common definitions for health

Definitions	Source
<ul style="list-style-type: none"> Optimal health is a dynamic balance of physical, emotional, social, spiritual, and intellectual health. 	O'Donnell (2009, p. vi)
<ul style="list-style-type: none"> Health outcome is defined as a change in the health of an individual, group or population of people which is attributable to an intervention or series of interventions. 	Frommer, Rubin and Lyle (1992, p. 135)

(Source: Developed for this research)

Like work safety, the traditional approach to occupational health practice (OHP) has been focused on the evaluation and control of work environment hazards and exposures following a risk management approach (Waddell & Burton 2006). Recent practice though has seen OHP move from the traditional focus on hazards, occupations, and tasks, to one that is more aligned to public health interventions which include the use of educational activities to change behaviour and health surveillance systems. This “modern approach” to health goes beyond the workplace because of the reported positive associations between good work, health, and individual wellbeing (Bevan 2012; Ellis 2012). As such, the health of workers is a strategic

imperative for business because of the broad-reaching drivers for good health spanning individual and societal levels, which Johnson (2005) demonstrates through a holistic work health approach covering the areas of absence management, health, disability, and workers' compensation.

There are, however, limitations as Coats and Max (2005, p.22) note that many health programs have failed to result in the desired behaviour change due to 'illness being seen as a management problem rather than a medical problem [...] due to lack of experience by companies to address questions of work organisation, job design, and management standards'. This further demonstrates a key issue in the literature, in that health (or wellness) is not currently viewed as a strategic business risk requiring effective management, or as an opportunity for businesses to improve. This, therefore, makes it difficult to demonstrate the business case for contemporary interventions focused on worker health as Zwetsloot and van Scheppingen (2007) note that:

... in order for health management to be seen as a strategic value add to business it must be linked to strategy and organisational development [...] although many approaches are still focused on the operational levels of enterprise (Zwetsloot & van Scheppingen 2007, p. 4)

In practice many of the traditional approaches are firmly grounded in *preventative health*, however, a fundamental shift in focus has resulted in the recognition of *health promotion* activities that focus on a range of factors (e.g., smoking, obesity, etc) that are not covered in the workplace health and safety legislation, but represent health risks in occupational and non-occupational settings (Joss et al. 2017). This shift was illustrated by Parks and Steelman (2008) who completed a wellness program meta-analysis that considered two types of organisational interventions comprising 'Fitness-oriented programs [...] and comprehensive wellness programs which includes both a fitness component and an educational component such as nutrition' (Parks & Steelman 2008, p. 58).

Recognising the strategic importance of health, an approach that focuses on the macro-level of the enterprise is the Healthy Workplace Framework which outlines four avenues: '(i) the psychosocial work environment (ii) the physical work environment (iii) personal health resources, and (iv) linkages between the enterprise and its wider community'(World Health Organization & Burton 2010, p. 83) to address and promote worker health, safety, and wellbeing. Cooklin et al. (2017) investigated an integrated approach to WHSW using this framework in several Australian workplaces and found that there were positive associations with such interventions. However, the report demonstrates that typically, workplace programs remain focused on addressing specific, often singular risk factors with none of the examples reporting broader business integration; while impact was primarily related to improved health,

WRII reduction, and in a few instances, organisational productivity. Despite this integrated approach, further research into OHP models is required. As outlined by Saxis, Peckham and Baker (2015) in a report into the future of occupational health who comment that traditional occupational health approaches lead to specific outcomes among specific work groups, and separates work-related risks from non-work-related related risks. A shift is required from “occupational health” to a more public health-based model of “worker health” that contribute to the health and safety of various communities. This includes, but is not limited to, groups with chronic illness, disability, young, unemployed, migrant, and female workers (Coats & Max 2005; Saxis, Peckham & Baker 2015; Waddell & Burton 2006; World Health Organization & Burton 2010). Such groups have been found to be particularly vulnerable to specific health risks and their outcomes (e.g., severe mental health, cardiovascular disease, decreased life expectancy), often because of their social context (Coats & Max, 2005; Waddell & Burton, 2006).

Similarly, Gallagher and Underhill (2012) note that workers employed under precarious employment contracts create new health challenges for WHSW. Among the concerns are that these type of work arrangements ‘are likely to contribute to the development of certain chronic disorders and diseases’ (European Agency for Safety and Health at Work 2005, p.7). Furthermore, another significant issue reported in the literature relating to health and indication of the need for a shift to a public health based approach is globalisation, leading to a change in the national and global work environment resulting in a highly competitive business environment, which presents new safety and health risks (Quinlan 2011; Gallagher & Underhill 2012; Underhill 2013). Of concern are issues relating to ageing workforces, mental health, and psychosocial hazards. Their significance is so great that they have been identified as a corporate social responsibility issue (Gallagher & Underhill 2012). Furthermore, the results of different studies indicate that work intensification can have a direct influence on the occurrence of stress-related diseases, including psychosocial hazards (Bevan 2010).

As such, these issues outlined above further emphasise the significance of the changing scope of worker health and requirement for integrated approaches due to the interactions between organisations, work, workplace health, public health, social and economic factors (World Health Organization & Burton 2010). In concluding, this section has introduced the workplace health area outlining that new models of OHP are required because of the changing nature of health issues faced by organisations. This research addresses this requirement by emphasising worker health as a strategic organisational priority that improves individual health. The next section introduces the wellbeing component of WHSW practice.

1.2.3 Wellbeing

Much of the early work concerning wellbeing has been viewed from a cross-section of perspectives with interest at the individual, organisational, societal, and national levels. The two dominant approaches that have emerged from the literature are: ‘the hedonic, which accentuated constructs such as happiness, positive affect and satisfaction with life [...] and the eudemonic tradition, which highlighted positive psychological functioning and human development’ (Dodge et al. 2012, p. 223). Interest over the last decade has increased within the literature suggesting that wellbeing can be described in both objective and subjective terms with the latter representing the predominant focus when measuring individual levels of wellbeing (Western & Tomaszewski 2016). Although there is no consensus around a single definition of wellbeing there is general agreement that at minimum, wellbeing includes subjective attributes such as the presence of positive emotions and moods, the absence of negative emotions, satisfaction with life, fulfillment and positive functioning common referred to in terms of positive psychological affect¹ experienced by an individual. In simple terms wellbeing can be described as ‘judging life positively and feeling good’ (Centre for Disease Control n.d, para 6), and as such also relates to peoples working lives. Table 2 outlines definitions that have been applied to wellbeing.

Table 2 – Common definitions of wellbeing

Definition	Source
<ul style="list-style-type: none"> • ‘Work-related wellbeing is that part of an employee’s overall well-being that they perceive to be determined primarily by work and can be influenced by workplace interventions’. 	Hesapro (2013, p. 29)
<ul style="list-style-type: none"> • ‘The balance point between an individual’s resource pool and the challenges faced’. 	Dodge et al. (2012, p. 230)
<ul style="list-style-type: none"> • ‘A state wherein every individual realises his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to contribute to his or her community’. 	World Health Organization (2018, para 2)
<ul style="list-style-type: none"> • ‘Eudemonic wellbeing is an approach which focuses on the extent to which a treatment gives rise to a sense of purpose, vitality, and personal development’. 	Bryson, Forth and Stokes (2014, p. 27)

(Source: Developed for this research)

Examination of the literature and discussion around wellbeing indicates that many definitions are merely an account of what constitutes wellbeing rather than being a characterisation of what it is (Dodge et al. 2012). Furthermore, it is clear that a lack of clarity still exists as Litchfield et al. (2016) comments:

The term ‘wellbeing’ is imperfect. It has the advantage of being understood intuitively (at least in the English-speaking world) as referring to ‘how we are doing’ as individuals, communities, or society but its broad coverage renders simple definition problematical. This is compounded

¹ Affect is a term used in psychology to refer to a person’s elementary feelings. Positive affect indicates feelings of pleasure; negative affect indicates feelings of displeasure or pain (Bryson 2014, p.9).

by the different slants taken by those from an economic, health and social science background—all of whom have an interest in the subject (Litchfield et al. 2016, p. 1)

Wellbeing has also been difficult to define from an organisational perspective, as Markey et al. (2008) notes there is considerable variability in the construct with a myriad of terms, definitions, lack of clarity, and differences around performance measures used and being reported in the literature. Laine and Rinne (2015, p. 91) highlight that work wellbeing ‘seems to be often discussed one-dimensionally’. This gives rise to further examination and development of the work wellbeing construct which needs to meet a more holistic definition that changes the focus from problems associated with ill-being. It is therefore apparent that this domain presents one of the most important challenges in modern society (Laine & Rinne 2015).

Accordingly, Pescud et al. (2015, p. 2) note that health and wellbeing in the workplace can be viewed ‘as a broad subjective concept comprised of personal satisfaction, work-life satisfaction, and general health that is a combination of mental/psychological health and physical/physiological health’. Similarly, Right management (2009) suggests that the approach to wellbeing must consider and measure four dimensions: (1) lifestyle, (2) psychological health, (3) physical health, and (4) engagement. Whereas, Abbey (2015, p.335) suggests that wellbeing is best defined according to each unique circumstance within the organisation which is ‘obtained by analysing employee’s personal wellbeing experiences [...] in their current workplace setting’.

Another concept reported in the literature concerning worker wellbeing is Quality of Working Life (QWL). Indeed, many countries have published numerous reports and national strategies on the matter as QWL represents a significant individual, organisational, and societal issue. This is because of an aging workforce and chronic lifestyle diseases impacting on worker availability in many countries and people working later into life (Waddell & Burton 2006; Denvir et al. 2007; Bevan 2012). Table 3 outlines definitions that have been applied to QWL.

Table 3 – Common definitions of quality of working life

Definition	Source
<ul style="list-style-type: none"> • ‘The existence of a certain set of organizational conditions or practices. This definition frequently argues that a high quality of work-life exists when democratic management practices are used, employee’s jobs are enriched, employees are treated with dignity and safe working conditions exist’. 	Srivastava and Kanpur (2014, p. 54)
<ul style="list-style-type: none"> • ‘Extent to which an employee is satisfied with personal and working needs through participating in the workplace while achieving the goals of the organisation’. 	Swamy, Nanjundeswaraswamy and Rashmi (2015, p. 281)

(Source: Developed for this research)

As indicated in the sections above the current business environment requires a focus on the psychological aspects of work (health and safety, engaged, job satisfaction) and public health issues such as chronic diseases. This has left the traditional view of work health and safety being unable to adequately respond through existing risk management frameworks. Therefore, the focus of the discipline needs to change by accommodating such issues in addition to ensuring a quality working life with a more holistic focus on a construct defined as worker wellbeing.

1.3 Focus of the Study

This study sought to investigate WHSW from a business perspective as an organisational strategic priority. In particular, the relationship between WHSW strategy, employee engagement, and strategy efficacy was the principal area of interest.

Whilst the literature reports numerous studies into the relationship between employee engagement and efficacy, it does not define and operationalise WHSW strategy in a way that relates it to engagement and efficacy. The contribution of this research to theory is therefore significant as organisations have not had an evidence-based insight into the development of WHSW strategy with no framework illustrating how WHSW influences engagement and efficacy. As such, the study aims to make a meaningful contribution to professional practice in WHSW by developing a framework that links WHSW with employee engagement.

The objectives of the study were to:

- a. Establish operational definitions for WHSW strategy and employee engagement in order to address the gaps identified in the existing literature.
- b. Investigate the relationship between WHSW strategy and employee engagement.
- c. Develop a WHSW strategy and employee engagement framework for high-risk businesses.

Accordingly, to achieve the objective of this study the underpinning research questions were as follows:

- **Research Question 1 (RQ1):** What business, WHSW practices, and measurement systems are suitable to inform the development of the WHSW strategy and employee engagement framework for Queensland businesses?

- **Research Question 2 (RQ2):** How can the developed WHSW strategy and employee engagement framework improve WHSW and business performance beyond standard WHSW management processes in Queensland businesses?

Due to the significant amount of literature on the measurement of WHSW, human capital, risk management, and organisational performance this area was delimited from the study and not investigated further, although it is recognised as a component in the framework.

Chapter 2 outlines the current trends and gaps in the literature concerning the study of WHSW strategy and employee engagement.

CHAPTER 2 - LITERATURE REVIEW

This chapter outlines current knowledge from literature sources concerning workplace health, safety and wellbeing, employee engagement, and organisational strategy which informs the development of the strategic approach to WHSW.

The aims of this chapter are to:

- Examine current measurement issues related to workplace health, safety, wellbeing, and outline standard terms for use in professional practice.
- Compare and contrast strategic and operational approaches for improving workplace health, safety, and wellbeing at the individual and organisational level.
- Outline the role of employee engagement in organisational performance.
- Establish and outline the conceptual workplace health, safety, and wellbeing strategy and employee engagement framework.

2.1 Work Health, Safety, and Wellbeing Strategy Efficacy

WHSW performance has been defined as:

a measure of the level of effectiveness of those business activities aimed at the prevention of injury and disease to persons in the workplace, typically implementation of WHS plans, improvement in injury or illness occurrences and whether objectives or targets are being met (Australian Safety & Compensation Council 2005, p. 3).

Similarly, AS/NZS 4804 defines performance as ‘the measurable results of the OHSMS, related to the organization’s control of health and safety risks, based on its OHS policy, objectives, and targets’ (Standards Australia & Standards New Zealand 2001, p. 4). The measurement of the long-term effectiveness of WHSW strategies has primarily been using performance measures and indicators, often as one component of a monitoring and evaluation framework. Recognising the significance of performance measures the European Agency for Safety and Health at Work Priority Research Report (2005) emphasises the need to improve the monitoring of OSH and the identification of risk factors by developing indicators and instruments that adapt to the new complexities of work.

However, there appears to be a broad range of definitions, inconsistent language, and lack of universal agreement about measures and indicators in the literature, as the terms seem to be used interchangeably. According to Janicak (2003, p.1), safety indicators are used to ‘quantify or describe an organisations safety performance’ that enables an assessment of the difference between what has been defined as acceptable compared to actual performance. Specific

definitions used for measures and indicators are well documented by regulators, researchers, and practitioners alike from a cross-section of disciplines as shown in Table 4.

Table 4 – Common definitions of WHS performance measures

Definition	Source
<ul style="list-style-type: none"> • ‘An indicator can be considered any measure – quantitative or qualitative – that seeks to produce information on an issue of interest’. 	Reiman and Pietikäinen (2012, p. 1993)
<ul style="list-style-type: none"> • ‘Performance measures are a statistic or other unit of information which reflects directly or indirectly, the extent to which an anticipated outcome is achieved, or the quality of processes leading to that outcome’ and may be (i) qualitative which are indicators that would describe or assess a quality or (ii) quantitative which are an indicator that can be counted or measured and described numerically’. 	NSW Health Department, cited in Australian Safety and Compensation Council (2005, p. 5)

(Source: Developed for this research)

With an improvement in WHS practice, there has also been a renewed focus on performance indicators and their use in a proactive manner, these are commonly referred to as positive performance indicators (PPIs) in the literature. Their strengths have been well outlined in the existing literature with the general premise being that they act as an early indicator about potential hazards, and failing of controls by measuring ‘the behaviours, processes, and things people are doing to improve safety’ (Blair & O’toole 2010, cited in De Cieri et al. 2015, p. 8). A limitation is that they remain mostly focused at the workplace level and their development has ‘been slow with questions raised about the extent to which existing PPIs are fit for purpose’ (O’Neill, Martinov-Bennie & Cheung 2013, p. 5). Additional issues associated with these measures include the myriad of terms, often misused, and that they become less effective as corporate performance indicators due to their specific focus on the local operational level (Sinelnikov, Inouye & Kerper 2015); and are focused on “safety issues”, often at the expense of health (Rogers, Evans & Wright 2009). Furthermore, despite calls by commentators (e.g., O’Neill, Cheung & Holley 2014) for the reconceptualisation and expansion of the views around performance measurement, much of the focus has remained on health, safety and workers compensation outcomes as discussed further in the following sections.

2.1.1 Measurement of work-related injury

Historically, WHS improvement has been measured as a reduction of injuries, workers' compensation claims, business, and societal costs. Seminal injury causation analysis was undertaken by Heinrich (1931) who conducted a detailed analysis of insurance claims with an outcome from this research being the emergence of the “safety pyramid”. This pyramid outlines a ratio of injuries to other incident types such as near misses and property damage which are precursors to injuries or fatalities. Consequently, much of the measurement and reporting in safety practice has been based around this frequency hierarchy. More recently

O'Neill, Martinov-Bennie and Cheung (2013) suggest that the frequency models developed by Heinrich (1931) and Bird (1969) offer two important propositions:

1. There is an inverse relationship between the frequency of occurrence and the severity of WRII outcomes.
2. The magnitude of this inverse relationship, i.e. the ratio between occurrences of various types of injury, although similar, is inconsistent and ultimately appears to depend on the organisational context (e.g., industry or firm factors)(O'Neill, Martinov-Bennie & Cheung 2013, p. 8).

Despite the two insights afforded by the pyramid, its application to contemporary safety practice has been subject to considerable criticism in the literature (Difford 2011; Rebbitt 2014). Largely due to the imprecise definition of major and minor injury, the assumption that near misses² have the same underlying causes as injuries, and the broad subjective terminology used to categorise severity (O'Neill, Martinov-Bennie & Cheung 2013), there has been a failure of insight and managerial attention to low consequence severity injuries. The severity measure lost time injury (LTI) and lost time injury frequency rate (LTIFR) have been embedded within industry and government to represent a level of safety; consequently making this and other measures become 'institutionalised in corporate practice' (O'Neill, McDonald & Deegan 2015, p. 184). However, LTI and LTIFR are widely recognised in the literature as being far from an indicator of safety, rather at best they represent lost productivity because of the injured person's inability to perform work (O'Neill, Martinov-Bennie & Cheung 2013; O'Neill, McDonald & Deegan 2015).

With the increased focus on organisational safety performance in the form of corporate social responsibility reporting, the inclusion of LTI in Global Reporting Initiative requirements has legitimised it as a measure in WHS practice 'further supporting the 'drift'(Andon et al. 2007) in the way LTIs are conceptualised and employed [...] and their use to demonstrate total injury performance' (O'Neill, McDonald & Deegan 2015, p. 185). Although there are significant limitations in applying these measures to contemporary work health and safety issues, 'WRII measures are not entirely useless. Appropriate WRII measures are essential to understand the damage (to people, organisations, and the economy) that results from work health and safety failures' (O'Neill, Martinov-Bennie & Cheung 2013, p.18).

² Is described as an incident having the same properties as an accident that did not result in personal injury or property damage; but could have under different circumstances.

As such, data reporting, analysis, and measurement are important from a business perspective requiring robust systems because it is used for determining the strategic focus, monitoring WRH occurrence, monitoring progress on initiatives, strategies, the effectiveness of operational risk controls, and evaluating the impact of interventions including return on investment assessment. Typically, injury, illness, and workers compensation data are delivered through performance measurement systems. Government organisations, and insurers also use data sets largely derived from epidemiological data to inform policy setting, intervention targets, and practice. Accordingly, both public and private sector organisations require ‘measurement systems capable of informing about work health and safety issues to enable the evaluation and continuous improvement of effective work health and safety policy, regulation and practice’ (O’Neill, Martinov-Bennie & Cheung 2013, p.6). To provide reliable and valid information, PM must address the issue of what constitutes an injury for several reasons, including:

- the boundaries of injury, illness, and disease that collectively represent WRH are not easily discernible³.
- the WHSW perspective is different from that of workers' compensation with its focus primarily on disability.
- pathology and aetiology suggest there is a clear difference between the acute and chronic onset of injury, in addition to the intensity and frequency of energy transfer.

Indeed, these issues have been identified and reported on by various commentators including, Mittleman et al. (1997) and Langley and Brenner (2004) who called for and sought to provide a better definition of key terms associated with injury (acute and chronic), illness, disease, and disorders. Similarly, O’Neill, Martinov-Bennie and Cheung (2013) and Markey et al. (2008) also report that among the issues is the myriad of terms used to describe injury, illness, disease, wellbeing, measures, and indicators.

As such, there is a broad range and number of inconsistent definitions associated with work related injury which are outlined in Table 5.

³ Injury unlike disease must be defined simultaneously by the causative event and resultant pathology (Langley, J & Brenner, R 2004, 'What is an injury?', *Injury Prevention*, vol. 10, no. 2, p. 69.)

Table 5 – Common definitions for work-related injury

Definition or Classification	Source
<ul style="list-style-type: none"> • ‘Insignificant affect on life, temporary affect on life, permanent affect on life to loss of life’. 	O’Neill, Martinov-Bennie and Cheung (2013, p.16)
<ul style="list-style-type: none"> • ‘Injury is a condition resulting from a single traumatic event where the harm or hurt is immediately apparent’. 	Safe Work Australia Workers Compensation statistics (2013-14, p.60)
<ul style="list-style-type: none"> • ‘Occupational injuries: any personal injury, disease or death resulting from an occupational accident’. 	International Conference of Labour Statisticians’ International Labour Organization 1998, cited in Safe Work Australia Workers Compensation statistics (2013-14, p.51)
<ul style="list-style-type: none"> • ‘Injury and illness is a personal injury arising out of, or in the course of, employment if the employment is a significant contributing factor to the injury’. 	QLD Workers’ Compensation and Rehabilitation Act (2003, Section 32)
<ul style="list-style-type: none"> • ‘Impairment as a loss of, or loss of efficient use of, any part of a worker’s body; and a permanent impairment, from injury, is an impairment that is stable and stationary and not likely to improve with further medical or surgical treatment’. 	QLD Workers’ Compensation and Rehabilitation Act (2003, Section 37)

(Source: Developed for this research)

This fundamental problem outlined in the literature has led to a lack of consistency, as there are multiple ways of dissecting, analysing, and reporting on WRII at the organisational, state, and national levels. This has been reflected in the existing notification, reporting, and classification requirements that outline requirements around the severity of the injury or illness, body area affected, and the cause of the injury or illness and capacity to work to describe the causal event and resultant outcome (Standards Australia 1990). A more recent study into WRII measurement and reporting found issues related to:

measure validity - actually measure what they purport (claim) to measure, relevance - meet their intended purpose (i.e. are useful for informing decision (s), and reliability - are complete, free from omission, bias and error; and the relatively small number of reported injuries; affecting the ability to detect statistically significant changes in performance trends over short timeframes (O’Neill, Martinov-Bennie & Cheung 2013, p. 7)

Furthermore, Safe Work Australia (n.d., para 8) also highlights that Workers’ Compensation statistics do not capture all occurrences of work-related injuries and diseases for several reasons including the omission of self-employed workers, that not all workers are covered by the reporting legislation, the exclusion of some claims due to short duration and the difficulty with disease reporting due to latency periods and the connection to work exposures.

Another key issue discussed in the report is the need to reconceptualise how injury severity is classified. This has been discussed by commentators in the literature with the suggestion of an approach comprising categories: ‘Class 3 (insignificant effect on life); Class 2 (temporary effect on life); Class 1 (permanent effect on life); and Loss of life’ (O’Neill, Martinov-Bennie and Cheung 2014, p.16). Each category has further sub-categories which enables a more

granular classification that is consistent with the components outlined in the Australian National data set for compensation-based statistics. It is argued that this structure is person-focused, accounting for the severity of injury (or consequences) incurred rather than the level of treatment or ability to work the next or subsequent shifts as is the case with the prominent LTI type measure; and that it improves information for the workplace health and safety strategy (O'Neill, Martinov-Bennie & Cheung 2013).

This severity approach was used by O'Neill, McDonald and Deegan (2015) who, through an accounting perspective, undertook a retrospective analysis of New South Wales WorkCover scheme data reported in bulletins between 1992 and 2002. Their analysis considered the performance data reported, narrative to explain trends, and presentation of the data in graphical form. Importantly, the analysis demonstrated that work injury severity performance using traditional procedures and categories such as LTI, improved consistently over time, as the authors observed:

together the analysis of workplace injury performance using traditional injury classifications revealed evidence of decreasing rates of OHS impairment and suggested an encouraging improvement over time in the ability of NSW workplaces to prevent injuries to people at work. The conclusions were supported by the reflections of WorkCover's Chief Executive Officer (O'Neill, McDonald & Deegan 2015, p. 190)

However, when reorganised, the data demonstrated that risk management systems and controls were not as effective as outlined. Although improvements were realised in temporary impairment, comparatively, injuries that resulted in greater severity over the reported time had worsened. Importantly, one conclusion was that LTI type measures have not provided the visibility and accountability for human damage and may misinform WHSW strategy decision making because they are too simplistic and highly aggregated, providing a misleading view of WHS performance (O'Neill, McDonald & Deegan 2015).

The cost of WRII is a significant issue at the micro, meso and macro levels. Recently, a review of the cost of WRII in Australia was undertaken by Safe Work Australia (2015b) for the period 2012-13 using the following categories to determine the severity of WRII:

Short absence (Less than five days of work), Long absence (Five days or more of work and return to work on full duties), Partial incapacity (Five days or more of work and return to work on reduced duties or lower income), Full incapacity and Fatality' (Safe Work Australia 2015b, p. 18).

The report found that for compensated injuries the most frequently reported occurrence was short term absences representing 122,500 of 208,800 with the most affected age groups being 15 to 24 years, closely followed by 25 to 34 years based on unit costs (Safe Work Australia

2015b, pp. 25-30). Furthermore, the economic consequences attributed to injuries were distributed across individuals, employers, and society using production disturbance, human capital, medical, and administration cost categories resulting in an average cost of injury of \$75,400 (Safe Work Australia 2015b).

Limitations of the report were that where an injury did not result in an absence from work, they were not included in the report, and with the absence of a reliable indicator for return to work, the duration before returning was considered to be six months (Safe Work Australia 2015b). Consequently, this further illustrates the inconsistency in data capture, classification, and reporting of WRII suggesting the prevalence, incidence and costs could indeed be greater.

The nature of injuries and associated costs⁴ are summarised in figure 1.

Nature of injury or disease	Total Cost (\$ million)			Distribution (%)		Unit Cost \$/case
	Injury	Disease	Total	Costs	Cases	
Intracranial Injuries	620	-	620	1%	1%	231 120
Fractures	3 110	-	3 110	4%	7%	90 150
Wounds, lacerations and amputations	5 940	-	5 940	8%	17%	65 400
Burn	990	-	990	1%	2%	108 320
Injury To Nerves And Spinal Cord	480	-	480	1%	0%	663 530
Joint, ligament and muscle Injury	14 580	-	14 580	21%	40%	68 600
Other Injuries	1 940	-	1 940	3%	4%	87 360
Musculoskeletal Disorders	-	9 530	9 530	17%	11%	165 920
Mental Disorders	-	3 870	3 870	7%	4%	201 690
Digestive System Diseases	-	1 640	1 640	3%	1%	225 390
Skin And Tissue Diseases	-	620	620	1%	0%	303 560
Nervous System Diseases	-	2 500	2 500	4%	2%	200 980
Respiratory System Diseases	-	6 350	6 350	11%	5%	254 600
Circulatory System Diseases	-	6 520	6 520	12%	5%	256 710
Infectious And Parasitic Diseases	-	460	460	1%	0%	582 280
Neoplasms (Cancer)	-	1 680	1 680	3%	1%	311 810
Other Diseases	-	380	380	1%	0%	1189 730
Other Claims	570	-	570	1%	0%	295 580
Australia	28 230	33 550	61 780	100.0%	100.0%	116 620

a Units are rounded to the nearest \$100 million

Figure 1 – Nature and cost of work-related injury, illness & disease 2012-13 (Source: Safe Work Australia 2015a, p.32)

Like injuries these costs associated with WRII could also be underestimated as issues abound the literature, including that there is no universally agreed approach to calculating direct and indirect costs, and ratios have not been published because the increase in direct costs has exceeded indirect costs substantially in the past 15 years (Manuele 2011).

In summary, the literature shows that the approach to work safety has progressed from the early models and behaviourist approach outlined by Heinrich (1931) to risk based organisational approaches that recognise human adaptability as essential to safety outcomes. With the advancement of technology and the evolution of more complex systems of work, organisations

⁴ Costs typically represent lost wages, medical expenses, supervisor's time, reduced production capacity and retraining staff (Access Economics 2015; Leigh et al., 1997, cited in Safe Work Australia 2015a).

need to examine approaches to safety that reflects the organisational context and the dynamism of the modern work environment. A significant issue in the literature is the classification and measurement of WRII given the broad range of definitions and inconsistent terminologies and the reliance on LTI/LTIFR as an indicator of safety. The alternate approach to WRII classification which focuses on human damage when determining injury severity (O'Neill, Martinov-Bennie & Cheung 2013) offers a valid approach, particularly given the incidence, prevalence, and cost of WRII remains high. However, further research into its use and application is required to determine its acceptance as an alternate in practice.

2.1.2 Measurement of work health

The traditional approach to the measurement of health outcomes in occupational populations has been through the science of epidemiology using measures such as incidence, prevalence, and relative risk. The distinctions between health outcomes have been a significant issue in the literature. For example, Hagberg et al. (1997) discuss issues related to definitions and highlight that many classifications have been developed for social insurance, regulatory, and health care systems and there are also difficulties in using exposure-related outcomes. Recent research has identified and reported similar issues in the literature because of the complexity of work health (O'Neill, McDonald & Deegan 2015; O'Neill, Martinov-Bennie & Cheung 2013; Ellis 2012). Such that there remains no single model of causation to explain and describe individual health because disease and illness can be acute or chronic, often with long latency periods. Table 6 outlines common definitions reported in the literature for work health outcomes.

Table 6 – Common definitions in work health

Definitions/Classification	Source
<ul style="list-style-type: none"> • 'Occupational disease as those that are caused or aggravated by exposure to workplace hazards. Some occupational diseases have short latencies (i.e. diseases that manifest a short period of time after exposure) while others have long latencies (i.e. diseases that manifest a long period of time after exposure)'. 	Safe Work Australia (2014, p.1)
<ul style="list-style-type: none"> • 'Occupational Disease is defined as all employment related diseases which result from repeated or long-term exposure to an agent(s) or events which are a result of a single traumatic event where there was a long latency period'. 	Rogers, Evans and Wright (2009, p.13)
<ul style="list-style-type: none"> • 'Illness is generally defined as a subjective experience or self-attribution' that a disease is present. Thus, illness refers to how a sick individual and members of his or her family live with, and respond to, symptoms and disability'. 	Gatchel and Kishino (2012, p.16)

(Source: Developed for this research)

Globally, the International Labour Organisation has reported that diseases remain a significant issue. In Australia, the Occupational Disease Indicator Report (2014) highlights that between 2000 and 2011 musculoskeletal disorders, infectious and parasitic diseases, respiratory diseases, contact dermatitis, and cardiovascular diseases were decreasing in prevalence.

Whilst three priority exposures (Mental disorders; Noise-induced hearing loss; Occupational cancers) remained unchanged with no clear increase or decrease indicated (Safe Work Australia 2014, p. vii)

Despite improvements in some priority areas, there were still 155,200 work-related disease occurrences reported for the 2012-13 period (Safe Work Australia 2015b). The economic impact attributed to disease was distributed across individuals, employers, and society using production disturbance, human capital, medical and administration costs with the average cost of diseases being \$223,600 (Safe Work Australia 2015a). The report estimates that disease morbidity resulting from work-related exposures for the following conditions also represents a significant risk to the health burden: ‘neoplasms (5000), asthma (3000), respiratory disease (21,000) and heart disease (25,000)’ (Safe Work Australia 2015a, p.23). However, the magnitude of disease nationally and internationally may be greater given the lack of data completeness and ineffective surveillance systems; in addition to an apparent focus on safety-based performance indicators by government and private enterprise; and the underreporting of occurrences (Rogers, Evans & Wright 2009; Safe Work Australia 2015b).

Because of the risks and nature of work-related disease and illness, health surveillance and effects monitoring have been a core component of prevention strategies for workplace health. With the emerging concern around work and non-work-related health, organisational wellness programs have gained prominence with the intent of promoting good health or identifying and correcting potential health-related problems of individuals (Parks & Steelman 2008). Accordingly, measures have focused on risk factor behaviour change, uptake of physical wellbeing programs, and reducing absences from work due to illness. For example, in Australia, health and its role in business was the subject of research by Towers Watson (2014) in their Wellbeing for Performance – Report 1: The Benefits of a Healthier Workforce with one objective being to ‘discover and assess any link between employee health, wellbeing, performance and productivity’ (Towers Watson 2014, p. 8).

Having established a body of evidence exists in the literature confirming the link between worker health and performance, this longitudinal study considered three groups of employees and reported the outcomes of the intervention against a cross-section of indicators for health, wellbeing, and engagement. The measures of health were focused on diabetes and 11 further lifestyle health risks (e.g., diet) measured by biometrics that can be modified through interventions. This was because ‘these are more appropriate when looking at the effects of a wellness program, which can only directly influence attitudes and behaviours’ (Towers Watson

2014, p. 15). Changes were monitored at six, 12, and 24-month periods with the findings being that for the initial six-month period health improved in the high-risk intervention group for the indicators of health; in addition to those for wellbeing and engagement with a positive increase ranging + 0.3 to + 1.1 for the three dimensions (energised, engaged, enabled).

Overall, the study concluded that there were favourable results supporting that improved health positively influences wellbeing, performance, and productivity; but requires further analysis of the results over the longer term. Also noted was despite improvements, some indicators did not demonstrate a positive change as total sick days, average days per occurrence and presenteeism increased in all study groups, compared to a decrease in the company norm (Towers Watson 2014).

This further illustrates the complexity of measuring business-centric health/ill-health measures relating to productivity such as Absenteeism and Presenteeism. '*Absenteeism* refers to the absence of a worker due to illness (either a personal illness or as a caretaker for a sick dependent). *Presenteeism*, on the other hand, refers to employees who are legitimately ill but continue to come to work' (Howard, Howard & Smyth 2012, p. 151). Howard, Howard and Smyth (2012) highlight that both represent a high cost to employers, and therefore, suggest a challenge for businesses to address through reliable data to inform strategy and interventions. Several tools have been reported in the literature that relies on self-reporting of health-related issues, examples of these include the Work Productivity and Activity Impairment General Health Questionnaire, Work Limitations Questionnaire, and the Health and Work Performance Questionnaire. Uegaki et al. (2011, p. 90) assessed the methods used to estimate the cost of productivity loss. They found methods for measuring and valuing health-related productivity varied widely and 'hampered comparability of results and decision-making'. Similar views around inconsistent approaches, and the need for further research into standardised measurement practices were expressed by Bryson, Forth and Stokes (2014) and Bevan (2010).

Another similar study by Hafner et al. (2015) examined the relationship between health, wellbeing, and productivity in the workplace across 136 UK businesses. Factors considered in the study were job and work environment, personal and health and physical risks, and two measures of productivity. The report outlines a broad range of positive associations at the individual level largely associated with modifiable risk behaviours and lifestyle-based indicators (or biometrics), and at the organisational level around productivity. One key finding reported was that organisations that include health as an indicator of organisational success showed 'lower levels of work impairment due to presenteeism and absenteeism' (Hafner et al.

2015, p. 30). The key influences on these outcomes were work design and organisational factors including health as a company success indicator, health promotion support and informed importance of wellbeing. This study indicated similar findings to reports prepared for Investors in People UK around the business case for employee health and wellbeing, and good work design (Bevan 2010, 2012).

In summary, the literature shows that the approach to work health has changed from the hazard and job-based approach to one which accommodates a more holistic range of health risks traditionally associated with public health. Health outcomes have grown further in significance as an individual, organisational, and societal concern especially as the burden of disease is severely underestimated. Emerging risks (psychosocial, chronic disease, mental health) present new management and measurement challenges that occupational health practice needs to respond to through a strategic framework that adds value to businesses.

2.1.3 Measurement of wellbeing

The importance of measuring wellbeing has been recognised as a clear area of interest in the literature from a cross section of disciplines at the business and individual levels. The measurement of work-related wellbeing requires further research (McCarthy, Almeida & Ahrens 2011; Bryson, Forth & Stokes 2014) due to a lack of consistent definition of wellbeing resulting in a range of direct or composite measures and tools employed as reported in the literature. Such tools, largely surveys, include the Warr Job Satisfaction Scale, Utrecht Work Engagement Scale, NIOSH Quality of Work-life, Work-Related Quality of Life Scale, and the Ryff Scale of Psychological Wellbeing. More recent developments have seen the emergence of tools to provide macro-level analysis of wellbeing in business settings, which in turn are reported as aggregated outcomes, for example, Gallup Workplace Audit (Q12 survey).

A significant issue outlined in the literature that influences the reliability of measurement is the potential variability in an individual's subjective wellbeing (SWB) because of short term fluctuations due to the reliance on self-evaluation and reporting. Therefore, 'any measure of subjective wellbeing which seeks to explain an employee's work behaviours over a period ought to seek and establish the nature of a person's feelings over a similar period, ...' (Bryson, Forth & Stokes 2014, p. 29). However, with the recognition that SWB is a more reliable and valid indicator than "wellness", the two most common indicators reported in the literature for SWB are job satisfaction and job-related affect (Grant, Christianson & Price 2007; Bryson, Forth & Stokes 2014). Job satisfaction as an indicator is grounded in the hedonic view of SWB which can be examined in different ways by either having a specific focus on different facets of the job, or by incorporating other dimensions such as work-family balance. Determination

of the level of wellbeing is derived through a series of questions that are self-rated on a Likert scale 'ranging from 'very satisfied' to 'very dissatisfied', with a mid-point labelled 'Neither satisfied nor dissatisfied' (Bryson, Forth & Stokes 2014, p. 28).

By contrast, the second approach to the measurement of eudemonic SWB, *Job related affect*, has primarily been measured through indicators drawn from the Positive and Negative Affect Schedule (Watson, Clark & Tellegen 1988). However, this approach has had limited application in the workplace research largely due to 'the greater difficulty in specifying the nature of the underlying construct and in separating it from related concepts such as organizational commitment and job engagement' (Warr et al. 2013, cited in Bryson, Forth & Stokes 2014, p.29).

Recognising the limited research, Czerw (2017) examined eudemonic wellbeing (EW), a construct that had not been properly discussed in the work setting. In developing a model and Questionnaire to diagnose EW, great emphasis was placed on positive psychology and included elements drawn from a combination of psychological wellbeing and social wellbeing theories. Research also highlights meaning of work, or a sense of meaning of work, engagement in work, job crafting as key factors when developing tools used for psychological well-being assessments (Wrzesniewski et al. 2003; Schaufeli & Bakker 2004; Wrzesniewski & Dutton 2001; Steger et al. 2012, cited in Czerw 2017, p.331). The initial questionnaire in Czerw (2017) research identified 11 scales and 359 variables. These were refined to four factors: Positive organisations; Fit and Development; Positive Relations with Co-workers and Contribution to the Organization using confirmatory factor analysis. The questionnaire was applied in several studies showing it to be a reliable and valid measure of general eudemonic well-being at work for computing well-being profiles.

Because psychological wellbeing represents a significant issue in the literature there has been a greater emphasis on measuring dimensions such as stress, burnout, and work/life happiness, all of which have been reflected in several direct or composite "wellbeing" assessment tools. One such study in Australia, the Workplace Barometer Report (Dollard et al. 2012) was conducted to measure the Psychosocial Safety Climate (PSC) within organisations. PSC is posited as an indicator of an 'organisations commitment to the protection of employee psychological health and wellbeing' (Dollard et al. 2012, p.7) and is of interest because it has been suggested as an antecedent to work injury (Dollard & Bakker 2010).

The PSC model was developed (and measured) from Psychosocial Safety Climate Theory (Dollard & Bakker 2010) which 'extends the Job-Demands Resources model' (Demerouti,

Nachreiner, Bakker & Schaufeli 2001, cited in Dollard & Bakker 2010, p.7). The measurement tool covered aspects that addressed broader organisational, HRM, and WHS issues which have been established in the literature as affecting employee wellbeing. Accordingly, the measurement dimensions were: 'Psychosocial Safety Climate; Job demands; Organisational Change; Harassment and Bullying; Work-Family Conflict; Job control; Resources; Mental Health; Physical health; Work outcomes, and Engagement' (Dollard et al. 2012, p.25). Outcomes support the main relationships that reducing PSC can influence the 'negative impact of psychosocial hazards in employee health and productivity' (Dollard & Bakker 2010, p. 7). This, with the other findings for the more discrete aspects, indicates that PSC within organisations is significant because of the moderating effect on employee health and productivity; and is therefore a priority in organisational strategy design as this includes matching resources and demands.

Further approaches to measuring individual wellbeing have remained largely grounded in the HRM area with the need to more effectively demonstrate business and human capital-related value and outcomes in areas such as employee engagement, organisational commitment and staff retention (Grant, Christianson & Price 2007; McCarthy, Almeida & Ahrens 2011). In a critique and review of wellbeing management and measurement Holmgren Caicedo, Mårtensson and Roslender (2010) consider HRM as intellectual capital from a managerial control perspective. The view being that positive employee wellbeing (and health) creates value for the organisation. Their study primarily focuses on indicators associated with sickness absences reporting a cost to the UK economy of £14 billion per annum. Recognising the limitation of such measures and the broader human capital agenda, additional measures are suggested as supplementary indicators consistent with the Balanced Scorecard methodology (Kaplan & Norton 1996). Such an approach highlights the need to use other measures beyond the health and psychological focused indicators used by many businesses concerning wellbeing. Furthermore, they highlight the existing issues identified by O'Neill, Martinov-Bennie and Cheung (2013), and the need for a wellbeing measurement taxonomy that distinguishes between "reality" and "representation" of the construct; in addition to providing for the visibility of both healthy and unhealthy employees in organisations. This was evidenced in recent research that considered the more specific work-life element (Bardoel & De Cieri 2014). This research notes that in performance measurement, HRM practitioners need to establish the business case and broader outcome measures for initiatives designed to improve wellbeing and the work-life of employees.

A more recent study of employee wellbeing practices in Australian businesses found that of the 319 responses ($n=230$ Organisations), the goals of wellbeing programs were related to ‘employee engagement (35%), attraction/retention (14%), health and safety (22%) or other goals (28%)⁵’ (McCarthy, Almeida & Ahrens 2011, p. 6). In undertaking the survey, respondents were asked to consider wellbeing services from five perspectives of wellbeing (physical, emotional, intellectual, social, spiritual). In total there were 15 reported benefits to organisations. The highest number of positive responses (benefits) were related to job satisfaction (45%), in contrast the lowest was absenteeism (28%). Other indicated benefits were related to communication, teamwork, engagement and notably alignment between employee values and organizational culture.

Despite reports of “real business benefits” employers indicated problems in measuring and quantifying the impact of work wellbeing initiatives beyond employee usage and satisfaction. Therefore, proxy measures were used to measure the impact of wellbeing initiatives through employee climate survey results, trends in staff turnover, absenteeism and workers’ compensation claims data (McCarthy, Almeida & Ahrens 2011). Consequently, this measurement issue represents a significant issue in the literature, as similar to WHS, measurement is a key component in demonstrating the business case for wellbeing initiatives and still requires further exploration and development to support the strategic value of wellbeing to business.

The report recommended further research on comparing the impact of different well-being programs to determine the criteria for effectiveness, to explore the importance of linking well-being with organisational strategy, and to evaluate alternative ways of measuring impact. Similar studies undertaken in the United States (Gallup Organisation 2013) indicate universal recognition around the importance of wellbeing in the business environment.

In summary, many of the measures outlined by the WHSW discipline reflect a predominant focus on biometrics, behaviour change, and sickness indicators such as absenteeism and presenteeism. There is a significant body of literature relating to the emergence of psychological wellbeing risk leading to a specific focus on the development of tools and indicators. Whilst from the HRM perspective, the primary focus has been on overall satisfaction with the organisational experience through the emotional, cognitive, motivational,

⁵ Respondents also identified a range of other goals to which their well-being programs contributed, including mission, vision and values, culture, performance, and productivity, developing employee potential and work life balance.

engagement, and social aspects of work that influence overall working life. The reported benefits of effective risk management and employee engagement are related to reduced injuries, reduced workers' compensation costs, improved productivity, presenteeism, absenteeism, job satisfaction, and employee engagement.

2.2 Employee and Work Engagement

Employee engagement (engagement) has been identified as a priority and challenge for many businesses because of its potential to improve organisational performance and individual wellbeing. As such, this area has been the subject of increased level of interest among researchers, the public and private sectors, and professional bodies (Kular et al. 2008; Robertson-Smith & Markwick 2009; Eldor & Harpaz 2016; Gupta & Sharma 2016). The importance of engagement as a business issue was highlighted by Truss et al. (2013a, p. 17) who comment that there are 'two converging developments in research that academia and practitioners face: (1) the growing importance of human capital and psychological involvement of employees in business, and (2) the increased interest in the positive psychological state'. This confirms engagement is important at the individual and organisational levels.

Further evidence supporting the view that worker engagement remains a prominent issue and challenge facing modern business was outlined in a recent survey by the Society for Human Resource Management (2017). Accordingly, the relationship between wellbeing and engagement is an important focus for organisations because of the enabling ability of both at the individual level. The attraction of the engagement proposition is evident due to reported business outcomes relating to increased business efficiency, increased productivity and lower staff turnover (Harter et al. 2013; Benn, Teo & Martin 2015; Gupta & Sharma 2016), fewer safety incidents (Harter et al. 2013) and improved wellbeing (Bryson, Forth & Stokes 2014).

However, engagement is a difficult construct to define as it can be considered and measured from various perspectives and contexts such as business, human capital, psychological, and more recently, workplace health, and wellbeing. An early, but prominent definition of engagement is 'the harnessing of organization members selves to their work roles; in engagement, people employ and express themselves physically, cognitively, and emotionally during role performances' (Kahn 1990, cited in Truss et al. 2013a, p. 57). More simply engagement can be characterised as "flow" described 'as the holistic sensation that people feel when they act with total involvement' (Csikszentmihalyi 1975, cited in Kular et al. 2008, p. 4).

The use of several terms in the literature such as employee engagement, work engagement, personal engagement, and job engagement complicates the definition and understanding of engagement (Truss et al. 2013a). Engagement though is distinct to that of organisational commitment, organisational citizenship behaviour, work engagement, job-related attitudes, job behaviour, and behavioural intentions, personality, health and wellbeing, motivation and discretionary effort and job satisfaction⁶ which have been used interchangeably in the literature, although they are unique constructs (Truss et al. 2013a; Gupta & Sharma 2016).

It is clear though that there is a lack of universal agreement of engagement leading to numerous definitions from business, academia, and commercial enterprises as outlined in table 7.

Table 7 – Common definitions of employee engagement

Definition	Source
<ul style="list-style-type: none"> 'work engagement is a distinct concept defined as a positive, fulfilling, work-related state of mind that is characterised by Vigor, Dedication and Absorption'. 	Schaufeli, Salanova, Gonzalez-Roma and Bakker (2003, p.4)
<ul style="list-style-type: none"> 'a distinct and unique construct consisting of cognitive, emotional, and behavioural components that are associated with individual and organisational performance'. 	Saks 2006, cited in Truss et al. (2013a, p.19)
<ul style="list-style-type: none"> 'an individual employee's cognitive, emotional, and behavioural state directed towards desired organizational outcomes'. 	Shuck and Wollard (2010, p.103)
<ul style="list-style-type: none"> 'a process by which an organization increases commitment and continuation of its employees to the achievement of superior results. The ISR separates commitment into three parts: cognitive commitment, affective commitment, and behavioral commitment or think, feel and act'. 	International Survey Research, cited by Antony (2018, p.32)
<ul style="list-style-type: none"> 'a persistent, positive affective-motivational state of fulfillment in employees that is characterized by high levels of activation and pleasure'. 	Maslach et al. (2001, cited in Shuck and Wollard 2010, p.102)
<ul style="list-style-type: none"> 'employee engagement refers to the individual's involvement and satisfaction with as well as enthusiasm for work'. 	Harter et al. (2002, p. 269), Shuck and Wollard (2010, p.102)

(Source: Developed for this research)

Despite the plethora of definitions and approaches, Shuck (2011) outlined four dominant approaches to engagement. These were: *Needs-satisfying* (Kahn 1990), *Burnout antithesis* (Leiter & Maslach 1997), *Satisfaction-engagement* (Gallup 2002) and *Multidimensional* (Saks 2006) which significantly includes a clear distinction between employee engagement and job engagement which is defined as 'performing the work role; compared to organisational engagement, defined as performing work as a member of the organization, although, despite its appeal there has been limited research' (Truss et al. 2013a, p. 25) with engagement being considered 'as the expression of one's preferred self in task behaviours' (Kahn 1990, cited in Truss et al. 2013a, p. 18).

⁶ Job satisfaction has been used significantly in the literature as a proxy indicator for engagement, it is however clear that it is a unique construct and has been defined by Ellickson (2002) 'as the extent to which employees like their work. Based on perceptions, an employee develops a positive or negative attitude towards their job and environment' (cited in Abraham 2012, p.28).

Although such approaches provide a significant advancement in the understanding and uniqueness of the engagement construct, a limitation is that each of these considers engagement from a different perspective; thereby addressing different elements of engagement resulting in inconsistent interpretation and operationalisation (Shuck & Wollard 2009). This presents a challenge to measuring engagement, as Truss et al. (2013a) note that perhaps the major issue faced by academics and practitioners in reducing definitional complexity is knowing when to limit the scope of engagement. Hence, a prominent contribution in establishing the engagement construct, which addresses this issue, came from the seminal work of Macey and Schneider (2008) who, after reviewing all the attributes used to define employee engagement, established a conceptual framework consisting of trait engagement, state engagement, and behavioural engagement (cited in Truss et al. 2013a, p. 19).

It is apparent that the business environment is changing where organisations are required to do more with fewer resources, cope with competing priorities, and rapidly evolving technologies. Consequently, a significant factor identified that affects engagement in the workplace is the declining level of psychological health and wellbeing with an outcome being the inability of employees to cope with the demands of work. Therefore, such issues should be viewed as being central to the creation of organisations where employees thrive and are engaged, inclusive of their psychological health and wellbeing. As outlined above, the burnout-antithesis approach has been suggested in the literature by Leiter and Maslach (1997) as an alternate view of engagement and is highly applicable due to being grounded in occupational health psychology which addresses such factors. Another relevant and prominent framework that has been widely applied is the Job-Demand Resources (JDR) model (Bakker & Demerouti 2007).

JDR considers that the individual's resources (organisational, job and personal) create motivation, but once the demands of the role exceed the individual's ability to cope, performance is reduced due to physical and psychological health impairment. A cross-sectional study by Conway et al. (2016) demonstrated the applicability of the JDR framework to engagement from an HRM perspective within the public sector in Ireland. In the study the HRM practice, performance management was viewed as a demand, and employee voice (involvement) considered a resource as it helps orient and motivate employees towards organisational goals and can influence employee engagement (Conway et al. 2016). Performance management has been explored in the literature and is considered useful within HRM practice as it can act as a 'development and evaluative function' (Conway et al. 2016, p.

905). In contrast, such practices have also been found to negatively affect two elements of employee wellbeing - employee burnout or emotional exhaustion (Conway et al. 2016).

Conway et al. (2016) sought to investigate the relationship between these four dimensions (employee voice, performance management, employee burnout or emotional exhaustion). In the study, a scale for performance management (3 items) and employee voice (4 items) was developed from previous studies and measured on a five-point Likert scale. Engagement was measured using the Utrecht Work Engagement scale and Maslach and Jackson scale (1981) was used to measure emotional exhaustion on a five-point Likert scale. Several insights were reported in the findings including that employee voice can enhance employee engagement and mitigate emotional exhaustion. This is an important factor as employee involvement in decision making is also an essential factor in strategy implementation and execution (Melander et al. 2016), and the changing view of workplace safety posited by Provan et al. (2020). Furthermore, this study provides evidence that the JDR model and UWES are useful in the organisational setting as an approach to employee engagement, as impairment due to demand overload and disengagement affect performance at the individual and organisational levels (Truss et al. 2013b).

More recently, Anthony-McMann et al. (2017) conducted a quantitative study of engagement with particular interest in measurement of its relationship with stress and burnout across information technology workers in a health care setting. The aim was to use two measures of engagement grounded in the Needs-satisfaction approach and further operationalise the work of Kahn (1990) and examine the differences in measurement instruments. In the study information technology workers from a health care setting were asked to rate their levels of work stress using the Workplace Stressors Assessment Questionnaire (Mahmood et al. 2010), Burnout using the 10 item Burnout Measure Short (Maslach-Pines 2005) and engagement using the Rich scale (Rich et al. 2010) and Intellectual, Social and Affective scale (Soane 2012). Whilst the engagement instruments were consistent in the variables, they assessed across three sub-scales. Analysis of the results suggest that there were differences between both engagement scales and workplace stress and burnout. Yet overall results yielded consistent results with high correlations reported for each instrument. A non-significant exception was the correlation between physical engagement on the Rich scale to workplace stress and burnout. The study concluded that the measures of engagement need to be more conceptually grounded in those that measure affect or emotion. Significantly, the study further indicates the difficulty in defining and measuring engagement as the way it is conceptualised and measured may yield

different predictive outcomes. Therefore, the objective of measuring employee engagement or a specific dimension may affect the tool selection and the choice of interventions.

Another recent study by Eldor and Harpaz (2016) examined engagement, organisational learning climate (OLC)⁷ and the mediating effect of engagement with the hypothesis that there would be enhanced 'extra-role performance such as proactivity, knowledge sharing, creativity and adaptability [...] leading to the achievement of strategic organisational goals' (Eldor & Harpaz 2016, p. 214). Drawing on the JDR approach to engagement, OLC as a job resource is particularly relevant due to its ability to create both intrinsic and extrinsic motivation potential. This enables employees to achieve goals and grow individually through deeper connection, greater dialogue, and feedback (Eldor & Harpaz 2016). In their cross-sectional study of various industries in Israel, 625 surveys were collected and analysed to determine OLC and engagement using the UWES. The remaining variables were measured using established instruments for job satisfaction and involvement. Whilst extra-role behaviours were measured by a composite scale comprising proactivity, knowledge sharing, creativity, and adaptability (Eldor & Harpaz 2016).

Several findings emerged from the study with the most significant theoretical contribution being: (a) the positive relationship between engagement, OLC, and extra-role performance behaviours, and (b) that OLC provided a better explanation as a mediator than job satisfaction and job involvement. Further OLC supports learning at the individual, team and organisational level facilitating organisational goal attainment. A noted weakness of the study was the limited research undertaken into OLC as a job resource and its mediating role on employee engagement, therefore making it difficult to apply more broadly to industry. However, as the authors emphasise, the employee-organisation relationship previously examined in the literature is distinctly different from that of current research into employee engagement; therefore, further research is required into this emergent OLC-engagement concept and its suitability as a broader perspective of engagement. From a practical perspective, this research highlights that as organisations move to different organisational structures and operate with dispersed workforces', employee engagement can be realised, as extra effort behaviours are enabled through performance facilitation and job crafting, rather than performance management.

⁷ OLC is defined as the 'perceptions of the employees organisations beneficial activities in helping create, acquire, and transfer knowledge' (p.215).

Engagement is also an important area from the organisational perspective and is desirable because of its links with individual and business performance outcomes. Gupta and Sharma (2016) conducted an exploratory study to develop a conceptual model of employee engagement. The study demonstrated several outcomes from an organisational perspective, with positive associations between engagement and customer satisfaction, productivity, improved employee retention, profit, organisational change, self-efficacy, and customer loyalty. The individual outcomes were related to health and wellbeing and meeting the expectations of the role through the willingness and capability of employees, and the discretionary powers to achieve organisational success. In conclusion, the model was considered measurable, could be correlated with business performance, and it varied from highly engaged to disengaged. It supported the assumption that organisations consistently link highly engaged employees with high organisation performance, retention, productivity, and customer satisfaction.

An analysis by Iaxi Consultancy (Robertson-Smith & Markwick 2009), suggests that engagement is comprised of three interrelated areas that can have a positive effect on engagement at work if the following aspects are associated with each area. These include:

- Work: job challenge; clear goals and accountability; freedom to act; purpose and meaning; important work; resources available.
- Manager: listens; develops open communication; makes time; respects individuals; encourages; is fair; provides feedback.
- Autonomy: confident in achieving; feels respected; feels valued; is in control; has the skills; opportunity to perform; motivated; feels work is important (cited in Robertson-Smith & Markwick 2009, p. 31).

Other elements drawn from the HRM literature include satisfaction with remuneration, training and development, quality of leadership, relationship with manager which underpin employees feeling valued by the organisation (Gupta & Sharma 2016; Society for Human Resource Management 2016). More recently the Society for Human Resource Management (2017) researched job satisfaction and employee engagement across the United States industry via a comprehensive survey. The survey consisted of 44 dimensions focused on job satisfaction with 38 related to employee engagement across three categories: 'Conditions of engagement: the workplace environment and the work itself; Engagement opinions: employees' connection with their work; Engagement behaviours: colleagues' connection with employees' work' (Society for Human Resource Management 2017, p.8). Responses were rated on a five-point Likert scale

ranging from one (highly disengaged) to five (highly engaged) that were then aggregated to determine an employee engagement index. The report found that despite a relatively high level of job satisfaction there was a slight decline in organisational engagement, in addition to 40% of employees indicating that they were intending to leave. Reported reasons were higher compensation or pay (56%), greater benefits (29%), job security or career advancement (25%). In contrast, the employees happy with their existing organisation reported the reasons as being work-life balance (34%), job security (29%) and meaningful work (29%).

Therefore, organisations looking to improve their WHSW performance need to consider the broader human capital context as a sound employer-employee engagement relationship is based on fairness, open communication, and trust. This context leads to positive supervisor relationships and low levels of work-stress. Such attributes have been identified as key mediating influences in employee wellbeing, positive safety culture and good safety performance as ‘employees are more willing to accept conditions and outcomes if they believe that the process and policy is based on reasonable terms’ (Society for Human Resource Management 2017, p.9).

Another area of significance representing a contemporary business issue is that of corporate social responsibility (CSR) and sustainability leading to several researchers examining it as an enabler of engagement (e.g., Ferreira & Real de Oliveira 2014; Di Fabio 2017). It is suggested that engagement may emerge due to employees feeling connected with the organisation due its involvement in the community, as it resonates with their own sense of social conscious and aligns with values-based decision making. An organisation is viewed favourably with outcomes relating to improved performance and reputation which attracts and retains talent (Valentin, Valentin & Nafukho 2015). Considering the declining levels of engagement, Valentin, Valentin and Nafukho (2015) argue that the adoption of a CSR framed human resource development (HRD) strategy motivates employees as it meets their basic psychological needs of competence, autonomy and relatedness leading to a sustained state of employee engagement. Indeed, such attributes are central to self-determination theory (Ryan & Deci 2000) which has been positively associated with individual wellbeing and clearly reflects several definitions of engagement outlined in the literature.

In their research Valentin, Valentin and Nafukho (2015) posit that the HRD interventions aimed at embedding CSR leads to continuous intrinsic motivation resulting in sustained engagement and value creation, seen as internal and external outcomes. Furthermore, they highlight that like safety issues, contextual issues such as maturity of corporate culture and

climate affect motivation, employee commitment and the ability to embed strategic CSR initiatives in the organisation. Whilst from a business performance perspective, they proposed an employee engagement continuum that enables the organisation to distinguish between tangible and measurable performance outcomes, alignment between the organisation and employees' motivation that exhibits internal outcomes. This alignment then leads to external measurable behaviours that enhance performance.

In conclusion, they report that the outlined approach and model can assist in meeting the three engagement attributes meaningfulness, safety, and availability (Khan 1990). They also caution against the use of the model as a complete solution.

With greater interest in engagement further exploration of approaches to measure these constructs has been undertaken from academic and commercial perspectives. Several tools, largely surveys, have been reported in the literature including the UWES in addition to those from several organisations such as Gallup Workplace Audit and Aon Hewitt. Cappelli and Eldor (2019) highlight potential weaknesses when using surveys to measure engagement despite such tools being widely applied from an operational perspective. An early approach to the measurement of work engagement was the Maslach Burnout Inventory - General Survey which considered burnout as being the opposite of engagement. Although the burnout-antithesis approach has been reported as a prominent approach to engagement, Schaufeli and Bakker (2003) argue that such an approach has significant weaknesses as employees may be disengaged for reasons other than being burnt-out and still exhibit low levels of engagement.

Consequently, they proposed an alternative measure based on their definition⁸ through a self-report questionnaire referred to as the Utrecht Work Engagement Scale (Schaufeli & Bakker 2003). The UWES measures three distinct dimensions of work engagement as Vigor, Dedication, and Absorption by requiring responses to 17 questions across these three scales. The instrument was tested across a range of Dutch and international industries, including those from Australia using confirmatory factor analysis. It was found to be a reliable and a valid measurement instrument for engagement. Subsequent application of the UWES in several

⁸ Their definition of engagement in developing the UWES was "Engagement is a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption. Rather than a momentary and specific state, engagement refers to a more persistent and pervasive affective-cognitive state that is not focused on any particular object, event, individual, or behavior. **Vigor** is characterized by high levels of energy and mental resilience while working, the willingness to invest effort in one's work, and persistence even in the face of difficulties. **Dedication** refers to being strongly involved in one's work and experiencing a sense of significance, enthusiasm, inspiration, pride, and challenge. **Absorption** is characterized by being fully concentrated and happily engrossed in one's work, whereby time passes quickly, and one has difficulties with detaching oneself from work' (pp.4-5).

studies has confirmed it to be a good indicator of engagement (Bryson, Forth & Stokes 2014; Eldor & Harpaz 2016; Anthony-McMann et al. 2017).

Despite the widespread application of the UWES a significant contribution to the measurement of engagement has come from the Gallup organisation through their survey, the Gallup Workplace Audit (Q12). The Gallup organisation has conducted several studies across the global business community. In 2012 Gallup surveyed ‘49,928 business or working firms and covered about 1.4 million employees in 192 organizations, across 49 industries over 34 countries’ (Gupta & Sharma 2016, p. 56S). Analysis of the research by Harter et al. (2013, cited in Gupta & Sharma 2016) confirmed that by improving employee engagement, organisational improvements were realised across several indicators, with the top five reported being: lower turnover (in low-turnover organizations), fewer safety incidents, fewer patient safety incidents, fewer quality incidents (defects) and lower absenteeism.

Another more recent study into global engagement trends by Aon Hewitt drew on survey data from more than five million employee responses during 2015 and 2016 across 60 industries to ‘measure engagement [...] and 15 work experience dimensions⁹’ (Aon Hewitt 2017, p.3). Whilst the report found that globally engagement had retracted, in Australia levels of engagement had improved by three points. Several significant outcomes emerged from the research such as the most important drivers of engagement in the modern workforce were rewards and recognition and employee value as both are considered to align more closely with basic human needs (Aon Hewitt 2017). These results indicate that ‘employee engagement is linked with the key factors promoting sustainable organization performance’ (Miller & McCartney 2011, cited in Gupta & Sharma 2016, p. 56S). However, the changing engagement landscape requires further exploration into how safety and wellbeing fit within the employee value proposition (engagement).

Furthermore, how work is organised, structured, and undertaken influences overall work-life satisfaction and has been recognised as an antecedent in engagement (Truss et al. 2013b). It is evident from the literature that both WHS and HRM disciplines each have a role in the strategies to promote job satisfaction and “good” work. The effects of poor work design have been well reported in the work health and wellbeing literature with numerous studies reporting adverse outcomes related to cardiovascular disease, high levels of stress, and psychological strain. Bevan (2012) highlights that the design of work and jobs is a strategic priority because

⁹ (1) Employee Value Proposition, (2) Reputation, (3) Career Opportunities, (4) Collaboration, (5) Diversity and Inclusion, (6) Empowerment/Autonomy, (7) Enabling Infrastructure, (8) Learning and Development, (9) Manager, (10) Performance Management, (11) Rewards and Recognition, (12) Senior Leadership, (13) Talent and Staffing, (14) Work Fulfilment, and (15) Work/Life Balance (p.3).

meaningful work is a key factor in employee commitment to an organisation, and improving employee experience of work, which benefits the organisation. Early seminal work by Hackman and Oldham (1976) in developing the Job Characteristics Model (JCM) found five core characteristics of jobs are ‘skill variety, autonomy, feedback, task significance, and task identity’ (Truss et al. 2013a, p. 135). These variables influence psychological states leading to greater motivation, job satisfaction, and personal growth. According to Truss et al. (2013a), the JCM has become the most influential model in work design which can be measured relatively simply through the Job Diagnostic Survey (Hackman & Oldham 1976). However, limitations are apparent as highlighted by Bakker and Demerouti (2007) who suggest that not all job characteristics are covered. A similar view was held by Morgeson and Humphrey (2006) who recognised that a broader focus on motivational work factors was required as the area was underdeveloped in the literature. This was due to the predominant early focus on job-specific and task-oriented measures. Hence, a more comprehensive and integrative work design measure was needed (Morgeson & Humphrey 2006) that led to the development of the Work Design Questionnaire (WDQ).

In developing the WDQ a comprehensive literature review and assessment of existing models were undertaken resulting in the identification of 107 work characteristic terms. These were reduced to 18 work characteristic categories that were ordered under knowledge, task, social and contextual headings. In validating the WDQ a cross-section of 243 jobs was undertaken and measured against organisational and personal indicators including job satisfaction. The instrument being found to be a reliable measure of work design through confirmatory factor analysis (Morgeson & Humphrey 2006). Significantly, it was highlighted that designing for motivational work may affect other organisational aspects such as increasing training requirements and costs and employee remuneration expectations. However, the evidence remains quite strong that a positive association exists between motivational characteristics and job satisfaction (Morgeson & Humphrey 2006). The findings of the survey for work design or redesign were:

- the purpose of undertaking work redesign needs to be contextualised as several motivational variables can change leading to numerous redesign options, some of which cannot be implemented in practice.
- approaching work design from an ability-oriented perspective may support greater person-job fit than needs based perspective which considers aspects such as growth and strengths.

- social support creates a strong positive improvement when modified resulting in greater satisfaction with work (interest).
- enhancing social support in work yields both motivational and training benefits (Morgeson & Humphrey, 2006, p. 1335).

A review by Parker and Griffin (2014) of the work design literature was undertaken to establish a set of practitioner orientated principles and guidelines. In examining the literature, the authors highlight that like the seminal work of Hackman and Oldman (1976), and Morgeson and Humphrey (2006), that from a motivational perspective good work design involves actively building work characteristics such as 'job autonomy, task variety into roles as it can increase worker motivation and engagement' (Parker & Griffin 2014, p.19). Additional mediators of work design and promotion of safe and healthy work include motivation, team effectiveness, and engagement form part of Good Work Design Principles (Safe Work Australia 2015a) which outlines five action principles and five core principles. A good work design:

1. gives the highest level of protection against harm that is reasonably practicable.
2. is holistic.
3. is applicable at many stages in the supply chain and across operations, products, and processes.
4. enhances protective factors that contribute to good health; and
5. enhances business success¹⁰ (Safe Work Australia 2015a, pp.6-9)

From a HRM perspective, employment practices or high-performance work systems (HPWS) have also been of interest and examined as to their effect on worker performance. According to Bevan (2012) applicable areas and practices of HRM such as recruitment, retention and development result in the organisation achieving superior and sustainable performance and thus competitive advantage. These benefits are considered by some to increase company performance, quality of working life and employee commitment, work environment and other forms of work-based participation (Bevan 2012). By contrast, for some these HRM practices result in excessive working hours, work intensification and the blurring of work-life balance that are considered as negative impacts on individuals health and wellbeing.

¹⁰ Good work health and safety improves long-term business productivity by preventing injuries/illnesses and associated costs; promoting health, well-being and capacity to work; and fostering innovation, quality, and efficiency through continuous improvement (Australian Strategy, p. 5).

The optimisation of the workforce can be influenced by individual and organisational processes and systems, including high-quality job design (Daniels et al. 2017). Daniels et al. (2017) conducted a systematic review of 33 interventions relating to JD, employment practices, and wellbeing to evaluate the effect on job design, employee wellbeing and performance. Interventions were considered in terms of improving jobs through training people and leaders, participation in workgroups, a combination of job design and training, and system-wide changes (Daniels et al. 2017). Studies conducted in workplaces where employees had been trained to develop better quality jobs themselves indicated an improvement in wellbeing indicators, and a smaller number suggested improvement in performance. In contrast, to the other studies where inconsistent and inconclusive outcomes were reported. However, there were noted limitations of the review, including the effect of one randomized control trial where the intervention was focused on mediation and the small sample size for those studies which examined training as an intervention. Such that the evidence was determined as “promising” for the effect of training to improve job design and wellbeing (Daniels et al. 2017). Summarising the review, the authors report that JD may require augmentation with work practices, such as high-performance work systems; and that further research is required into JD and work practices as a gap currently exists in how best to implement interventions that ‘couple job design and other employment practices’ (Daniels et al. 2017, p. 1192).

In summary, engagement is a complex construct and a prominent business issue which impacts on employee wellbeing and organisational strategy execution. Of note is the increasing evidence that individualistic factors such as personal growth are significant in engagement. To date, there is little evidence to demonstrate that this key business and individual level issue has been adequately investigated and incorporated with WHSW interventions, as such many engagement strategies remain largely driven by human resource practice. This study, therefore, contributes new knowledge to the literature through the examination of WHSW, work design, employee engagement and personal growth within organisational strategy.

2.3 WHSW Strategy and Leadership

2.3.1 Organisational strategy

A challenge consistently highlighted in the literature has been the changing national and global work environment and highly competitive business environment. A consequence of this has seen traditional work structures and patterns being replaced with new challenges through downsizing, geographically displaced workforces, greater use of technology, increased use of supplementary labour across supply chains, precarious employment contracts, and longer

working hours to name a few. All of which present business and WHSW risks requiring a strategic approach and new order controls.

To meet the above challenges organisational strategy is important because it provides a documented set of actions to achieve organisational and performance objectives and maintain competitiveness. However, the way strategy is conceptualised can also influence its definition and how it affects organisational performance (Johnsen 2015). Strategy has been defined as a ‘cohesive response to an important challenge’ (Rumelt 2011, cited in Johnsen 2015, p.245). The formulation of strategy consists of:

Strategy context: which is the set of circumstances under which both the strategy process and content are determined and implemented; Strategy process: which is the manner in which strategies come about, and Strategy content: which is the product of a strategy process (Zou & Sunindijo 2015, p. 215)

Common elements of the organisational strategy include vision¹¹, values, goals and objectives, initiatives, and performance measures. Once brought together these elements are “operationalised” by the formulation of a corporate level plan which is often translated into operational level action plans. These plans are then systematically deployed throughout the organisation (Henry 2008) and monitored for implementation and progress against objectives and their outcomes.

Discussion on strategy formulation in the literature suggests that it is a complex process comprising cognitive, behavioural, social, and technical dimensions (Johnsen 2015). Reflecting this, several approaches or “schools of thought” have been postulated in the literature including the design approach suggested by Mitzenberg (1990; cited in Johnsen 2015). Central to this is the consideration of the internal and external environment by using a process to evaluate four perspectives: (1) Strength, (2) Weakness, (3) Opportunity, and (4) Threat, commonly referred to as “SWOT analysis” (Henry 2008). Once complete the outcomes can lead to the evaluation of different strategies and matching them with capabilities resulting in the best fit for implementation (Henry 2008). A strength of the design approach is that it allows organisations to assess strategy and reduce risk (Henry 2008). In contrast a criticism on this approach is that unweighted long lists of “strategies” are generated, threats may present as opportunities, and ‘strengths and weaknesses may not translate into opportunities and threats’ (Henry 2008, p.123).

¹¹ Vision is the long term future view of the organisation or ‘the organisation’s ability to see what it will look like at some point in the future. A vision provides a sense of direction and a set of criteria against which actual organisational performance is measured. When it is used properly, a vision can be a powerful motivating force’ (Zou & Sunindijo 2015, p.216).

Early prominent views of strategy came from Porter (1980) who posited the “outside-in” economic perspective and the work of Mintzberg and Waters (1985) who suggests that the three types of strategy formulation are: (1) intended, (2) realised, and (3) emergent (Henry 2008) as depicted in figure 2. The intended strategy represents the direction the organisation has deliberately chosen; realised what the organisation carried out due to changes from the unrealised strategies, whereas the emergent strategy occurs due to experience and learning of managers within the organisation.

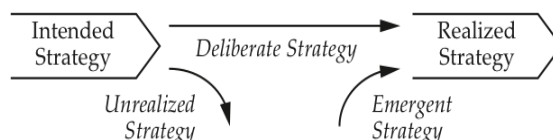


Figure 2 - Types of organisational strategies (Source: Mintzberg & Waters 1985, cited in Henry 2008, p.21)

Another theory of strategy formulation extensively reported in the literature is the resource-based view (RBV) with significant contributions coming from the work of Barney (1991), Prahalad and Hamel (1990) and recently Miller (2019). In contrast to the work of Porter, RBV adopts an “inside-out” view by focusing on the internal capabilities of the organisation, tangible and intangible resources and core competencies¹² to be competitive and sustainable (Henry 2008). Strengths of RBV include that it provides the initial direction for the organisation and defines the resources required as “inputs” that enable an organisation to carry out its activities are the primary source of a business profit (Henry 2008). Especially human resources (talent) that are considered as a source of competitive advantage and are therefore central to the execution of the organisation’s strategy and achievement of strategic goals. Accordingly, the organisation needs to ensure that all employees understand how their role contributes to the broader purpose of the organisation by providing “Line of Sight (LOS)” which Boswell, Bingham and Colvin (2006, p. 500) have defined ‘as an employee’s understanding of the organisations strategic goals and what actions are necessary’. Conversely, several criticisms of the RBV perspective have been reported in the literature including the time taken in developing resources and capabilities which are vital to implementing the chosen strategy (Hitt, Carnes & Xu 2016); and the lack of consideration of the ‘dynamic role individuals play within the organisation’ (Henry 2008, p.150).

Despite this narrative Hitt, Carnes and Xu (2016) argue that much of the early criticisms have been addressed, including the view that RBV has failed to accommodate for the time taken to

¹² Competencies can be defined as the attributes that a firm requires in order to compete in the marketplace. Core competence or strategic capability are a cluster of attributes that an organisation possesses which in turn allow it to achieve competitive advantage (Henry 2008, pp.132-3)

develop resources and capabilities. And that it was therefore considered as providing a ‘static as opposed to dynamic perspective’ (Hitt, Carnes & Xu 2016, p. 108). In concluding their article, they note that ‘recent research has used RB[V]T to explain large differences in performance for firms, both individually and relative to the industry norms’ (Hitt, Carnes & Xu 2016, p. 109).

Recently, Johnsen (2015) conducted a review of strategic management in the public sector and reports on Mintzberg’s (2009) typology by grouping current thinking into normative, descriptive, and mixed “schools of thought”. In total ten approaches¹³ were identified and discussed with each consisting of a key central actor such as chief executive officer, leader, or planners who affect strategy structure and its implementation. In summarising existing literature, the authors compare strategy types suggesting that organisations may adopt and change different types of strategies and tools due to their level of maturity, changing environmental factors, and actor cognitive styles. Of the 29 organisations studied each was subsequently ranked in order of importance. The most frequently reported approaches were planning, design, and power, with many common tools such as ‘mission statements, core values, visions, objectives, SWOT-analyses, scenario, and checklists, ...’ (Johnsen 2015, p. 259) being applied to the strategy process. It is evident from the review that the paper highlights two key propositions, in that strategic management, is more than analysis and strategy formulation, and that managers can develop a tailored strategic approach by combing different tools and thinking based on their experience and pragmatic reasoning (Johnsen 2015). In other words, strategy conception, formulation, and implementation are dynamic and arguably driven by context, which is therefore compatible with RBV and the process outlined by Zou and Sunindijo (2015) for workplace health and safety.

Another significant contribution to the strategy literature came from Kaplan and Norton (1996) who outline the balanced scorecard (BSC) approach. Although it initially sought to establish a more holistic performance measurement framework for the organisation beyond traditional financial indicators, it has subsequently been applied as a strategic management framework ‘to address a serious deficiency in traditional management systems, their inability to link a company’s long-term with its short-term actions’ (Kaplan & Norton 1996, p. 75). Significantly, the primary purpose is to align vision and strategy with the drivers of business that matter most. One of the most important assumptions encapsulated in the BSC is that strategy is composed of a set of hypotheses of cause-and-effect relationships (Spitzer 2007).

¹³ These were: Design, Planning, Positioning, Entrepreneurial, Cognitive, Learning, Power, Cultural, Environmental and Configuration.

The BSC implementation process adopts a cascading approach where operational measures align or are a subset of the organisational objectives that are reflected in a strategy map. Information is provided to decision-makers from the perspective of ‘financial, customer, learning and growth, and internal processes’ (Kaplan & Norton 1996, pp.75-6) to enable decision making. A strength of this framework is that it supports organisations to integrate activities across various levels of the organisation in addition to acting as a continuous improvement mechanism by providing timely data and accurate feedback (Behery, Jabeen & Parakandi 2014). However, the BSC has been applied to WHS with reported improvements across various WHS performance measures (Mearns & Ivar Håvold 2003; Kakuro 2004; Gunduz & Simsek 2007).

Melander et al. (2016) outlined the use of Honsin Kanri (HK) in small-medium manufacturing organisations in Sweden. Apparent strengths of this approach include the Plan, Do, Check, Act (PDCA) cycle used in safety management systems, and that it provides a cascading approach to strategy development and implementation inclusive of short timeframe objectives, utilisation of the “SWOT” tool in the analysis phase in addition to focusing the organisation on a few key critical objectives and targets which are aligned to ‘overall organizational objectives, such as the vision...’ (Melander et al. 2016, p. 2511). It critically involves both management and employees in the development process through dialogue which enables each level of the organisation to work on objectives that align with the overall vision and objectives. Hence, the implementation phase of the strategy is a more dynamic collaborative process ‘through coordination, integration, communication’ (Melander et al. 2016, p. 2511) which pertains to employees understanding the strategy, and therefore has similarities with LOS. This is particularly relevant to WHSW strategy as employee engagement and ownership have been identified as factors in successfully implementing strategy in this area. Melander et al. (2016, p. 2509) significantly note that HK ‘...provides an organisational architecture and transparency which is necessary if strategy and daily management are to combine’; which also assumes significance, as middle managers are seen to be key stakeholders in the process.

WHSW value as a contributor to broader organisational performance beyond legal compliance has been a subject of great interest in the literature. The topic surrounding business value appears somewhat underdeveloped as many illustrations focus on the operational (work environment) level. The organisational environment is a challenging area for WHSW as strategies transcend strategic, tactical, and operational levels. Therefore, there is a need to adopt a planned approach from the organisational level as WHSW risks are ‘problems that are sometimes related to meeting strategic goals’ (Carden, Boyd & Valenti 2015, p. 139) and

represent a key business issue that is not limited to personal consequences but also affect ‘financial, interpersonal and reputational health of a business and, potentially, the wider community’ (O’Neill & Wolfe 2017, p. 8).

In Australia, a report on workplace health and safety, business productivity and sustainability further illustrate the strategic significance of WHSW, and business performance by stating that:

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 (Gahan, Sievwright & Evans 2014, p. 18)

Likewise, research by Hesapro (2013, p.11) also reports that there is evidence to show ‘...that integrating health and safety in company strategy and policy can be seen as a key to business excellence and success...’. The report outlines a framework showing the relationships between work, health, safety, and positive outcomes for individuals, the organisation, and overall organisation performance. Notably, positive improvements were broader than WRH reduction and included less employer turnover, reduced levels of absenteeism and presenteeism, improved job satisfaction, and improved quality of working life. Krause (2009, p. 24) suggests that establishing ‘safety as a strategic objective, where employee well-being is linked in thought and practice to the success of the organization, implies a fundamental shift in organizational practices, thinking and culture’. However, for effective influence on company performance, the occupational safety and health programs need to align with the company’s goals (Hesapro 2013).

Drawing on business strategy principles and tools, Zou and Sunindijo (2015) outline a strategic safety management (SSM) approach applied to the construction and engineering sector, which aligns with traditional business-centric methods. The definition used for strategy is:

the direction and scope of an organisation over the long term, which achieves advantage in a changing environment for the organisation through its configuration of resources and competences with the aim of fulfilling stakeholder expectations (Johnson et al. 2008, cited in Zou & Sunindijo 2015, p.215)

The authors outline a framework that includes a safety vision, goals, and core competencies. The starting point for strategy development was an assessment of the strengths and weaknesses of existing safety strategies and the external environment to formulate new strategies and develop implementation and evaluation plans. Also outlined are several key dimensions of strategy such as training, legal requirements, and risk management and design, yet health and wellbeing were not identified as discrete components of the SSM. This further demonstrates

the need for models and frameworks that are more holistic and provide the strategic capability to deal with emerging concerns in health and wellbeing, not just workplace safety.

A key factor that differentiates strategic safety from operational safety is the recognition of corporate governance as an essential factor in strategy implementation, in addition to organisational structure and strategic leadership (Zou & Sunindijo 2015). The final strategy component, *Evaluation*, draws on BSC concepts suggesting the four sets of indicators: '(i) accident costs, safety-related insurance premiums (ii) client satisfaction (iii) safety climate and culture, and (iv) accident frequency rate' (Zou & Sunindijo 2015, p.225). The two reported case studies reviewed by Zou and Sunindijo (2015) demonstrate positive improvements in the strategic management of safety across the indicators adopted. In conclusion, they found that SSM was a feasible approach for the construction and engineering sector and highlighted two significant barriers to strategy implementation. These included misalignment between company's boardroom decision-making and its implementation throughout the organisation and resistance to change.

In summary, the literature suggests there is evidence of WHSW having strategic significance which requires a systematic approach for its management that supports the achievement of organisational objectives. Contemporary business management approaches such as the BSC have been applied to WHSW, however, much of the focus has remained at the operational level and its impact on performance and risk management.

2.3.2 Safety culture and climate

Despite the ongoing application of safety management systems, a significant change has been the growing focus on the role of the human element and performance leading to safety culture and climate being viewed as a significant area of interest. At the macro level, both organisational culture and safety culture have been examined extensively in the literature because both have been associated with poor organisational functioning and safety performance; in addition to being implicated in several catastrophic incidents that have resulted in significant injury or fatality.

Despite much debate in the literature as to whether safety culture is a distinct phenomenon or a subset of organisational culture (Blewett 2011) the generally held view is that it describes the collective values, beliefs, shared meaning, and experiences that influence organisational safety expectations. And how the organisation creates the right environment for safe decision making and working behaviours based on information and risks (Antonsen 2009). An early use of the term safety culture was by the International Atomic Energy Agency following the Chernobyl

nuclear incident (1986). This has led to safety culture being examined where incidents occur because of the limitations and fallibility of safety management systems (Hopkins 2003).

Consequently, ‘in the last decade or so safety culture has been used as a diagnosis to describe incident causation; in common parlance, that is, [...] the incident was caused by a poor safety culture’ (Blewett 2011, p. 10). Since its “emergence” definitions of safety culture and climate have been reported frequently throughout the literature. In a systematic review of safety culture and climate literature, Vu and De Cieri (2014) identified 51 original safety culture definitions, examples of which are outlined in Table 8.

Table 8 – Common definitions of safety culture

Definition	Author
<ul style="list-style-type: none"> • ‘A dynamically balanced, adaptable state resulting from the configuration of values, leadership strategies, and attitudes that collectively impact safety performance at the individual, group, and enterprise level. Simply stated, safety culture is a dynamic configuration of factors at multiple levels that influences safety performance. The dynamic configuration of values, leadership strategies, and attitudes result in four discernible dominant states of safety culture; secretive culture, blame culture, reporting culture, and just culture’ (p.102). 	Patankar and Sabin (2010)
<ul style="list-style-type: none"> • ‘Culture is conceptualised as primarily an ideational system of meanings, and safety culture as one concerned with the norms, beliefs, roles, and practices for handling hazards and risk. Possible elements of a ‘good’ safety culture are norms and rules for dealing with risk, safety attitudes, and reflexivity on safety practice’ (p.129). 	Pidgeon (1991)
<ul style="list-style-type: none"> • ‘A safety culture is the set of assumptions, and their associated practices, which permit beliefs about danger and safety to be constructed’ (p.6) 	Pidgeon (1997)
<ul style="list-style-type: none"> • ‘Safety culture reflects the values, attitudes and behaviours of your organisation with regards to health and safety. It’s not just what safety systems you have in place. In a positive safety culture: <ul style="list-style-type: none"> ○ everyone in the organisation believes they have a right to work in a safe and healthy environment. ○ everyone accepts personal responsibility for ensuring the health and safety of themselves and of others. ○ supervisors and managers see safety as important. ○ management behaviours and actions demonstrate a commitment to health and safety’ 	WorkCover NSW (n.d)
<ul style="list-style-type: none"> • ‘Safety culture can be used to refer to the behavioural aspects (i.e. ‘what people do’), and the situational aspects of the company (i.e. ‘what the organisation has’) 	UK HSE (2005)

(Source: Vu & De Cieri 2014, pp.62-71)

Several significant contributions and views on culture have emerged in the literature from various perspectives including anthropology, management, engineering, and psychological sciences. A prominent contribution to the organisational culture literature has been by the seminal work of Edger Schein (1985) who outlines a three-level model of organisational culture which consists of *Artefacts* through to *Beliefs and Values*, and *Basic Underlying Assumptions*. This understanding of culture has informed the safety literature with a prominent contribution from Guldenmund (2000) through the safety culture framework. This framework is consistent with that of Schein’s model. The underlying premise of Guldenmund’s model is that safety culture and climate integrate because they influence attitudes and behaviours at individual and organisational levels. When commitment to safety is shared within the organisation, the value of safety is firmly held within the basic assumptions of the organisations culture. Regarding the measurement of safety culture/climate a weakness of the model could

be that culture and climate are viewed as different constructs with the literature suggesting that they are measured differently.

In a review of the safety culture literature Blewett (2011) highlights another prominent theory outlined by Westrum (2004) who proposes a descriptive view of three safety cultures: pathological (focussed on personal needs), bureaucratic (focussed on departmental needs) and generative (focussed on the organisation's mission). Blewett (2011) also states that positive relationships exist between organisational culture and safety. This led to the definition of culture as: 'the organisation's pattern of response to the problems and opportunities it encounters' (Blewett 2011, p. 7). Strengths of this approach are that it provides a safety framework for organisational change consisting of visible indicators and assists organisations to ask the right questions, directs reflection towards how an organisation operates, and determines where to put effort and place priorities for action. A suggested weakness includes that organisational change is not necessarily a linear process as the model suggests but is much more complex because of its dynamic nature which "moves" in different directions (Dawson 2002). Blewett (2011) highlights the limitation of such models and advises to be cautious about the mechanistic application of such models as according to her there is little evidence that they can be used as prescriptions that lead to better organisational health. Taylor et al. (2011) suggest that safety culture is interrelated with organisational structures and processes which collectively influence organisational safety performance.

There are, however, challenges with safety culture as the construct remains somewhat theoretical and difficult for organisations to define (Westrum 2004), implement, and measure (Blewett 2011; Gunningham & Sinclair 2014). Despite the conceptual and definitional issues and criticisms that safety culture is something that can be applied as a fix to a problem (i.e. poor safety) (Tharaldsen & Haukelid 2009) an early attempt to operationalise culture with systems and prevention activities was outlined by Shaw and Blewett (2000), through the Atmosphere-Systems-Exposure-Targets model (cited in European Agency for Safety & Health at Work 2010). The model 'demonstrates the link between culture, systems, exposures and injury which supports the idea that OSH issues need to be resolved 'upstream' (by cultural efforts and technical and organisational design) rather than 'downstream' (e.g., Behavioural Safety)' (European Agency for Safety & Health at Work 2010, p. 42). A strength of this approach is that it links enablers with outcomes and focuses on upstream organisational activities that align with recent views on safety management such as those relating to resilience engineering (e.g., Dekker et al. 2008), and WHS organisational controls outlined by O'Neill and Wolfe (2017).

Similarly, recent research by Casey et al. (2017) sought to link psychological aspects (climate and culture) with systems thinking proposing that it bridges a current gap in the literature. From their safety culture literature review, it is apparent that safety culture is more implicit and deeply embedded within organisations compared to safety climate that has observable features such as safety behaviours, although there appears to be some overlap between the two constructs. High-reliability organisations demonstrate the link between socio-technical systems, safety climate and safety capabilities covering social, human and organisational aspects (Casey et al. 2017). These are underpinned by more specific enabling capitals that shape the organisations safety management practices at strategic, tactical, and operational levels which relate to the layers of Schein’s culture model. In effect safety culture acts as a distal control, albeit, “top-down” which enables organisations to maintain the balance between productivity and safety and therefore optimises outcomes (Casey et al. 2017). Therefore, the implicit nature of culture is thought to influence and maintain the integrity of safety systems because employees have a ‘shared understanding of how to think and act’ (Casey et al. 2017, p. 346). In examining and operationalising safety culture the underlying dimensions have also been reported on in the literature. Blewett (2011 p.17) reports that the key influences on safety culture are: ‘management style; employee involvement; training and competence; communication; compliance with procedures; and organisational learning’. An extensive review into safety culture and climate by Vu and De Cieri (2014) reports that the dimensions that have been most frequently reported on in the literature relating to positive safety culture are:

- leadership and management commitment to safety,
- shared belief in the importance of safety,
- open communication based on trust,
- organisational learning,
- a non-punitive approach to accident reporting and analysis,
- teamwork,
- empowerment and accountability (Vu & De Cieri 2014, p. 27).

Research by Shaw et al. (2007, p.17) provides empirical evidence of the dimensions for WHS management in an Australian context, these are:

- mindfulness [as described by (Weick & Sutcliffe, 2001)],
- workgroup cohesion,
- trust in management,

- organisational justice,
- supervisor support,
- role clarity.

In addition to safety culture another construct that has been used interchangeably in the literature is safety climate. Significant discussion around safety climate has occurred leading to a well-researched topic with Zohar's (1980) model of safety climate being the most prominent view. This empirical work is further expanded with the generally held view that safety climate is the employee's perceptions about the relative importance of safety in comparison to competing priorities such as production or efficiency is the central theme (Zohar 2009). In contrast to Zohar's view that psychological aspects are a key feature, Cooper (2000) debates that attitudes and beliefs are also key elements despite much of the consensus being that 'perceptions are more associated with climate whereas attitudes are considered to be a part of culture' (Vu & De Cieri 2014, p. 38). The review by Vu and De Cieri (2014) identify that the most common safety climate dimensions relate to:

- management attitudes,
- commitment and actions regarding safety,
- employee commitment to safety,
- risk levels perceived by employees,
- effectiveness of safety communication within the organisation,
- importance and effectiveness of safety training,
- organisational status of safety people and safety committees within an organisation,
- perceived effects/effectiveness of encouragement/promotion vs discipline in promoting safety (Vu & De Cieri 2014, pp.38-9).

Although distinct from culture, the prevailing view is that climate relates to the employee's perception of the effectiveness of WHS at the workplace level. Accordingly, it is seen as providing considerable value in its ability to predict future safety performance and that 'the practical application of the safety climate survey can help companies identify ways to make focused adjustments to safety management systems that, over time, can strengthen their safety culture' (Liberty Mutual Insurance 2015, para 4). With the advancement of safety science, the link between systems approaches and safety climate as an organisational risk control has been examined in the literature. In contrast to safety culture, it has been espoused that safety climate:

acts as proximal control mechanism because shared perceptions of safety priority and practices at a given point in time can be modified through specific organisational, supervisory, and co-worker practices, and is more closely related to safety behaviour' (Casey et al. 2017, p. 346).

Additionally, climate 'lends itself more readily to the integration within systems-based models given its transient multilevel and multi-dimensional properties' (Casey et al. 2017, p. 342). In a review of 30 years of research Zohar (2009) suggests that safety climate focuses on the relationships between policies, procedures and practices and competing demands from other domains such as productivity which determines what employee role behaviours are expected, rewarded and supported.

In keeping with the strong debate and positioning of each construct in the literature, the commonly shared dimensions that have been reported include 'leadership, organisational socialisation, employee participation, and effectiveness' (Blewett 2011, p. 6). Like safety culture, definitional issues abound the literature with numerous authors suggesting varied definitions. In a systematic review of safety culture and climate literature, Vu and De Cieri (2014) identified 30 definitions in the literature. Examples of safety climate are outlined in Table 9.

Table 9 – Common definitions of safety climate

Definition	Author
<ul style="list-style-type: none"> The temporal state measure of safety culture, subject to commonalities among individual perceptions of the organization. It is therefore situationally based, refers to the perceived state of safety at a particular place at a particular time, is relatively unstable, and subject to change depending on the features of the current environment or prevailing conditions. 	Zhang et al. (2002)
<ul style="list-style-type: none"> Safety climate reflects employees' perceptions about the relative importance of safe conduct in their occupational behaviour. It can vary from highly positive to a neutral level, and its average level reflects the safety climate in a given company (p.96). 	Zohar (1980)
<ul style="list-style-type: none"> Safety climate is defined as employees' perceptions of the many characteristics of their organisation that have a direct impact upon their behaviour to reduce or eliminate danger (p.18). 	Glennon (1982)
<ul style="list-style-type: none"> Safety climate refers to how employees perceive the enactment of organisational policies and procedures relating to safety in their organisation at a given point in time (p.124). 	Mearns et al. (2013)

(Source: Vu & De Cieri 2014, pp.75-80)

Drawing on the expansive amount of research and positive association between workplace safety culture, climate and organisational safety performance, another body of research has emerged in the literature relating to health, wellness, and culture. Although more research is required, like safety this construct considers physical and psychological health and recognition of the significance of work-related stress. Key mediating influences in the model are a positive social environment and psychological safety climate that have been identified and reported on by various commentators and research agencies concerning the promotion of worker wellbeing and quality of working life (see 2.3.5 - Promotion of Worker wellbeing).

2.3.2.1 Measurement of safety culture and climate. As there are tensions around the constructs there remains considerable debate in the literature around safety culture and climate measurement because of the different views and ways each construct can be studied. Additional factors that must be considered as part of the measurement process relate to ‘time, information aim and outcomes, research characteristics and assessment strategy’ (Taylor et al. 2011, p. 21). The complexity in defining the constructs has seen some overlap in the tools outlined in the literature even though many commentators view climate as being a more reliable indicator of safety. The primary approach reported in the literature is the use of questionnaires and surveys incorporating psychometric properties that ascertain the views of individuals and groups within the organisation to determine the effectiveness of WHSW management (Antonsen 2009). However, an apparent weakness of surveys ‘are that respondents may provide a view that represents how they feel safety should be, rather than an opinion of how it is at the time’ (Guldenmund 2007, cited in Antonsen 2009, p.252).

Therefore, safety climate needs to incorporate other methodologies such as observations, focus groups, interviews, and document analysis which enables triangulation of results, providing a deeper, richer picture of safety within the organisation. Indeed, ‘many authors have emphasised that no one single approach or technique is suitable for understanding and exploring safety culture’ (Taylor et al. 2011, p.27). As a result, and with the increased interest in safety climate numerous researchers, practitioners, and regulatory policy setters have outlined several tools in the literature (Vu & De Cieri 2015). These include the Loughborough Safety Climate Assessment Toolkit, Multilevel Safety Climate Scale, HSL Safety Climate Tool, and the Nordic Occupational Safety Climate Questionnaire (NOSCQ-50) which were all identified in a recent review of safety climate tools by Taylor et al. (2011).

The application of the NOSCQ – 50 has also been reported on by Kines et al. (2011) who applied the tool in a cross-section of industries in Nordic countries. Following testing, the final tool was found to be a reliable instrument to measure safety climate across 50 items grouped under seven dimensions:

1. Management safety priority, commitment and competence,
2. Management Safety empowerment,
3. Management safety justice,
4. Workers safety commitment;
5. Workers safety priority and risk non-acceptance,
6. Safety communication, learning and trust in co-worker competence,
7. Workers trust in the efficacy as safety systems (Kines et al. 2011, p. 640).

A more recent review by Vu and De Cieri (2015) into safety culture and climate measurement tools identified over 200 publicly available tools. Their report evaluated tools rating them as either satisfactory, partially satisfactory, or unsatisfactory. Of the tools evaluated some were

excluded as they did not utilise the Likert scale for measurement and were not determined to be specific to worker safety climate. In total 18 of 125 tools, which had largely been applied to the manufacturing industry, were rated as satisfactory with core dimensions being management commitment to safety, employee involvement or empowerment in safety and safety communication which were rated on a five-point scale from (1) strongly disagree to (5) strongly agree.

The report further identifies that the validity of the tools is based on their ability to influence improvement across several indicators such as:

- Self-reported injuries,
- Self-reported micro accidents,
- Self-reported near misses,
- Self-reported safety violations,
- Safety motivation,
- Safety behaviour,
- Risk perception,
- Safety engineering audit score,
- Accidents as recorded in official records (Vu & De Cieri 2015, p. 49).

From the analysis, 62 were identified as being partially satisfactory with continuous improvement, job hazards, fatalism, impulsivity, and turnover intentions dimensions being the most reported items on the tools. 45 tools were reported as being unsatisfactory in their review, primarily due to their inability 'to meet the majority of the criteria regarding dimensionality, reliability and construct validation' (Vu & De Cieri 2015, p. 32). It was also noted that return to work is not considered as being associated with safety climate measurement.

Antonsen (2009) conducted an early empirical analysis of safety culture assessment, its predictive ability, and influence on safety by analysing the formal practices and how risk is interpreted, and the threats that result from informal work practices that manifest through behaviour, interaction, and communication. The review provides an account of safety culture assessment on an offshore oil platform by using a six-point Likert scale questionnaire consisting of 20 items covering dimensions such as managers prioritisation of safety, safety communication, individual risk assessment, supportive environment, and safety rules and procedures. From the surveys undertaken as part of the case study, the review concludes there were some correlations between the incident investigation outcomes and safety culture survey

dimensions. In response to the ongoing development of safety culture (climate) assessments, it is suggested that goal should be ‘to provide valid descriptions of social processes and to understand why some courses of action stand out as meaningful to the actors involved’ (Antonsen 2009, p.252).

With the increased interest in PPIs, De Cieri et al. (2015) researched the application of the Organisational Performance Metric (OPM; Institute for Work Health 2015) as an early indicator of injuries and accidents from a cultural perspective in Australian workplaces. Whilst the report found the OPM is a valid and reliable measure of performance it was solely focused at the workplace level and did not measure impact beyond traditional WHS areas such as leadership, safety management systems, policies, climate, and culture. A strength of this approach is that it can be used as one metric required by executives to gauge WHS performance and systems effectiveness and thereby acting as a leading indicator of WHS performance.

In summary, the literature suggests that there are tensions between the safety culture and climate constructs and their role in workplace safety. Safety climate and culture have been able to advance WHS management and improvement with contributions from various commentators (e.g., Clarke 2013; Vu & De Cieri 2014; Casey et al. 2017) with the suggestion being that ‘research has reached a mature state’ (Casey et al. 2017, p.2). Safety climate is considered as being the more reliable indicator of WHS in addition to having a positive association with safety management systems due to its “ability” to garner worker’s perception of safety practices at the workplace level, including the application of the workplace health and safety management system (SMS). However, a positive safety culture remains a desirable goal for WHSW practice and organisations looking to improve performance. Therefore, safety climate and culture and its measurement should be delineated and remain separate when being applied in the organisational setting. Supporting this are the numerous instruments that have been developed and validated for each construct.

2.3.3 Governance, corporate social responsibility, and risk management

The strategic management of WHSW and business are becoming more intertwined. This is due to the influence of “good business management practice”, governance requirements, and Australian corporation law which have resulted in WHSW governance emerging as a key issue and topic of discussion in the literature. Especially as ‘at a strategic level, WHS outcomes can be considered a determinant of firm status, specifically corporate image and identity’ (Smallman & John 2001, cited by Gahan, Sievwright & Evans 2014, p.14). 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' (Gahan, Sievewright & Evans 2014, p. 15).

In Australia, corporate governance is described as 'the framework of rules, relationships, systems, and processes within and by which authority is exercised and controlled within corporations' (Australian Securities Exchange 2014, p. 3).

In total there are eight principles outlined in the guidelines as follows:

1. Lay solid foundations for management and oversight,
2. Structure the board to add value,
3. Act ethically and responsibly,
4. Safeguard integrity in corporate reporting,
5. Make timely and balanced disclosure,
6. Respect the rights of security holders,
7. Recognise and manage risk,
8. Remunerate fairly and responsibly (Australian Securities Exchange 2014, p.4).

More specifically to WHS, best practice governance principles were outlined in the United Kingdom (UK) comprising of: 'Director competence; Director roles and responsibilities; Culture, standards, and values; Strategic implications; Performance management; Internal controls, and Organisational structures' (Boardman & Lyon 2006, p. 3). It is apparent that these principles also relate to business management practices and organisational performance, hence the strategic significance of WHSW is becoming clearer. In Australia, the model Workplace Health and Safety Act (2011) establishes the requirement to systemically manage WHS risk and places due diligence requirements on officers and senior managers of businesses as PCBUs¹⁴. More specifically, the Queensland Workplace Health and Safety Act (2011) outline the steps as follows:

- a. acquire and keep up-to-date knowledge of work health and safety matters,
- b. gain an understanding of the nature of the operations of the business or undertaking of the person conducting the business or undertaking and generally of the hazards and risks associated with those operations,

¹⁴ PCBU - Persons Conducting a Business or Undertaking

- c. ensure that the person conducting the business or undertaking has available for use, and uses, appropriate resources and processes to eliminate or minimise risks to health and safety from work carried out as part of the conduct of the business or undertaking;
- d. ensure that the person conducting the business or undertaking has appropriate processes for receiving and considering information regarding incidents, hazards and risks and responding in a timely way to that information,
- e. ensure that the person conducting the business or undertaking has, and implements, processes for complying with any duty or obligation of the person conducting the business or undertaking under this Act,
- f. verify the provision and use of the resources and processes mentioned in paragraphs (c) to (e) (Workplace Health & Safety Act 2011, p.38).

Such obligations drive the case for WHSW to be placed on the corporate agenda ‘because WHS matters are so deeply intermeshed with and influenced by, financial and organisational objectives and processes, WHS considerations must be integrated into the organisation’s business model and thinking’ (O’Neill & Wolfe 2017, p. 8). This includes consideration of business and operational risks across an organisations supply chain in areas such as ‘legal compliance; public and environmental health; product safety; and asset reliability’ (O’Neill & Wolfe 2017, p. 28). In a recent report in Australia, O’Neill and Wolfe (2017) suggest that to discharge obligations officers need to establish appropriate systems that incorporate four factors:

1. Knowledge: decision making and its implications on WHS and the business.
2. Management: understanding performance metrics that inform strategic and operational decisions about risk management.
3. Verification: assurance mechanisms that help verify the implementation and effectiveness of systems and processes for WHS risk management.
4. Reporting: design of WHS reports and communications (O’Neill & Wolfe 2017, p. 13).

Verification activity aligns with what enterprise risk management refers to as the internal controls that organisations employ. In the WHSW context this is largely achieved through an SMS comprising activities such as compliance and systems audits, officer led workplace inspections to ensure equipment reliability and integrity, and performance reporting from management to board levels.

However, in the business environment, the variables that can have an impact on performance are a complex mix of external, human, technological, and internal factors. As such a broader

range of controls beyond those that have traditionally been used at the operational level through the hierarchy of controls¹⁵ is required. Like Boardman and Lyon (2006), O'Neill and Wolfe (2017) propose that controls be thought of in terms of technical, cultural, and governance (Figure 3).



Figure 3 - Organisational WHS Controls (Source: O'Neill & Wolfe 2017, p.17)

This approach has considerable merit, as it establishes controls across the organisation from the board, senior management and management perspectives providing assurance¹⁶ in the management of operational risk and the functioning of the WHS systems, practices, and processes; in addition to being consistent with the language used in the broader business environment.

With an increased interest in organisational WHSW controls from a strategic level, it is apparent that there are still issues because several major incidents have occurred and were reported in the literature (see for example Hopkins 2001; Reason 1997, 2001). Consequently, when coupled with the increasing burden of injury, illness, and disease on the broader community has led to the inclusion of WHSW within corporate social responsibility (CSR) considerations. This is particularly evident for higher risk industries such as mining, energy, manufacturing and construction whose primary drivers have been identified as 'cost (although efficacy of cost as a driver is variable); threat to license to operate; legal liability of individual managers, and reputational risk' (Hopkins et al. 2012, p.9). From a CSR perspective, WHSW typically relates to the humanistic and social dimensions of the organisation in internal areas

¹⁵ The hierarchy of controls are a range of risk controls outlined in WHS legislation and codes of practice ranging from most to least preferred - elimination, substitution, engineering, administration, and PPE.

¹⁶ Drawing on financial accounting practices such as internal audit, Assurance has been defined by CPA Australia 'as the expression or conclusion that is intended to increase the confidence that users place in a given subject matter or information....' (Ghandar 2014, p.6).

such as WHSW at work and organisational change, and external areas such as safety and health in supply companies and corporate citizenship, which requires communication with consumers and investors (Zwetsloot & Starren 2004).

A potential benefit of the CSR approach is that it enables organisations to move beyond compliance with legislative requirements due to its focus on the people within the business, stakeholder engagement, and the application of new management tools and frameworks within organisational strategy (Montero, Araque & Rey 2009). On this basis, it can be argued that workplace health, safety, and wellbeing should be included as ‘...safe and sound working conditions and good worker health belong to the social responsibilities of companies and can be regarded as an integral part of CSR’ (Zwetsloot & Starren 2004, p. 7).

However, much of the early focus of CSR in the literature has been on the community and environmental aspects. As interest in, and the maturity of the concept has grown, so too has the recognition of WHSW, with its subsequent incorporation with business and investor reporting frameworks such as the Global Reporting Initiative - Occupational Health and Safety and the Dow Jones Sustainability Index. A notable contribution came from the Corporate Social Responsibility and Safety and Health at Work Report (2004) which provides an early account of 11 case studies from a cross-section of organisations that have incorporated WHSW within the broader CSR agenda. Reported benefits were largely related to reputation and product safety. A finding was that further development of performance measurement systems and data was required to demonstrate the business value of WHS because good health and safety performance can be an indicator of good management generally (Zwetsloot & Starren 2004).

Such issues represent business, human capital, and WHSW issues that have identified in the literature from a strategic perspective and further emphasises the need for a framework that incorporates due diligence and governance requirements, in addition to employee health and wellbeing. Part of addressing such aspects from a business and WHSW perspective is the effective management of risk. A significant issue within the literature relates to the understanding of the nature of risk as there are definitional issues that cause conflict because of the interchangeable use of the terms hazard and risk amongst business and WHSW disciplines (Cross 2012). Importantly, according to Cross (2012, p. 3), the term risk can be: (a) a description of something that is uncertain and may not be an event or an outcome, (b) measure to which a number or rank can be ascribed related to the extent to which potential concerns are of concern to us.

However, ‘the definition of risk in the OHS discipline is not universally agreed, and this in itself presents difficulties in the communication of the outcomes of risk assessment’ (Pickering & Cowley 2010, p. 10). As such, the management of WHSW risk needs to accommodate and be able to respond to various perspectives. Particularly as decision making and the assessment of a risk scenario can be inhibited by how individuals perceive the significance and impact of those risks due to various personal and cognitive reasons (Bofinger et al. 2015). These influences, commonly referred to as “biases” can affect decisions made by individuals and groups (Cross 2012). From a strategic and managerial perspective, this represents a significant challenge in WHSW governance as managerial decision making has consistently been identified as a factor in major incidents and poor safety performance. As Reason (1997) asserts incidents ‘are a result of strategic and other top-level decisions made by governments, regulators, manufacturers, designers, and organizational managers’ (cited in Zanko n.d., p.11). Consequently, ‘OHS management is clearly interdependent with, and embedded in management in general’ (Zanko n.d., p.11) as it supports sound decision-making processes which are critical to mitigating risk (Aven 2009; Hopkins et al. 2012; Bofinger et al. 2015).

This assumes importance from an organisational risk perspective as the systematic assessment and management of hazards is central to Australian legislation and due diligence requirements. For example, in Queensland the legislation requires a person to (a) eliminate risks to health and safety, so far as is reasonably practicable¹⁷; and (b) if it is not reasonably practicable to eliminate risks to health and safety, to minimise those risks so far as is reasonably practicable (*Workplace Health and Safety Act* 2011). To control risk, managers require information on the organisation’s hazards, including those introduced by management actions and decision making (Makin & Winder 2008). Sources of hazards that an organisation faces ‘may already be known, identified through compliance activities, or learnt from industry’ (O’Neill & Wolfe 2017, p.22).

The typical risk management process outlined in the literature consists of hazard identification, assessment and evaluation, and control steps. Unlike the business risk management approach WHSW does not enable the transfer of the risk nor the cost of controls to be a significant factor

¹⁷ In the Act, **reasonably practicable**, in relation to a duty to ensure health and safety, means that which is, or was at a particular time, reasonably able to be done in relation to ensuring health and safety, taking into account and weighing up all relevant matters including—

- (a) the likelihood of the hazard or the risk concerned occurring; and
- (b) the degree of harm that might result from the hazard or the risk; and
- (c) what the person concerned knows, or ought reasonably to know, about—
 - (i) the hazard or the risk; and
 - (ii) ways of eliminating or minimising the risk; and
- (d) the availability and suitability of ways to eliminate or minimise the risk; and
- (e) after assessing the extent of the risk and the available ways of eliminating or minimising the risk, the cost associated with available ways of eliminating or minimising the risk, including whether the cost is grossly disproportionate to the risk.

in determining risk mitigation interventions¹⁸. A potential weakness of this approach is the primary focus on controlling operational risks, potentially at the expense of broader sources that emerge from the organisational level (strategic) and external environment. Consequently, there is a lack of organisational capacity and adaptability to anticipate potentially catastrophic risks. Therefore, a more strategic approach to risk management is required, as compliance-focused approaches are not effective enough at managing workplace risks. Multinational organizations are, therefore, embracing a risk management [enterprise or business risk] approach to address workplace hazards (Walaksi 2017).

This broader approach to risk management is consistent with the framework outlined in the risk management standard AS/NZS ISO 31000 Risk Management (Standards Australia & Standards New Zealand 2009) that requires consideration of organisational objectives, in addition to recognising risk as being two-dimensional; in-that it presents both threats and opportunities. A strength of the holistic approach is that it considers both the internal and external context, which sets ‘...the basic parameters for managing risk and sets the scope and criteria for the rest of the process...’ (Standards Australia 2009, p.15). Another obvious strength is its consistency with the approach to business strategy development, in addition to having similarities to the strategic safety management (SSM) methodology outlined by Zou and Sunindijo (2015), and theories such as resilience engineering and high-reliability organisations.

In strategic management and corporate governance, risk analysis, and the outcomes are not the only determining factor in organisational decision making around WHSW. O’Neill and Wolfe (2017) suggest that the information required for understanding the maturity and efficacy of safety in organisations includes the consideration of the prevailing safety culture, audits and inspections, WRII data, human resources, and financial data, in addition to other strategic and legal considerations (O’Neill, Cheung & Holley 2014). Illustrating the relationship between corporate governance, WHS and risk management Carden, Boyd and Valenti (2015) outline a model drawing on enterprise-wide risk management principles suggesting that it is ‘imperative for companies to manage unforeseen events and safety risks’ (Carden, Boyd & Valenti 2015 2015, p.143). The model outlined is based on the input (safety risks) – process (corporate governance) – output (fewer incidents) quality management approach, and significantly, was consistent with the framework applied to wellbeing by Danna and Griffin (1999) who report on the individual and organisational consequences of ineffective risk management and

¹⁸ It is important to note that the mention of cost (in point e) does not mean decisions as to *whether* and *how* to eliminate or minimise risk are primarily financial ones. Cost may be an over-riding consideration only where the cost is ‘grossly disproportionate’ to the risk of harm. By law, greater consideration must be given to the nature of risk than to cost-benefit analyses⁹ or budgetary constraints (Safe Work Australia 2014)

corporate governance as ‘being related to health insurance costs, absenteeism and lawsuits’ (Danna & Griffin 1999, pp. 359-361). This, therefore, further supports the need for a strategic approach to health and wellbeing within the organisational strategy.

In summary, this area of the literature establishes that WHSW risk presents a significant business risk that requires effective oversight and a strategic risk management approach. It is evident from the literature that the approach to the management of WHSW hazards has largely been focused on the operational environment. However, as O’Neill and Wolfe, and Cross have outlined there are broader factors requiring further development and application which will further inform organisational decision making about WHSW.

2.3.4 Injury and illness prevention systems

The narrative in the literature posits that the early origins of a structured approach to WHS have largely been driven through regulatory change. This has led to the systematic management of WHS through ‘...a limited number of mandated principles for the systematic management of OHS, applicable to all types of employers...’ (Frick & Wren 2000, cited in Frick 2003, p. 3). Incorporated within this approach are common law “duty of care” obligations and “self-regulation” principles that reinforce the responsibility of employers to prevent work-related injury and ill-health. Such an approach allows discretion as to how such prevention responsibilities can be met through consultation with workers and encouraging organisations to establish internal processes to manage risk and improve health and safety performance (Gallagher & Underhill 2012). However, with the increasing maturity of safety practice, the emergence of voluntary management systems has become more prominent to systematically manage WHS leading to various International and Australian certification standards being established (Zanko & Dawson 2012).

Systematically improving employee WHSW has been a long-standing issue for workplaces, regulators, and researchers with contributions coming from a range of disciplines. This has led to distinct methodologies underpinning much of the current thinking including engineering (with its focus on hazard classes and physical working environment) to those that focus on human behavioural and psychological aspects, and the social working environment - industrial sociology and industrial relations (Zanko & Dawson 2012). According to Borys, Else and Leggett (2009), WHS management has evolved in practice through phases described as technical, human factors, management systems, and cultural. Despite the improvements that have occurred with such approaches, limitations are apparent. Especially the safety management systems approach which attempts to control human behaviour rather than acknowledging that human variability and adaptability is crucial to achieving safety as posited

by resilience engineering theory (Borys, Else & Leggett 2009). Similarly, Pillay (2015, p.1839) argues that there are five different ages of safety: ‘the first age is closely associated with technological; the second with behaviours and human error, the third with socio-technical, the fourth with culture, and the fifth with resilience’.

However, a distinct gap is apparent in the literature with calls for further research being made for methodologies drawn from the management discipline and the relationship between HRM, management, and WHS (Zanko & Dawson 2012). Despite these advancements, current practice has seen many organisations becoming heavily reliant on SMS to set the strategic WHSW direction and establish improvement objectives, initiatives, and operationalise programs. Common definitions drawn from consensus standards and used throughout the literature are outlined in table 10.

Table 10 – Common definitions of safety management systems

Definition	Source
<ul style="list-style-type: none"> ANSI/AIHA/ASSE Z10 (2012) ‘a set of interrelated elements that establish or support occupational health and safety policy, objectives and mechanisms to achieve those objectives in order to improve occupational health and safety’. 	Yorio, Willmer and Moore (2015, p.221)
<ul style="list-style-type: none"> British Standard Institute’s OHSAS 18001:2007 ‘part of an organization’s management system used to develop and implement its OH&S (Occupational Health and Safety) policy and manage its OH&S risks’. 	Yorio, Willmer and Moore (2015, p.221)
<ul style="list-style-type: none"> AS 4801 ‘that part of the overall management systems which includes organisational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing, achieving, reviewing and maintaining the OHS policy, and so managing the risks associated with the business of the organisation’. 	Standards Australia/Standards New Zealand (2001, p.4)

(Source: Developed for this research)

A strength of the SMS approach is that it outlines a simple plan, do, check, act cycle drawn from quality management principles as reflected in the international standard for quality management (ISO 9001). Early research into SMS in Australia was undertaken by Bluff (2003) who reports that strengths of such an approach relate to the inclusion of risk management principles which are central to systematic OHS management in addition to providing a framework that consists of a set of organised elements that have been identified as being common in improving safety outcomes. The elements identified were management commitment, policy, planning and resourcing, responsibility, procedures, risk management, worker participation, training and competency, investigation, auditing, and review of performance. Similar views on these key elements were supported by Gallagher and Underhill (2012) and Frick (2011) in later reviews.

One early strategic management approach outlined by Rahimi (1995) trialled an integrated safety, environment, and quality management approach in a small business to move from the modular elements that often comprise SMS that do not relate to the overall goals and objectives

of the organisation. This approach, the Strategic Safety Management model was reported in the Mainstreaming OSH in Business Report (2010) which highlights its similarity to total quality management with the view that it ‘...advocates a simultaneous and continuous allocation of resources to top-down management and bottom-up engineering improvements...’ (European Agency for Safety & Health at Work 2010, p. 25). Strengths of the framework related to key business practice factors around long-range planning, a people-based element through self-managed teams, performance measurement, and reward systems. Among others, a weakness reported was that performance measurement was one area requiring further research to be considered effective.

Along similar lines, Robson et al. (2007) conducted a systematic review of WHS management (integrated with Quality and Environment) by analysing 23 studies on the implementation and effectiveness of voluntary and mandatory standards from a range of businesses. They found that there were positive observed and self-reported outcomes such as reduced injury occurrence, reduced disability costs, improved SMS implementation, and improved safety climate or hazard reporting. However, in conclusion, they report that there was insufficient evidence to recommend for or against SMS. In contrast, Thomas (2012) argues that the efficacy of SMS is clear as some interventions do not require large-scale experiments to establish their effectiveness. Many interventions are based on things that we already know to be true, and logical. This logical reasoning called “common-sense”, has driven much of the development of safety management systems.

Further illustrating the trend for integrated management systems, a review by Kauppila, Härkönen and Väyrynen (2015) identified that the key drivers for integration relate to ‘... improved HSEQ performance and competitiveness, reduced duplication in tasks and documentation, elimination of overlapping roles and structures, reduction in audit time and costs, and improved transparency...’ (Kauppila, Härkönen & Väyrynen 2015, p. 234), all of which relate to effective business management. The authors examine the application of the systems approach to 15 processing organisations in Finland finding that these businesses experienced perceived direct benefits and across their supply chain. A weakness of the study was the absence of comparative WRII performance indicators or other measures to establish a causal link between systems application and improvement.

Almost in parallel, it is apparent that another body of research has emerged suggesting a trend away from the integration of WHS with other “like” disciplines. This has resulted in WHS and health promotion disciplines aligning and integrating as illustrated in the Healthy Workplace

Framework (World Health Organization & Burton 2010) which focuses on the macro-level of the business. Using the Healthy Workplace Framework, Cooklin et al. (2013) investigated an integrated approach to WHSW in several Australian workplaces and found that there were positive associations with such interventions. The report demonstrates that typically, workplace health programs remain focused on addressing specific, often singular risk factors with none of the examples reporting broader business integration; while impact was primarily related to improved health, WRH reduction and in a few instances' productivity.

However, Lax (2016) cautions the integration of wellness with safety and health. The criticism is that it leads to the diversion of resources away from a focus on "safety risks", therefore limiting long-term effectiveness as well-established injury prevention programs are the foundation to improving wellbeing and the focus on individual responsibility on wellness-related risks. Despite widespread application, the role of SMS has been the subject of much discussion in the literature around their effectiveness to improve practices and performance (Bluff 2003; Gallagher, Underhill & Rimmer 2003; Frick 2011; Haight et al. 2014). A critical point in the operationalisation of an SMS is how well it has been designed to meet the organisations needs and the degree of 'integration into existing management systems' (Frick 2011, cited by Martinov-Bennie et al. 2014, p. 16). 'This is a complex task as organisations are interactive, dynamic, and involve many interrelated components. Failure to properly integrate the OHSMS [occupational health and safety management system] with other organisational systems risks causing the OHSMS to become ineffective paper bureaucracies' (Martinov-Bennie et al. 2014, p. 16).

Whilst it is generally accepted that systems do play a role in improving WHS it has been identified that reliance on these measures will not deliver improvements (Borys et al. 2012) and that improvements are required (Makin & Winder 2008). Further criticisms of the SMS approach include that such strategies fail to take account of broader organisational factors and remain consistent with classical management thinking - planning, organising, coordinating, commanding, and controlling (Bluff 2003); and therefore, may not be agile and adaptable to the modern business environment. Furthermore, it is apparent that there is difficulty in measuring and quantifying improved WHS performance from the systems approach because of 'the dynamic nature of organisations and OHSMS; and the myriad confounding influences on the complex processes associated with developing, implementing and sustaining effective OHSM' (Gallagher & Underhill 2012, p. 232). Especially as an SMS 'is not a simple mono-causal intervention that can be divorced from its dynamic internal and external context...' (Hasle & Zwetsloot 2011, cited in Gallagher & Underhill 2012, p. 232).

Another factor influencing the effectiveness of SMS is the maturity of each organisations approach (Robson et al. 2007) which is often viewed as being synonymous with descriptors used to indicate safety culture. Zwetsloot (2000) distinguishes four stages of maturity in organisational safety management as being: ‘(1) ad hoc stage (reactive stage), (2) systematic stage, (3) systems stage and (4) the proactive stage (organisations integrate OSH management)’ (cited in European Agency for Safety & Health at Work 2010, pp. 16-17). Additional challenges for the SMS were discussed by Gallagher and Underhill (2012) who provide an account of the traditional systems approach and consider emerging areas such as psychosocial issues, changing nature of work, precarious employment contracts, and outsourcing of labour. In their review, they consider the key elements of SMS being those outlined by Bluff (2003) and Gallagher and Teicher (1997) with senior management commitment and the customisation of the SMS as pre-cursors to effective risk-based management systems. Also, highlighted as a weakness is a considerable danger that these approaches may become a paper-based exercise and that ‘OHSMS can mask OHS problems, delude an organization into perceiving it is effectively managing OHS and distract effort and resources away from OHS towards the management system itself’ (Else & Beaumont 2000, p. 36). Similar views were held by Dekker (2014) who refers to this as one outcome of the “beaucratization of safety”; whilst more recently the “work as imagined compared to work as done” paradigm has been discussed in the literature, which appears to have similarities with the issues identified. In contrast, it is recognised that a benefit of the SMS approach is its ability to act as a mechanism for organisational learning and change (Gallagher & Underhill 2012). Gallagher and Underhill (2012) conclude that effectiveness is not so much a consequence of an SMS but the broader organisational and management factors and social processes such as people and people management which reinforces the concept of SMS as a tool for change.

Accordingly, new thinking around the definition and structure of SMS is required. Especially as it has been recognised that people can adapt to variation and be seen to be part of the solution to improve the functionality of SMS (Makin & Winder 2008; Wachter & Yorio 2014); and that many of the suggested strategic approaches in the literature remain operationally focused. Despite the somewhat limited studies into strategic approaches Yorio, Willmer and Moore (2015) report on a multi-level strategic management theory¹⁹ study applied to WHS management. Their research draws on concepts from the strategic management literature to outline a model for WHS from an organisational level by ‘considering the development of the

¹⁹ Multilevel strategic management theory has been recognised by several researchers (e.g. Zohar, Guldumund) as providing significant contribution to WHS, safety culture and management research.

organisational management system ('top down commitment'), to implementation ('behavioural execution') and measurement (management and worker perception)' (Yorio, Willmer & Moore 2015, p. 222).

Like Reason, Hudson, Westrum, and others it is suggested that key factors that influence the development and practices of an SMS are the organisations prevailing safety culture, manager, and worker perceptions. Significantly, the authors established that the 'successful implementation and overall success [of SMS implementation] is mediated by three distinct theoretical constructs: workgroup leadership, organisational values, and worker perceptions and interpretations of the HSMS' (Yorio, Willmer & Moore 2015, p.225).

Figure 4 outlines their model which demonstrates both reciprocal and linear relationships between organisational leadership, the strategic SMS, implementation, practices, and performance outcomes. All of which relate to the broader organisational culture manifested through the organisational values.

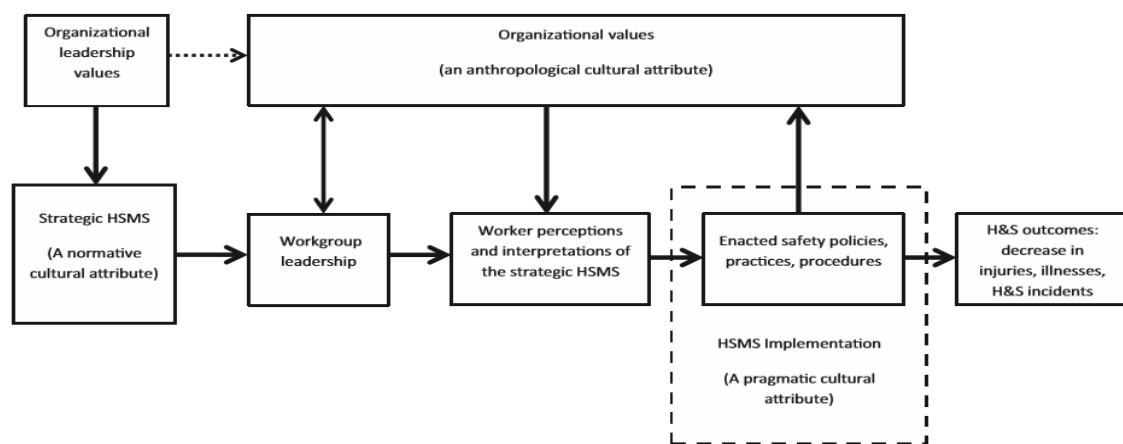


Figure 4 - Conceptual Strategic Management Model (Source: Yorio et al. 2015, p.225)

Although their research makes a valuable contribution to the paucity of strategic multilevel studies, like Robson et al. (2007) testing and measurement issues are highlighted in addition to the need for further conceptual studies from a strategic perspective. Several conclusions emerge from the research including that:

- further development of the operational definition of strategic SMS is required.
- strategic SMS must pass through several barriers when being implemented.
- further research, including testing of their conceptual model is required.

Another obvious approach to managing WHS given its focus on people in the business environment is human resource management (Zanko & Dawson 2012). There are examples in

the literature where mainstream HRM practices have been applied to WHSW. For example, Zacharatos, Barling and Iverson (2005) examined HPWS and WHS, as did Gahan, Sievwright and Evans (2014), whereas, Wachter and Yorio (2014) conducted a theoretical investigation around safety management and employee engagement and identified positive associations between safety performance and the use of HPWS. Although it has been reported that there are also negative associations with such business practices that require careful consideration in practice (Bryson, Forth & Stokes 2014). Also highlighted is that like the review of the management literature undertaken by Zanko and Dawson (2012) a significant gap in research still exists with the need for further research into business and WHS integration as outlined by European Agency for Safety and Health at Work (2010) in their report into mainstreaming OSH into business management.

2.3.5 Promotion of worker wellbeing

The literature shows that both WHS and HRM disciplines have a role concerning worker wellbeing with each area reporting on related issues and topics. Reported benefits of wellbeing strategies include fewer safety incidents, lower staff turnover, and lower levels of absenteeism (McCarthy, Almeida & Ahrens 2011; Gallup Organisation 2013). However, with the maturing of business thinking concerning employee wellness, utilisation of employees, and engagement there is no doubt that this topic represents a significant issue that is challenging the existing views of those disciplines that focus on the work health and human resource aspects of work. It is apparent in the literature that the predominant focus has been on SWB from the organisational level rather than the individual perspective (Bryson, Forth & Stokes 2014). Consequently, further research is required as wellbeing in recent years is becoming central as those concerned with the development of a meaningful and sustainable society are increasingly questioning purely financial measures of progress. This shift is visible in workplaces where business leaders seek employee wellbeing over and above maximising return on capital. They have realised that achieving such a purpose helps to deliver commercial success (Litchfield et al. 2016)

It is evident that from a WHS perspective, wellbeing has been associated with traditional workplace health issues, some lifestyle risk factors, and more recently psychosocial issues such as stress. As such, this approach more accurately reflects a wellness²⁰ paradigm, rather than then the proposed worker wellbeing construct in the research. Although the terms are used

²⁰ **Workplace wellness** is any workplace health promotion activity or organizational policy designed to support healthy behaviour in the workplace and to improve health outcomes Global Wellness Institute n.d., *Definition of Workplace Wellness*, viewed 10/06/2020, <<https://globalwellnessinstitute.org/wellnessevidence/workplace-wellness/>>.

interchangeably by the WHS discipline clear differences are apparent. Herein lies a fundamental problem for the discipline, in that the claims that effective management of WHS leads to individual wellbeing, which in turn results in productivity improvements are somewhat tenuous given the rather narrow focus and heavy reliance on a handful of discrete self-reporting measures.

None the less, with greater focus on people at work, the World Economic Forum (2008) reports that from a business perspective a clear emergent area is wellness, or arguably wellbeing, as there are at least four areas of clear interest around the business rationale for wellness and its primary issue - chronic disease. These are 'healthcare costs, productivity, and performance, human capital, sustainability' (World Economic Forum 2008, p. 10). Whilst another issue and driver of the focus on such areas has been due to the working environment becoming less physically active because of the transition from manufacturing to service economies, technological advances, and workflow improvements in modern working life. As such, many workers are now spending a large part of their day being sedentary. This lack of physical activity cost 'in terms of lost productivity an estimated \$9.3 billion in 2008' (Price Waterhouse Coopers 2010, p. 5), which coupled with rising costs of other chronic health and psychosocial issues present both a business and social challenge with the total cost of presenteeism being reported as \$26 billion in 2005–06 (Price Waterhouse Coopers 2010, p.i).

Similar figures have been reported globally, yet it is apparent that the case for wellbeing initiatives is at somewhat disparate levels as in some countries the responsibility of employee health care and associated costs are the responsibility of the employer. As such, the business case for preventing or reducing the impact of chronic disease and mental health conditions may be more evident due to cost savings at the employer and healthcare system levels. In contrast, countries which have different social healthcare and insurance systems the focus has been more on interventions to limit other costs such as sickness absence (Litchfield et al. 2016).

In response, several holistic frameworks have emerged from the United States with a specific focus on the wellbeing of workers that are consistent with the World Health Organisations Healthy Workplaces Framework (World Health Organization & Burton 2010). Likewise, in Australia 'a cultural shift is gradually occurring. Employers, health system payers, and individuals are increasingly seeing the benefit of the workplace as a setting for optimising physical, psychological, and social health' (Price Waterhouse Coopers 2010, p. 10). With the growing recognition of these benefits, guidance from regulatory authorities such as the Good Work Design guidelines (Safe Work Australia 2015a) has been published. However, an

apparent weakness of such frameworks has been a lack of inclusion of HRM aspects of wellbeing such as motivation, engagement, training and development, and personal growth.

Although progress has been made, it is evident that many of the frameworks outlined in the literature and the research conducted to date from a WHS perspective have failed to address the wellbeing construct adequately. This is because the focus appears to have remained on a specific subset that represents wellness (health). Therefore, wellness often included in many WHS frameworks by various commentators should be associated with wellbeing rather than a representative construct (McCarthy, Almeida & Ahrens 2011; Abbey 2015). Despite this issue, wellness remains a significant factor for employee engagement, WHS improvement, and organisational performance. 'Taking an interest in employee health is a potent driver of workforce trust and improving levels of wellbeing has been shown to be associated with more sustained levels of engagement and performance' (Litchfield et al. 2016, p.4).

Criticisms of the health-wellness approach which includes that the burden of responsibility for such programs has largely been driven by employers and there is a lack of ownership among workers (Human Resource Management International Digest 2017). In response, businesses need to develop strategies and a robust business case for workplace wellness initiatives as part of the total wellbeing that can demonstrate a clear return on investment. Accordingly, to develop standardised key performance indicators and effective measurement processes requires 'collaboration between governments, employers, and service providers' (Price Waterhouse Coopers 2010, p.22).

Another factor of worker wellbeing is how an individual views overall satisfaction with their organisational experience, including a sense of personal achievement and accomplishment (Warr & Nielsen 2018). Indeed, a widely held view is that 'happy employees are more productive' (Fisher 2003, p. 753). The positive relationships between employee wellbeing, health, productivity, and good work design have been extensively reported in the literature (Bevan 2012,2010; Waddell & Burton 2006). HRM practice has primarily focused on the emotional, cognitive, motivational, and social aspects of work that influence engagement and overall working life, largely perceived through psychological affect at the individual level.

In work design, attributes associated with employee wellbeing and productivity relate to, among others, motivation, psychological engagement, meaningful work, leader effectiveness, team interactions, growth, learning and educational opportunities (Boxall & Macky 2014; Bryson, Forth & Stokes 2014; Srivastava & Kanpur 2014). Individually each of these areas has been examined in the literature for their influence on work satisfaction, health, safety and

human performance by numerous commentators with positive and negative outcomes indicated (Bluff 2011; McCarthy, Almeida & Ahrens 2011; Van De Voorde, Paauwe & Van Veldhoven 2012).

Van De Voorde, Paauwe and Van Veldhoven (2012) conducted a quantitative review of 36 studies related to HRM, wellbeing, and organisational performance. The review outlines two competing hypotheses around employee wellbeing – “mutual gains and conflicting gains”²¹. The former was congruent with good organisational performance and positive associations with the subjective measures used for happiness and job satisfaction. A limitation of the review was the absence of an integrated model, and that further research was required from an HRM, wellbeing [health], and organisational performance perspective. By contrast, Bryson, Forth and Stokes (2014) reported that the link between HRM practice, performance, and wellbeing was inconclusive in their study of UK workplaces. One outcome from the research was that HPWS practices such as training, recruitment, performance management, incentives, and job security were often more significant when combined together (Bryson, Forth & Stokes 2014).

The applicability of HPWS has emerged as a key area of interest in relation to employee wellbeing or harm, individual and business performance and sustainability (Gahan, Sievwright & Evans 2014; Mariappanadar & Kramar 2014; Swamy, Nanjundeswaraswamy & Rashmi 2015). Mariappanadar and Kramar (2014) who studied HPWS, employee harm²², and organisational performance from a sustainable HRM perspective suggest this as ‘a new research trend in understanding employee wellbeing’ (Mariappanadar & Kramar 2014, p.208).

Boxall and Macky (2014) studied HPWS practices, work intensity, and involvement as they have been recognised as having implications on worker wellbeing. Findings suggest that where greater levels of involvement and positive attitudes existed among workers by being able to control work and have greater discretion in job-related decision-making, their wellbeing was enhanced. A negative aspect of HPWS is their association with increased levels of stress and fatigue which potentially lead to increased injuries, illnesses, diseases, reduced performance, and the creation of work-life imbalance. An important finding in this study was that ‘no matter where a person’s job is located on the occupational spectrum, excessive pressure can

²¹ In addition, two competing views stand out in the literature with respect to the position of employee well-being in the HRM–organizational performance link. In the first view, employers and employees both benefit from HRM (Appelbaum et al. 2000; Guest 1997), the so-called ‘mutual gains’ perspective. In contrast, in the second view, authors argue that HRM pays off in terms of organizational performance but has no, or even a negative, impact on employee well-being (e.g., Legge 1995; Ramsay et al. 2000): the so-called ‘conflicting outcomes’ perspective.

²² In their study on Sustainable HRM, employee harm is defined ‘as those high-performance work practices used by organisations to extract skills, abilities and motivation of employees also prevents employees from achieving positive work-related wellbeing outcomes’ (p.207).

undermine wellbeing whereas job factors such as greater autonomy [...] can enhance employee welfare' (Boxall & Macky 2014, p. 977).

In a study of over 1900 UK employers through the Work and Employment Relations Survey, Bryson, Forth and Stokes (2014) report on the causal relationships between SWB and physical health, cognitive processes, work attitudes and productivity. It concludes that higher levels of SWB were positively associated with all four dimensions using the two most applied measures of SWB – job satisfaction and job-related affective feelings. This study reaffirmed job factors such as 'job demands, opportunity for personal control, environmental clarity, opportunity for skill use, supportive supervision, opportunity for interpersonal contact, fairness, availability of money, physical security, career outlook, and significance' were positively associated with SWB (Warr 2007, cited in Bryson, Forth & Stokes 2014, p. 36).

Recognising the changing nature of work in the modern workplace and the need to further develop models to enhance individual and organisational wellbeing. Litchfield et al. (2016) outline a new approach to wellbeing at both organisational and individual employee level which demonstrates the business benefits for employers. This approach is proactive in the prevention of illness as it focuses on the promotion of wellbeing and the quality of work. The framework, adopted as the "Work well Model" considers four dimensions: 'Better Physical and Psychological health; Better work; Better relationships; Better specialist support' (Litchfield et al 2016, p.5). In addition to work design as a significant factor in wellbeing the approach also recognised the importance of management style and its impact on employee wellbeing, especially work-related stress. It outlines desirable managerial competencies as being 'respectful and responsible, managing and communicating existing and future work, managing the individual within the team, reasoning/managing difficult situations' (Litchfield et al 2016, p.6).

It is argued that this approach, along with a focus on the suggested management competencies, results in improved business outcomes such as higher productivity, better engagement, better relationships, and improved brand image. However, there is limited evidence to suggest the model has delivered such outcomes to date. Moss and Wilson (2014) outline the relationships between competence, relationships, and autonomy as mediating influences on successful initiatives to promote wellbeing. These dimensions are central to self-determination theory²³

²³ Self-determination theory dismisses the assumption, promulgated during the early decades of the 1900s (Skinner, 1953), that people are motivated only to secure rewards or to elude punishment. Instead, according to self-determination theory, behaviour is shaped by a natural and universal impetus to grow and develop (Deci, 1975). In particular, the self is intrinsically motivated to assimilate the isolated fragments and facets of the psyche — their beliefs, values, and desires (Moss & Wilson, 2014, p.2)

which considers that these three attributes ‘...epitomise the core needs of all individuals (Deci & Ryan 2000) and that when satisfied, individuals experience the hallmarks of wellbeing’ (Reis et al. 2000, cited by Moss & Wilson, p.1).

From a business perspective Abbey (2015) views wellbeing as a strategic element and key indicator of corporate governance performance and reporting which is significant as:

human capital management is now seen by many, including the investor community, as an indicator of companies’ long-term prospects—[therefore] the wellbeing of an organisation and the wellbeing of its workers are inextricably linked (Litchfield et al. 2016, p.9).

More recently, Swamy, Nanjundeswaraswamy and Rashmi (2015) reviewed the work of 14 scholars when developing a Quality of Work Life (QWL) scale that was tested in the manufacturing sector. Significantly work health and safety²⁴ was identified as a distinct dimension in ten of the 14 QWL surveys reviewed which further demonstrates the important role work health and safety has in maintaining and promoting employee wellbeing. The final dimensions used in the scale were: ‘Work environment; Organisational culture and climate; Relation and cooperation; Training and development; Compensation and rewards; Facilities; Job satisfaction and job security; Adequacy of resources’ (Swamy, Nanjundeswaraswamy & Rashmi, 2015, p.284).

In another similar review, Srivastava and Kanpur (2014) identified the key elements of QWL strategies as job design, employee participation, and opportunity for growth. In the study, they consider the HRM function as a key driver in QWL improvement strategies because of the ability to impact on the WHSW directly and indirectly. Accordingly, the clear benefit of adopting the QWL approach is that in contrast to the specific focus of WHS it recognises a broader set of dimensions that incorporate WHS and HRM attributes that enables a more holistic individual-centred approach (Bryson, Forth and Stokes 2014; Litchfield et al. 2016). This leads to business performance improvement due to overall satisfaction with work, which in turn creates positive outcomes in relation to health, wellbeing, organisational performance, and the community, that are linked with social and corporate social responsibilities aspects.

In summary, the literature outlines a large amount of evidence around the positive relationships between wellbeing, individual and organisational performance from both the WHS and HRM perspective. However, the overlap with this area has led to too much focus on improving employee health and lifestyle risk factors, described as wellness. Although both areas have a

²⁴ This includes other reported dimensions such as security, physical environment, work environment, and safety

role to play, it is not clear in the literature how these two constructs relate to each other in practice due to inconsistent definitions and methodologies used to measure such parameters.

2.3.6 WHSW strategy evaluation

The broad objective of WHSW is to improve the quality of the work environment to achieve employee health, wellbeing, and safety. To achieve such improvements, organisations develop and implement a range of policies, procedures, systems, and programs that are commonly referred to as “interventions” requiring evaluation (Robson et al. 2001; Cartwright & Cooper 2014). To determine the results of these interventions, evaluation and monitoring have been used for determining the suitability of strategy and immediate and long-term improvements. Butuner (2015, p. 144) notes monitoring, and evaluation is about answering the following basic questions: What did we do?; How do we understand what we have achieved?; How effective is implementation?; What should be changed?.

Robson et al. (2001, p. 1) *Guide to Evaluating the Effectiveness of Strategies for Preventing Work Injuries* notes that evaluation is not a straightforward process as ‘safety interventions occur at different levels of the workplace safety system including safety management and various human and technical levels’. Therefore, a range of methods need to be employed to evaluate interventions. A key feature within the guideline is the visual representation of the WHS improvement process through program logic models that provide detail around the objectives, short term, intermediate and long-term outcomes, and provides insight into what should be measured using quantitative and qualitative methods (Robson 2001). This view has some similarities with the balanced scorecard methodology which incorporates cause and effect relationship mapping (Kaplan & Norton 1996).

With the increased focus on worker wellbeing, the need for organisational level evaluations has led to similar approaches outlined in the literature. Noblet and LaMontagne (2014), based on work health promotion and organisational development (OD) literature, established criteria for an evaluation framework which indicates a strong concern for humanistic outcomes, such as wellbeing and quality of work life to build the capacity of individuals and groups to identify key organisational problems that undermine the confidence, satisfaction and general wellbeing of employees.

The framework consists of seven interdependent steps consisting of gaining management commitment, establishing a coordinating group, conducting a needs assessment, identifying priority issues and setting intervention goals, designing intervention action plans, implementing interventions, evaluating implementation processes and intervention

effectiveness (Noblet & LaMontagne 2014). *Step 7* suggests that the three questions which need to be answered are:

1. What is the rationale for the intervention?
2. What is the evaluation question?
3. What are the appropriate evaluation methods, designs, or tools that can be used to the answer the question?' (Noblet & LaMontagne 2014, pp. 487-490).

Supporting the OD and health promotion link with evaluation, another study by Costello, Taylor and O'Hara (2015) evaluated the capability of a health service to deliver primary health. The framework consisted of several dimensions and evaluation indicators covering the external and internal environment across key areas of organisational systems and practices, leadership, overall strategic view of the organisation (vision, strategic planning, etc) in addition to health-focused cultural attributes consistent with the role of a health service provider. In total there were 32 indicators assessed to determine the degree of impact on the organisation and service delivery. The impact was tested by measuring changes at pre- and post-implementation intervals in addition to the indicators being analysed using Statistical Package for the Social Sciences (SPSS™) to test the models fit. Key findings from this framework application confirmed an improvement in the organisational development strategy leading to greater capacity in delivering health services. Such a framework applied to evaluation is particularly relevant to WHSW as the focus of both research and practice moves from traditional intervention models to those which have an increased focus on worker health, wellness and wellbeing and are more aligned with public health practice.

From a commercial perspective another business centric component in strategy evaluation is the application of management control systems (MCS). The MCS process supports strategy development and implementation, in addition to due diligence and governance requirements for senior managers at the strategic level because of its ability to facilitate the matching of resources and capabilities. This is achieved 'by addressing potential problems relating to inadequate resources, competing incentives and pressures, inadequate training, poor direction, poor motivation, personal limitations' (O'Neill, Wolfe & Holley 2015, p.16). Furthermore, MCS and performance measurement can affect how people function and behave in the organisation in relation to achieving desired performance outcomes by clarifying expectations and understanding of individual and organisational requirements and how they are measured.

Performance measurement can help organisations define and achieve their strategic objectives, align behaviours and attitudes, which can ultimately result in a positive impact on employee

wellbeing. There are numerous PM frameworks or management tools such as the Balanced Scorecard which has been applied in WHS (e.g., Mearns & Ivar Håvold 2003; Zou & Sunindijo 2015). Mohamed (2003) examined its application for WHS in a construction industry. His approach was subsequently tested in five Australian construction workplaces with the conclusion that the BSC was a valuable instrument to proactively manage safety through a combination of objective and subjective safety measures relevant to organisational stakeholders without information overload. It was considered a reliable tool for measuring and monitoring organisational safety culture. It is used predominately in both business and WHSW context when evaluating strategy action plans and long-term effectiveness (Noblet & LaMontagne 2014).

For WHSW purposes, performance measurement can be used to: (1) monitor WRH occurrence, (2) monitor progress on initiatives and strategies, (3) monitor the effectiveness of operational risk controls, and (4) contribute to the evaluation of the impact of interventions including return on investment assessments. A key issue outlined in the literature has been the increased level of dissatisfaction with the reliance on performance measures and indicators being used as the basis for determining WHSW strategy effectiveness, leading to an interest in broader business impact and value, particularly improved productivity outcomes rather than WHS. Illustrating the limitations Oyewole et al. (2010, p.586) note 'that these traditional intervention methods fall short of providing the expected outcomes and results'. The failure of these methods resulted in the redefinition of the safety activities that are incorporated into a safety and health program. This would require the determination of the level of resources allocated for safety and health program implementation.

Iyer (2005) reports that to determine the effectiveness of the safety program interventions one must determine the mathematical relationship between the intervention(s) and what the interventions are intended to affect. Building on this early research Oyewole et al. (2010) sought to determine the optimal effort and resources required to achieve a desired level of safety performance by considering previous incident data and human resource requirements. The intervention model consisted of categories including, leadership and accountability, qualification, selection and pre-job, contractor engagement and planning, work in progress and safety evaluation, measurement and verification and considered resource allocation by recording man hours spent on each category. The model was tested in a Nigerian oil company. The findings indicated that of the 31 safety factors in each of the categories, 12 demonstrated no immediate effect on safety performance. The evaluation, measurement and verification had a significant impact on predicting future safety performance and a desirable incident rate could

be achieved by committing 16.66% of available man hours to those categories and factors which demonstrated significant positive effect on achieving desirable safety performance. In concluding, the authors report that statistical modelling of intervention activities based on the resource allocation methodology provides safety conscious organisations the opportunity for the efficient management of safety systems.

Yet there are challenges around the process of demonstrating the business value of WHSW because of the reliance on performance indicators and safety statistics. Lamm, Massey and Perry (2007) highlight that the relationship between business performance and productivity and OHS interventions aimed at reducing illness and injury is strongly contested. At the organisational or strategic level, cost and return on investment is often a significant factor and economic analysis of interventions is a significant focus rather than WHS when evaluating strategy effectiveness. Behm, Veltri and Kleinsorge (2004) highlight that in order for WHSW to provide value to organisations, practitioners need to understand financial loss and demonstrate the benefits of WHSW to business using terminology that senior management understand, rather than “safety jargon”.

Approaches to measuring the costs of WHS activity can be achieved in several ways including cost accounting theories. Behm, Veltri and Kleinsorge (2004) compared work safety with quality and building on the cost of quality model applied to the US construction industry. The model is used to inform decision making by determining an optimal point where prevention activities cost, expenditure and safety performance converge, enabling the evaluation of safety trends and costs over time. The authors note that safety failure will be high if prevention and detection control costs are low. Conversely, when money is spent on controls to mitigate risk, the costs of failure will decrease. The model was applied to ergonomic interventions within two companies with positive outcomes reported, although issues were highlighted around accurately capturing costs for modelling with several improvements recommended to improve accuracy and reliability. In conclusion the authors report that this model can be applied to WHSW programs because it is able to analyse total WHSW costs making comparison across departments or sites possible, if measured in the same way. As such the model can identify which WHSW prevention and detection activities will provide best risk mitigation in a cost-effective manner.

However, several issues about cost-benefits have been highlighted concerning the measurement of WHS costs which include information asymmetry, externalities, and second-order impacts, where costs extend to social and health care systems (O’Neill, Cheung & Holley

2014). Also highlighted is that when determining any measurable cost, a clear definition of what constitutes relevant costs needs to be established. According to O'Neill, Cheung and Holley (2014), the criteria for identifying relevant costs are that they must:

be cash-flows that the entity will, or expects to, incur. (i.e. not externalities); be measurable: i.e. receipts (inflows) and expenditures (outflows) that can be quantified in a reliable way; differ across the available choices (i.e. across the courses of action being considered) (O'Neill, Cheung & Holley 2014, p. 18)

In Australia, early prominent work into the financial benefits of safety interventions was undertaken by Oxenburgh and Marlow (2005) who suggested the application of either the insurance or CBA model when endeavouring to determine the benefits of the intervention to organisations. They argue that the CBA approach is better at accommodating all potential parameters and is more applicable for a spread of organisations (small, medium, large). Whereas the insurance model provides no incentive for small organisations to implement WHS solutions due to the underestimation of injury costs. Consequently, various tools based on the CBA approach have been reported on in the literature such as the Productivity Assessment Tool (Oxenburgh & Marlow 2005) and the Return on Health Safety and Environment Investment methodology (Linhard 2005).

It has been noted, however, that there are gaps within the literature around the CBA approach making it difficult to arrive at a standardised spend to saving ratio (Maniati 2014). The literature suggests that the approaches to determining the business case for WHSW has received a great deal of attention because their indicators have significant limitations (Linhard 2005; Markey et al. 2008; Gahan, Sievwright & Evans 2014; O'Neill, Cheung & Holley 2014).

The WHS business case has generally been operationalised through traditional CBA methods to determine the value of a specific initiative or intervention. However, a recent report by Braunig and Kohstall (2012) suggest that CBA should be reconceptualised to return on prevention (RoP). The concept of RoP is defined by the authors as the ratio between the monetary benefits of prevention and the costs of prevention. The report examined the costs and benefits of workplace health and safety from a prevention accounting perspective. A cross-section of businesses in mining, construction, manufacturing, trade, and others drawn from 19 countries, including Australia were assessed. Data was collected by a questionnaire with participating organisations answering a series of qualitative and quantitative questions. This resulted in an RoP rating, which according to the authors has similarities with the willingness-to-pay concept outlined in social accounting. From the data analysis the report identified

several findings including that company costs remain the same or decrease when investments in safety and health are made, and the ROP payoff for investment was reported to be 2.2 (Braunig & Kohstall 2012).

Furthermore, several reports have discussed financial measurement and ROI outcomes for WHS in Australia and Internationally. For example, the United States Business Case for Executives Report (Campbell Institute 2013, p. 9) highlights the outcomes of previous studies:

- Companies can reduce injuries by 15-35 percent, compared to employers without these programs.
- Each \$1 invested in injury prevention returns \$2 or more. Average perceived return on safety investment is \$4.41 for every dollar spent on safety.
- Average cost for a minor incident is 16 times higher than the cost of the related preventive measure. For serious, very serious, or fatal incidents, the incident is 48 times higher than the cost of the preventive measure.
- Safety programs typically cost about 2.5 percent of direct labour costs. Using eight percent reduction in losses as a typical result of safety programs, the ratio of savings-to-safety and health program costs is 3.2 to 1.8

With the current and increasing prominence of mental health and psychological wellbeing issues, similar estimates of ROIs have been undertaken. For example, a report by Price Waterhouse Coopers (2014) into mental health also indicated variable ROI ratios that is not unsurprising. This could be because when measuring workplace health initiatives:

the traditional push has [...] been triggered by legislation which has been found to be insufficient to really demonstrate the value of health management from a strategic business perspective as most cost-benefit assessments have little impact on company strategy (Zwetsloot & van Scheppingen 2007, p.29).

More recently Caver, Davenport and Nyce (2015) discuss the business value of health suggesting that the evaluation of such strategies requires the consideration of health and productivity programs, practice improvements, workforce effectiveness, and employee engagement. The outcomes of health and productivity interventions in business can lead to decreased health care costs, a decrease in days away from work, and reduction in lifestyle health risks. All of which been found to be current and growing business challenges and further illustrating the strategic value of health and its ROI. A report in Australia by Gahan, Sievwright and Evans (2014) summaries a recent review by Baxter et al. (2014) into the cost-benefits of 'workplace health promotion programs implemented in workplaces from nine industries across 12 countries' (Gahan, Sievwright & Evans 2014, p.12). Whilst the report

found overall that the outcomes of the studies demonstrated a positive benefit, a significant finding was that the quality of study design had an impact on the reported ROI which further highlights the complexity in measuring ROI of safety and especially health-specific interventions.

Accordingly, limitations are apparent with existing business case approaches, including CBA that need to be treated with caution for several reasons (Gahan, Sievwright & Evans 2014; Maniati 2014). Among those are the variations between studies that have been completed, the use of inconsistent metrics, and the lack of national and international benchmarks for 'assessing health and safety related productivity (HSRP), and for the quantification of the fiscal impact of health and safety on the firms' (Lamm, Massey & Perry 2007, p. 79). Adding to the complexity, CBA is not necessarily a straightforward process, as interventions may not result in any financial benefit (Cecich 2005; Lamm, Massey & Perry 2007; O'Neil, Cheung & Holley 2014). According to Cecich (2005, p.38), any viable approach to CBA needs to link three concepts together: '(1) Return on Investment, (2) Making the Business Case, and (3) Leading and Trailing Metrics'. Therefore, these methods should be considered as being part of business case determination and strategy evaluation at the organisational level. That said the role of CBA should not be thought of as a definitive indicator of control effectiveness, improvement, or the justification to proceed with a course of action. Because of the limitations with existing CBA approaches the notion of what constitutes the business case is starting to be expanded upon, with investigations into the role of safety management systems, high-performance work systems, leadership and culture and performance measurement being of interest (Gahan, Sievwright & Evans 2014; O'Neill, Cheung & Holley 2014).

A more pragmatic approach to evaluation that coincides with incident-based indicators (Sgourou et al. 2010), and the safety management systems employed to improve WHSW performance involves audit tools. Such tools assist organisations in determining the effectiveness of the management system component of their strategy. Sgourou et al. (2010) undertook an assessment of selected safety performance evaluation methods from an extensive literature review and analysed six tools with the findings indicating that each of the tools were well designed with sound theoretical basis. From this early work several prominent frameworks across WHSW and risk management have been reported in the literature that follow these tools in their development, structure, and application. These include: Safe Well Practice Guidelines, Worksafe Victoria Integrated approach to WHSW, World Health Organisation Healthy Workplaces Framework, and International Standard 31000 Risk Management.

In summary, this review establishes that the evaluation of WHSW strategy is still lacking due to the large focus on management system effectiveness. Several WHSW performance evaluation tools have been validated and widely applied in numerous industries. Limitations of existing tools are that they relate to a specific construct and coverage of corporate governance requirements. WHS evaluation and assessment has lacked the ability to consistently demonstrate value despite attempts to utilise financial techniques such as ROI and CBA as several issues have been highlighted by numerous commentators around these approaches. However, such information does present significant value for organisational decision makers.

2.3.7 Leadership

Leadership is a core business practice and fundamental to achieving business outcomes including employee safety, wellbeing, engagement, and job satisfaction; and is distinct to management. Leadership has been extensively researched from social, psychological, and management perspectives with suggestions that it is an individual skill that can be developed, which are displayed through specific behaviours (i.e. leadership styles) aimed at increasing organisational performance (Orazi et al. 2014). According to Orazi et al. (2014) leadership requires numerous capabilities comprising technical, cognitive, motivational, relational, and strategic skills. These are used for the purpose of ‘influencing task objectives and strategies, influencing commitment and compliance in task behaviour [...], group maintenance and the culture of an organization’ (Yukl 1989, p. 252).

According to Seijts and Crim (2006), there are ten principles that leaders use in the organisation to engage employees in the work environment, these are: ‘(i) Connect, (ii) Career, (iii) Clarity, (iv) Convey, (v) Congratulate, (vi) Contribute, (vii) Control, (viii) Collaborate, (ix) Credibility, (x) Confidence’ (cited by Gupta & Sharma 2016, p.50S). As such, this suggests leadership is an interactive process between individuals incorporating social and human resource development aspects to achieve high-quality interactions characterised by trust, loyalty, reciprocity, and a willing supply of resources, as represented by leader-member exchange theory (Graen, Novak & Sommerkamp 1982) with the outcomes being improved employee engagement, job performance, and job satisfaction (Gutermann et al. 2017).

Gutermann et al. (2017) recently examined LMX and work engagement between leaders and followers. The survey of 599 employees measured leader and employee engagement using LMX on a six-point Likert scale. The findings demonstrated that in relation to leader work engagement, absorption had an indirect effect on followers whereas vigour and dedication had no effect. Therefore, supporting two hypotheses that absorption can be transferred to

subordinates and leaders own personal psychological state concerning work, shapes the relationship with followers, and in turn employee work engagement. Such associations have been reported in several studies concerning employee wellbeing and therefore has implications in WHSW, organisational strategy implementation, and business performance.

With the exploration of leadership in the literature, several commentators have extended such approaches to workplace safety, reporting safety leadership as a distinct construct and practice (Clarke 2013; Cooper 2015). Leadership has also been a focus of safety regulators globally, for example, prominent work into managerial leadership and safety outcomes was undertaken by O'Dea and Flin (2003) which establishes the discreet roles that senior leaders, middle managers, and frontline staff have in achieving positive organisational safety outcomes. In Australia regulatory agencies such as Safe Work Australia and Work Health and Safety Queensland and others have identified this field as a key area of interest. Safety leadership has been defined as 'the process of defining the desired state, setting up the team to succeed, and engaging in the discretionary efforts that drive the safety value' (Cooper 2010a, cited in Cooper 2015, p. 49).

Both transformational and transactional leadership approaches have been of interest and the predominant focus of an extensive body of research in relation to WHSW. Clarke (2013) conducted a meta-analysis of existing literature and cite research by Rafferty and Griffin (2004) and report that transformational leadership (TFL) can support desirable safety outcomes and positive safety climate through 'intellectual stimulation encouraging creativity and innovation by enhancing employees' interest in, and awareness of problems, and increasing their ability to think about problems in new ways' (Clarke 2013, p.26). Therefore, the understanding of safety issues is thought to be greatly improved due to creativity and problem-solving; although the review acknowledges that a potential downside to employee creativity may be increased risk-taking by employees.

In contrast, the transactional leadership (TL) style is more directive as leaders recognise what actions subordinates must take to achieve outcomes and clarify these roles and task requirements so that subordinates are confident in exerting necessary efforts to fulfill leader expectations (Clarke 2013). Such a mechanism affects worker compliance with safety rules and procedures through closer monitoring and the leader providing immediate feedback on errors. The study confirmed both leadership styles as an antecedent of safety perceptions and behaviours of workers. It also found that although TFL has several positive associations in achieving worker engagement, a weakness of this approach is that leaders may be viewed as

‘paying lip service to safety issues, whereas active transactional leaders are seen to walk the talk’ (Clarke 2013, p.35). In conclusion, the research findings support previous studies and that leaders should adopt a range of transformational and transactional leadership behaviours which provides a level of flexibility ‘as a combination of both styles will be most effective in managing workplace safety’ (Clarke 2013, p.37). This adaptable approach is consistent with that of the situational leadership model developed by Hersey and Blanchard in the 1960s which arguably has currency in the modern business environment from a WHSW perspective.

Cooper (2015, p.49) reviewed safety leadership styles noting that ‘ineffective safety leadership inhibits the ability of many companies to achieve success’. Clarke (2013), reports TFL and TL leadership as having positive effects on safety outcomes in addition to servant leadership, a facilitative style characterised by building personal relationships, a high level of individual contact, open communication through dialogue with a focus on enabling team members to succeed, which several meta-analyses have found has an influence on safety climate and on employee safety behaviour (Clarke 2013).

Evidence that leadership and safety remain a key topic requiring further definition was evidenced by research undertaken by Daniel (2015) who considered leadership in an engineering and construction environment. The aim of the research was to further clarify the definition of safety leadership to enhance consistency and minimise confusion. From a survey sample of 20 senior managers in the construction industry the results indicated that the general leadership is synonymous with safety leadership and that a transactional style of leadership in a high-risk environment sets a visible standard and ensures compliance with rules. Common expressions to describe unique safety leadership attributes included walking the talk, leading by example, and outlining of expectations or being accountable of safety, mentoring and empowering others. Their findings indicated that safety leadership is more ‘visible and tactile and pertains to securing the wellbeing and health of others’ (Daniel 2015, p.9). From an organisational perspective, it highlights the parallels between safety leadership and CSR thinking given the moral focus on good outcomes at the organisational and people levels. Their research suggests the application of safety leadership primarily focuses on the operational level, therefore, its role in safety strategy development and operationalisation requires further research. They propose a safety leadership definition for the construction industry as ‘the demonstration of safety values through the creation of a vision and the promotion of wellbeing through the art of engagement, honesty, and discipline’ (Daniel 2015, p.11).

It is apparent from the literature that more research is required into the role of leadership as emphasised by Zanko and Dawson (2012). Such views were supported by Donovan, Salmon and Lenné (2015) who conducted a review of safety leadership literature pertaining to high-risk industries such as manufacturing and construction. They argue that safety leadership research is still underdeveloped and has failed to apply “systems thinking” with a limited understanding of its role from a broader organisational perspective. Supporting this argument is that much of the focus of leadership has been on frontline leaders “at the sharp end”, as distinct to all key actors in the organisational management process, including risk decision making. The author's note a limitation is that there may be further styles that can influence safety and performance outcomes that have not been extensively researched. Also noted, was the lack of clear definition for each construct, and that there is a significant overlap between the underpinning behaviours and attributes of each style. This, the authors consider, is a significant weakness within the existing research because it presents difficulty in measuring each style and its influence on outcomes from a safety perspective. The variables that were found to be mostly influenced by safety leadership were safety climate, safety compliance and safety participation which it is argued relates more to the traditional view of safety management, and maybe less pertinent to high-risk organizations due to their complexity.

However, the selection of the remaining variables and their impact on safety improvements was less conclusive, largely due to definitional issues and the overlap of variables considered. Further the study establishes several limitations with current safety leadership research and practice. Firstly, the focus on safety climate, safety compliance, and safety participation as indicators of a safe working environment have not been well established outside the organisational context. Secondly, the questionnaires and surveys to evaluate safety leadership used inconsistent rating scales making comparison difficult, and there has been a predominant focus on frontline leaders being rated by their followers (Donovan, Salmon & Lenné 2015). Thirdly, that safety science has evolved through systems thinking models such as Rasmussen's Risk Management framework (1997) which includes key aspects such as vertical integration and the distribution of responsibility for organisational risk control. Yet safety leadership research has failed to adapt to these new approaches to safety management resulting in a ‘significant gap in understanding the influence of safety leadership across all levels of a work system’ (Donovan, Salmon & Lenné 2015, p.434). Despite such limitations, the review does reaffirm and provide support for the role of leadership in safety performance.

In concluding the review the authors recommend that: (a) future research should apply systems thinking models in addition to addressing critical knowledge gaps in decision making, actions,

policies, vertical integration, and (b) the application and impact of leadership styles needs to be examined to provide a more complete understanding of relationships across the whole work system, ‘as safety is dependent on the activities of individuals (human and non-human) at every level’ (Donovan, Salmon & Lenné 2015, p.437).

In contrast to the positive aspects of good leadership, there is a growing body of research relating to poor leadership behaviours and the negative impact on employee wellbeing and employee and organisational performance (Padilla, Hogan & Kaiser 2007; Skogstad 2017). This has been referred to as “destructive leadership” which has been defined as:

the systematic and repeated behaviour by a leader, supervisor or manager that violates the legitimate interest of the organisation by undermining and/or sabotaging the organisations, goals, tasks, resources and effectiveness and/or motivation, wellbeing or job-satisfaction of subordinates’ (Einarsen, Aasland & Skogstad 2007, p. 42).

Although further research is required in this area, the literature suggests that antecedents of negative leadership may be individual traits such as negative affectivity, need for control, use of charisma to coerce followers who may be susceptible and an organisational environment where adequate checks and balances are in place. Summarising such issues has led to the “toxic triangle of destructive leadership” (Padilla, Hogan & Kaiser 2007) being reported in the literature which posits a framework of interactions between ‘destructive leaders, susceptible followers and conducive environments’ (Padilla, Hogan & Kaiser 2007, p. 180) that harm employees in the workplace.

More specific to WHSW, several commentators have reported that the most common styles of leadership associated with poor individual safety and wellbeing include charismatic and passive types such as Laissez-fair where leaders avoid taking responsibility and making decisions and management by exception, consequently, these approaches may lead to less support and motivation for followers leading to it typically being referred to as an ‘absence of leadership’ (Bass, 1985, Den Hartog et al., 1997, cited in Jiang & Probst 2016, p. 29).

In summary, it is clear, that both safety and business leadership have several common attributes with conflicting views as to whether safety is a subset of general leadership. It is apparent from the literature that leadership effects safety, wellbeing, and organisational performance, including strategy implementation. Transformational and transactional leadership styles dominate the literature, particularly in relation to workplace level safety improvement, compliance, and the wellbeing of employees.

2.4 Conceptual WHSW Strategy and Employee Engagement Framework

The need for this study has emerged as traditional approaches to workplace health and safety improvement have only had some impact on reducing WRII and the emerging issues relating to wellbeing. This primary focus of this research is to establish a WHSW strategy framework that creates a future organisational state in which workers are in an optimal condition characterised by being free from injury, illness, disease; in good mental health and satisfied with their work-life leading to benefits for business. The preceding sections of the literature review (section 2.1 – 2.3) have established that WHSW strategy and employee engagement have rarely been studied with few strategic frameworks existing. The following sections establish the key constructs and definitions of the conceptual framework for this study.

2.4.1 WHSW strategy and employee engagement conceptual framework

The term concept is widely reported and used in many ways across different academic disciplines. According to Podsakoff, MacKenzie and Podsakoff (2016, p. 161) concepts are defined as ‘cognitive symbols (or abstract terms) that specifies the features, attributes, characteristics of the phenomenon in the real phenomenological world that they are meant to represent and that distinguish them from other related phenomena’.

The broad objective of this study was to establish a conceptual framework which is defined as:

...an entity between a 'model' and a 'method'. A framework is, or contains, a (not completely detailed) structure or system for the realization of a defined result/goal. Many frameworks comprise one or more models, based on the modelling techniques and often based on (best) practices. Compared with methods, frameworks give the users much more freedom regarding the (partial or entire) use of the framework and the use of the models or techniques therein (Verbrugge n.d.,para six)

The literature review has established that higher WHSW engagement leads to higher strategy efficacy. To deliver added value to business this study proposes that by improving WHSW strategy greater employee engagement will be achieved, and therefore improved WHSW performance. As there is an expansive amount of literature relating to the measurement of WHS, wellbeing, human capital, and organisational performance this research does not explore this area further and is therefore delimited in this respect. Instead, it is included in the framework as a component because of the proposed relationships between WHSW strategy, employee engagement, and individual and business performance, rather than developing new measures of WHSW strategy efficacy.

Figure 5 outlines the conceptual framework logic showing the linkages between WHSW strategy, employee engagement, and performance indicators. The independent variable for this

study is WHSW strategy, with employee engagement and strategy efficacy being the dependent variables and leadership and motivation being moderating variables.

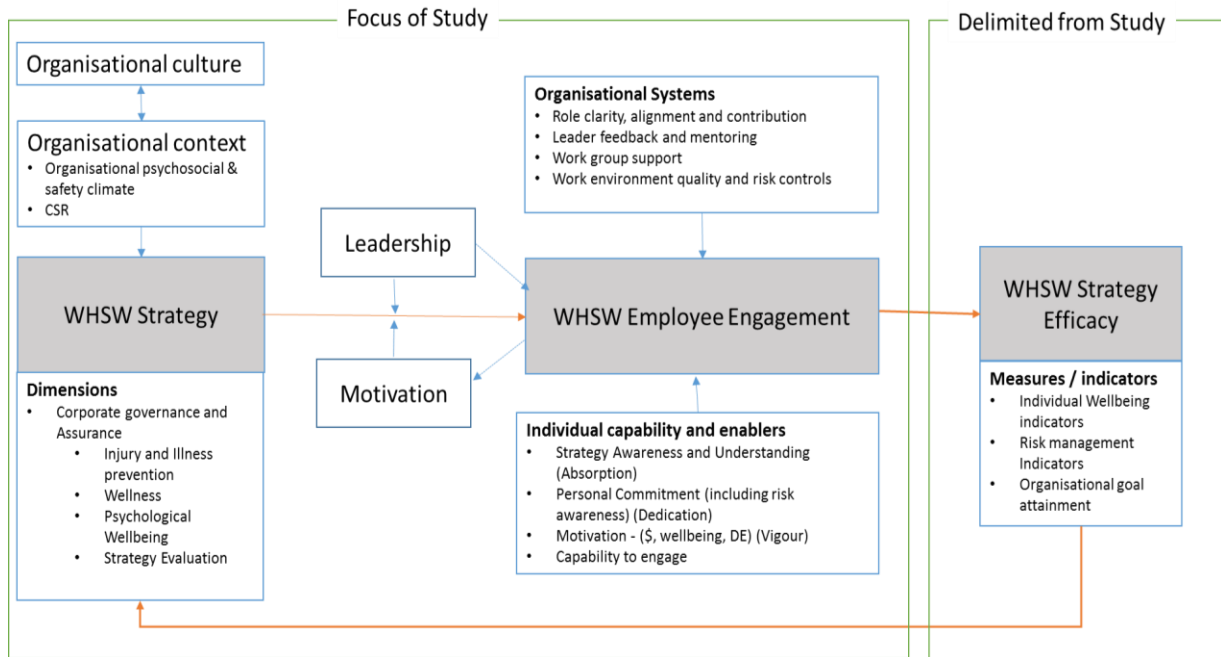


Figure 5 - Conceptual WHSW Strategy and Employee Engagement Framework (Source: Developed for this research)

The following sections outline in detail the definition, concept, sub-variable and definitions and attributes for each of the constructs that make up the conceptual framework.

2.4.2 Work health, safety, and wellbeing (worker wellbeing)

For this research worker wellbeing is defined as: ‘a state facilitated by the organisation which enables good work-related social connection, promotes physical and psychological health, satisfaction with the job, and personal growth. This leads to optimal worker motivation and engagement resulting in positive outcomes in an employees’ working life, social life, and organisational performance’ (Source: Developed for this research).

Table 11 - WHSW definitional themes and attributes

Key Concept	Sub-Variable	Definitional Themes	Attributes
WORK WELLBEING	Work Safety	<ul style="list-style-type: none"> ‘A state in which the risk of harm (to persons) or damage is limited to an acceptable level’ (Standards Australia 2001) 	<ul style="list-style-type: none"> Focus on WRII prevention, physical work environment maintenance, compliance.
	Work Health and Wellness	<ul style="list-style-type: none"> ‘The state of complete physical, social, and mental well-being, and not merely the absence of disease or infirmity’ (World Health Organisation 2020). ‘Optimal health is a dynamic balance of physical, emotional, social, spiritual, and intellectual health’ (O’Donnell 2009, p.vi) 	<ul style="list-style-type: none"> Health and wellbeing a material business risk. Work health strong focus on primary prevention of hazards. Clear delineation of Illness, disease, disorders, work-relatedness Health is a key driver of employee-organisational trust and engagement.

		<ul style="list-style-type: none"> • ‘Illness seen as a management problem rather than a medical problem’ (Coats & Max 2006). • ‘Workplace wellness is any workplace health promotion activity or organizational policy designed to support healthy behaviour in the workplace and to improve health outcomes’ (National Wellness Organization 2003). 	<ul style="list-style-type: none"> • Business rationale for wellness is healthcare costs, productivity, performance, human capital, sustainability. • Determinants of health are psychosocial work environment, physical work environment, personal health resources, and the business and its wider community • Worker health and wellness each require a distinct and specific focus in the broader societal organisational and management context. • Psychosocial work and mental health require a specific focus given the changing workplace and intensification. • Work-related specific exposures leading to specific outcomes among specific workgroups is less and less pertinent • Workplace wellness activities health education, medical screenings, weight management programs, on-site fitness programs, or facilities.
	Wellbeing and Quality of Work Life	<ul style="list-style-type: none"> • ‘That part of an employee’s overall well-being that they perceive to be determined primarily by work and can be influenced by workplace interventions’ (Hesapro 2013). • ‘More than just happiness. As well as feeling satisfied and happy, wellbeing means developing as a person, being fulfilled, and contributing to the community’ (Shah & Marks 2004) • ‘Balance point between an individual’s resource pool and the challenges faced’ (Dodge et al. 2012) • ‘A state wherein every individual realises his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to contribute to his or her community (World Health Organisation n.d.) • ‘Eudemonic wellbeing is an approach which focuses on the extent to which a treatment gives rise to a sense of purpose, vitality, and personal development’ (Bryson 2014) • A broad subjective concept comprised of personal satisfaction, work-life satisfaction, and general health mental and physical (Pescud et al. 2015). • ‘Extent to which an employee is satisfied with personal and working needs through participating in the workplace while achieving the goals of the organisation’ (Swamy, Nanjundeswaraswamy, & Rashmi 2015) 	<ul style="list-style-type: none"> • Wellbeing focus at the organisational and individual employee levels. • Positive relationships between SWB and physical health, cognitive processes, work attitudes, and productivity. • Better physical and psychological health, work, relationships, specialist support, personal beliefs • Satisfaction, motivation, involvement, and commitment impact an individual’s experience with work and life. • Positive behavioural job elements such as autonomy, variety, task identity, task significance, and feedback contribute to employee satisfaction with work. • Physical working conditions, job restructuring, job re-design, career development, promotional opportunities • Personal job control, use of skills, fairness, availability of money, supportive supervisor, rewards, recognition • Subjective wellbeing is a key determinate and indicator of engagement.

(Source: Developed for this research)

2.4.3 Organisational context

Organisational culture is defined as: ‘A pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and internal integration, that has worked

well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems’ (Schein 1992, cited in Guldenmund 2000, pp. 250-51).

Organisational context is defined for this research as: ‘the set of organisational circumstances under which the strategy process and content is determined to set the direction and scope of an organisation over the long term. It is informed by how employees perceive the enactment of organisational policies and procedures relating to WHSW in their organisation at a given point in time and the organisations obligations beyond legal compliance’ (Source: Developed for this research).

Table 12 – Organisational context definitions and conceptual themes

Key Concept	Sub-Variable	Definitional Themes	Attributes
ORGANISATIONAL CONTEXT	Business Strategy	<ul style="list-style-type: none"> • ‘Strategy is the direction and scope of an organisation over the long term, which achieves advantage in a changing environment for the organisation through its configuration of resources and competences with the aim of fulfilling stakeholder expectations’ (Johnson et al. 2008). • ‘Strategy a cohesive response to an important challenge’ (Rumelt 2011) • ‘Strategy context is the set of circumstances under which both the strategy process and content are determined and’ (Zou & Sunindijo 2015) • RBV adopts an inside-out view by focusing on the internal capabilities of the organisation, tangible and intangible resources, and core competencies (Miller 2019). • Honsin Konri provides an ‘organisational architecture and transparency which is necessary if strategy and daily management are to combine’ (Melander et al. 2016). • Balanced scorecard a ‘strategic management framework to address a serious deficiency in traditional management systems, their inability to link a company’s long-term with its short-term actions’ (Kaplan & Norton 1996) • ‘Strategy process is the manner in which strategies come about’ (Zou & Sunindijo 2015) 	<ul style="list-style-type: none"> • Circumstances under which both the strategy process and content are determined and implemented, way strategies come about, the product of a strategy process, organisational maturity • The future state of the organisation, matching capabilities, provision of resources. • Organisational mission, values, goals, and objective setting are a key part of strategy establishment. • Behavioural factors affect the execution of strategy, role clarity, and alignment to the strategy • Operationalised by a corporate level plan that is often translated into business-level action plans, change management, senior management alignment • Internal and external environment, strength, weakness, opportunity, threat. • Employee involvement in strategy development and implementation • Integrating health and safety in company strategy and policy a key to business excellence and success.
	Safety and Psychosocial Climate	<ul style="list-style-type: none"> • ‘Safety climate how employees perceive the enactment of organisational policies and procedures relating to safety in their organisation at a given point in time’ (Mearns et al. 2013) • ‘Safety climate reflects employees’ perceptions about 	<ul style="list-style-type: none"> • WHS value and priority commitment, proactive social behaviour, looking after self, others. • Employee views on WHSW leaders’ actions, communication, workplace risks,

		<p>the relative importance of safe conduct in their occupational behaviour. It can vary from highly positive to a neutral level, and its average level reflects the safety climate in a given company' (Zohar 1980)</p> <ul style="list-style-type: none"> • 'Psychosocial safety climate is defined as shared perceptions of organizational policies, practices, and procedures for the protection of worker psychological health and safety, that stem largely from management practices' (Law et al. 2011) 	<p>involvement, promotion, training,</p> <ul style="list-style-type: none"> • Informs and supports changes to WHSW policies and practices, employee bottom-up approach, motivation, autonomy, competence. • Excessive job pressure and stress undermines wellbeing, resources to cope, work stress, exhaustion, health impairment. • Stress and burnout once an individual's resources are depleted, Job demands-resources. • Employee safety climate and psychosocial climate a factor in the development and implementation of policies.
	Corporate Social Responsibility	<ul style="list-style-type: none"> • To be socially responsible means going beyond fulfilling the legal expectations (Zwetsloot & Starren 2004) • Ageing workforce, mental health and psychosocial hazards present a corporate social responsibility and strategic business issue (Gallagher & Underhill 2012) 	<ul style="list-style-type: none"> • Safe and sound working conditions and good worker health belong to the social responsibilities of companies and are an integral part of CSR. • Enabler of engagement due to employees feeling connected with the organisation's involvement in the community. • Corporate Social Responsibility drives strategic performance beyond compliance requirements • Connection with human resources, the balance between work and family life, safety, and public health and productivity • Licence to Operate risks, individual liability, business reputation

(Source: Developed for this research)

2.4.4 WHSW strategy

For this research, WHSW strategy is defined as: 'a strategic direction and allocation of resources dedicated to matching internal capabilities with opportunities and threats in achieving a future state of WHSW, as embedded in, and acknowledged as a priority of the organisational strategy while being underpinned by the organisational mission, values, and priorities' (Source: Developed for this research).

Table 13 – WHSW strategy definitions and conceptual themes

Key Concept	Sub-Variable	Definitional Themes	Attributes
WHSW STRATEGY	Corporate Governance and Assurance	<ul style="list-style-type: none"> • 'Framework of rules, relationships, systems, and processes within and by which authority is exercised and controlled within corporations' 	<ul style="list-style-type: none"> • Officers and senior managers due diligence, Information, corporate reporting, disclosure, investor relations

		<p>(Australian Stock Exchange Guidelines 2014)</p> <ul style="list-style-type: none"> • WHS outcomes can be considered a determinant of firm status, specifically corporate image, and identity (Smallman & John 2001, cited by Gahan, Sievwright & Evans 2014). • ‘Assurance the expression or conclusion that is intended to increase the confidence that users place in given subject matter or information’ (Ghandar 2014). • Input (safety risks) – process (corporate governance) – output (fewer incidents) (Carden, Boyd & Valenti 2015) • ‘WHSW risks are problems that are sometimes related to meeting strategic goals’ (Carden, Boyd & Valenti 2015) • ‘WHS considerations must be integrated into the organisation’s business model and thinking’ (O’Neill & Wolfe 2017) • Wellbeing is a strategic element of business from corporate governance and organisational reporting perspective (Abbey 2015) • ‘Compliance-focused approaches not effective at managing workplace risks, organizations have come to embrace the use of a risk management approach to address workplace hazards’ (Walaski 2017). • ‘Safety as a strategic objective, where employee well-being is linked in thought and practice to the success of the organization, implies a fundamental shift in organizational practices, thinking and culture’ (Mathis 2014). • ‘The systematic application of principles to reduce incidents, accidents or the accident potential of a system or organisation’ (Hesapro 2013) • ‘Safety intrinsic ability of a system to adjust its functioning prior to, during, or following changes and disturbances, so that it can sustain required operations under both expected and unexpected conditions’ (Hollnagel et al. 2010) • Health management’s strategic value add to business must be linked to strategy and organisational development (Zweetsloot & van Scheppingen 2007). • Line of Sight an employee’s understanding of the organisations strategic goals and what actions are necessary (Boswell, Bingham & Colvin 2006). • ‘Strategy content is the product of a strategy process’ (Zou & Sunindijo 2015) 	<ul style="list-style-type: none"> • Acting ethically, providing resources, ensuring business controls, strategic risk management, beyond legal compliance • SMS are internal controls and part of the organization’s management system used to develop and implement its OH&S policy. • Implementation of SMS involves adapting to a specific organisation, integrating it into existing management systems, organisational maturity. • SMS top-down commitment, behavioural execution, evaluation, workgroup involvement, worker perceptions. • Wellbeing of an organisation and the wellbeing of its workers linked. • Information on hazards, risk, controls for decision making and verification • Change from things that go wrong to things that go right, positive performance indicators • Multiple causes of accidents and incidents • Focus to the constant review of risk models and employee risk perception • Organisational controls are technical, cultural and governance • Employees understand how their role contributes to the broader purpose of the organisation
	Strategy Evaluation	<ul style="list-style-type: none"> • ‘Monitoring and evaluation is about answering - What did we do? How do we understand what we have achieved?, How effective is implementation?, and What should be changed?’ (Butner 2015) • Evaluation framework is drawn from health promotion and organisational development (OD) principles (Noblet & LaMontagne 2014). • ‘Evaluation is a tool that can be constructed to help organisations learn on the job’ (Brinkerhoff & Dressler 2015) • ‘The crucial aspect of any control system is its effect on behaviour...the systems need to be designed in a way that assists, guides and motivates management to make decisions and act in ways that are consistent with the overall objectives of the organisation’ (Merchant & Van der 	<ul style="list-style-type: none"> • Management controls involve setting objectives, formulating strategy, exercising control, motivation, direction • Performance measurement helps to achieve strategic objectives, align behaviours and attitudes, positive impact on performance • OD and WHP have a strong concern for humanistic outcomes and emphasises developmental processes that build the capacity of individuals and groups to identify key organisational problems. • Statistical approaches to determine the level of

		<p>Stede (2012, cited by O'Neill, Wolfe & Holley 2015)</p> <ul style="list-style-type: none"> • 'Performance measurement can help organisations define and achieve their strategic objectives, align behaviours and attitudes, and ultimately, have a positive impact on organisational performance' (Micheleli & Manzoni 2010) • 'Review of strategic plans involves comparison of results targeted and attained. Plan realisations are reviewed in terms of timing and relevance for goals' (Butuner 2015). • 'Investigating OHS not a straightforward task as the relationship between business performance and productivity and OHS interventions aimed at reducing illness and injury is strongly contested' (Lamm et al. 2008) • 'Measurement issues of WHS costs such as information asymmetry, externalities and second order impacts flow onto broader industry, health and social care systems' (O'Neill, Cheung & Holley 2014) • Insurance model or cost benefit analysis (CBA) model in determining the benefits of intervention to organisations (Oxenburgh & Marlow 2001). • CBA needs to link three concepts together: 'Return on Investment, Making the Business Case, and Leading and Trailing Metrics' (Cecich 2005). • Cost-analyses informing choices as to the most cost-effective option between equally effective risk controls (O'Neill & Wolfe 2017). • Business case arguments structured around 'ROI on productivity improvement, ROI on direct cost savings, ROI on direct/indirect cost savings, improving organizational metrics, reducing inherent risk, improving compliance position, Aligning with corporate values' (Cecich 2005). • The business case that informs any organisational investment decision is based on three justifications – legal, financial, or strategic grounds (O'Neill, Cheung & Holley 2014) • Business value of health evaluation considerations include health and productivity programs and practice improvements and workforce effectiveness measurement (Caver, Davenport & Nyce 2015). • The traditional push has been 'triggered by legislation which has been found to be insufficient to really demonstrate the value of health management from a strategic business perspective as most cost-benefit assessments have little impact on company strategy' (Zwetsloot & van Scheppingen 2007) 	<p>resources allocated to the implementation of safety and health program.</p> <ul style="list-style-type: none"> • CBA of specific interventions to determinate return on investment benefits, may not result in any financial benefit • WHS business case has generally seen it operationalised through CBA methods to determine the value of a specific initiative or intervention • Recognition that measures and indicators have significant limitations in the WHS business case. • Determining any measurable cost requires a clear definition of what constitutes 'relevant costs.' • Broader measurement models to provide detail around the objectives, short term, intermediate and long-term outcomes, and what should be measured. • Cost-benefits of workplace health promotion programs overall studies demonstrated a positive benefit with variable ROIs • The mathematical relationship between the intervention/s and the incident rate to determine the effectiveness of interventions required • Measures used to monitor WRH occurrence progress on initiatives, strategies, and the effectiveness of operational risk controls • Dissatisfaction with the reliance on performance measures and indicators to determine WHSW strategy effectiveness
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(Source: Developed for this research)

2.4.5 WHSW employee engagement

For this research, WHSW employee engagement is defined as: 'a workplace approach designed to ensure that employees are committed to their organisation's goals and values, motivated to contribute to organisational success, and are able at the same time to enhance their own sense

of well-being through ‘a positive, fulfilling, work-related state of mind that is characterised by Vigour, Dedication and Absorption’ (Source: Developed for this research).

Table 14 – WHSW employee engagement definitions and conceptual themes

Key Concept	Sub-Variable	Definitional Themes	Attributes
WHSW EMPLOYEE ENGAGEMENT	Employee Engagement	<ul style="list-style-type: none"> • ‘The harnessing of organization members selves to their work roles; in engagement, people employ and express themselves physically, cognitively, and emotionally during role performances’ (Kahn 1990, cited in Truss et al. 2013a). • ‘Flow’ described ‘as the holistic sensation that people feel when they act with total involvement’ (Csikszentmihalyi 1975, cited in Kular et al. 2008) • ‘An individual employee’s cognitive, emotional, and behavioural state directed towards desired organizational outcomes’ (Shuck & Wollard 2010) • An integrated construct composed of a range of variables including job satisfaction, job involvement, motivation (Robertson-Smith & Marwick 2009). • A positive, fulfilling, work-related state of mind that is characterized by Vigor, Dedication, and Absorption (Schaufeli & Bakker 2003) • A distinct and unique construct consisting of cognitive, emotional, and behavioural components that are associated with individual and organisational performance (Saks 2006). • ‘the individual’s involvement and satisfaction with as well as enthusiasm for work’ (Harter et al., 2002, Shuck & Wollard 2010) 	<ul style="list-style-type: none"> • The positive attitude held by the employee toward the organization and its values. • Engaged employees are aware of business context and work with colleagues to improve performance within the job for the benefit of the organization. • Engagement requires a two-way relationship between employer and employee. • Employee voice (involvement) is a key factor in worker engagement • Extra role performance, proactivity, knowledge sharing, creativity, and adaptability lead to the achievement of strategic organisational goals. • Positive associations between engagement with customer satisfaction, productivity, improved employee retention, profit, organisational change, manger self-efficacy, and customer loyalty. • Cognitive commitment, affective commitment, and behavioural commitment or think, feel and act increases commitment leading to superior results through • Satisfaction with remuneration, training and development, quality of leadership, relationship with manger. • UWES is a good indicator of engagement measuring Vigor, Absorption, and Dedication. • Job satisfaction a proxy indicator for engagement
	Motivation	<ul style="list-style-type: none"> • ‘Autonomous motivation refers to acting with volition, as when employees engage in their job for the inherent pleasure and satisfaction (intrinsic motivation) and/or because they personally endorse the importance or value of a task (identified regulation)’ (Fernet et al. 2015). • ‘Controlled motivation refers to behaviours enacted under internal or external pressure, as when employees perform their job to enhance their self-worth or to avoid anxiety and guilt (introjected regulation) and/or because they are pressured by demands, threats or rewards by an external agent (external regulation)’ (Fernet et al. 2015). 	<ul style="list-style-type: none"> • Five core characteristics of jobs are skill variety, autonomy, feedback, task significance, task identity • Psychological safety, presence, attention, absorption. • Organisational drivers include job challenge, clear goals and accountability, resources availability, autonomy and manager feedback, and open communication • High levels of job satisfaction and employee engagement relate to workplace environment

		<ul style="list-style-type: none"> • Job Characteristics Model five core characteristics (Hackman and Oldham 1976) • Occupational health Job-Demand Resources model (Bakker & Demerouti 2007). • ‘Finding meaning in work is becoming a bigger priority for people and a key factor in employees’ commitment to an organisation – and must therefore form a significant part of employers’ strategic understanding of the employment relationship’ (Bevan 2012). • CSR framed human resource development strategy motivates employees by meeting their basic psychological needs such as competence, relatedness, and autonomy (Valentin, Valentin & Nafukho 2015). • A broader focus on work motivational factors required as the predominant early focus has been on job-specific, task-oriented measures. A more comprehensive work design measure is needed (Morgeson & Humphrey 2006). 	<p>and the work itself, employee’s connection with their work and colleagues’ connection with employees’ work</p> <ul style="list-style-type: none"> • Good work design, abilities of people, growth, strengths support employee motivation • Competence, relationships, and autonomy are core individual attributes that influence successful wellbeing initiatives. • Overall satisfaction with organisational experience, emotional, cognitive, motivational, engagement, and social aspects of work that influence overall working life. • Burnout, lack of skill use, boredom
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(Source: Developed for this research)

2.4.6 Leadership

For this research leadership is defined as: ‘Strategic leadership is the ability to anticipate, envision, maintain flexibility, think strategically, and work with others to initiate changes that will create a viable future for the organisation’ (Ireland & Hitt 2005, p. 63).

Table 15 – Leadership definitions and conceptual themes

Key Concept	Sub-Variable	Definitional Themes	Attributes
LEADERSHIP	Nil	<ul style="list-style-type: none"> • Strategic leadership is defined as the ability to anticipate, envision, maintain flexibility, think strategically, and work with others to initiate changes that will create a viable future for the organisation (Ireland & Hitt 2005) • TFL has been positively associated with employee engagement, job satisfaction, occupational self-efficacy and organisational commitment which is engendered through trust as the manager is seen to be a role model to motivate employees (Fernet et al. 2015) • TFL occurs when leaders broaden and elevate the interests of their employees when they generate awareness and acceptance of the purposes and mission of the group, and when they stir their employees to look beyond their own self-interest for the good of the group (Bass 1985). • TL style is more directive as leaders recognize what actions subordinates must take to achieve outcomes and clarify these roles and task requirements so that subordinates are confident in exerting necessary efforts to fulfill leader expectations (Clarke 2013) • Safety leadership the process of defining the desired state, setting up the team to succeed, and engaging in the discretionary efforts that drive the safety value (Cooper 2010) 	<ul style="list-style-type: none"> • Leader coaching, mentoring and feedback effects strategy implementation, safety behaviours, worker wellbeing • Leadership style is contextually oriented for WHSW, engagement, job satisfaction • Safety and general leadership have several common attributes, conflicting views as to whether safety is a subset of general leadership • Leadership effects safety, wellbeing, and organisational performance and strategy implementation. • Transformational and transactional leadership styles each have a different impact on workplace level safety improvement and compliance. • Ineffective, poor, abusive, or destructive leadership styles inhibits the ability of many companies to achieve success and improve safety and worker wellbeing

		<ul style="list-style-type: none"> • ‘Destructive leadership is the systematic and repeated behaviour by a leader, supervisor or manager that violates the legitimate interest of the organisation by undermining and/or sabotaging the organisations, goals, tasks, resources, and effectiveness and/or motivation, wellbeing or job-satisfaction of subordinates’ (Einarsen, Aasland & Skogstad 2007). 	<ul style="list-style-type: none"> • WHSW managerial competencies respectful and responsible, managing and communicating existing and future work, managing the individual within the team, and reasoning/managing difficult situations. • Leadership capabilities comprising technical, cognitive, motivational, relational, and strategic skills in addition to factors such as emotional intelligence. • Leadership capabilities influence task objectives, strategies, commitment, compliance task behaviour to achieve these objectives, group maintenance, culture • Creating a vision, walking the talk, listening, not paying lip service, visible standard
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(Source: Developed for this research)

2.4.7 WHSW strategy efficacy

WHSW strategy efficacy is defined for this research as: ‘the combination of pre-defined results or other units of information which reflects directly or indirectly, the extent to which an anticipated WHSW outcome is achieved, or the quality of processes leading to that outcome. These may be (i) qualitative which are indicators that would describe or assess a quality or (ii) quantitative which are an indicator that can be counted or measured and described numerically’ (Adapted from NSW health department, cited in Australian Safety & Compensation Council 2005, p.5).

Table 16 – WHSW strategy efficacy definitions and conceptual themes

Key Concept	Sub-Variable	Definitional Themes	Attributes
WHSW STRATEGY EFFICACY	Nil	<ul style="list-style-type: none"> • ‘A measure of the level of effectiveness of those business activities aimed at the prevention of injury and disease to persons in the workplace, typically implementation of WHS plans, improvement in injury or illness occurrences and whether objectives or targets are being met’ (Australian Safety & Compensation Council 2005). • ‘The measurable results of the OHSMS, related to the organization’s control of health and safety risks, based on its OHS policy, objectives, and targets’ (Standards Australia 2001) • Safety performance measures are indicators that focus on the differences between actual safety performance and what has been defined as acceptable, i.e. measuring the gap (Janicak 2003) • An alternate approach to the classification of injury is the severity class 1 – 3 (O’Neill, Martinov-Bennie & Cheung 2013) • Methods for measuring and valuing health-related productivity vary widely, hindering the comparability of results and decision-making (Uegaki et al. 2010). 	<ul style="list-style-type: none"> • WRIL data sources not reliable, underreporting of incidence, occurrences. • Organisations who see health as an indicator of success have lower levels of work impairment due to presenteeism and absenteeism. • Multiple ways of dissecting, analysing, and reporting on WRIL, focus on low consequence outcomes. • Clear delineation of measures for injury, illness, disease, wellness, and wellbeing • Classification and measurement of WRIL difficult given the broad range of definitions, inconsistent terminologies, and the reliance on LTI/LTIFR as an indicator of safety.

		<ul style="list-style-type: none"> • ‘Any measure of subjective wellbeing which seeks to explain an employee’s work behaviours over a period of time ought to seek and establish the nature of a person’s feelings over a similar period’ (Bryson 2014) 	<ul style="list-style-type: none"> • LTI measures are too simplistic and too highly aggregated to reliably communicate the accountability information needed to guide corporate strategy or inform public policy. • Health measures have focused on biometric, behaviour change and sickness indicators. • Psychological well-being assessments should include the meaning of work and engagement in work or a sense of meaning of work • Measures beyond health and psychological centric indicators in relation to wellbeing • Business centric health/ill-health measures absenteeism and presenteeism. • SWB is a more reliable and valid indicator than sole reliance on wellness. • Two most common indicators reported on in the literature for SWB are job satisfaction and job-related affect • Human capital related value and outcomes with interest in employee engagement, organisational commitment, staff retention, and attitudes. • Inconsistent metrics for assessing health and safety-related productivity, and for the quantification of the fiscal impact of health and safety on the firms. • Linkage with CSR, governance, global reporting, investor relations
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(Source: Developed for this research)

2.5 Conclusion

In summary, this chapter has established that worker wellbeing has become a priority at the individual, organisational and societal levels representing a material issue that businesses must address as part of their broader strategy. Many of the approaches outlined are firmly grounded in management principles through the application of WHSW management framework. As such a paucity strategic models and frameworks have been outlined in the literature. The framework proposed for this study addresses this gap in the WHSW strategy and employee engagement research. The next section, Chapter 3 – Research Methodology outlines the approach taken for this research, the research questions, data gathering, and analysis methodology and ethical considerations.

CHAPTER 3 – RESEARCH METHODOLOGY

This chapter outlines the research questions, research framework, and methods used to further explore and validate the conceptual WHSW strategy and employee engagement framework outlined in Chapter 2.

The aims of this chapter are to:

- Establish the research questions related to the problem under investigation.
- Outline the methodological basis for this research in developing and validating the WHSW framework.
- Delineate and provide an outline of each of phase applied to this research in developing and validating the WHSW framework.
- Outline ethical considerations relating to the research process, participants, and the USQ throughout the research process.

3.1 Research Questions

Chapter 2 provided a detailed critical review of the literature for work health, safety, wellbeing, employee engagement, performance measurement, leadership, and motivation as it relates to the study of WHSW strategy and employee engagement. It has provided insight into WHSW and employee engagement and the emergent issues that businesses are facing. This includes the shift to a focus on worker wellbeing and declining levels of employee engagement. The literature suggests that employee engagement, wellbeing, and business performance are linked, however, there is a distinct gap concerning the definition and operationalisation of WHSW strategy and employee engagement. To date, there is a paucity of studies undertaken from a business scholarly perspective (Zanko & Dawson 2012) to examine employee engagement, wellbeing and business performance and bring them together into a framework. Consequently, this research informs new knowledge about WHSW strategy and these elements.

Section 2.4 of the literature review outlined a simple conceptual WHSW framework (Figure 5) to demonstrate the linkages between each key construct and the sub-variables that are the focus of this study. Accordingly, the trends and gaps that have been established within existing WHSW, business, and employee engagement literature were used to determine the research questions for this study. These are as follows:

- **Research Question 1 (RQ1):** What business, WHSW practices, and measurement systems are suitable to inform the development of the WHSW strategy and employee engagement framework for Queensland businesses?
- **Research Question 2 (RQ2):** How can the WHSW strategy and employee engagement framework improve WHSW and organisational performance beyond standard WHSW management processes in Queensland businesses?

3.2 Research Design and Strategy

To achieve the objectives of any research topic the process requires the consideration of the right approach to answer the research questions and any knowledge claims that emerge. Creswell (2014) outlines a research framework and the relationships between key elements in the process of inquiry. Drawing on this framework, the following sections in Chapter 3 outline the philosophical worldview, research design, and the methods adopted for this investigation into WHSW strategy and employee engagement.

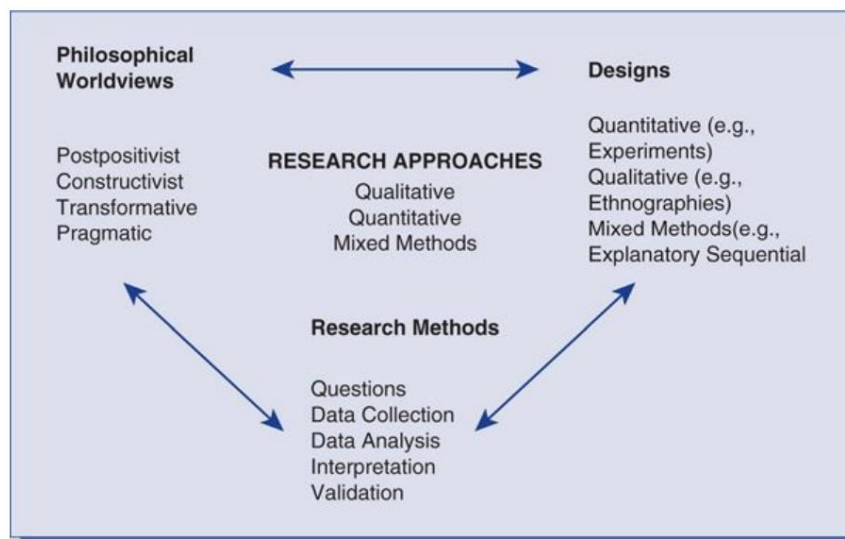


Figure 6 - A Framework for research (Source:Creswell 2014, p. 5)

3.2.1 Research paradigm

O’Gorman and MacIntosh (2015, p. 50) state that research ‘begins with the location of your proposed work within a particular research paradigm’. The term “paradigm” has been defined as ‘a loose collection of logically related assumptions, concepts, or propositions that orient thinking and research’ (Bogdan & Biklen 1998, p.22, cited in Mackenzie & Knipe 2006, p. 195).

Research as a process is underpinned by several attributes relating to the philosophical assumptions in research frameworks as outlined in table 17.

Table 17 - Key terms in research methodology

Term	Definition
Axiology	The branch of philosophy dealing with values, as those of ethics, aesthetics, or religion.
Deduction	a priori argument: deriving a proof or using evidence to test a hypothesis.
Epistemology	The branch of metaphysics that deals with the nature of knowledge, its presuppositions and foundations, and its extent and validity. <ul style="list-style-type: none"> • The study of knowledge • Theories of what constitutes knowledge and understanding of phenomena • How we explain ourselves as knowers, how we arrive at our beliefs Induction a posteriori argument, deriving knowledge from empirical investigation
Induction	a posteriori argument, deriving knowledge from empirical investigation.
Ontology	The branch of metaphysics that deals with the nature of being and of reality
Methodology	The study and application of methods.

(Source: Adapted from O’Gorman and MacIntosh 2014, p.54)

Research paradigms have been a significant topic of discussion in the literature with traditionalists adopting either objective or subjective positions. Creswell (2014) outlines postpositivist, transformative, constructivist, and pragmatic worldviews, whereas O’Gorman and MacIntosh (2015) outline and discuss positivism, critical realism, action research, and interpretivism. Shannon-Baker (2016) notes it is apparent that there is a general level of inconsistency around the use of paradigms across social science research which is relevant given the focus of this study. Several authors have suggested that social science research would be enhanced by further application of positivist/postpositivist perspectives (O’Gorman & MacIntosh 2015).

The nature of this inquiry lends itself to being researched from positivism and pragmatism lens. The positivist worldview position is that of a single reality and truth to establish cause-effect relationships between the variables being investigated. This is achieved by creating a model from established theory and collecting observable data that is reduced to simple laws or variables for testing to either support or refute *a priori* hypotheses (O’Gorman & MacIntosh 2015). Accordingly, quantitative research methods underpin the nature of inquiry and importantly espouse that ‘...research is undertaken, as far as possible, in a value-free way [...] where ‘the researcher is independent of and neither affects nor is affected by the subject of the research’ (Remenyi et al. 1998, cited in Saunders, Lewis & Thornhil 2007, p. 114). In contrast, pragmatism is solution or ‘outcome focused and interested in determining the meaning of things’(Johnson & Onwuegbuzie 2006, cited in Shannon-Baker 2016, p. 322) that are shaped by both observer-observed perceptions, behaviours, attitudes, experiences, and interpretations (O’Gorman & MacIntosh 2015). It is believed that the theories emerging from this perspective

are contextually derived and transferable to other situations through generalisable outcomes. By placing the research problem and question (s) at the centre of the study (Mackenzie & Knipe 2006; Shannon-Baker 2016) ‘data collection and analysis methods are chosen as that are most likely to provide insights into the question with no philosophical loyalty to any alternative paradigm’ (Mackenzie & Knipe 2006, p. 197). This includes an acceptance that the “truth” changes and that there are multiple representations of reality. Furthermore, the positivist, interpretive and constructivist paradigms where the researcher is interpreter of the truth and the research cannot be value-free and objective (O’Neil & Koekemoer 2016). In contrast, pragmatism reasons that the researcher can actively participate in the data collection phase as an “insider-researcher” by being able to maintain both objectivity and subjectivity throughout the research process; thus, maintaining the integrity of its knowledge contribution.

Because of the nature of this study and the research questions that have emerged, pragmatism was determined as being the most appropriate paradigm for this research because of its cyclical ability to connect theory with practice and was the ‘best practical way to answer the research question’ (O’Neil & Koekemoer 2016, p. 3). In undertaking this research and outlining the epistemological stance it is acknowledged that pragmatism does have a strong association with mixed methods research (Mackenzie & Knipe 2006; Saunders, Lewis & Thornhil 2007)

3.3 Qualitative, Quantitative and Mixed-Methods Research

The selection of appropriate methods and tools for the collection, analysis, and interpretation of data are informed by the researchers’ established philosophical worldview, the research questions, and experience (Creswell 2014). Traditionally researchers have employed either a qualitative or quantitative approach when examining a research problem in organisational research (Molina-Azorin et al. 2017). Recently a third approach, mixed-methods research (MMR), has emerged following the ‘paradigm wars of the 1980s’ (Cameron 2009). According to several commentators (Mackenzie & Knipe 2006; Cameron 2009; Creswell 2014; Plano Clark 2016) MMR is largely associated within the pragmatic worldview and supports the integration of both qualitative and quantitative methods by recognising that each approach has distinct advantages and disadvantages that complement each other (Shannon-Baker 2016, p. 325). Consequently, it is a sound approach to providing a comprehensive picture of the phenomenon under examination (Shannon-Baker 2016). Moreover, MMR has been deemed as highly suitable for researching organisational, business, or management issues (Saunders, Lewis & Thornhil 2007; Molina-Azorin et al. 2017). It is, therefore, particularly suitable for answering the research questions and achieving the objectives of this study.

3.3.1 Qualitative research

The qualitative research approach and methods are synonymous with, although not exclusive to, the social sciences and the interpretivist worldview with its focus on studying human beings in their natural environments. Using methods such as interviews, ethnography, action research, case studies or grounded theory the subjective views of participants are elicited to understand ‘the ‘why’ and the meaning attributed by participants to events and circumstances [...] providing a rich and deep understanding of complex phenomena’ (O’Dwyer & Bernauer 2014, pp. 36-7). In contrast to quantitative research, the participant sample group is relatively small with data interpreted by categorising or coding the content. However, participant meaning may also be extracted ‘through the collection of data via observation, interview, and artefacts without explicitly using or citing a specific design or data analysis approach’ (O’Dwyer & Bernauer 2014, p. 33). Despite the “rich or thick description” of the phenomenon of interest that emerges from qualitative research, a recognised limitation is that with small a sample size, generalisation and broader application beyond the research setting is often difficult.

3.3.2 Quantitative research

Quantitative research is viewed as the scientific method of inquiry situated within the positivist (or postpositivist) paradigm (Creswell 2014). Quantitative research employs methods such as experiments or surveys to gather large data samples for statistical analysis of theorised cause and effect relationships that exist between independent and dependent variables. Because of its ability to describe and make inferences about these data (O’Dwyer & Bernauer 2014, p. 76) theory generation is deductive and focused on establishing the ‘how’ rather than the ‘why’ (O’Dwyer & Bernauer 2014). Importantly the instruments used in the data collection phase must be capable of generating credible objective data by maintaining validity and reliability. A limitation of undertaking quantitative research is the need to generate large data samples, often over longitudinal studies, making it difficult in business and management research (Saunders, Lewis & Thornhil 2007)

3.3.3 Mixed-methods research

Despite being relatively new mixed-methods research has been extensively used in social sciences, organisational and management research (Cameron 2009), and workplace health and safety (Zou, Sunindijo & Dainty 2014). According to Creswell (2014) there are several design typologies applied in mixed-methods research including embedded, explanatory, or exploratory with data collection occurring either in parallel or sequentially²⁵. Strengths of

²⁵ Parallel Form: Concurrent mixed methods/model designs in which two types of data are collected and analysed. Sequential Form: One type of data provides a basis for collection of another type of data (Mertens 2005, cited in Cameron 2009)

mixed-methods research are that it provides a problem centred, a real-world practice-oriented approach that enables the use of a discovery phase and a validation phase. Consequently, it is particularly useful in examining existing problems from a new perspective or where little is known. It also creates a more complete answer to research questions and can help generalise qualitative data and inform the design and validation of survey instruments (Mackenzie & Knipe 2006; Cameron 2009; Creswell 2014). On this basis, mixed-methods research is deemed as being appropriate for this study into WHSW strategy and employee engagement because of the lack of empirical research and studies from a broader business perspective. In particular, for this research, mixed method lies on a continuum that aligns with the quantitative and qualitative positions. At one end is the quantitative position where the interviewer utilised a structured approach and the other the qualitative unstructured interview position with the semi-structured approach occupying a middle ground on the continuum (Qu & Dumay 2011).

3.4 Phases of Research

The approach for this investigation into WHSW strategy and employee engagement is a sequential, exploratory mixed-method study consisting of a qualitative and quantitative phase. The research methodology used for this study consisted of two phases following the literature review to achieve the objectives of this research. Table 18 summarises each research phase and the relationships between method, objectives, and questions that are discussed in more detail throughout the remainder of this section.

Table 18 - Research phase summary

Research Phase	Research Method	Research Objective	Research Question
Phase one	Semi-structured interview	<ul style="list-style-type: none"> Develop a business framework for the strategic management of WHSW that has been deemed acceptable by industry. 	<ul style="list-style-type: none"> What business, WHSW practices, and measurement systems are suitable to inform the development of the WHSW strategy and employee engagement framework for Queensland businesses? How can the WHSW strategy and employee engagement framework improve WHSW and organisational performance beyond standard WHSW management processes in Queensland businesses?
Phase two	Online survey	<ul style="list-style-type: none"> Determine the acceptability of the WHSW strategy and employee engagement framework improve WHSW and organisational performance beyond standard WHSW management processes, therefore bridging the gaps in current approaches. 	<ul style="list-style-type: none"> How can the WHSW strategy and employee engagement framework improve WHSW and organisational performance beyond standard WHSW management processes in Queensland businesses?

(Source: Developed for this research)

3.4.1 Qualitative phase one: Semi-structured interview

The objective of phase one was to develop a framework for WHSW and employee engagement that was deemed acceptable by industry based on the initial framework that emerged from the literature review.

Creswell (2014), Mackenzie and Knipe (2006) and Saunders, Lewis and Thornhill (2007) note that the research method chosen for a given study is informed by the philosophical world view and research design (Figure 6). Because of the pragmatic paradigm and exploratory mixed-method study approach that has been adopted for this study, with a qualitative first phase, the interview method was deemed suitable. This was because of its ability to explore complex issues and be used with other methods to provide a more complete understanding of the phenomenon of interest, in addition to developing theory (Bullock 2016). According to Rowley (2012) interviews are the most commonly applied method and particularly useful when:

the research objectives centre on understanding experiences, opinions, attitudes, values and processes; there is insufficient known about the subject to be able to draft a questionnaire; the potential interviewees might be more receptive to an interview than other data gathering approaches (Rowley 2012, p. 262).

For phase one, semi-structured interviews were favoured and deemed suitable to answer RQ1 due to their ability to garner subjective situational insights into how selected subject matter experts understand and make sense of the rarely studied area of WHSW strategy and employee engagement. Interviews also assisted in understanding lived experiences and behaviours of the participants in complex workplace situations (Bullock 2016). As a topic broadly located in the business and social sciences interviews are a popular tool in organisational behaviour research as the researcher can glean and learn about many management and organisational issues related to WHSW and employee engagement (Qu & Dumay 2011).

An interview involves the researcher interacting with appropriately experienced informants who are considered as having some level of knowledge and the ability to provide insights on the topic of interest. The process involves having a ‘... purposeful conversation [...] to collect data on some particular issue’ (Persaud 2010, p. 633) on an individual basis rather than in a group format as is the case with focus group type data collection. Because of the individual focus of the interview, the recruitment of appropriate interviewees through clearly defined criteria is essential in achieving the objectives of the research, and the validity of the findings.

It is noted that the interview process is not just simply asking questions and often a guide will be prepared by the interviewer for semi-structured interviews that highlights six to 12 key questions or phrases to be covered (Rowley 2012); although the scope and topics may evolve

as the exchange between the interviewer and interviewee progresses. Therefore, it is a flexible style that can be adapted and is easier for a novice interviewer to conduct with less knowledge and preparation required in comparison to other forms of interviews or questionnaires (Rowley 2012). It is also suitable where the questions/themes are informed by previous research as was the case with the qualitative research phase which drew on established theories for WHSW, strategy, employee engagement, leadership, motivation, and strategy efficacy. As such, 'qualitative interviewing prioritises understanding, explanation, and the generation of theory over the generalisability of findings' (Bullock 2016, p. 332). Consequently, qualitative methods alone do not provide a complete understanding of the current topic of interest requiring further investigation through quantitative data generation and analysis, which also informs further data collection design. Hence, a second quantitative phase (online survey) was employed in this research to further validate qualitative data from respondents.

The design and conduct of interviews and ensuring the validity of data and generalisation of findings are critical to the success of research. Potential biases were identified that could influence the data collection phase, particularly in relation to the design of data gathering instruments and how responses by participants were elicited as they were close to the researcher. To negate this, academic supervisors were consulted to ensure the semi-structured interview guide was suitable for the intended research in addition to the guide being reviewed on completion of the first two interviews. When conducting the interview both interviewer and respondent bias was considered and accounted for by paying attention to how each question was phrased and delivered, monitoring body language, and clarifying responses to ensure correct interpretation. De-identified field notes for reflection were also kept by the principal investigator as suggested by Saunders, Thornhill and Lewis (2007).

3.4.1.1 Selecting the Participants. The selection of appropriate participants is essential for valid research and the generalisability of findings. As a mixed-method study, the design of the sampling strategy is an important consideration given that participants used in the first phase may impact on the effectiveness of the second phase, the successful integration of data analysis results, and the findings that emerge from the study. Furthermore, a key consideration in determining the sampling strategy is alignment to the research objectives and questions (Collins 2015). As the study aimed to generate theory and new insights, the purposive sample technique was used on the basis that the selected interviewees would have the knowledge about the issue being researched and would provide unique and rich information on the rarely studied phenomena of interest (Collins 2015). For this study subject matter experts were

defined as a ‘Professional who has acquired knowledge and skills through study and practice over the years, in a particular field or subject, to the extent that his or her opinion may be helpful in fact finding, problem solving, or understanding of a situation’ (businessdictionary.com n.d.).

The identification and engagement of participants for the interview process was around three key areas. These were initial recruitment of knowledgeable informants, extracting a range of views, and opinions from the participants, and testing the emerging themes with these interviewees (Rubin & Rubin 1995, cited in Rapley 2004, p. 20). The recruitment of potential participants also needs to be based on their availability and willingness to participate (Rowley 2012).

Furthermore, an important consideration in qualitative interviews relates to rigour and validity. Sampling design strategy and the level homogeneity or heterogeneity of the sample group underpins the degree to which the sample group is representative of the population of interest (Robinson 2013). These factors were addressed by clearly defining the inclusion criteria, recruiting male participants from Queensland resources (1), manufacturing (1), construction (1) and public sector industries (5), and one from the South Australian and one from New South Wales resources industry, using a larger sample size, and adopting the convenience sample strategy. The purposive sampling approach was used because it has been established as an acceptable method when identifying cases for interview research (Lee & Schuele 2010). The interviews aim to yield insight and information until a level of “theoretical saturation” has been achieved where further interviewing no longer provided any new information (Collins 2015). However, it is noted that this may not always be possible. Recognising this, several authors have outlined the required number of samples when utilising the interview method which ranged between five and 12 (Rowley 2012; Collins 2015).

Based on this range a higher sample size of ten interviewees was selected from the investigator's professional contacts to minimise theory development being compromised due to inadequate sample size (Collins 2015). The criteria used to select appropriate cases and delimit the sample group was based on participants having:

1. experience at a management level (middle or executive) responsible for the WHS or wellbeing strategy, or
2. experience at a management level (middle or executive) responsible for employee engagement or human capital management; and
3. currently working in either public or private sector organisations.

3.4.1.2 Anonymity of participants. Maintaining the anonymity of participants is central to the conduct of research and the interview method. Saunders, Kitzinger and Kitzinger (2015) believe that complete anonymity in interview research is not possible. It is, however, a fundamental consideration and right of interviewees during the process of data collection and in reporting the results to participants and the broader research community. Thus, to ensure anonymity and confidentiality, information collected during the interviews was de-identified and allocated a unique code for transcription, and further analysis. All interview records were maintained by the principal investigator only.

3.4.1.3 Conducting the semi-structured interview. The findings of the literature review enabled the identification of key constructs, attributes, and the relationships between each of the variables to form an initial conceptual framework (Figure 5). Consistent with the pragmatic paradigm and inductive nature of this phase, the objective was to further explore and test the suitability of each variable, its operational definition, and the linkages between these, as informed by each subject matter expert's unique situated account of WHSW strategy and employee engagement. Upon notification of ethics approval (H18REA120) (Appendix 1) an email invitation was sent to ten prospective participants with the consent forms, participant information sheets (Appendix 2), and an overview of the research topic. The purpose of the invitation was to explain the aim of the study and outline what was required for participation in the study (anonymity, commitment, expected risks and benefits, outcomes, etc). To enhance the likelihood of participation subject matter experts had the discretion of nominating the time and location for the interview given these have been identified as potential barriers in conducting such research (Rowley 2012).

The semi-structured interview process was administered by the researcher through a combination of face-to-face and telephone interviews with the former being preferred given its ability to elicit a higher participation rate.

Between 1st August and 31st August 2018, eight interviews were conducted at a location nominated by each interviewee for a time ranging between 30 and 60 minutes. Consistent with the guidance provided by Rowley (2012) six key questions/themes were used to guide each interview (Appendix 3). At the start of each interview, the context was reviewed to ensure each subject matter expert was clear on the focus of the study, any questions were clarified before asking the questions. Starting with a broad questioning approach, Q1 explored the construct of worker well-being as distinct to WHS, wellness or well-being and the proposed operational definition; Q2 explored the organisational context in which WHSW strategy emerges including areas such as safety climate, CSR, and psychosocial climate and the proposed operational

definition; Q3 explored the WHSW strategy construct in the areas of corporate governance, strategy evaluation, injury and illness prevention, and the proposed operational definition; Q4 explored employee engagement, the attributes outlined by the UWES, work design questionnaire and the proposed operational definition; Q5 explored the proposed operational definition for WHSW strategy efficacy. And finally, Q6 required subject matter experts to consider each of the previous questions and review the conceptual framework for suitability, including the moderating effect of leadership and motivation.

Of the ten subject matter experts invited to participate in the study a total of eight (80%) participated in the interview phase. Out of these eight, one interviewee was able to respond to questions one and two only due to time commitments. Despite this 20% shortfall, the interviewees provided enough “rich information” for analysis and theory building.

3.4.1.4 Data analysis. On completion of the interview phase, a substantial amount of information was generated. As a pragmatic mixed method study the qualitative data analysis phase aimed to draw out meaning from the narrative by interpretation of the individual accounts and insights, perspective, themes and highlight further research questions to be answered rather than seeking to uncover facts (Rowley 2012). Consequently, organising, and analysing data was an important step in this mixed methods study. The key components of this analysis include: organising the data; getting acquainted with the data; classifying and coding; interpreting and presenting the findings from the data (Rowley 2012).

Analysis of interview data can be undertaken using computer software such as NVivo™ or by a manual process with each having established strengths and weaknesses in the literature. This study opted for manual content analysis. The data analysis commenced with each audio interview being carefully transcribed verbatim and recorded in an Excel™ database and checked for accuracy against the recording before proceeding with manual content analysis. Berelson (1952) states that ‘content analysis stands or falls by its categories [...] since the categories contain the substance of the investigation, content analysis can be no better than its system of categories’ (cited in Kuckartz 2014b, p. 37). The Excel™ database used for guiding the analysis was structured following the profile matrix outlined by Kuckartz (2014a) with the vertical columns representing each interviewee (1-8) and the horizontal categories representing each of the key constructs covered in the interview. This was a key step in analysis and theory building as clearly defining and delineating each category for the text to be assigned to is a crucial step in the analysis (Kuckartz 2014b). This enabled an individual case and thematic analysis of each of the specific constructs of interest (Kuckartz 2014b).

The interview guideline was used as the categories for analysis to ensure alignment with the research questions (Rowley 2012). The categories for classifying data against were worker wellbeing, organisational context, WHSW strategy, employee engagement, strategy efficacy, leadership and motivation, and the conceptual framework. The transcribed data produced a block of text that was then analysed and explored to understand insights, each of the variables, and each operational definition for further investigation in phase two. On completion of the analysis, and in keeping with accepted research practice, and the requirements of ethics approval a de-identified summary report of the findings was prepared and provided to each of the participants in December 2018.

In summary, the overall aim of the qualitative interview phase was to explore and confirm the variables and attributes and definitions outlined in the WHSW strategy and employee engagement conceptual framework. In addition to informing the design of the survey to be used in phase two to validate the WHSW and employee engagement conceptual framework.

3.4.2 Quantitative phase two: WHSW and employee engagement survey

The findings from the semi-structured interview (phase one) provided further insight and understanding of WHSW strategy and employee engagement and informed development of the survey instrument administered in phase two. The objective of this phase was to validate the conceptual framework that was an outcome of phase one. Surveys are a commonly used method in research to collect observational data from a representative sample. This data is then analysed through statistical means to draw inferences from the data (Bethlehem 1999). In practice, numerous factors inform decisions on how a survey is conducted and the number of responses that may be returned, among these are the length of the survey, time available for completion, the costs associated with administering the survey, accessibility to respondents, data entry and analysis (Saunders, Thornhill & Lewis 2007). Surveys are traditionally thought of being administered in person by the researcher or where a respondent completes the survey or questionnaire independent of the researcher.

3.4.2.1 Survey design. The pragmatic paradigm underpinning this study enables the utilisation of the best method or combination of methods to achieve the research objectives (Creswell 2014). For phase two a cross-sectional survey was chosen to validate the WHSW strategy and employee engagement constructs and examine the associations between the conceptual framework variables (Figure 7). Such an approach was deemed applicable for this phase as surveys or questionnaires can be ‘administered as part of any research design’ (O’Dwyer & Bernauer 2014, p. 108). Additional factors supporting the rationale for this approach was the short-term duration and descriptive nature of this doctoral study and the ability of surveys to

be administered at a single point in time; thereby addressing some of the limitations of conducting longitudinal studies in business research (Saunders, Lewis & Thornhil 2007). Bethlehem (1999) highlights that cross-sectional research is suitable where control over the variables is not required or possible and is therefore useful to examine possible relationships between variables by 'systematically measuring the same set of variables for all elements (or subset of elements) in a population' (Bethlehem 1999, p. 110).

With the advent of technology, internet-mediated research (IMR) has emerged as a suitable platform when completing research with widely reported use in the social and behavioural sciences (Hewson 2017); and business and management disciplines (Saunders, Lewis & Thornhil 2007). IMR (online) or web-based surveying is an obtrusive way of conducting research that provides several advantages for the researcher, such as cost and time efficiency, reaching geographically dispersed participants, enabling access to specialist populations, and easier data analysis (Hewson 2017). In contrast, the disadvantages of IMR include the reduced control of responses and potential respondent bias (Hewson 2017).

As the quantitative phase in this MMR study aimed to build on the results of the first phase, it was necessary to develop a survey instrument for assessing each of the variables and examining framework suitability by administering it to a representative sample group (Creswell 2014). The design of a survey is extremely significant as its validity and reliability affect final research findings (O'Gorman & MacIntosh 2015).

The WHSW Strategy and Employee Engagement Survey (WEES) was designed specifically for this study as the variables of interest had not been examined as a conceptual framework previously. According to Creswell (2014) and Saunders, Lewis and Thornhil (2007), it is crucial when developing a survey instrument that there is clear alignment between the study variables, research question (s), and the questions contained within the instrument. Table 19 shows the justification for the questions as they relate to the framework under investigation and their subsequent inclusion in the survey instrument.

Table 19 – Relationship between survey instrument questions, research questions and variables

Variable	Research Question	Item on survey
Organisational Context	RQ1: What business, WHSW practices and measurement systems are suitable to inform the development of the WHSW strategy and employee engagement framework for Queensland businesses?	B1, B8, B17, B19, B25
WHSW Strategy	RQ1: What business, WHSW practices and measurement systems are suitable to inform the development of the WHSW strategy and employee engagement framework for Queensland businesses? RQ2: How can the developed WHSW strategy and employee engagement framework improve WHSW and business performance beyond standard WHSW management processes in Queensland businesses?	B2, B9, B10, B12, B13, B18, B21
WHSW Employee Engagement	RQ1: What business, WHSW practices and measurement systems are suitable to inform the development of the WHSW strategy and employee engagement framework for Queensland businesses? RQ2: How can the developed WHSW strategy and employee engagement framework improve WHSW and business performance beyond standard WHSW management processes in Queensland businesses?	B4,B5,B6,B7,B14,B15, B22,B23,B24,B25,B26,C1, C2,C3,C4,C5,C6,C7,C8,C9, C10,C11,C12,C13, C14,C15,C16,C17
WHSW Strategy Efficacy	RQ1: What business, WHSW practices and measurement systems are suitable to inform the development of the WHSW strategy and employee engagement framework for Queensland businesses? RQ2: How can the developed WHSW strategy and employee engagement framework improve WHSW and business performance beyond standard WHSW management processes in Queensland businesses?	B3, B2, D1, D2, D3, D4, D5, D6, D7, D8
Leadership	RQ1: What business, WHSW practices and measurement systems are suitable to inform the development of the WHSW strategy and employee engagement framework for Queensland businesses?	B11, B20, B22

(Source: Developed for this research)

The WEES format for this study consisted of six parts as follows:

1. A cover page outlining the objectives of the research, structure of the survey instrument, instructions for completion, and the intended time.
2. Part A containing 7 questions relating to demographic information and professional experience.
3. Part B containing 27 questions relating to organisational context and WHSW strategy that required a response on a Likert scale ranging from (1) Strongly disagree to (5) Strongly Agree.
4. Part C containing 17 questions relating to employee engagement that required a response on a Likert scale ranging from (1) Strongly Disagree to (5) Strongly Agree.
5. Part D containing 8 questions relating to WHSW strategy efficacy that required a response on a Likert scale ranging from (1) Strongly Disagree to (5) Strongly Agree.

6. A thank you page concluded the survey and provided details for respondents to obtain further information from the researcher.

This design of the questionnaire enhanced the likelihood of responses, and the questions were easy to interpret by the respondents. In developing the questions for a survey instrument, it is considered good research practice to utilise or adapt previously used questions where they have been proven as valid. Part B, which examined the variables organisational context, strategy, and leadership, and proposed definitions specifically for this research, a new set of questions was developed that was unique to this research setting. The survey also included questions on the themes that emerged from the semi-structured interview. Part C, which examined employee engagement, the questions from the Utrecht Work Engagement Scale were utilised and have been established as valid and reliable in previous research (Schaufeli & Bakker 2003; Eldor & Harpaz 2016; Anthony-McMann et al. 2017). Part D, examined the measures of strategy efficacy by using specific questions that were unique without prior application in a research setting.

3.4.2.2 Pre-testing the WEES. As suggested by Bryson, Turgeon and Choi (2012) the draft WEES instrument, in manual form, was provided to the participants of the semi-structured interview (Phase one) and the investigators' academic supervisors to review the format and questions proposed for each construct. Feedback from phase one participants and academic supervisors was incorporated into the survey before proceeding with the administration. This provided valuable insight and supported questionnaire validity. The limitations of the study were that: (a) most of the questions contained in the survey had not been applied in a research setting, and (b) a similar conceptual framework to what was developed had not been tested in previous studies.

3.4.2.3 Survey sampling. In undertaking survey research 'it is usually impractical and uneconomical to collect data from every single person in a given population; a sample of the population has to be selected' (Kelley et al. 2003, p. 263). It is apparent in the literature that determining the sampling strategy and the number of required responses is not straight forward and is dependent on whether the probability or non-probability schema is applied. Additional considerations include budget, confidence level, population size, and the margin of error (Taheri et al. 2015). Probability sampling is considered as the ideal in empirical research as it improves the validity of data and making generalisations to a population possible. However, this is reliant on being able to identify, define, and have access to a complete population where the members of the sample group have an equal chance of being randomly selected (Andres 2012). Because of the focus of this study, it was not feasible for the administration of the

WEES. Whilst this is a limitation, it did not detract from the broader aim of developing an instrument to examine the associations between the variables within the framework. Consequently, the non-probability approach was deemed as being the most appropriate for the pilot and the main phase of the survey. Non-probabilistic sampling is a judgment-based methodology that has been established as a viable alternate that ‘will produce findings that can be transferable to other studies’ (Andres 2012, p. 15).

However, the major limitation of this method is the inability to determine sampling error and biases in the study (Andres 2012). The non-probability approach lends itself to the convenience sampling method that was employed to recruit participants for the pilot survey. Regardless, it is important in sampling to ensure that carefully selected participants are recruited as failure to do this leads to *Selection bias* due to a mismatch between potential participants and the desired target sample (Taheri et al. 2015). To negate this, criteria were established to select appropriate participants and delimit the sample group based on the having:

1. experience at a management level (middle or executive) responsible for the WHS or wellbeing strategy, or
2. experience at a management level (middle or executive) responsible for employee engagement or human capital management; and
3. currently working in either public or private sector organisations.

Furthermore, recognising the difficulty in accessing a representative sample, participants for the main survey were recruited through snowball sampling which has been established as an appropriate method and is particularly useful when it is not possible to identify all individuals in a sampling frame (Andres 2012). Respondents were recruited by the participants from the pilot survey who provided the main survey link in email form to contacts that met the criteria outlined above. Although probability sampling was not utilised, it was still deemed important to consider the effect of non-response bias. A larger sample group was obtained by the researcher advertising the study on LinkedIn, the Australian Institute of Human Resources discussion board on LinkedIn, through the Australian Institute of Managers and Leaders, who emailed out the survey to a specific cohort, the Australian Institute of Health and Safety promoting the survey to all members via newsletter, the investigator contacting organisations and individuals directly from within the investigators' WHSW professional contacts, the academic supervisor and other doctoral candidates promoting the research to their networks.

By monitoring the survey, it was possible to minimise *Ineligibility bias* by screening out those respondents that did not meet the criteria based on responses to Part A – Demographics of the WEES. This ensured the sample group was as eligible as possible.

3.4.2.4 Survey sample numbers. In research, the required number of samples affects rigour and the ability to conduct statistical analysis on the data (Williams, Onsman & Brown 2010). It is clear, however, that there is no definitive number of required samples with differing recommendations outlined for probability and non-probability sampling. But a larger sample size is more likely to provide a better estimation of the broader population (Kelley et al. 2003). With regard to probability sampling, the required number of samples can be estimated through well-established methods outlined in the literature (Saunders, Lewis & Thornhil 2007) by considering factors such as confidence level, population size and the margin of error (Taheri et al. 2015). In contrast, where the non-probability schema is employed, ‘the issue of sample size is ambiguous and, unlike probability sampling, there are no rules’ (Saunders, Lewis & Thornhil 2007, p. 233). Accordingly, and somewhat pragmatically it was deemed prudent to consider the ‘research question (s) and objectives’ (Saunders, Lewis & Thornhil 2007). Whilst further limiting factors such as time, cost, and accessibility to participants throughout this doctoral study were also considered.

As discussed earlier this survey was used to validate the conceptual framework for WHSW strategy and employee engagement without asserting cause and effect relationships between the variables. Therefore, the data analysis strategy for this study employed both descriptive statistical analysis and exploratory factor analysis (EFA) as they have both been found to be suitable for this phase. Descriptive statistics can summarise data through common measures such as mean, mode, and standard deviation which determines whether further analysis of the data is warranted. Whilst factor analysis is a commonly applied multivariate statistical method useful ‘... for interpreting self-reporting questionnaires’ (Williams, Onsman & Brown 2010, p. 2). Williams, Onsman and Brown (2010) report that several commentators (e.g., Tabachnick & Fidell 2007; Hair et al. 2007) have investigated and outlined what constitutes an adequate sample size when undertaking EFA, without any absolute finding. These authors suggest sample sizes of 100, 300, and 500 are common with the upper end of the spectrum of 1000 or more samples considered as being “excellent” (Williams, Onsman & Brown 2010, p. 4). However, Costello and Osborne (2005, p. 4) suggest that in some circumstances smaller sample sizes are also adequate for EFA where ‘strong data exists’²⁶. Adding to the lack of clarity and

²⁶ ‘Strong data’ in factor analysis means uniformly high communalities without cross loadings, plus several variables loading strongly on each factor.

agreement in the literature, the subject-to-variable ratio method has also been applied in EFA (Costello & Osborne 2005). This method considers that the required subject sample size is based on the number of items on the survey instrument. Also considered in establishing the sample size was the need to ensure an adequate number for piloting the survey before collecting data through the main survey. Discussion in the literature suggests an acceptable sample size for a pilot survey 'is 10 respondents or 10% of the total number predicated for the main survey' (Hertzog 2008, p. 180).

Based on the aforementioned views of Williams, Onsmann and Brown (2010), Costello and Osborne (2005) and Hertzog (2008); and given the limited duration of this doctoral study, time did not allow for the collection of a large data sample. On this basis, 200 responses were considered as optimum, but 100 responses deemed satisfactory for the main survey. Therefore, a sample size of 230 was required because a realistic response rate of 65 percent has been reported in the literature for mail-based surveys (Kelley et al. 2003). Although for online surveys a lower average response rate of 33 percent has been reported (Nulty 2008, p. 302).

3.4.2.5 Survey Administration. Following the pre-testing of the manual version of the survey, it was then developed in the Lime Survey™ software (www.limesurvey.org) for administration and piloting. The benefits of utilising IMR research tools like Lime Survey™ are well established with distinct advantages including immediate data collection and data export capability into statistical software packages such as SPSS™ for subsequent analysis. The version of Lime Survey™ used for this doctoral research was under licence to USQ and enabled the investigator to track key progress indicators relating to survey views, responses, and completion numbers. Another benefit of utilising Lime Survey™ was that each data record was uniquely coded and maintained the anonymity of respondents. Once amendments were made from pre-testing feedback, the survey was pilot tested.

3.4.2.5.1 Pilot Survey. Piloting is a crucial step in the research process as it provides insight into problems associated with 'wording, order, and presentation of questions that might cause respondents to provide inaccurate responses' (Bryson, Turgeon & Choi 2012, p. 738). Pilot testing should aim to obtain enough responses to enable the statistical analysis of the variables and questions contained in the instrument as a valid and reliable tool is crucial in the research process (Kelley et al. 2003). The survey pilot adopted a convenience sampling strategy. An email invitation containing a link to the survey was sent to the subject matter experts who had engaged in the semi-structured interviews to complete. A total of seven respondents completed the pilot survey. On this basis, for the main survey snowball sampling was utilised to increase the responses further by requesting the initial group to either nominate potential respondents or provide the survey link to known cases that met the sample group criteria for completion.

Despite its limitations, the pilot phase was a valuable exercise as the purpose of this descriptive survey was to examine associations between the variables and understanding the who, what and why of the population (Taheri et al. 2015) rather than cause and effect relationships that an analytical survey seeks to achieve. Consequently, the pilot phase was able to confirm that the instrument was suitable for this exploratory study with no changes required before administration to the target sample group in the main survey.

3.4.2.5.2 Main Survey. Following the same methodology as the pilot survey, the main survey was administered online through the Lime Survey™ software. Participants for the main survey were recruited through snowball sampling. The participants from the pilot phase of the research provided the main survey link in an email to contacts who met the criteria outlined in 3.4.2.3. This approach resulted in 132 responses (95 full, 37 partial) being completed, representing 66% of the optimal total of 200. A limitation in obtaining a representative sample was the inability to establish a sampling frame for the main study, consequently, further respondents were recruited by advertising the study in various platforms to increase sample numbers. This was a particularly important component of the research as a larger sample size and response rate improves data validity (Taheri et al. 2015) and the ability to make inferences and generalisations about the research (Kelley et al. 2003; Saunders, Lewis & Thornhil 2007).

In summary, between 8th October 2019 and 15th January 2020, the survey was active on the Lime Survey™ platform with a total of 95 surveys being fully completed and 37 partially completed, for a total of 132. Once the survey was closed the data was extracted from Lime Survey™ and imported into Statistical Package for the Social Sciences (SPSS™) for analysis as outlined in 3.4.2.6. Due to the response rate, a limitation of the current study is that the survey instrument requires further testing to establish validity and reliability through confirmatory factor analysis or another suitable method.

3.4.2.6 Survey data analysis. As a pragmatic mixed method study the purpose of the quantitative data analysis phase was to validate the framework structure and examine associations between the variables. Data analysis for phase two was completed using the computer software SPSS™ which has been well established as a suitable tool. An advantage of using Lime Survey™ was that the data collected through the survey was automatically collated in the software. This permitted the data to be downloaded in a format that could be imported directly into SPSS™ for analysis.

As a starting point, the data from Lime Survey™ was checked for missing or incomplete data, obvious errors and inconsistencies to ensure the integrity and completeness of the dataset before attempting data analysis (Hair et al. 2009). Once confirmed suitable, descriptive statistical

analysis was undertaken in SPSS™ and a summary of the dataset was extracted. This included the participant's demographic characteristics completed in Part A of the WEES. The benefit of this data was that it enabled the investigator to determine whether: (a) each case was suitable for inclusion in the studies dataset based on the criteria outlined in 3.4.2.3; and (b) the use of multivariate analysis was possible for this study. Consequently, the descriptive data analysis confirmed that further analysis was appropriate and the next analysis requirements were considered. As the conceptual framework contained dependent, independent, and moderating variables multivariate data analysis was possible with CFA and EFA being considered. EFA was selected for this phase because the exploratory nature of this study into WHSW strategy and employee engagement constitutes a new area of interest in the discipline with limited empirical evidence.

The five-step methodology outlined by Williams, Onsman and Brown (2010) and detailed guidance by Hair et al. (2009) was utilised to guide the EFA analysis process for validating the conceptual framework. Further support for the selection of EFA was that the survey instrument had been developed specifically for this research and an analysis of the psychometric properties was required. EFA supports this and can assist in demonstrating construct validity (Williams, Onsman & Brown 2010) because of its ability to 'establish the underlying dimensions between the measured variables and latent constructs, thereby allowing the formation and refinement of theory' (Williams, Onsman & Brown 2010, p. 2). This was important, as a noted limitation of this study is the short duration. Therefore, the conceptual framework and survey instrument required further testing to determine causal effects between the variables and the suitability of the survey to provide organisations with a tool to measure WHSW strategy and employee engagement. Additionally, the findings from EFA assisted with refining the focus of future studies and incorporating these into framework development for the study. The details of the analysis and findings for phase two are outlined in Chapter 4 – Validating the WHSW Strategy and Employee Engagement Framework.

3.4.2.7 WEES validity and reliability. As outlined previously the WEES was developed specifically for the research and therefore required an assessment of its validity and reliability to ensure the research questions were answered and credible scores provided. According to O'Dwyer and Bernauer (2014):

appropriate measurement instruments should (a) be relatively easy to administer, complete and score; (b) provide objective information about the attribute being measured; (c) provide credible information about the attribute that can be used support subsequent inferences; and (d) provide consistent information over time' (O'Dwyer & Bernauer 2014, p.100).

The validity of an instrument refers to the ‘accuracy of the score interpretations’ (Hagan 2014, p. 431) and the ability to make ‘inferences made from the data’ (O’Dwyer & Bernauer 2014, p. 100). There are several individual measures of internal and external validity applied to survey instruments with construct, content, criterion, and face validity being commonly reported in the literature (Etchegaray & Fischer 2010a, Etchegaray & Fischer 2010b; O’Gorman & MacIntosh 2015). Content validity relates to whether the survey questions ‘represent the universe of behaviours that define the attribute’ (O’Dwyer & Bernauer 2014, p. 114), whilst Face validity simply considers whether the questions appear to represent the construct of interest (Etchegaray & Fischer 2010a, Etchegaray & Fischer 2010b).

Both measures were assessed throughout the study by firstly drawing on the qualitative analysis and findings from the literature review to develop the conceptual framework through a clear definition of each construct, sub-variables, and all the possible attributes drawn from established theories. Secondly, the initial conceptual framework was tested with subject matter experts in phase one through semi-structured interviews. This enabled refinement of each definition, the concept, and its sub-variables and attributes to inform survey development. Thirdly, WEES was pre-tested and piloted before administration of the main survey with subject matter experts from phase one. And finally, factor analysis was applied to the overall scores on completion of survey administration to evaluate the relationships between items in the instrument and the overall construct being measured (Hagan 2014).

The measure of Construct validity ‘relates to whether the instrument is providing the researcher with meaningful information about the attributes being studied’ (O’Dwyer & Bernauer 2014, p. 116). Factor analysis has been reported by Williams, Onsmann and Brown (2010) as being satisfactory for evaluating this measure; whilst Etchegaray and Fischer (2010a) highlights that the number of response items per construct also affects the level of validity. Consistent with the recommendation of Etchegaray and Fischer (2010b) the WEES design included three or more response items for each construct as this has been shown to support validating the internal consistency of instruments. Table 19 shows the relationship between the questions with each variable (construct). A less than adequate response rate limited the ability to determine validity across this measure through factor analysis. However, the exploratory nature of this research made triangulation of findings from the literature review, semi-structured interviews, and online survey possible, thereby providing a degree of validity for the constructs under examination. Additional limitations in evaluating validity were due to the cross-sectional nature of this study, the small sample size used, and the fact that no previous survey instrument existed for WHSW strategy and employee engagement.

Due to these limitations, it was not possible to assess convergent and criterion validity in this current study. The second measure to determine an instrument's ability to provide representative scores relates to reliability. This dimension evaluates the 'extent of individual differences between scores across groups of respondents' (Hagan 2014, p. 431) to minimise the effect of measurement error. Ideally, this is achieved by having the same group of respondents complete the survey at least twice, so the instrument can be evaluated by comparing scores and establishing a reliability or correlation coefficient ranging from unreliable (0) to reliable (+1) (O'Dwyer & Bernauer 2014). As such, if an instrument provides consistent information when administered it would be considered to have higher reliability 'where the value is close to +1' (O'Dwyer & Bernauer 2014, p. 121).

In practice it is often not feasible to administer a survey more than once due to time, cost, and access to expertise (O'Dwyer & Bernauer 2014) as was the case for phase two of this study. Therefore, the use of the test-retest method was not suitable. Alternatively, Cronbach's alpha (α) was used to evaluate instrument reliability as it can be applied to single survey administration. Cronbach's alpha (α) 'determines the degree of variability among individual items, total scores and the total number of items on the instrument' (O'Dwyer & Bernauer 2014, p. 128) with 0.70 (70%) or greater representing higher reliability with the difference accounted for as random error.

The findings of validity and reliability are outlined in Chapter 4 – Validating the WHSW Strategy and Employee Engagement Framework.

3.5 Ethical Considerations

This research presents a range of ethical issues given the interaction with people, organisations, and the research community. Creswell (2014) notes that researchers must anticipate ethical issues throughout the life of the study and ensure no harm occurs to participants. According to Saunders, Lewis and Thornhill (2007), ethical issues are related to:

- privacy of possible and actual participants.
- voluntary nature of participation and the right to withdraw partially or completely from the process.
- consent and possible deception of participants.
- maintenance of the confidentiality of data provided by individuals or identifiable participants and their anonymity.

- reactions of participants to the way in which you seek to collect data, including embarrassment, stress, discomfort, pain, and harm (Saunders, Thornhill & Lewis 2007, p.185)

USQ is a recognised institution with a strong emphasis on the conduct of ethical research and subsequently apply a rigorous process to examining and granting permission to proceed with research via the Human Ethics Research Committee. This includes conforming to university policies and the National Health and Medical Research Council guidelines where human participants are engaged, as was the case for this study into WHSW strategy and employee engagement due to the use of interviews in phase one and survey in phase two. An assessment of the risks presented to potential participants determined that the level was Low and ethics approval H18REA120 was granted covering the period 05/07/2018 to 05/07/2021.

This research was conducted following the principles for researchers outlined in the Australian Code for the Responsible Conduct of Research (2018) (National Health & Medical Research Council and Australian Research Council & Universities Australia 2018) for the duration of the study as the workplace health and safety professional association, to which the investigator belongs, do not have guidelines for such research endeavours.

Table 20 summarises the ethical considerations for each phase of the research cycle and the controls employed.

Table 20 – Ethical issues by research phase

Phase of Research	Ethical consideration	Applied to Semi-structured Interview	Applied to the Online Survey
Research commencement	Owner of Intellectual property (IP).	<ul style="list-style-type: none"> Ownership of IP agreed with the Principal Supervisor before commencing the study. 	
Planning	<ul style="list-style-type: none"> Permission to proceed Benefits and risks of the research to participants 	<ul style="list-style-type: none"> USQ Human Ethics Research Committee approval received The purpose of the study determined and disclosed. 	<ul style="list-style-type: none"> USQ Human Ethics Research Committee approval received. The purpose of the study determined and disclosed.
Commencing the study	<ul style="list-style-type: none"> Benefits of research to participants Recruitment of Participants Right to self-determination Informed consent Researcher Accessibility 	<ul style="list-style-type: none"> Inconvenience time is clearly mentioned in the Participant Information Statement and consent forms The ability to withdraw at any time is included in the Participant Information Statement. Contact details of the researcher and supervisor provided to participants. USQ ethics contact details provided to participants. Recruitment through a convenience sample form researchers' network. 	<ul style="list-style-type: none"> The time to complete the survey is clearly indicated in the Participant Information Statement and consent forms. Lime Survey deidentifies the data Respondent details not known to the researcher. Landing page providing an outline of the survey before proceeding.
Data Collection	<ul style="list-style-type: none"> Selection and identification of participants Right to self-determination Informed consent Anonymity and confidentiality Influencing responses from participants 	<ul style="list-style-type: none"> Participants experiencing any discomfort during the interview process were able to contact the USQ Ethics Office and or Principal Supervisor. Participant Information Statement explained at the interview and participants presented with the consent form and asked to sign. The researcher maintained all data from the interviews securely on personal computer file. Participants' right to withdraw from the research at any time. Participants provided with discretion to nominate the location and time of the interview. Question protocol prepared 	<ul style="list-style-type: none"> Participants read the Participant Information Statement and then asked to consent to participate by clicking on 'I consent' box on the Landing page Recruitment through convenience and snowball sampling from viable participants. Participants could leave the survey at any time without penalty. Participants in the survey were anonymous and automatically de-identified. All participants in the survey were Adults. Survey advertised on linked in and professional association website.
Data Analysis	<ul style="list-style-type: none"> Anonymity and confidentiality Research findings disclosure. 	<ul style="list-style-type: none"> The transcriptions are only available to the principal investigator for the safekeeping of the data. Deidentified summary report provided to interview participants. 	<ul style="list-style-type: none"> The results of the study analysed in the aggregate to avoid any confidentiality issues. Positive and negative findings reported in the final thesis. Limitations of the research methodology reported in the final thesis.
Data Reporting	<ul style="list-style-type: none"> Anonymity and confidentiality Information security and Cybersecurity 	<ul style="list-style-type: none"> The Principal Investigator of the study has access to the research data. Data securely stored on the principal investigator's password-protected computer, with a backup of data locked in a safe. Data not openly or publicly available in the future. All data securely stored as per the data retention timeframes specified by Queensland legislation. After the minimum period required for storage, the principal investigator will continue to securely store the data for as long as practically possible. If the data is judged, after the minimum period, to be no longer useful or relevant it will be deleted by secure document disposal and electronic information deleted from the data storage devices. 	

(Source: Developed for this research)

In summary, this section has outlined the methodological approach and ethical considerations in developing, exploring, and validating the variables, attributes, and operational definitions of the WHSW strategy and employee engagement conceptual framework through semi-structured interviews and an online survey. Further, it has highlighted the limitations of each phase which are discussed further in Chapter 6 - Conclusion.

CHAPTER 4 – VALIDATING THE WHSW STRATEGY AND EMPLOYEE ENGAGEMENT FRAMEWORK

This chapter outlines the results, themes, and statistical analysis results to validate the conceptual WHSW strategy and employee engagement framework which was tested through interviews and an online survey.

The aims of this chapter are to:

- Report on the findings and themes that emerged from the semi-structured interviews.
- Report on the findings from the online survey.

The approach for this investigation into WHSW strategy and employee engagement was a sequential, exploratory mixed-method study consisting of a qualitative phase followed by a quantitative phase. According to Creswell (2014), the analysis and interpretation of each dataset occur separately and are discussed on the completion of the research. As such, this chapter presents the findings from the semi-structured interviews (phase one) followed by an online survey (phase two). These were consolidated into the overall findings of this doctoral study.

4.1 Semi-structured Interview Findings (Phase one)

The objective of phase one of the research methodology was to develop a framework for WHSW and employee engagement that has been deemed acceptable by industry based on the initial conceptual framework proposed as an outcome of the literature review. Phase one of the research was also able to explore and evaluate the internal validity of the framework.

It can be specified that internal validity refers to how the research findings match reality, while external validity refers to the extent to which the research findings can be replicated to other environments (Pellissier 2008).

In particular, the qualitative phase sought to establish face, construct, and formative validity needed to inform the quantitative phase of the research.

As outlined in section 3.3 - Qualitative, Quantitative, and Mixed-methods Research of the previous chapter each interview was transcribed and then analysed using content analysis by the profile matrix method. The following is a summary of the findings and themes for each construct examined during the interview phase of this study.

4.1.1 Worker wellbeing

Question 1 explored the construct of worker well-being and the proposed operational definition. All interviewees responded to the questions about the worker wellbeing construct. The analysis of the interviews found that the worker wellbeing construct consisting of safety, wellness, and psychological wellbeing, and QWL was valid for further testing. The most frequently reported codes are outlined in table 21.

Table 21 – Worker wellbeing codes

Sub-Variable	Most frequently reported Codes
Work Safety	<ul style="list-style-type: none"> • No harm to worker • Physical injury • Caring for workers • Prevention of harm • Promotion of physical safety • Being physically safe
Work Health and Wellness	<ul style="list-style-type: none"> • Lifestyle health • Wellbeing of employees • Lifestyle health as a strategic focus • Psychological health
Wellbeing and Quality of Work Life	<ul style="list-style-type: none"> • Getting people into a positive cycle • Psychological health affects work performance • Feeling good about work • Worker is part of the organisation • Organisational health • Social integration and connection • Proactive fix it culture • Self-driven performance and ownership • Individual acknowledgment of risks • Shared understanding of risks.

(Source: Developed for this research)

- **Theme 1: Prevention of harm, including physical safety is an inherent core of worker wellbeing.** Physical safety and being free from injury were reported by the majority of the interviewees as being the most common underlying attribute of WHSW. This is demonstrated by one interviewee who stated:

primarily it's about workplace safety and then health, and wellbeing, the wellbeing bit is about bringing in the psych element bit I would say and feeling good about being at work' (Interview 3, male).

A further example was highlighted by another interviewee who supported the view of the historical focus on physical safety as follows:

So, I guess for me based on the experience I've had WHSW has tended to focus primarily on physical injury and individual safety and the processes and systems that allow that to maintained... (Interview 4, male)

In contrast, another interviewee suggested that being safe could be thought of as employee care as follows:

The flip side would be to consider the term of employee care. Caring for the workers by employers and feeling they are cared about might be a philosophical starting point from a management perspective. Fundamentally we care about our workers. I guess, thinking about that in terms of work environment and productivity (Interview 1, male).

- **Theme 2: Worker wellbeing includes employees managing lifestyle health and psychological health risk as an organisational priority. This positively affects employee commitment.** Most interviewees supported the proposed construct and definition that holistic individual health or wellness is a core element of worker wellbeing. This was demonstrated by one interviewee who commented that:

there is something about organisations having a role in allowing someone to be committed to the organisation...they offered a whole lot of WHS initiatives and some those were group personal training. And they just didn't do a few, they did 5 sessions a week 20-30 people at a time, in organisation of 600 people you could get your whole fitness regime taken care of at work and for minimal cost or outlay of time...(Interview 2, male)

All the interviewees reported psychological health as being an emergent element that needs to be included within the worker wellbeing construct. An example of this was indicated by the following response:

the psychological side of it has only been a relatively recent concept in the organisations that I've been part of and the work I have been doing and it's been more focused around the workplace environment and the factors within that lead to disrupted psychological health and certainly the impact of that on individuals ability to do their job so holistically (Interview 4, male)

Furthermore, the importance of individual holistic health and the relationship to positive organisational commitment thus leading to higher employee motivation was suggested by some of the interviewees as indicated by the following:

...I think there are people in that organisation, myself included at the time that considered never leaving that organisation because they cared so much about you, now if you have that sort of feeling about an organisation then that person is absolutely committed to the organisational goals...(Interview 2, male)

- **Theme 3: For people to be in optimal state of wellbeing employees need to be connected at the individual, team and organisational levels and have purpose in their work.** The interviews suggested that the personal wellbeing element incorporates worker connection, psychological safety, and job satisfaction and is closely associated with that of work health and safety or wellness; and therefore, provides a broader view of employee wellbeing. An example of this was one interviewee who stated:

... so there's words in here like social connection, psychological health...it almost comes out of the WHO definition, it is satisfaction with the job and personal growth, optimum motivation and engagement, yeah these are elements I didn't include in my definition because I was probably in line with legislative language but this is how I understand WHSW so this fits with me really nicely - working life, social life and organisational performance (Interview 3, male)

Another interviewee recognised the significance of wellbeing as a business issue in commenting:

it seems like you are expanding on the wellbeing component which is more of what I would consider to be a promotion of the strategic side (Interview 6, male).

- **Theme 4: Individual risk awareness and proactive action are central to personal growth in their own WHSW capability.** The personal growth element of work and its links to employee engagement and wellbeing were also evident and frequently mentioned by the interviewees. One interviewee commented:

you are also talking about the common culture and what did we learn and how did we fix the mistakes, or did we develop a blame culture (Interview 2, male).

Another interviewee's insight was as follows:

...what I mean by that is that there is an anticipation that they understand the risks of the hazards around them, understand the risks, but also what is reasonable attitude to risk appetite, like what risks are they prepared to accept within the company and not accept. And that's a shared understanding of the risk because, as opposed to individual acknowledgment of the risk appetite so to me what WHSW seems to be is the management of risk and from a culture sense... (Interview 7, male)

These comments relating to personal growth are consistent with the literature which has reported that this attribute enhances connection of employees with the organisation (Swamy, Nanjundeswaraswamy, & Rashmi 2015; Boxall & Macky 2014; Bryson, Forth & Stokes 2014; Shah & Marks 2004). Personal growth leads to employees demonstrating more proactive behaviour towards exercising individual risk control. Indeed, personal risk awareness or perception has been reported as a safety climate a dimension (Vu & De Cieri 2014).

4.1.2 Organisational context

Question 2 explored the organisational context in which WHSW strategy emerges including areas such as safety climate, CSR and psychosocial climate, and the proposed operational definition. All interviewees responded to this question. The analysis of the interviews found that the organisational context construct was valid for further testing. The most frequently reported codes are outlined in table 22.

Table 22 – Organisational context codes

Sub-Variable	Most frequently reported codes
Organisational Context	<ul style="list-style-type: none"> • Legal compliance a foundation • Senior management Due diligence • Corporate governance • Internal operating context influences strategy • Different levels of context (individual, team, organisational) • Strategy aligned with organisations culture • Worker involvement in development • Clear vision articulation • Long term and short-term focus • Engaging workers early (in strategy development) • Understand personal contribution • Changeable focus compliance and beyond compliance • Performance measures and indicators

(Source: Developed for this research)

On completion of assigning codes to the interview data these were analysed to determine emergent themes which are outlined below:

- **Theme 5: Organisational culture effects WHSW strategy development over the short and long-term.** A well-supported theme and view from all interviewees were that WHSW must be aligned with the broader organisation culture and strategy. This was highlighted by an interviewee:

So, the strategy needs to reflect on the culture which takes a longer time to change' (Interview 3, male)

This remark confirms the association between organisational strategy and WHSW as a necessary component as it shapes the organisational culture.

- **Theme 6: Organisational context is dynamic and effects the short and long-term WHSW strategy.** A particularly interesting theme to emerge from the interviews was that half of the respondents indicated that the WHSW context has a degree of variability due to changes in internal and external factors. This seemed to be due to the iterative and dynamic cycles that organisational strategy informs their effect on organisational culture, and the feedback loops within strategy cycles whether explicit or implicit. This was evident in a response from one interviewee who stated:

What I will say though is the organisation context can ebb and flow ...and it can be influenced by a number of things which can be short term as well, and how different policies, how different organisational policies and procedures are enacted can actually change from in the short term and in the long term so how they are enacted (Interview 3, male)

Another interviewee suggested:

So strategy is fundamentally important to end results and strategy is live too, you tweak your strategy in accordance with the results you are getting, the feedback [...] but for example you

cannot have an organisational strategy which isn't fundamentally based within those higher concepts (Interview 3, male)

As such, this suggest that WHSW strategy is influenced by the existing organisational environment and may change focus to align with indicators or efficacy, demands, new or emerging risks. This is consistent with the literature that WHSW strategy conception, formulation, and implementation is dynamic and driven by context (Zou & Sunindijo 2015).

- **Theme 7: Employees need to be involved in WHSW strategy development at an early stage and be clear on their personal contribution as it relates to vision, mission, and goals.** Employee or worker involvement was also a strong theme in the strategy development context as evidenced by most interviewees. The reported association between organisational strategy, organisational culture, and the view that WHSW should be a component and the critical importance of employee engagement in the strategy process was evident in the data (Mintzberg 2004). An example of this was:

I think from my experience there is no one size fits all, we have the leadership coming up with the strategy, but I think what tends to happen is that we might think about strategic development, but I don't think in practice this is always the case, I think a lot is bottom up driven (Interview 2, male)

- **Theme 8: Legal obligations and organisational corporate governance requirements need to be understood and assessed as they influence the focus of strategy.** All interviewees considered external influences such as legislative compliance obligations and governance requirements as a dominant factor in strategy context. Examples of this from the interviewees:

... if you look at the WHS Act it is very hard, if not impossible to completely comply with legislation, but there are accepted minimum standards, there are different ways of judging that [...] and so the organisation has to say in the context in which they are working in, what does this mean, and what would a reasonable person, in general what would be societally acceptable that they are complying, this fundamental and having this in place, and utilising the interaction with the workers throughout the organisation to say how can we do things better, because I think that is the fundamental principle of the legislation as well, it's about doing things better all the time (Interview 1, male)

Such a view was further illustrated by another interviewee who commented:

So, the other side a of course is the legal obligations, the responsibilities, what each of the corporate officers in the company need to understand, and reputation, in terms of the WHS Act, so there's obligations for senior executives and directors to be across (Interview 8, male)

An unexpected outcome was that almost all the interviewees did not consider corporate social responsibility as a key element of organisational context. Only one interviewee discussed CSR specifically as stated below:

CSR, yeah I think it does because you are taking it from a holistic point of view and at the end of the day you are trying to tap into individuals' drivers and people are driven by different things (Interview 2, male)

4.1.3 WHSW strategy

Question 3 explored the WHSW strategy construct with regards to organisational strategy, corporate governance, strategy evaluation, injury and illness prevention, promotion of worker wellbeing, and the proposed operational definition. The analysis of the interviews found that WHSW strategy construct was valid for further testing. The most frequently reported codes are outlined in Table 23.

Table 23 – WHSW strategy codes

Sub-Variable	Most frequently reported Codes
Strategy	<ul style="list-style-type: none"> • Capability of internal resources for strategy • Performance feedback influences strategy • Link to mission and core purpose • Focus on short term risks and long risks • Alignment with organisational strategy • Beyond traditional WHS • Line management driven accountability • Setting and communication of standards • Verification of compliance • Clear and coherent systems and processes

(Source: Developed for this research)

On completion of assigning codes to the interview data these were analysed to determine emergent themes as outlined below:

- **Theme 9: Individual leadership capability affects wellbeing and the level of employee engagement in strategy.** The majority of interviewees discussed the need for clarity in strategy and its impact on wellbeing and employee engagement. The following comment by one interviewee highlights this:

...if they are not able to align themselves and support the overarching strategy of the whole company there will lower engagement and health and wellbeing is not going to be optimised because of that, so the strategy needs to be coherent but also connects with the employees to engage and understand what it means for them, what they have to do every day, and what they need to demonstrate an outcome and demonstrate there is an improvement, that there is a positive um progression to a more mature and empowering workforce, you must have an engagement process linked to the WHS strategy, in the absence of that it can be quite fragmented and it would be very difficult to measure improvement in WHSW (Interview 7, male)

These views suggest that elements of WHSW strategy include employees being clear on personal goals, responsibilities, what is required of them (expectations) and an understanding of the broader organisational context. Indeed, such attributes have been discussed and confirmed in the work design and employee engagement literature (Truss et al. 2013b; Robertson-Smith & Markwick 2009; Morgeson & Humphrey 2006), and strategy literature (Melander et al. 2016).

- **Theme 10: WHSW strategy and resource allocation must be integrated and address immediate risks prior to longer-term strategic risks.** The focus of risk management and integration with strategy from a strategic perspective was represented by several codes and the responses by almost all the interviews. For example, the focus on risks was evident in one interviewee's response:

the definition you have for WHS strategy is a good one, you can have short term - as an old boss of mine would say 'to hit the hot spots with' then you can have the longer-term game which is about reducing injuries and death (Interview 3, male)

Another interviewee highlighted an important consideration as follows:

I always find when we start talking about allocation of resources, it actually ceases as a categorising WHSW as a value which isn't an inherent value in the organisation, because if you have to allocate resources to something you are saying that it's not an inherent value of our organisation, it's something extra we have to do [...] so the degree of separation matching it, rather than actually having it as completely separate thing incorporating as work and allocating it as actual work to work you are doing and the different aspects become part of its, so it becomes your work strategy rather than WHS strategy...(Interview 1, male)

These views confirm that WHSW risk management needs to be incorporated within strategic and operational decision making and considerations covering all organisational activities because WHSW may impact on organisational goals. This confirms that technical, cultural and governance controls are required for WHSW (O'Neill & Wolfe 2017), that organisations need to constantly review risk models (Dekker et al. 2008), and use business risk management approaches (Walaksi 2017).

- **Theme 11: Line management drive and affect strategy implementation by translating and communicating organisational requirements for individual and teams.** In discussing strategy all interviewees reported the significance of positive leadership in the strategy implementation process and vice versa. This confirms Mintzberg's view (2004) that middle manager capabilities are crucial in interpreting and actioning organisational strategy. This strong view amongst all the interviewees is demonstrated in the following extract:

but what we are really trying to achieve can sometimes get lost in that expression from the leadership, so it certainly takes clear strong leadership to be able to verbalise what we are trying to achieve (Interview 2, male)

4.1.4 WHSW employee engagement

Question 4 explored employee engagement, the attributes outlined by the UWES, the work design questionnaire, and the proposed operational definition. The analysis of the interviews found that WHSW employee engagement construct was valid for further testing. The most frequently reported codes are outlined in Table 24.

Table 24 – Employee engagement codes

Sub-Variable	Most frequently reported Codes
Employee engagement	<ul style="list-style-type: none"> • Connection leads to better outcomes • Ownership and continuing personal growth • Capability for engagement • Organisational role in behaviour change • Alignment to vision and goals • Valued meaningful collaboration • Personal accountability • Organisational and leader trust • Leadership contextualising and articulating strategy • Value based feedback • Employee motivation • Individual wellbeing • Risk control action

(Source: Developed for this research)

- **Theme 12: Connection with WHSW Strategy affects employee motivation and behaviours.** All interviewees confirmed the absorption of strategy and alignment with the organisations core purpose as a key factor in employee motivation. This is also referred to in the literature as “line of sight” (Boswell & Boudreau 2001). For example, interviewee six stated:

...to me there would be an aspect around visioning the future desired state of the organisation wants to get to, so that’s kind of like the engagement piece, so you can have a strategy that is documented and dry and procedurally accurate but without that more emotive description of where we want to go I think that’s missing mental piece. I think for it to be successful it has to be described in how it helps the organisation to meet its goals more generally at the core... [...]. And WHS is the way process to enable that core purpose to be achieved sustainably and effectively, so that’s the way I sort of think about it, so I think when you are developing your strategy if you can couch in those terms it might be a way to get some more by in to get the linkages between core purpose and what you are trying to achieve (Interview 6, male)

Whilst another interview expressed a view that:

the term ownership comes to mind, the level of ownership or perhaps connection with the organisation, connection is probably better as it doesn’t have the monetary attributes, if a worker feels really connected to an organisation it really contributes to the intent of the definition here, but if there’re not connected, so a separate thing is to measure the actual level of connectivity (Interview 1, male).

Such comments suggest that employee connection supports WHSW strategy implementation by being “internalised” because of a clear understanding and alignment between organisations purpose, vision, strategy, and goals. This confirms that engaged employees are aware of the business context and work with colleagues to improve performance within the job, which benefits the organisation (Bevan 2012; Boswell, Bingham & Colvin 2006).

- **Theme 13: Ownership enhances personal growth and the capability to engage in WHSW strategy.** Ownership concerning WHSW strategy implementation and organisational performance was commonly reported by most interviewees as evidenced by the following comment by one interviewee:

But the one thing I was trying to get across is that also from engagement we also need to be looking at is what I would term personal development or growth so being a fair driver in a lot of people, once you are looking at a lot of people you’ve got a positive workplace...(Interview 2, male)

...continue that growth personally and within a group, you know the factor of how we get the group involved and improving and taking ownership, and yeah understanding as well, so its personal ownership and group ownership as well which I think from a team point of view is just as important as well (Interview 2, male)

These views further indicate that the WHSW strategy and engagement needs to consider the broader human capital context at the organisational and individual level as finding meaning in work and personal achievement and accomplishment has become more prominent focus of employees (Warr & Nielsen 2018). Such views have been confirmed by Vu and De Cieri (2015) in the literature who report safety climate dimensions include employee involvement or empowerment in safety and teamwork.

- **Theme 14: Personal risk awareness and control need to be facilitated by the organisation as part of strategy implementation to engage employees in WHSW.** A particularly interesting phenomena emerging in the interview phase was the association of personal awareness or risk with ownership and employee engagement. Most of the interviewees discussed personal commitment and risk awareness. An example of the association was reported by interviewee eight:

the engagement is very much to perceive and understand the workplace risks around them, but also to align themselves with the vision and values of the company, they generally are focused inwards to being supportive and a duty of care to their fellow employees, or contractors, or visitors, and in the sense that employees feel that they are cared for by the company, they feel they are supported in terms of understanding and managing the risks, understanding the risks in the workplace, if there is a risk, its reported and the employee feels its acted upon and the company is serious about bringing in safety controls and eliminating the hazards that are

reported, and it's the individual feeling would also that from a work-life balance that stress, fatigue and mental health issues are equally important as the hard edge safety risks in the company, if those areas are essentially are honoured and communicated by the senior management then engagement is more positive and encouraging in that area (Interview 8, male)

Such comments by the interviewees further illustrate that the implementation of strategy includes the ongoing adoption and refinement of risk models and controls, tools and systems that support a shared understanding of WHSW risks. This is reaffirmed in the literature in terms of how organisations create the right environment for safe decision making and working behaviours based on information and risks (Antonsen 2009), the priority organisation's place on safety (Blewett 2011; Vu & De Cieri 2014) and leadership response to safety and wellbeing issues (Clarke 2013).

- **Theme 15: Meaningful consultation for understanding WHSW strategy implementation impacts on the level of employee engagement in the short and long term.** Several interviewees held views that consultation with employees to ensure understanding for effective engagement in the strategy was central to the construct. Examples of these were as follows:

People need to be invested in it and in order for it for it to succeed, engagement needs a lot of work initially to get people to understand the benefits and the concepts, the what's in it for me of being engaged, do a lot of initial work with consultation and communication, and it needs to be 2 ways as well, not just telling people you will be consulted with but be willing participants in any consultation, and needs to be valid consultation in that any feedback is provided is taken on board and whilst I suppose still needs to maintain true to the core of your strategy (Interview 5, male)

and

...again, there is this ebb and flow, there is this, the same employees can be more motivated at different times depending on the work they do and undertake and that includes their role in the safety culture of the organisation on their own WHSW. I think that there's something in this one about behaviour change...I think it does, however, there is something in, there is some organisational role or responsibility in changing behaviours that aren't conducive to WHSW I guess and also the involvement of individual team members in issues that are being planned that could affect them (Interview 3, male)

Such comments further confirm that organisations looking to improve their WHSW need a sound employer-employee engagement relationship based on fairness, open communication, and trust within a supportive work environment. As such, employees are more willing to accept conditions and outcomes where the consultation process has been viewed as reasonable (Society for Human Resource Management 2017).

- **Theme 16: Organisational and leader trust is dependent on values-based feedback that affects employee motivation and individual wellbeing.** Another strong view held by all interviewees was the significance of leadership on employee engagement, trust in the organisation, WHSW, and strategy implementation. As reflected in the following quote:

leadership which is obviously a mediating variable between strategy and engagement; someone has to be able to influence other parts of the organisation to actually make that engagement happen so sort of more soft skills in terms of things like transactional stuff like recognition, correcting deviations from that strategy to more transformational like communicating that strategy down to the team as a more tangible construct that people can get their heads around... you know creating that environment where there is that perception of care and concern and genuine relationships so that when the strategy is communicated it is seen as a valid and accurate espousal from the organisation (Interview 7, male)

Indeed, from an organisational perspective strategic leadership is essential in articulating the organisation's vision, motivating employees, coaching, and providing feedback, in addition to ensuring appropriate resources for the implementation of the strategy and achievement of performance outcomes. This confirms Mintzberg et al.'s (2003) and Mintzberg's (2004) seminal works concluding that leadership enables strategy and creates the conditions under which employees engage and make strategy real.

4.1.5 WHSW strategy efficacy

Question 5 explored the proposed operational definition for WHSW Strategy efficacy only as further exploration was delimited from this doctoral study. The most frequently reported codes are outlined in Table 25.

Table 25 – Strategy efficacy codes

Sub-Variable	Most frequently reported Codes
WHSW Strategy Efficacy	<ul style="list-style-type: none"> • Successful work achieved • WHSW measurement contextualised • Broader measurement of outcomes • Short term and long-term efficacy • Strategy implementation milestones • Feedback loop to strategy • Workers perception of strategy progress • Behavioural change indicators

(Source: Developed for this research)

On completion of assigning codes to the interview data these were analysed to determine emergent themes which are outlined below:

- **Theme 17: WHSW strategy measurement must focus on broader outcomes related to individual wellbeing, good work completed, worker perceptions on safety systems, risk management effectiveness, and satisfaction with work.** Although the construct was delimited from the study almost all interviewees suggested that a broader approach to

measuring WHSW outcomes is required rather than focusing solely on performance indicators as a measure of improvement. This was illustrated from the interviews by the following comments:

Efficacy its right at the end which is about strategy efficacy um and then it feeds back into the dimensions of strategy, what I was going to say is the efficacy of something is an element that should be considered at all parts of the chain because you can have efficacy of decision making and efficacy of a strategy can be multifaceted, it can be short term, longer term and lots of different components and elements (Interview 3, male)

and

And efficacy relates to each one of those elements and each little sub part of a strategy, each phase of a strategy so I think there is this feedback loop, not a feedback loop but a consideration with all components of a strategy around efficacy... but I would labour the point that efficacy is a consideration at all stages in my interpretation. And a good strategy which considers efficacy along the way will lead to that positive outcome at the end... So, when we talk about WHS strategy efficacy and we also have language that ties it back to a broader definition of health, like health and wellbeing, efficacy is something that is probably strongly embedded throughout the process (Interview 3, male)

and

The measurement of the strategy in the work I have been doing has focused on ownership milestones so looking at a strategy and identifying when key points of the strategy are achieved, so clarity around what the strategy is, and secondly around how the KPIs link to those milestones and I guess having robust processes to measure that... Some stats are useful particularly some of the forward-looking stats but getting into the minds of people and their perceptions is a big part of how the strategy can be measured because the stats may tell you one story, but the behaviours and attitudes may tell you something quite different (Interview 4, male)

As such, these comments reflect discussion in the literature that WSHW needs to incorporate broader measures of efficacy, rather than a reliance of outcome indicators such as LTIFR. Indeed, this supports the increasing focus a more humanistic approach to WHSW measurement that builds individuals and groups capacity to identify key organisational problems (Noblet & LaMontagne 2014).

4.1.6 Conceptual framework review

Question 6 required subject matter experts to consider each of the previous questions and review the conceptual framework for the suitability, including the moderating effect of leadership and motivation. Analysis of the interviews found that the conceptual framework required further clarification and further testing.

For reviewing the proposed framework, the most frequently reported codes are outlined in Table 26.

Table 26 – WHSW strategy framework codes

Sub-Variable	Most frequently reported Codes
WHSW strategy and employee engagement	<ul style="list-style-type: none"> • Work as done feeds back into context/strategy • Work as done a driver of performance • Leadership style effects strategy efficacy • Good leadership motivates employees • Leadership is throughout the organisation • Leadership links back to context • Culture influences behaviours, strategy, outcomes • Understanding individuals and capabilities for implementation • Ownership and self-direction create buy in and motivation • WHSW processes link to business strategy • Employee alignment to strategy • Strategy must be clear and coherent • Ensuring the right climate for personal change.

(Source: Developed for this research)

Many of the themes outlined in the analysis for each construct were further emphasised in the review of the framework by all seven interviewees. Examples include:

I think the model is a well summarised model and from the traditional workplace, traditional management, management systems and governance systems that sort of approach I think it goes a lot further than those sort of models which is great, I don't know that I've seen to many models that are focused around that entire wellness/wellbeing and WHS and wellness as a model with some strategy development and those sort of things and tapping into people's motivation and I think it covers a lot of areas that traditionally you would not see in organisational management systems... (Interview 2, male)

and

Definitely a connection there between WHSW and the processes around strategy, the mission statement, values and principles of the senior management and the board, the missing part is employee engagement, if they are not able to align themselves and support the overarching strategy of the whole company there will lower engagement and health and wellbeing is not going to be optimised because of that, so the strategy needs to be coherent but also connects with the employees to engage and understand what it means for them, what they have to do every day, and what they need to demonstrate an outcome and demonstrate there is an improvement, that there is a positive um progression to a more mature and empowering workforce, you must have an engagement process linked to the WHS strategy, in the absence of that it can be quite fragmented and it would be very difficult to measure improvement in WHSW (Interview 8, male)

and

think it realistically reflects the way an organisation can be evaluated how safety systems or the actual strategy an organisation uses to build its safety management system and how that process can be done quite well (Interview 4, male)

The comments suggest that WHSW is part of organisational strategy, and that employee engagement is a critical component because of its influence on strategy implementation and the health and wellbeing of employees. This is consistent with the literature with positive engagement outcomes related to increased productivity and lower staff turnover (Harter et al.

2013; Benn, Teo & Martin 2015; Gupta & Sharma 2016), fewer safety incidents (Harter et al. 2013) and improved wellbeing (Bryson, Forth & Stokes 2014).

There were, however, limitations and opportunities to improve the initial framework as identified by half of the interviewees. Such views are indicated by the following comments:

I think the big difficulty I have with the model it does seem to be a top-down approach, rather than employee engagement - it is employee participation/decision making and understanding its contribution of the strategy. In terms of leadership, I would see leadership throughout the organisation it's not just at the top, I think the other thing in here is where "Safety 2" concept of work as done versus work as imagined fit in with this (Interview 1, male)

and

There's something in this leadership space though I think, so we know that organisations that have poor WHS often have poor leadership around WHS, and we know that they have good WHS systems and we often used to say that one can't exist without the other, you need good systems, good culture and good leadership. Leadership directs those other two in many ways, so there's something in this model for me that would like to draw out that leadership role a bit more... (Interview 3, male)

and

Again I'm drawn straight to engagement box and I'm wondering how that fits into the equation because I would sort of, or might even include that as part of that, or even as a secondary outcome of that, so people are engaged so they are more motivated, hence they behave in certain ways, hence the efficacy is demonstrated...um culture I don't know how easy it will be to pigeon hole it up here as it influences all of these elements to some extent particularly leadership and how the cultural beliefs will influence the style of leadership not just the strategy formation. It will influence and be influenced by systems for example (Interview 7, male)

Such views further confirm that employees need to be engaged early in strategy development as they are a valuable resource within the system. This confirms the "Safety 2" (Hollnagel 2013) and Resilience engineering literature (Provan et al. 2020). Furthermore, the comments confirm that safety leadership applies to all levels of the organisation (O'Dea and Flin 2003), and facilitates the achievement of task objectives and strategies, commitment and compliance behaviours, and the culture of an organization (Yukl 1989).

4.1.7 Conceptual framework review outcomes from phase one

Outcomes from the thematic analysis of the qualitative phase led to the development of a revised framework and informed the development of the survey for validation of results in Phase two. Based on the weightage of emphasis given by the interviewees to each construct in the framework, the following changes were made to the framework (figure 7):

- Leadership was revised to show that it influences all variables within the framework instead of just employee engagement.

- Organisational context was revised to remove corporate social responsibility and include early employee engagement and “work as done” as a factor in strategy development.
- Employee safety perception (safety climate) was removed from organisational context and was included within the WHSW strategy efficacy construct based on the interviewee’s perceptions of safety climate being part of efficacy.
- Measures in WHSW strategy efficacy were revised to include employee perception of safety, individual health and wellbeing, risk control effectiveness, self / team / organisational goal attainment and employee job satisfaction, and their link to WHSW strategy based on the new perspectives brought by the interviewees that were not part of the initial proposed framework.
- Feedback loop was included from organisational processes to organisational context based on the interviewees new perspectives that strategy efficacy is an informing consideration throughout the strategy cycle rather than just at the end as an outcome.
- Feedback measurement loop was included from individual capability engage to WHSW strategy based on the interviewees new perspectives that strategy efficacy is a consideration throughout the strategy cycle rather than just at the end as an outcome.
- Reciprocal relationship between employee engagement and both organisational processes and individual capability was included due to the dynamic iterative cycle exists as specifically mentioned by the interviewees.
- Reciprocal relationship between WHSW strategy and organisational context was included to reflect that these constructs are interrelated in strategy development, content, and focus.
- Motivation was removed as a moderating variable between WHSW strategy and WHSW employee engagement as this was viewed by the interviewees to be represented in the “individual capability and enablers” component of the framework through the UWES dimensions.
- Organisational culture was removed from the framework and study as the interviewees specifically noted that culture also influences the other constructs and variables within the framework.

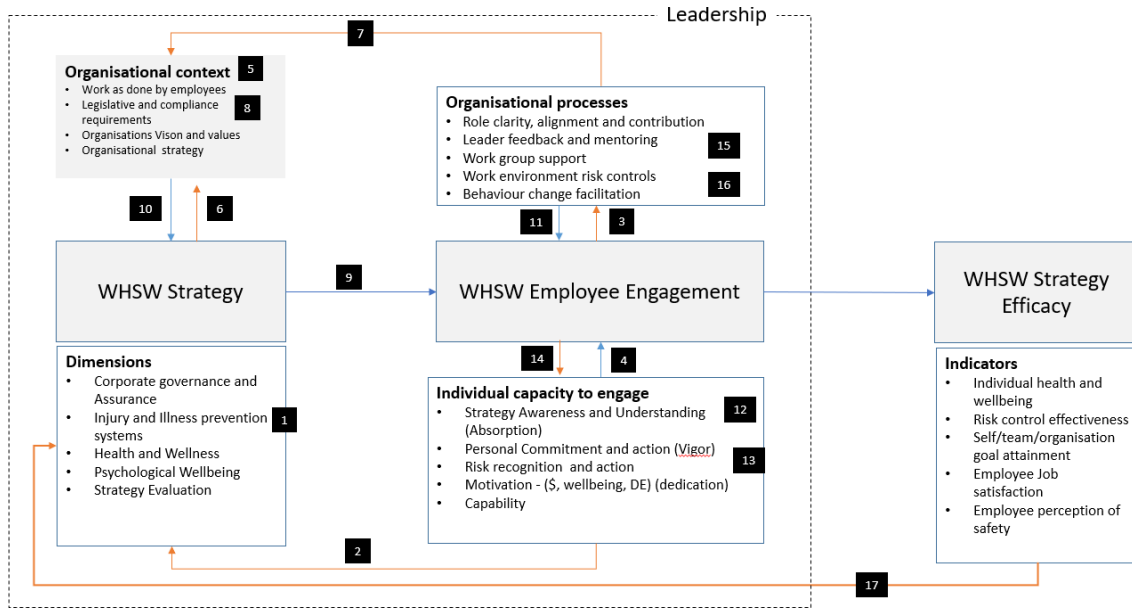


Figure 7 - Revised Framework with themes mapped for phase two Online Survey (Source: Developed for this research)

As part of the semi-structured interviews, each operational definition for the respective variable was reviewed with each of the informants. Following the review of the framework, the definition of **Organisational Culture** was removed from the study. The final definitions employed in phase two are outlined in Table 27.

Table 27 – Final construct definitions of the revised conceptual framework

Construct / Variable	Final Definition
Work Health, Safety and Wellbeing (Worker Wellbeing)	<ul style="list-style-type: none"> a state facilitated by the organisation which enables good work-related social connection, promotes physical and psychological health, satisfaction with the job and personal growth. This leads to optimal worker motivation and engagement resulting in positive outcomes in an employees’ working and social life and organisational performance (Source: Developed for this research).
Organisational Context	<ul style="list-style-type: none"> the set of organisational circumstances under which the strategy process and content is determined to set the direction and scope of an organisation over the long term. It is informed by how employees perceive the enactment of organisational policies and procedures relating to WHSW in their organisation at a given point in time and the organisations obligations beyond legal compliance’ (Source: Developed for this research)
WHSW Strategy	<ul style="list-style-type: none"> a strategic direction and allocation of resources dedicated to matching internal capabilities with opportunities and threats in achieving a future state of WHSW, as embedded in, and acknowledged as a priority of the organisational strategy while being underpinned by the organisational mission, values and priorities (Source: Developed for this research)
Employee Engagement	<ul style="list-style-type: none"> a workplace approach designed to ensure that employees are committed to their organisation’s goals and values, motivated to contribute to organisational success, and are able at the same time to enhance their own sense of well-being’ through ‘a positive, fulfilling, work-related state of mind that is characterised by vigour, dedication and absorption’ (Source: Developed for this research)
Leadership	<ul style="list-style-type: none"> strategic leadership is the ability to anticipate, envision, maintain flexibility, think strategically, and work with others to initiate changes that will create a viable future for the organisation (Ireland & Hitt 2005)
WHSW strategy efficacy	<ul style="list-style-type: none"> the combination of pre-defined results or other units of information which reflects directly or indirectly, the extent to which an anticipated WHSW outcome is achieved, or the quality of processes leading to that outcome. These may be (i) qualitative which are indicators that would describe or assess a quality or (ii) quantitative which are an indicator that can be counted or measured and described numerically (Adapted from NSW Health Department, cited in SafeWork Australia 2005).

(Source: Developed for this research)

4.2 Online Survey Findings (Phase two)

This exploratory mixed-method study employed a second quantitative phase comprising a cross-sectional survey. The objective of phase two was to validate the revised WHSW strategy and employee engagement framework as an outcome of the semi-structured interviews (phase one). Phase two of the research determined construct and convergent validity of the framework including the themes from semi-structured interviews (qualitative phase one).

As outlined previously this study proposed that by improving WHSW strategy greater employee engagement will be achieved, and therefore improved WHSW performance, as indicated by efficacy. The independent variable for this study was WHSW strategy, with WHSW employee engagement and WHSW strategy efficacy being the dependent variables and leadership being the moderating variable. Figure 7 outlines the conceptual framework showing the proposed linkages between organisational context, WHSW strategy, WHSW employee engagement, WHSW strategy efficacy, and leadership with 17 themes from the semi-structured interviews. The revised framework was included in the report provided to phase one participants inviting feedback before validation in phase two.

The survey data was analysed through descriptive statistics and exploratory factor analysis. Following is a summary of the quantitative data and findings for each construct examined during the online survey phase of this study.

4.2.1 Survey response rates

The WEES survey was administered through the online Lime Survey™ between 8th October 2019 and 17th January 2020. Out of the target of 200, a total of 95 surveys were fully completed and 37 partially completed making up a total of 132 surveys. This represented a 66% response rate. Throughout the survey, response and ineligibility bias was minimised by monitoring completion of the survey weekly by utilising the “Simple Statistics” mode in Lime Survey™. As outlined in section 3.3 a limitation of the convenience and snowballing sample strategy was the inability to accurately determine and access a complete sampling frame. The respondent’s demographics were reviewed, and only those who were more likely to be responsible for the development of WHSW strategy and employee engagement were considered. Consistent with the recommendation of Saunders, Lewis and Thornhill (2007) to encourage participation and a high response rate, frequent reminders were sent to the respective cohorts by posting online or direct email at one, three, six, and eight-week intervals.

Before closing the survey, response numbers were reviewed indicating that Lime Survey™ responses had not increased any further. In part, this could be explained due to the timing of

the survey and the extension beyond the anticipated six weeks to increase the sample size for the EFA. Details of the recruitment strategy for each group is summarised in Table 28.

Table 28- Phase two survey recruitment summary

Group	Recruitment Method	Population (<i>n</i>)	Initial	Reminders			
				1	2	3	4
1. Investigators LinkedIn network	Posted online	<i>n</i> = 220	Yes	Yes	Yes	Yes	Yes
2. Australian Institute of Human Resources LinkedIn	Posted online	<i>n</i> = 65,522	Yes	Yes	Yes	Yes	No
3. Australian Institute of Managers and Leaders	Email survey link to cohort of managers	Not able to be identified	Yes	Yes	Yes	No	No
4. Australian Institute of Health and Safety	Survey promoted to members via electronic newsletter	Not able to be identified	Yes	No	No	No	No
5. Interview Participants (Phase one)	Email survey link directly	<i>n</i> = 8	Yes	Yes	Yes	No	No
6. Direct contact by Investigator	Email survey link directly	<i>n</i> = 10	Yes	Yes	Yes	Yes	No

(Source: Developed for this research)

4.2.2 Survey questions

As discussed previously in Chapter 3, the survey used for this research was designed specifically to measure WHSW and employee engagement which has not been measured before. Due to lack of suitable measurement instruments in the literature, questions were based on the theoretical outcomes from the literature review (conceptual framework) and themes that emerged from the semi-structured interviews (phase one). It is noted again that the study is exploratory with the measurement instrument requiring further validation to reliability in future research. In total there were 59 questions on the WEES instrument (Appendix 5).

Table 29 provides examples of the question statements as they relate to each construct in the study.

Table 29 - Example WEES questions

Construct	Example Question
Organisational Context	Based on your experience to what extent do you agree that 'Organisational context influences WHSW strategy'
WHSW strategy	Based on your experience to what extent do you agree that 'Prevention of harm, including physical safety is an inherent core of worker wellbeing'
WHSW employee engagement	Based on your experience to what extent do you agree that 'an indicator of Vigor is at work I feel bursting with energy'
WHSW strategy efficacy	Based on your experience to what extent do you agree with the following statement 'My organisations WHSW priorities are clear'
Leadership	Based on your experience to what extent do you agree with the following statement 'Leadership influences Organisational context, WHSW strategy, WHSW employee engagement, WHSW strategy efficacy'

(Source: Developed for this research)

4.2.3 Data preparation for analysis

On completion of the survey, data were extracted in a Microsoft Excel™ file for importing into SPSS™ version 26. Following the approach outlined by Hair et al. (2009) and Williams, Onsmann, and Brown (2010) the 132 responses were examined for missing or incomplete data and only complete responses were retained in the primary dataset for further analysis.

As Lime Survey™ enabled the monitoring of responses in real time the 37 partially completed responses were assessed, identifying that only the demographic section (Part A) of the survey had been completed. A review of the Excel™ file data extract confirmed this was the case. Accordingly, the 37 incomplete responses were excluded from the primary dataset. It was assumed that these respondents had either lost interest in the survey after accessing it or had no intention of completing the survey. Neither the format nor length of the survey was considered as affecting the response rate because pretesting and piloting of the survey confirmed its suitability, including the completion time of approximately 15 minutes. A possible explanation for the lower than observed responses was: (a) a small population of practitioners, and (b) the documented difficulty to recruit these practice leaders.

4.2.3.1 Cleaning and screening. Preparation of the data commenced with "cleaning and screening" to identify missing values and to ensure the data in the Excel™ file was suitable for importing into SPSS™. This was an important step as 'failure to appropriately account for missing data in analyses may lead to bias and loss of precision ('inefficiency')' (Hughes et al. 2019, p. 1294). Once a preliminary test for data capture and coding was complete, a final manual review of the data was undertaken by the researcher and principal supervisor to verify the completeness of the dataset. The Excel™ file was then uploaded into SPSS™ and the remaining 95 complete cases were checked visually and each of the variables assigned a unique code (e.g., 'Organisational context influences WHSW strategy' was coded as InfOrgContext).

The SPSS™ analysis output identified one (1) missing value in the ‘Gender’ response question which required a remedy and imputation of a series mean to complete the data set. The missing data point was replaced by applying the mean substitution method which ‘replaces the missing values for a variable with the mean value of that variable calculated from all valid responses’ (Hair et al. 2006, p.51). The potential effect of outliers on the data was also considered with no such data points being identified. As such, no further treatment of the data was required, and normality testing was undertaken in SPSS™.

4.2.3.2 Normality testing of the primary dataset. The purpose of this step was to determine the suitability of the 95 cases for further analysis. The normality of a dataset is typically determined using descriptive statistics such as mean, mode, standard deviation, skewness and kurtosis statistics, or visual methods such as probability plots and histograms. In multivariate analysis, the most common assumption to be made is the shape of the data distribution (degree of normality) (Hair et al. 2006). The shape is indicated by skewness, which ‘refers to the ‘peakedness’ or ‘flatness’ of the distribution compared with the normal distribution’ [and kurtosis which] ‘refers to the height of the distribution, skewness is used to describe the balance of the distribution (Hair et al. 2006, p.69). According to Watkins (2018, p. 224), a univariate Skewness value of ≤ 2.0 and a Kurtosis value of ≤ 7.0 indicates a normal distribution. Accordingly, the analysis of skewness and kurtosis statistics for each of the variables (questions) revealed no non-normal distribution. Graphical analysis of datasets is often employed to determine the degree of normality because it is a simple way of visually checking the data distribution (Hair et al. 2006). On this basis, probability plots were produced in SPSS™ to visually check each variable within the framework. Of the probability plots modelled all 59 (100%) confirmed normality. The probability plot outputs are attached as Appendix 9.

4.2.4 Descriptive statistics summary

4.2.4.1 Participants. In survey analysis demographic information relates to a characteristic of the sample group the data supports determining the suitability of respondents who ‘serve as independent variables in the research’ (Lee & Schuele 2010, p. 347). Such data can be explored for any ‘moderating effect on dependent variables’ (Lee & Schuele 2010, p. 347). For phase two, the criteria to determine appropriate cases for inclusion in the primary dataset were: (1) experience at a management level (middle or executive) responsible for the WHS or wellbeing strategy; or (2) experience at a management level (middle or executive) responsible for employee engagement or human capital management, and (3) currently working in either public or private sector organisations. Of the 95 respondents, 69.5% were Male and 30.5% Female with the majority being senior managers (48.5%) followed by practitioners (31.5%).

The most-reported discipline was workplace health and safety professional (46.4%) and those from the ‘Other’ category (31.6%). This group included chief executive officer, chief operating officer, legal, general manager, and management consultant. Despite the small sample size, the group was determined as being satisfactory and included roles that were most likely to be responsible for the development of WHSW strategy and employee engagement at the strategic level of an organisation. The sample was deemed suitable for inclusion in the primary dataset. Table 30 summarises the frequencies for each of these groups.

Table 30 – Position, Discipline, and Gender of respondents

Position Level	Frequency	% of total
Senior Manager	46	48.5
Practitioner	30	31.5
Manager	19	20.0
Discipline	Frequency	% of total
Workplace Health and Safety	44	46.4
Other	31	31.6
Human Resources	18	18.9
Wellbeing or Health	2	2.1
Gender	Frequency	% of total
Male	66	69.5
Female	29	30.5

(Source: Developed for this research)

4.2.4.2 Industry and Location. For the question ‘please select your location’ the majority of the 95 responses were from Queensland (43.2%), followed by Victoria (18.9%), and New South Wales (17.9%). For the question ‘please select industry’ the most responses were from the ‘Other’ category (49.4%). Included in this group were utilities, power transmission, construction, transport, manufacturing, and resources. This could be explained by roles such as management consultant being reported in the ‘Discipline’ section who typically work across multiple industries. The second most responses came from public sector (24.2%) who also work across multiple industries. On this basis, these responses were reported based on “employed” industry rather than “service” industry.

Table 31 provides a summary of location and industry of the respondents.

Table 31 – Location and Industry of respondents

Location	Frequency	% of total
Queensland	41	43.2
Victoria	18	18.9
New South Wales	17	17.9
South Australia	6	6.3
Western Australia	4	4.2
Tasmania	4	4.2
Northern Territory	3	3.2
Australian Capital Territory	2	2.1
Industry Type	Frequency	% of total
Other	47	49.5
Public	23	24.2
Manufacturing	7	7.4
Resources	7	7.4
Construction	6	6.3
Transport	5	5.3

(Source: Developed for this research)

4.2.4.3 Experience and Qualifications. Of the 95 respondents, 82.1% reported they had 10 years' experience or more suggesting that they were well advanced in their career at a senior decision-making level. And were therefore positioned to inform on WHSW strategy development and employee engagement in organisations. For the question 'please select level of education,' 79% held postgraduate qualifications and were likely to have well developed critical and conceptual thinking skills. Both these demographic attributes were retained to test for an effect on the variables contained with the proposed WHSW strategy framework under investigation.

Table 32 provides a summary of education and experience of the respondents.

Table 32 – Experience and Education level of respondents

Experience	Frequency	% of total
10 or more	78	82.1
5-9	10	10.5
0-4	7	7.4
Education level	Frequency	% of total
Postgraduate	75	79.0
Undergraduate	13	13.6
Vocational	7	7.4

(Source: Developed for this research)

4.2.4.4 WHSW strategy. The independent variable for the study was the WHSW strategy. Of the 27 questions in Part B, 19 (70%) reported a mean score of four or above (Agree or Strongly Agree) on the five-point Likert scale. The question that the sample group mostly agreed with was ‘Leadership influences organisational context, work health, safety, and wellbeing strategy and employee engagement’ ($M=4.59$, $SD=.78$). This result was consistent with the views of most participants from the semi-structured interview phase, and literature review, that leadership affects strategy understanding, prosocial safety behaviour, discretionary effort, wellbeing, and employee engagement. The second most supported question was ‘Prevention of harm, including physical safety is an inherent core of worker wellbeing’ ($M=4.57$, $SD=.66$). This was consistent with the theme that emerged from the semi-structured interview (phase one) and with literature where physical safety was frequently recognised as a key component of wellbeing, employee engagement, and safety climate. Other questions that the respondents agreed with were ‘Individual leadership capability affects wellbeing and the level of engagement in strategy’ ($M=4.54$, $SD=.70$) and ‘to be in an optimal state of wellbeing employees need to be connected at the individual, team and organisational levels and have purpose in their work’ ($M=4.48$, $SD=.68$).

In contrast, the question that respondents were least likely to agree with was ‘Individual enablers influence work health, safety, and wellbeing strategy’ ($M=3.73$, $SD=.92$).

Table 33 outlines the WHSW strategy questions and individual mean scores.

Table 33 – Survey item responses for WHSW strategy in descending order by the mean score

WEES Question	Mean (M)	Standard Deviation (SD)
Leadership influences Organisational Context, Work Health, Safety and Wellbeing Strategy and Employee Engagement	4.59	.78
Prevention of harm, including physical safety is an inherent core of worker wellbeing	4.57	.66
Individual leadership capability affects wellbeing and the level of engagement in strategy	4.54	.70
To be in optimal state of wellbeing employees need to be connected at the individual, team and organisational levels and have purpose in their work	4.48	.68
Worker wellbeing includes employees managing lifestyle health and psychological health risks as an organisational priority. Which positively affects employee commitment.	4.46	.73
Organisational culture influences WHSW strategy development over the short and long-term	4.43	.68
Organizational context influences work health, safety, and wellbeing strategy	4.38	.59
Work health, safety and wellbeing employee engagement influences' work health, safety and wellbeing strategy efficacy	4.36	.76
Ownership enhances personal growth and the capability to engage in WHSW Strategy	4.35	.61
Line management drive and affect strategy implementation by translating and communicating organisational requirements for individuals and teams	4.33	.68
Meaningful consultation for understanding the WHSW Strategy implementation impacts on the level of employee engagement in the short and long term	4.30	.63
Organisational and leader trust is dependent on values-based feedback which affects employee motivation and individual wellbeing	4.29	.68
Individual risk awareness and proactive action are central to personal growth in WHSW capability	4.28	.76
Legal obligations and organisational corporate governance requirements need to be understood and assessed as they influence the focus of strategy	4.27	.67
Work Health, Safety and Wellbeing Strategy influences Work Health, Safety and Wellbeing Employee Engagement	4.27	.73
Personal risk awareness and control needs to be facilitated by the organisation as part of strategy implementation to engage employees in WHSW	4.26	.62
Organisational processes influence work health, safety and wellbeing employee engagement	4.22	.80
WHSW strategy measurement must focus on broader outcomes related to individual wellbeing, work completed, worker perceptions on safety systems, risk management effectiveness	4.18	.73
Individual enablers influence work health, safety and wellbeing employee engagement	4.17	.74
Employees need to be involved in WHSW strategy development at an early stage and be clear on their personal contribution as it relates to vision, mission and goals	4.15	.87
WHSW strategy and resource allocation must be integrated and address immediate risks prior to longer term strategic risks	4.00	.88
Organisational context is dynamic and affects the short and long-term WHSW strategy content	3.97	.69
Work health, safety and wellbeing employee engagement influences organisational processes	3.87	.85
Organisational processes influence organisational context	3.82	.91
Work health, safety and wellbeing strategy efficacy influences work health, safety and wellbeing strategy	3.80	.77
Work health, safety and wellbeing employee engagement influences individual enablers	3.79	.80
Individual enablers influence work health, safety, and wellbeing strategy	3.73	.92

(Source: Developed for this research)

4.2.4.5 WHSW employee engagement. WHSW employee engagement was a dependent variable for the study. Part C of the survey instrument contained 17 questions relating to employee engagement as measured by the UWES. A five-point Likert scale ranging from (1) Strongly Disagree to (5) Strongly Agree was used to rate each question for the three dimensions - Vigour, Dedication and Absorption. Of the 17 questions, the two questions that respondents mostly agreed with were ‘An indicator of Dedication is I am proud on the work that I do’ ($M=4.20$, $SD=.85$), and ‘Absorption is time flies when I'm working’ ($M=4.16$, $SD=.70$). In contrast, the question the sample group least agreed with was ‘An indicator of Absorption is: It is difficult to detach myself from my job’ ($M=2.94$, $SD=1.17$).

4.2.4.5.1 Vigor. For the six questions relating to Vigor the question that respondents mostly agreed with was ‘When I get up in the morning, I feel like going to work’ ($M= 4.04$, $SD=.78$). This result suggest that workers may have a high level of personal commitment to action or enthusiasm due being satisfied with the overall work experience. This supports the findings from the semi-structured interviews who frequently reported connection, personal achievement, and meaningful work attributes. Such elements have been reported in the literature by Warr and Nielsen (2018), Shuck and Wollard (2010) and Harter et al. (2002). In contrast, the question respondents were least likely to agree with was ‘At my work I always persevere, even when things do not go well’ ($M=3.85$, $SD= .96$). This could be due to an employee’s engagement needs only being partially met, leading to lack of commitment to the organisation. This is consistent with the literature which reports that employees may not be engaged for various reasons (Schaufeli & Bakker 2003).

4.2.4.5.2 Dedication. For the five questions relating to Dedication the question that respondents mostly agreed with was ‘I am proud on the work that I do’ ($M= 4.20$, $SD=.85$). This supports the findings from the semi-structured interviews who frequently reported motivation, connection and organisational commitment with individual health and wellbeing. This could be due individual’s resources (organisational, job and personal) being met, but not exceeded, thereby creating motivation (Bakker & Demerouti 2007). In contrast the question respondents were least likely to agree with was ‘My job inspires me’ ($M=3.92$, $SD=.93$).

4.2.4.5.3 Absorption. For the six questions relating to Absorption the question that respondents mostly agreed with was ‘I am immersed in my work’ ($M= 4.01$, $SD=.71$). This supports the views from the semi-structured who frequently nominated, connection leads to better outcomes, alignment to vision and goals, and leadership contextualising and articulating strategy. Indeed such attributes have been reported in the literature as line of sight (Boswell &

Boudreau 2001) and the role of leadership in influencing task objectives and strategies, influencing commitment and compliance in task behaviour [...]’ (Yukl 1989, p. 252). In contrast the question respondents were least likely to agree with was ‘It is difficult to detach myself from my job’ ($M=2.94$, $SD=1.17$) which is consistent with the semi-structured interviews and literature review findings that employees are less likely to be committed to organisation if they are not clear on their personal contribution to the organisational goals.

Table 34 outlines mean and standard deviations for each UWES question.

Table 34 – Mean survey item responses for UWES by component

WEES Question	Mean (<i>M</i>)	Standard Deviation (<i>SD</i>)
Vigor is At my work, I feel bursting with energy	3.60	.93
Vigor is At my job, I feel strong and vigorous	3.53	.94
Vigor is When I get up in the morning, I feel like going to work	4.04	.78
Vigor is I can continue working for very long periods at a time	3.52	.99
Vigor is At my job, I am very resilient, mentally	3.95	.93
Vigor is At my work I always persevere, even when things do not go well	3.85	.96
Dedication is I find the work that I do full of meaning and purpose	3.91	.95
Dedication is I am proud on the work that I do	4.20	.85
Dedication is To me, my job is challenging	3.57	1.04
Dedication is I am enthusiastic about my job	4.01	.83
Dedication is My job inspires me	3.92	.93
Absorption is time flies when I'm working	4.16	.70
Absorption is When I am working, I forget everything else around me	3.51	1.09
Absorption is I feel happy when I am working intensely	3.55	.91
Absorption is I am immersed in my work	4.01	.71
Absorption is I get carried away when I'm working	3.11	1.02
Absorption is It is difficult to detach myself from my job	2.94	1.17

(Source: Developed for this research)

4.2.4.6 WHSW strategy efficacy. WHSW strategy efficacy was a dependent variable for the study. Part D of the survey contained eight questions about WHSW strategy efficacy. Responses were rated on a Likert scale ranging from (1) Strongly Disagree to (5) Strongly Agree. The question that respondents mostly agreed with was ‘I understand my organisation's strategy’ ($M=4.15$, $SD=.87$) which was consistent with the semi-structured interview findings

and literature review which suggest role clarity, alignment, meaning in work as being factors in wellbeing, employee engagement, and strategy implementation, including “Line of Sight” (Boswell & Boudreau 2001; Boswell, Bingham & Colvin 2006).

Also, well supported was the indicator ‘My own level of health and wellbeing is high’ ($M=4.00$, $SD=.97$). These responses were consistent with the semi-structured interview findings and literature review which suggest holistic measures need to include physical health and psychological wellbeing (Pescud et al. 2015). In contrast, the question the sample group least agreed with was ‘Absenteeism levels are low’ ($M=3.39$, $SD=1.02$).

Table 35 – WHSW strategy efficacy responses in descending order by mean score

WEES Question/Variable	Mean (<i>M</i>)	Standard Deviation (<i>SD</i>)
I understand my organisation's strategy	4.15	.87
My own level of health and wellbeing is high	4.00	.97
Work related injuries, illness and diseases are low	3.92	.96
The WHSW priorities of my organisation are clear	3.89	1.01
My own job satisfaction is high	3.83	1.11
Individual, team, organisational goal attainment is high	3.67	.87
My organisation's risk control effectiveness is high	3.65	1.06
Absenteeism levels are low	3.39	1.02

(Source: Developed for this research)

In summary, the descriptive statistical analysis with no data abnormalities within the 95 cases, confirmed that exploratory factor analysis was viable for examining the underlying latent relationships within the proposed framework, including Organisational context, WHSW strategy, WHSW employee engagement and WHSW strategy efficacy and leadership.

4.2.5 WEES instrument factor analysis

The primary purpose of exploratory factor analysis (EFA) is to define the underlying structure among the variables in the analysis (Hair et al. 2009, p.101). The EFA tool operationalised the constructs and variables of the conceptual framework. Although EFA is not a straightforward process with no established rules, detailed guidance by Hair et al. (2009) assisted in evaluating data and determining appropriate factors for retention by examining the correlation matrix and in establishing their correlations.

4.2.5.1 WHSW strategy. WHSW strategy consisted of questions that were developed especially for this study. The following is a summary of the findings for this question set.

- a) **Method.** In total there were 27 WEES questions about organisational context and WHSW strategy for analysis in SPSS™. The Maximum Likelihood method was used because of the normality of the dataset (Hair et al. 2009) and as it allowed computation of a wide range of indexes of the goodness of fit, statistical significance testing of factor loadings and correlations among factors and the computation of confidence intervals (Fabrigar et al. 1999). Oblique (Oblimin) rotation was applied to achieve the most parsimonious model because of the consideration that the factors in the study remained correlated when rotated (Hair et al. 2009; Osborne 2015).

Consistent with the detailed guidance of Hair et al. (2009) and the views of Watkins (2018) and Williams, Onsman, and Brown (2010) the methodology employed to interrogate the data was as follows: (1) Review of correlation and pattern matrix factors to identify loadings that were greater than 0.30 which is considered as the minimum practically significant level; low partial loadings were removed, (2) Review of the factors to confirm those with an eigenvalue greater than 1.0, (3) scree plots were visually reviewed for comparison with the eigenvalues, and (4) confirming that communalities for each factor were greater than 0.6 as this is the suggested minimum (Hair et al. 2009). In addition to the detailed guidance and statistical rules applied, the theoretical basis of the conceptual framework from the literature review and themes from the semi-structured interviews (qualitative phase one) were also considered when determining the variables and factors to be retained in the framework.

- b) **Analysis and results.** The analysis of all 27 questions (variables) about WHSW strategy produced an eight-factor model with an eigenvalue of greater than one accounting for 52% of the variance (compared to 64.68% initial eigenvalue variance) which is acceptable in social sciences research (Hair et al. 2009, p.107). The Kaiser-Meyer-Olkin Measure of Sampling Adequacy (0.70), and Bartlett's Test of Sphericity ($\chi^2=949.114$, $df=351$, $p<0.000$) indicated the appropriateness of factor analysis and extraction. The SPSS™ solution outputs provide a structure matrix and pattern matrix which is recommended when reporting the findings of an EFA (Watkins 2018). Accordingly, each combination of variable and factor were reviewed in the pattern matrix to determine which cluster of loadings best explained each factor. According to Yong and Pearce (2013, p. 80) factors

should have more than one variable in the solution, ideally three to five greater than 0.50 (Costello & Osborne 2005, p. 5).

- Factor one (1.06) had no significant cross-loadings and explained 13.36% of the variance which was higher than the structure matrix loading of 0.98. The one variable ‘Organizational context influences work health, safety and wellbeing strategy’ loaded onto the factor and was consistent with the views from participants in qualitative phase one.
- Factor two accounted for 4.87% variance and was mostly explained by the two variables, ‘Individual enablers influence work health, safety and wellbeing strategy’ (1.03) which was higher than the structure matrix loading of 0.97, and ‘Work health, safety and wellbeing strategy efficacy influences work health, safety and wellbeing strategy’ (0.50) which had a partial cross-loading on factor seven (0.41).
- Factor three accounted for 4.53% of the variance with two variables loading on the factor. The variable ‘Work health, safety and wellbeing employee engagement influences work health, safety and wellbeing strategy efficacy’ explained the most significant loading (1.06) which was higher than the 0.98 loading in the structure matrix. The second variable that loaded was ‘work health, safety and wellbeing employee engagement influences organisational processes’ (0.46) also indicated cross-loading with factor seven (0.32).
- Factor four accounted for 12.56% of the variance and was explained by four variables: ‘Prevention of harm, including physical safety is an inherent core of worker wellbeing’ (0.80), ‘Worker wellbeing includes employees managing lifestyle health and, psychological health risks as an organisational priority. Which positively affects employee commitment’ (0.41), ‘To be in an optimal state of wellbeing employees need to be connected at the individual, team and organisational levels and have purpose in their work’ (0.53) and ‘Individual risk awareness and proactive action are central to personal growth in WHSW capability’ (0.71). The variables ‘Work health, safety and wellbeing strategy influences work health, safety and wellbeing employee engagement’ (0.50) indicated a moderate cross-loading with this factor.
- Factor five accounted for 5.86% of the variance and was mostly explained by the variable ‘Meaningful consultation for understanding the WHSW strategy implementation impacts on the level of employee engagement in the short and long term’ (0.76) which was the same as the structure matrix. The other variables which clustered with this factor were ‘Ownership enhances personal growth and the capability

to engage in WHSW strategy' (0.32), Personal risk awareness and control needs to be facilitated by the organisation as part of strategy implementation to engage employees in WHSW (0.35), and 'Organisational and leader trust is dependent on values-based feedback which affects employee motivation and individual wellbeing' (0.49). The variable 'WHSW strategy measurement must focus on broader outcomes related to individual wellbeing, work completed, worker perceptions on safety systems, risk management effectiveness' (0.53) also loaded significantly onto Factor 5. This was considered as having a stronger theoretical association with strategy efficacy and was therefore not considered as representing the factor.

- Factor six, (4.83% of the variance) was mostly explained by the variable 'Organisational culture influences WHSW strategy development over the short and long-term' (0.50). It was consistent with the majority of the participant's views in phase one and strong theoretical support in the literature. The other variables which loaded onto this factor were 'Work health, safety and wellbeing employee engagement influences individual enablers' (-0.53) and 'Leadership influences organisational context, work health, safety and well-being strategy and employee engagement' (0.33), which also cross-loaded onto Factor 4.
- Factor seven accounted for 3.68% of the variance and was explained by the variable 'Organisational processes influences organisational context' (0.46).
- Factor eight (3.13% variance) was explained by the variables 'Employees need to be involved in WHSW strategy development at an early stage and be clear on their personal contribution as it relates to vision, mission and goals' (0.51) and 'WHSW strategy and resource allocation must be integrated and address immediate risks prior to longer term strategic risks' also loaded onto factor eight (0.50). The variable, 'Legal obligations and organisational corporate governance requirements need to be understood and assessed as they influence the focus of strategy' (0.30) also weakly loaded onto this factor and was consistent with the preceding variable. This was consistent with the literature and views of the participants from phase one which indicated these variables are part of corporate governance.

Two variables, 'Organisational context is dynamic and affects the short and long-term WHSW strategy content' (ranging between -0.06 to 0.27), and 'Line management drive and affect strategy implementation by translating and communicating organisational requirements for individuals and teams' (ranging between -0.12 to 0.27) indicated poor loadings across each of the eight factors. This finding was inconsistent with the views of

participants from the qualitative phase one and literature review that informed the development of the conceptual framework.

- c) **Summary of WHSW strategy EFA findings.** The 27 WEES questions relating to organisational context and WHSW strategy were analysed using the Maximum Likelihood method with Oblique (Oblimin) rotation. Due to the small sample size, the eight-factor model was deemed to be the best fit. Each of the factors was reviewed to determine the construct they best represented based on the pattern matrix loadings. These are summarised below.
- Factor one was explained by one variable with a loading of 1.06 and represented the organisational context in which the WHSW strategy emerges, from the conceptual framework. This was labelled **Organisational Strategy Context**.
 - Factor two was explained by one variable with a loading of 1.03 and represented the UWES (vigour, dedication, and absorption), risk recognition, and proactive action and individual capability. This was labelled **Individual Capacity**.
 - Factor three was explained by one variable with a loading of 1.06 and represented WHSW employee engagement on the conceptual framework. This was labelled **Engagement and Efficacy**.
 - Factor four was explained by four variables with loadings ranging between 0.41 and 0.80. This represented the physical safety, health, psychological health, social, and personal growth elements of WHSW. This was labelled **Worker Wellbeing**.
 - Factor five was explained by four variables with loadings ranging between 0.32 and 0.76. This represented attributes such as leader-member coaching, mentoring, strength of interpersonal relationships, and the individual's ability to influence and act on WHSW. This was labelled **Connection and Ownership**.
 - Factor six was explained mostly by one variable with a loading of 0.50 and was considered as representing the influence of culture on strategy as identified in the literature and qualitative phase. This was labelled **Cultural influence**.
 - Factor seven was explained by one variable with loading of 0.45 and represented role clarity, leader feedback, workgroup support elements of the framework, and their linkage with context. This was labelled **Processes and Context**.
 - Factor eight was explained by three variables with loadings of 0.51, 0.50, and 0.30. This factor represented processes inclusive of governance, resourcing requirements, and involvement of employees at various levels in the organisation in strategy to determine the content. This was labelled **Strategy Process Content**.

Table 36 outlines the factor item loadings values for the pattern matrix across each of the eight factors.

Table 36 – Pattern factor matrix with loadings

WEES Question / Variable	Factor							
	1	2	3	4	5	6	7	8
Organizational Context influences Work Health, Safety and Wellbeing Strategy.	1.06	-0.06	0.01	-0.10	0.02	-0.11	-0.12	0.02
Work Health, Safety and Wellbeing Strategy influences Work Health, Safety and Wellbeing Employee Engagement.	0.16	0.02	0.26	0.50	0.04	0.12	0.14	-0.07
Work Health, Safety and Wellbeing Employee Engagement Influences Work Health, Safety and Wellbeing strategy efficacy.	0.02	0.01	1.06	-0.10	-0.01	0.08	-0.18	0.01
Organisational processes influences' Work Health, Safety and Wellbeing Employee Engagement.	0.14	0.28	0.15	0.45	0.06	0.04	0.13	-0.34
Individual Enablers influences Work Health, Safety and Wellbeing Employee Engagement.	0.08	0.36	0.21	0.18	0.21	-0.29	-0.40	-0.02
Work Health, Safety and Wellbeing Employee Engagement influences Organisational Processes.	-0.05	0.08	0.46	0.08	0.07	-0.21	0.32	-0.01
Work Health, Safety and Wellbeing Employee Engagement influences Individual Enablers.	-0.02	0.30	0.08	0.20	0.00	-0.53	0.22	0.26
Organisational Processes influences Organisational Context.	0.01	0.07	-0.03	-0.03	0.22	0.01	0.46	-0.02
Individual Enablers influence Work Health, Safety and Wellbeing Strategy.	-0.04	1.03	-0.03	-0.11	0.10	0.09	-0.09	0.07
Work Health, Safety and Wellbeing Strategy Efficacy Influences Work Health, Safety and Wellbeing Strategy.	0.01	0.50	0.07	0.00	-0.21	-0.15	0.41	-0.04
Leadership influences Organisational Context, Work Health, Safety and Well-being Strategy and Employee Engagement.	0.30	0.06	0.21	0.46	-0.15	0.33	0.12	-0.19
Prevention of harm, including physical safety is an inherent core of Worker Wellbeing.	-0.07	0.00	0.01	0.80	-0.04	-0.07	-0.08	-0.05
Worker Wellbeing includes employees managing lifestyle health and psychological health risks as an organisational priority. Which positively affects employee commitment.	0.06	0.11	0.03	0.41	-0.17	0.02	0.12	0.20
To be in an optimal state of wellbeing employees need to be connected at the individual, team and organisational levels and have purpose in their work.	0.05	0.03	-0.11	0.53	0.16	0.26	-0.06	0.19
Individual risk awareness and proactive action are central to personal growth in WHSW Capability.	-0.03	-0.12	0.01	0.71	0.28	-0.25	-0.06	0.07
Organisational Culture influences WHSW strategy development over the short and long-term.	0.06	0.08	0.06	0.38	0.10	0.50	0.14	0.04
Organisational Context is dynamic and affects the short and long-term WHSW strategy content.	0.27	0.06	-0.06	-0.06	0.17	0.15	0.23	0.03
Employees need to be involved in WHSW strategy development at an early stage and be clear on their personal contribution as it relates to vision, mission and goals.	-0.11	0.08	0.11	-0.06	0.20	0.18	0.06	0.51
Legal obligations and organisational corporate governance requirements need to be understood and assessed as they influence the focus of strategy.	0.15	0.01	0.02	0.09	-0.02	-0.01	0.27	0.30

Individual leadership capability affects wellbeing and the level of engagement in strategy.	0.08	-0.01	0.16	0.43	-0.01	0.16	-0.04	0.29
WHSW strategy and resource allocation must be integrated and address immediate risks prior to longer term strategic risks.	0.16	0.06	-0.02	0.12	0.02	-0.19	-0.06	0.50
Line management drive and affect strategy implementation by translating and communicating organisational requirements for individuals and teams.	0.08	-0.12	0.21	0.00	0.08	0.05	0.27	0.14
Ownership enhances personal growth and the capability to engage in WHSW Strategy.	-0.17	-0.02	0.18	0.06	0.32	-0.09	0.07	0.27
Personal risk awareness and control needs to be facilitated by the organisation as part of strategy implementation to manage employees in WHSW.	0.02	-0.06	0.14	0.16	0.35	-0.16	0.11	0.06
Meaningful consultation for understanding the WHSW Strategy implementation impacts on the level of employee engagement in the short and long term.	0.05	0.02	0.17	0.06	0.76	-0.15	0.12	-0.23
Organisational and leader trust is dependent on values-based feedback which affects employee motivation and individual wellbeing.	0.02	0.07	-0.09	0.03	0.49	0.15	-0.01	0.13
WHSW Strategy measurement must focus on broader outcomes related to individual wellbeing, work completed, worker perceptions on safety systems, risk management effectiveness	0.12	0.07	0.07	-0.07	0.53	0.10	0.04	0.16

(Source: SPSS™ version 26 Output Pattern Matrix)

d) **Validity and Reliability.** The survey instrument questions relating to WHSW strategy (Part B) were able to be assessed for validity and reliability. For this study *Face, Construct and Content* validity was able to be determined as outlined in Chapter 3. Examination of the means and standard deviations for the questions relating to each construct (organisational context, WHSW strategy, WHSW employee engagement, and WHSW strategy efficacy) indicated consistent mean scores across each of the attributes indicating that the instrument provided meaningful information about the attributes being studied (O'Dwyer & Bernauer 2014). In addition, these results, the literature review outcomes, semi-structured interview themes, survey review, pretesting and piloting by SMEs established the validity of the questions developed for WEES. Reliability evaluates the 'extent of individual differences between scores across groups of respondents' (Hagan 2014, p.431) to minimise the effect of measurement error. Cronbach's alpha (α) was used to evaluate instrument reliability. Cronbach's alpha (α) determines the degree of variability 'among individual items, total scores and total number of items on the instrument' (O'Dwyer & Bernauer 2014, p. 128) with 0.70 or greater representing higher reliability with the difference accounted for as random error. The outcome of Cronbach's alpha analysis in SPSS™ indicated an α score of 0.86. Which was greater than the "minimum" of 0.70 indicating the frameworks internal consistency and therefore a reliable instrument to measure the latent factors.

4.2.5.2 WHSW employee engagement. WHSW employee engagement utilised the questions from the UWES. The following are a summary of the findings for this group of questions.

a) **Method.** In total there were 17 questions relating to WHSW employee engagement for analysis in SPSS™. Principal components analysis (PCA) was utilised as the tool for analysis. Due to the pragmatic paradigm adopted for this study PCA was deemed to be the most suitable extraction method because the main objective of the analysis was to reduce the data rather than identify underlying latent constructs. Varimax rotation was applied to achieve the most parsimonious model because it was assumed that the variables would remain uncorrelated when endeavouring to achieve the best fit of data. This assumption was based on the previously validated studies of the component structure (Schaufeli & Bakker 2003)

Consistent with the detailed guidance by Hair et al. (2009) the data was interrogated as follows: (1) review of the correlation and rotated components matrix to identify loadings that were greater than 0.30, as the minimum significant level; high and low partial loadings were removed, (2) review of the components to confirm those with an eigenvalue greater than 1.0, (3) scree plots were visually reviewed for comparison with the eigenvalues to confirm the components, and (4) confirming that communalities for each variable greater than 0.6 (Hair et al. 2009). As the UWES has been empirically validated the theoretical basis was also considered when determining the variables and components of the framework.

b) **Analysis.** The analysis of the 17 questions (variables) about employee engagement produced a three-factor model based on an Eigenvalue of greater than one, which accounted for 52.8% of the variance. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy (0.77) and Bartlett's Test of Sphericity ($\chi^2=610.701$, $df=136$, $p<0.000$) indicated that it was acceptable to undertake PCA. The SPSS™ solution outputs provide a matrix (components and rotated components) with both being utilised when reporting the outcomes of PCA in the literature. For this study, the rotated components matrix was utilised as it provided a clearer structure of the model and was simpler to explain. Accordingly, each combination of variable and component were reviewed in the matrix to determine which cluster of loadings best explained each component.

- Component one accounted for 21.92% of the variance. All five variables from the questions relating to Dedication on the UWES loaded onto the component without any significant cross-loadings. The variable 'I find the work that I do full of meaning and purpose' (0.78) mostly explained the component. Loadings for the other variables

ranged between 0.73 and 0.76. The factor loading for the variable, 'Absorption is I feel happy when I am working intensely' (0.65) that loaded strongly onto component one was inconsistent with the previous studies relating to the UWES which indicate this variable relates to Absorption.

- Component two accounted for 17.30% variance and was represented by five variables. The variable 'Absorption is I get carried away when I'm working' (0.78) mostly explained this component with the loadings for the remaining four variables ranging between 0.42 and 0.75. These loadings were consistent with the previous studies relating to the UWES. The factor loading for the variable, 'Absorption is I feel happy when I am working intensely' (0.65) loaded strongly onto component one. This was inconsistent with previous studies and indicated that working intensely may be considered by the respondents to be more associated with Dedication.
- Component three accounted for 13.57% of the variance. Four variables clustered and loaded moderately onto the component with a range of 0.55 and 0.82. The variable that mostly explained the component was 'Vigor is at my job, I am very resilient, mentally' (0.82). In contrast, two variables did not load onto the component as expected based on previous studies. Firstly, the variable 'Vigor is at my work I feel bursting with energy' (0.51) loaded onto component two and indicated a weak cross-loading (0.32) onto component three, which was expected and consistent with previous studies. The second variable, 'Vigor is at my job I feel strong and vigorous' (0.51) also loaded onto component two and indicated a weak cross loading (0.38) onto component three which was expected and consistent with previous studies. Accordingly, the respondents may consider these variables to be more associated with Absorption which is characterized as fully concentrated and happily engrossed in one's work, making it difficult to get detached from work (Schaufeli & Bakker 2003).

c) **Summary of PCA Findings.** The 17 WEES questions relating to WHSW employee engagement were analysed using principal components analysis with Varimax rotation. A three-component model was deemed to be the best fit. Each of the variables was reviewed to determine the component they best represented based on the rotated component matrix loadings. These are summarised below.

- Component one accounted for 21.92% of the variance. Five variables loaded onto this component with a range between 0.73 to 0.78. This was labelled **Dedication**.
- Component two accounted for 17.30% variance and was represented by five variables with a range between 0.42 to 0.78. This was labelled **Absorption**.

- Component three accounted for 13.57% of the variance. Four variables clustered and loaded onto the component with a range between 0.55 and 0.82. This was labelled **Vigour**.

These results confirm the internal and construct validity of previous studies. Table 37 outlines the item loadings for the rotated components matrix.

Table 37 - UWES rotated component matrix

WEES Question / Variable	Component		
	1	2	3
Vigor is at my work I feel bursting with energy	0.27	0.51	0.32
Vigor is at my job I feel strong and vigorous	0.14	0.51	0.38
Vigor is when I get up in the morning, I feel like going to work	0.10	0.28	0.69
Vigor is I can continue working for very long periods at a time	0.09	0.29	0.55
Vigor is at my job, I am very resilient, mentally	0.24	-0.11	0.82
Vigor is at my work I always persevere, even when things do not go well	0.38	-0.27	0.60
Dedication is I find the work that I do full of meaning and purpose	0.78	0.11	0.17
Dedication is I am proud on the work that I do	0.73	0.11	0.23
Dedication is to me my job is challenging	0.76	-0.16	0.13
Dedication is I am enthusiastic about my job	0.73	0.30	0.16
Dedication is my job inspires me	0.73	0.16	0.18
Absorption is time flies when I'm working	0.34	0.42	0.22
Absorption is when I am working, I forget everything else around me	0.05	0.75	-0.08
Absorption is I feel happy when I am working intensely	0.65	0.18	0.01
Absorption is I am immersed in my work	0.14	0.58	0.08
Absorption is I get carried away when I'm working	0.24	0.78	-0.13
Absorption is It is difficult to detach myself from my job	-0.14	0.55	0.14

(Source: SPSS™ version 26 output rotated component matrix)

d) **Validity and reliability.** The survey instrument questions relating to WHSW employee engagement (Part C) were assessed for Construct and Content validity and reliability. *Construct* validity ‘relates to whether the instrument is providing the researcher with meaningful information about the attributes being studied’ (O'Dwyer & Bernauer 2014, p. 116), *Content or face* validity ‘relates to whether the survey questions represent the universe of behaviours that define the attribute’ (O'Dwyer & Bernauer 2014, p. 114). Examination of the means and standard deviations for the questions measuring each of the constructs (Vigour, Dedication and Absorption) indicated consistent mean scores across each of the attributes. Previous studies also report the validity of the UWES (Schaufeli &

Bakker 2003; Robertson-Smith & Markwick 2009). Accordingly, these results and the literature review outcomes, semi-structured interview themes, survey review, pretesting, and piloting of the survey confirmed validity.

Reliability evaluates the 'extent of individual differences between scores across groups of respondents' (Hagan 2014, p.431) to minimise the effect of measurement error. Cronbach's alpha (α) was used to evaluate instrument reliability as it can be applied to single survey administration. Cronbach's alpha determines the degree of variability 'among individual items, total scores and total number of items on the instrument' (O'Dwyer & Bernauer 2014, p. 128) with 0.70 or greater representing higher reliability with the difference accounted for as random error, and therefore, indicates the frameworks' internal consistency. The outcome of Cronbach's alpha analysis in SPSS indicated α of 0.83. This was greater than the minimum of 0.70 and was therefore considered to be a reliable instrument to measure the latent factors.

4.3 WHSW Strategy and Employee Engagement Regression Analysis

A simple regression analysis was undertaken to examine the relationship between WHSW strategy and each of the three employee engagement outcome variables vigour, dedication, and absorption. According to Hair et al. (2009) simple regression analysis is suitable when investigating an explanatory or predictive relationship between an independent and dependent variable.

- a) **Method.** The dataset from the WEES results was used for the regression analysis (RA) and required reduction. Following the guidance of Hair et al. (2009) 13 WEES questions (variables), that logically represented this new WHSW strategy construct (the independent variable) were used to create a composite variable in SPSS™. The mean result for each of the 95 cases was then computed using SPSS™. Following the same approach, the questions for each of the three UWES components that have been empirically validated were combined to create three individual composite variables and the mean results for each of the 95 cases computed using SPSS™. The new composite variable which represented the construct WHSW strategy (coded as WHSWSt) was selected as the independent variable in SPSS™ and each of the UWES composite variables selected as the dependent variable. A linear RA was undertaken for each of the three hypothesised relationships using SPSS™. Consistent with the detailed guidance by Hair et al. (2009) a review of the correlation matrix output from SPSS was undertaken to determine further suitability of analysis. Each SPSS™ model output for WHSWSt to absorption (coded as EEAbs), WHSWSt to vigour (coded as

EEVig), and WHSWSt to dedication (coded as EEDed) was then examined for the fit of data and relationships for each of the outcome variables.

- b) **Analysis and results.** For the 95 cases included in the analysis the descriptive statistics, correlation matrix results, and a visual review of the probability plots for each model confirmed that it was acceptable to undertake a simple regression analysis as there were no non-normal distributions indicated. The independent variable for the study, WHSW strategy, reported a mean score of $M=4.30$ ($SD=.37$). The results for each of the UWES variables were - Absorption ($M=3.54$, $SD=.59$), Vigour ($M=3.75$, $SD=.59$), and Dedication ($M=3.92$, $SD=.73$). Table 38 shows the correlation matrix results with the most significant correlation indicated between WHSW strategy and Dedication (0.433, $p < 0.01$).

Table 38 - Correlation matrix results for WHSW Strategy and employee engagement

Variable	Absorption	Vigour	Dedication	WHSW Strategy
Absorption	1			
Vigour	.369**	1		
Dedication	.343**	.520**	1	
WHSW Strategy	.339**	.259*	.433**	1

** Correlation is significant at the 0.01 level (2-tailed), * Correlation is significant at the 0.05 level (2-tailed).

(Source: SPSS™ version 26 RA Output Correlation Matrix)

As outlined in the method section above a simple regression analysis was undertaken to investigate if WHSW strategy influences an employee's engagement in the implementation of the strategy. Each of the models is summarised below:

- **WHSW strategy and Absorption (EEAbs).** The goal of this model was to investigate whether an employees' understanding of the WHSW strategy influences the level of engagement when operationalising the strategy. For the regressed WHSWSt and EEAbs model the independent variable only explained 10.5% ($r^2_{adj}=.105$) suggesting that the model was a weak fit with an overall significant relationship ($F=12.04$, $p=0.001$) between WHSW strategy and Absorption ($\beta=.339$, $t=3.47$, $p=0.001$).
- **WHSW strategy and Vigour (EEVig).** The goal of this model was to investigate whether an employees' commitment to action, including risk recognition and proactive behaviours affects the level of engagement when operationalising the strategy. For the regressed WHSWSt and EEVig model the independent variable only explained 5.07% ($r^2_{adj}=.057$) suggesting that the model was a weak fit with no significant relationship ($F=6.70$, $p=.011$) between WHSW strategy and Vigour ($\beta=.259$, $t=2.59$, $p=.011$).
- **WHSW strategy and Dedication (EEDed).** The goal of this model was to investigate whether employee motivation affects the level of engagement in operationalising the

strategy. For the regressed WHSWSt and EEDed model, the independent variable explained 17.8% ($r^2_{adj}=0.178$.) suggesting that the model was a moderate fit with a significant relationship ($F=6.70$, $p<0.001$) between WHSW strategy and Dedication ($\beta=0.433$, $t=4.62$, $p=0.0001$).

c) Summary of RA Findings

Overall the results found that WHSW strategy explained 11.5% variance of absorption, $F(1,93)=12.04$, $p=0.001$, 17.8% variance of dedication, $F(1,93)=21.40$, $p=0.001$ and 5.07% variance of vigour, $F(1,93)=6.70$, $p=0.011$. It was found that of the three dependent variables WHSW strategy mostly predicted Dedication which represents an employees' motivation and its effect on the level of engagement in operationalising the strategy for WHSW.

The simple regression analysis was not able to establish any significant relationship between the independent variable of WHSW strategy and the dependent variables for each of the employee engagement components. Yet the correlation matrix suggests that there is a moderate relationship between WHSW strategy and dedication (0.433), and a weaker relationship with absorption (0.339) with both having a significant correlation at $p<0.01$ level. Accordingly, further research is required into these relationships based on the correlation coefficients as the results of each model could be due to interactions between the variables tested rather than predicative cause and effect. Appendix 10 provides the RA probability plots.

4.4 Summary

As a mixed-method study, this chapter outlined the approach to data capture and analysis for the qualitative phase one (semi-structured interview) and quantitative phase two (online survey).

For phase one, eight interviews were conducted, transcribed and analysed using the Profile matrix outlined by Kuckartz (2014a). The data was then evaluated to identify the common attributes by assigning a code to determine the frequency or consistency of the attribute occurring. Each of the codes was then reviewed and consolidated into a representative theme relating to each of the constructs outlined in the conceptual framework. In total, the semi-structured interviews established 17 themes related to WHSW strategy and employee engagement. As part of the semi-structured interviews, each of constructs, the initial conceptual framework, and operational definition of the respective variable were reviewed by each of the subject matter experts. The final definitions and themes were used to inform the development of the measurement instrument used in phase two.

Phase two was an online survey administered through the online Lime Survey™ platform with a total of 95 surveys being fully completed. An EFA was applied on the 27 WEES questions relating to Organisational context and WHSW strategy producing an eight-factor model. The 17 WEES questions relating to employee engagement were analysed using principal components analysis. A three-component model was deemed to be the best fit. The results confirmed the internal and construct validity of previous studies relating to the UWES. A framework of WHSW strategy and each of UWES components (Vigour, Dedication, and Absorption) were analysed through correlation analysis with the results indicating statistically significant relationships across the three variables. Linear regression analysis was used to analyse the hypothesised model with poor predictive results of the framework indicated across each of the three UWES variables.

CHAPTER 5 – DISCUSSION AND INTERPRETATION

This chapter discusses the findings from the literature review, semi-structured interviews, and online survey as a basis for answering the research questions and validating the WHSW strategy and employee engagement framework.

More specifically the aims of this chapter are to:

- Critically discuss the results of the study's data analysis (Chapter 4) and consider the implications associated with the findings.
- Report on the findings from this mixed-methods study as they relate to the research objectives and questions.

5.1 Summary of the Study

Chapter 1 introduced and outlined WHSW from a business perspective. It highlighted that the traditional focus of WHSW has been dominated by a risk management approach to minimise the potential for unexpected negative outcomes. Consequently, the business case or value of WHSW has attracted significant attention in the literature with numerous commentators reporting on the “benefits” of WHSW from both operational and strategic perspectives. The notion of “benefits” has largely employed a broad cross-section of reported indicators such as reduced injuries, reduced workers compensation costs, improved productivity, presenteeism, job satisfaction, and employee engagement. However, performance improvement has plateaued and it has become clear that the reliance on traditional approaches (hazard management, safety management systems, and human factors) alone are not going to achieve the desired level of workplace health and safety performance (Borys et al. 2012). Consequently, WHSW remains a prominent business issue as WRIL, disease and ill-being continue to occur, requiring new models and frameworks to improve WHSW performance.

Chapter 2 presented a detailed literature review and critical analysis of prior research relating to WHSW, employee engagement, strategy, and performance measurement in this regard. With apparent tensions between balancing organisational performance requirements and maintaining or improving employee health, safety, and wellbeing. The literature also reported the emergence of several alternative models illustrating new thinking in safety that examined and explained incident causation, and redefined safety and its management by providing adaptable risk models that enable the use of resources (including human) in a proactive manner to balance safety and operational requirements (Dekker et al. 2008). It was noted that many of the existing

models remained safety centric and somewhat detached from the overarching strategy of the organisation due to the reliance on safety management systems. Because of the emerging concern around the relationship between chronic disease, mental health and decreasing employee engagement, there was: (a) a strategic organisational performance incentive associated with increasing employee engagement, and (b) a clear need to shift thinking and practice through frameworks that place an emphasis on health and wellbeing within the organisation's strategy. There was limited empirical evidence in the literature about the relationship between business strategy, WHSW, and performance measurement.

Models and frameworks that attempted to illustrate the complexity of this proposed relationship are also rare. Whilst the literature reported numerous studies into the relationship between employee engagement and efficacy, and productivity, they did not define and operationalise WHSW strategy. This gap led to calls for further research into WHSW from a business perspective (Zanko & Dawson 2012). Therefore, this study was significant in:

- a. Establishing operational definitions for WHSW strategy and employee engagement and addressed the gaps in the existing literature.
- b. Investigating and reporting on the relationship between WHSW strategy and employee engagement.
- c. Developing a WHSW strategy and employee engagement framework validated by industry to strategically improve organisational and WHSW performance and individual wellbeing.

Chapter 3 outlined the research methodology employed in this study. It established that this practice-based study used the exploratory mixed methods approach to investigate workplace health, safety, and wellbeing from a business perspective as an organisational strategic priority. It applied semi-structured interviews, with thematic analysis followed by an online survey that employed exploratory factor analysis to reveal the correlations between survey items and the reliability of the instrument. Regression analysis was used to determine whether the data fitted the framework, and if there was a statistically significant relationship between WHSW strategy and employee engagement.

Chapter 4 reported on the analysis and results of each phase of the research methodology. Phase one of the study consisted of eight qualitative semi-structured interviews. A thematic analysis of the interviews identified the key themes which were used to refine the initial framework and informed the development of the WEES survey instrument to: (a) validate the findings from phase one, and (b) validate the framework in phase two. The second phase of the study was

the administration of the WEES survey instrument through the online Lime Survey™ platform for a cross-sectional survey. In total there were 95 surveys fully completed. Exploratory factor analysis was applied to examine the survey data to operationalise the constructs and variables of the framework. The exploratory factor analysis also revealed the correlations between survey items and the reliability of the instrument. A regression analysis was then employed to investigate whether: (a) the data fitted the framework well, and (b) whether there was a statistically significant relationship between WHSW strategy and the three dimensions of employee engagement. The following sections outline the findings and discussion from this study.

5.2 Findings of the Study

According to Creswell (2014) when interpreting sequential exploratory mixed method research the findings from each phase should be presented separately and then interpreted depending on the purpose of integration. Consistent with this, the findings of this research are presented as they relate to each of the research questions for this study with a focus on informing knowledge in professional practice.

5.2.1 Research Question 1 (RQ1): What business, WHSW practices, and measurement systems are suitable to inform the development of the WHSW strategy and employee engagement framework for Queensland businesses?

RQ1 was related to the qualitative and quantitative phases of the study. The semi-structured interviews and online survey identified and validated the key variables and dimensions of the proposed framework that outlined the relationship between WHSW strategy, employee engagement, and strategy efficacy, in addition to the operational definitions for each construct. The thematic analysis, exploratory factor analysis, and regression analysis results were examined to determine the key findings as reported below.

- **Finding 1. Worker wellbeing consists of physical safety, health, psychological health, social, and personal growth elements.** Traditionally WHSW has focused on monitoring unwanted outcomes and their consequences such as injuries, illnesses, and costs to business. This study proposed that worker wellbeing extends beyond this focus to one which promotes positive work, social life, and broader business outcomes. The results of the semi-structured interviews confirmed that WHSW could consist of dimensions relating not only to: (1) minimising unwanted outcomes and the prevention of injuries and illness (work safety), but (2) promoting healthy lifestyle (health and wellness), (3) promoting mental health (wellbeing), and (4) personal growth in relation to WHSW (employee and

work engagement). This finding was also supported in the literature that confirms wellbeing as a broad subjective concept comprising these dimensions (Pescud et al. 2015). This finding suggests that worker wellbeing can add value to business as a strategic priority by facilitating a state in which workers are in an optimal condition that is characterised by being free from injury, illness, disease, in good mental health, and satisfaction with work-life. Such a state leads to broader benefits for the individual and the business. Accordingly, the WHSW strategy content needs to incorporate elements that address these conditional elements, including measures of efficacy.

- **Finding 2. Employees need to be involved in WHSW strategy development at an early stage and be clear on their personal contribution as it relates to vision, mission, and goals.** Organisational context is the conditions under which strategy is developed. The semi-structured interviews confirmed that WHSW needs to be a component of the organisational strategy. The engagement of employees in the organisation's strategy process is critically important as reported on in the literature (Mintzberg 2004). This finding is consistent with resource based view (RBV) of strategy formulation which includes matching capabilities and resources, and the view of "Safety 2" (Hollnagel 2013) where employees are considered as being central in the organisation's WHSW strategy development process. This finding suggests that employee involvement is integral to the development of WHSW strategy and is achieved through effective meaningful consultation. This broader organisational purpose of employee engagement influences the efficacy of strategy operationalisation at the workplace level. It enables the management to identify acute immediate risks which are considered important by employees prior to focusing on longer term strategic risks.
- **Finding 3. Legal obligations and organisational corporate governance requirements need to be understood and assessed as they influence the focus of strategy.** The strategic management of WHSW and business have become more intertwined. This includes governance requirements and meeting legal obligations as required in business and WHSW legislation. The finding from the semi-structured interviews confirmed that these dimensions (legal obligations and corporate governance requirements) within organisational context inform strategy content. This suggests that the systematic management of risk should be embedded within the organisational and WHSW strategy, which is distinct from operational risk control. This management of risk necessarily requires a process of risk evaluation, prioritisation, and the monitoring of control efficacy by senior managers through appropriate reporting, measures, and indicators. Included within this strategy is the provision of resources (e.g., financial, human, technological),

which is a critical component of due diligence within the broader business management context. These strategic options reflect the necessity that senior managers exercise organisational controls which are a mix of technical (e.g., hazard and risk management), cultural (e.g., motivation, behaviour) and governance (e.g., resources, strategy) at the strategic level. This finding was supported in the literature that established the significance of the potential impact of WHSW risks at the enterprise level, in addition to the business benefits of WHSW risk management (O'Neill & Wolfe 2017).

- **Finding 4. Individual leadership capability affects wellbeing and the level of employee engagement in strategy.** This finding from the semi-structured interviews suggests that as a business practice it is expected from a leader to effectively engage employees in the organisational and WHSW strategy using both transformational and transactional leadership attributes to minimise destructive leadership behaviours as these negatively impact on individual wellbeing and employee engagement. This is consistent with the views of Padilla, Hogan and Kaiser (2007) in the literature. Therefore, this finding confirms that proactive leadership in business and WHS practice is central to enabling an employees' capacity to engage in the strategy and removing people-related barriers that inhibit physical safety and psychological wellbeing.
- **Finding 5. Line management drive and affect strategy implementation by translating and communicating organisational requirements for individual and teams.** This finding from the semi-structured interviews suggests that leaders must be skilled in articulating the organisations vision and objectives, motivating, and coaching employees, and initiating change across the organisation. The use of these skills indicates the significance of positive leadership in the strategy implementation process. Therefore, this finding confirms that leadership is a crucial business and WHS practice that is central to providing clarity to the organisation's strategy and its relationship with WHSW priorities. This is consistent with Mintzberg's (2004) view that middle manager capabilities are crucial in interpreting and actioning organisational strategy.
- **Finding 6. The degree of connection with the WHSW strategy affects employee motivation and behaviours.** This finding from the semi-structured interviews suggests that organisations need to facilitate an environment to ensure that the cognitive and emotional needs of individuals are met. This is because employees need to: (a) understand how their role relates to the organisations core purpose, vision, strategy, objectives, and WHSW priorities, and (b) how they contribute to WHSW and business outcomes. This business practice is referred to in the literature as a "line of sight" (Boswell & Boudreau

2001). As such, this finding further supports the relationships between strategic commitment, WHSW strategy content, including management systems, employee engagement, and management and worker perceptions of WHSW strategy efficacy (Yorio, Willmer & Moore 2015).

- **Finding 7. Ownership enhances personal growth and the capability to engage in WHSW strategy.** This finding from the semi-structured interviews suggests that ownership within WHSW strategy development, implementation, and the achievement of desired organisational performance is an organisational development process. And therefore, it connects with employee and work engagement at the individual and team levels. On this basis WHSW personal growth requirements appear to be related to role autonomy, decision latitude, risk recognition, and exercising prosocial behaviours in the work environment. This is crucial for the effective implementation of strategy and represents the behavioural component of Yorio, Willmer, and Moore's (2015) framework. Ownership within the strategy affects organisational strategy outcomes, which has been documented in the literature (e.g., Boswell & Boudreau 2001; Harter et al. 2013)
- **Finding 8. The organisation needs to facilitate personal risk awareness and control as part of strategy implementation to engage employees in WHSW.** This finding from the semi-structured interviews suggests that a shared understanding of WHSW risks influences an employee's commitment to action and exercising prosocial safety behaviour, including the control of unacceptable risks. As such, this is a key WHSW practice within strategy and confirms that the organisation has a role in achieving effective behaviour change focusing on the "high potential WHSW risks" that employees engage with; and have the personal resources to exercise control over. Such a view is supported by the literature with several safety climate dimensions relating to perception of risk, management attitudes to safety, and employee commitment to safety. This finding further confirms the joint involvement of management and employees in WHSW strategy development and operationalisation (Mintzberg 2004; Melander et al. 2016)
- **Finding 9. WHSW strategy must incorporate broader measures related to individual wellbeing, normal work completed, worker perceptions on safety systems, risk management effectiveness, and satisfaction with work.** This finding from the semi-structured interviews suggests that an evaluative approach to WHSW efficacy can be applied to extend beyond WRII or disease indicators which typically are unwanted outcomes. Such an approach is inclusive of WRII or disease indicators, people development and organisational centric measures such as successful normal work, that is safe. Accordingly, it is evident that by adopting a broader humanistic approach to measurement

and evaluation, WHSW priorities within the organisational strategy can inform progress on strategy implementation, and facilitate organisational learning at the operational, tactical, and strategic levels. This finding is supported in the literature by Noblet and LaMontagne (2014) and Hollnagel (2013).

5.2.2 Research Question 2 (RQ2): How can the developed WHSW strategy and employee engagement framework improve WHSW and business performance beyond standard WHSW management processes in Queensland businesses?

RQ2 related to the qualitative and quantitative phases of the study. The online cross-sectional survey validated the revised framework, which included 17 themes, from phase one. Exploratory factor analysis and regression analysis results were examined to determine the key findings as reported below.

- **Finding 10. Work health, safety, and wellbeing strategy is influenced by the organizational context.** This finding from EFA suggests that the immediate and long term WHSW strategy content emerges from the organisational environment as informed by internal organisational aspects (e.g., culture, employee knowledge) and external requirements (e.g., legal obligations). Accordingly, organisations can improve strategy content and the strategic management of both WHSW and business risks by considering, assessing, and evaluating such factors when establishing the WHSW strategy content and priorities. This finding was supported in the review of the conceptual framework which includes feedback loops between organisational processes to organisational context and individual capability to WHSW strategy thereby supporting an evaluation-based approach to performance measurement.
- **Finding 11. Work health, safety, and wellbeing employee engagement influences work health, safety, and wellbeing strategy efficacy.** This finding from EFA suggests that WHSW, individual, and business outcomes are affected by how engaged employees are. Concerning WHSW strategy, the organisations processes, and an individual's capacity to engage is reinforced or enhanced through a reciprocal dynamic cycle. As such, this has a broader effect at the individual level because of improved satisfaction with the organisational experience and therefore WHSW. This finding is confirmed in the literature which illustrates positive relationships between employee engagement, strategy efficacy, and factors such as job satisfaction and innovation.
- **Finding 12. Connection and ownership affect employee engagement in the WHSW strategy.** This finding from the EFA suggests that organisational focus on personal

capability development and strong interpersonal relationships can affect “absorption” of the organisations purpose, strategy, and WHSW priorities; and therefore, the level of engagement in the strategy implementation process. This finding also suggests that connection and ownership can have broader organisational impact on employee engagement and an individual’s growth in WHSW due to improved personal risk awareness and risk control decision making and innovation.

- **Finding 13. An individual’s capacity to engage influences work health, safety, and wellbeing strategy.** This finding from the EFA suggests that organisations can enhance employee engagement by using organisational learning processes that increase their level of, understanding, personal commitment to action, and skills and capabilities that allow modification and improvement of WHSW strategy outcomes and overall efficacy.
- **Finding 14. Vigour, Dedication, and Absorption represent work engagement.** This finding from the EFA suggests that the Utrecht Work Engagement Scale can be applied by organisations to determine an individual’s capacity to engage in the WHSW strategy, as it relates to awareness and understanding (Absorption), personal commitment to action (Vigour) and motivation (Dedication). This finding confirmed the validity of UWES with a Cronbach’s alpha of 0.83.
- **Finding 15. Bursting with energy is a component of Absorption.** This finding from the EFA suggests that the Utrecht Work Engagement Scale dimensions are closely. As such, the extent to which employees understand, and see the purpose of their role, may affect the level of enthusiasm to participate in WHSW and strategy and task performance could be associated with Absorption.
- **Finding 16. Being strong and vigorous is a component of Absorption.** This finding from the EFA suggests that the Utrecht Work Engagement Scale dimensions are closely related. As such the extent to which organisations create meaningful work may affect an employee’s psychological wellbeing, and task performance and safety could be associated with Absorption.
- **Finding 17. Feeling happy when working intensely is a component of Dedication.** This finding from the EFA suggests that the Utrecht Work Engagement Scale dimensions are closely related. As such, that the extent of employee satisfaction (happiness) with the overall organisational experience, may affect the level of enthusiasm for, and the focus on, task performance and work safety could be associated with Dedication.

5.3 Discussion of the Results

This section reviews the semi-structured interview and online survey method used and provides a comparative review of the findings from the literature review and validation of the framework through semi-structured interviews and online survey.

- **Semi-structured interviews and online survey.** Overall, the approach outlined in section 3.4.1 and 3.4.2 proved to be rigorous in achieving the objectives of phase one and two of this study, with some noted limitations. As outlined, phase one of the study employed a convenience sampling strategy. The eight cases, who voluntarily participated, were selected from the researcher's immediate professional network. They were male WHSW professionals with experience at senior and middle management level; and were deemed to be subject matter experts. A limitation of this strategy was the potential influence of personal experiences between the participants and the researcher and the non-randomness of case selection, as such the responses may not be representative of the complete intended sampling frame and the views concerning WHSW strategy and employee engagement. Interviewer and respondent bias was negated by using questions/themes that represented the constructs of interest in the conceptual framework (Rowley 2012), and the researcher monitoring participant and his own body language in addition to paying attention to how each question was delivered ensured the correct interpretation of the six questions. The interview duration was adequate with five interviews taking 30 minutes and three requiring approximately 60 minutes.

For phase two a cross-sectional survey was chosen to validate the WHSW strategy and employee engagement constructs and examine the associations between the conceptual framework variables. Prior to administration seven of the eight respondents from semi-structured interviews were used to review and pilot the survey. This proved to be a valuable exercise and effective means of confirming the suitability of the format, question wording and nominal completion time of 15 minutes. The main survey was administered online via the Lime Survey™ platform. It is noted that the survey was long with a total of 59 questions requiring a response, accordingly the administration time in future studies should be reviewed and tested further as the respondents used in the pilot phase were familiar with the study, which may have influenced the nominal time reported. One way of effectively achieving this is using "Time Completion" statistic in Lime Survey™ which was not used for this study and is acknowledged as a limitation.

The recruitment of participants for the main survey proved difficult, but not unsurprising given the documented difficulty in eliciting participation in business research. To increase

the sample size several professional associations covering WHSW, Human Resources, and business professionals were accessed. In total there were 95 valid responses received for the study, which was adequate, but below the optimal response rate. Despite this limitation descriptive statistical analysis confirmed that EFA was viable to examine the underlying structure of the data and associations between the conceptual framework variables. Analysis of the demographic data in SPSS™ confirmed a cross section of responses from managers and professionals, including those with line management responsibility for WHSW strategy and employee engagement. A limitation of this strategy is the potential influence of responses from a more diverse group that does not represent WHSW strategy and employee engagement because the intended sample population is less clear.

- **Worker wellbeing.** The study proposed that as a strategic business priority wellbeing can enhance individual and organisational performance. Findings from the semi-structured interviews and survey confirmed that worker wellbeing can be related to four factors: (1) minimising unwanted outcomes and the prevention of work-related injuries and illness, (2) promoting health and wellness (3) promoting mental health (Psychological wellbeing), and (4) personal growth in relation to WHSW (employee engagement). The survey results supported the themes from phase one, Factor four (F4) explained four variables with loadings ranging between 0.41 and 0.80. This represented the physical safety, health, psychological health, social, and personal growth elements of WHSW and was labelled Worker Wellbeing. It was evident in the survey findings that work safety was central to WHSW as indicated by the interview themes. ‘Prevention of harm, including physical safety is an inherent core of worker wellbeing’ was the second most supported question in the survey responses. This finding suggests that organisations need to ensure that WHSW priorities address risks that employees consider as presenting physical harm before focusing on the broader elements relating to wellness, wellbeing, and engagement. This supports the operational definition as proposed and validated in this study.
- **Organisational context.** The semi-structured interview themes and online survey were able to establish that the immediate and long term WHSW strategy content is determined by internal organisational aspects and external requirements. An organisation’s WHSW strategy dimensions (content) and priorities are informed by organisational culture which was clearly indicated by the variable ‘Organisational culture influences WHSW strategy development over the short and long-term’ Factor six (F6, 0.50) and the strategy process embedded within organisational context. This context relates to legal obligations and corporate governance requirements and its effect on organisational culture. In addition, the

consideration of organisational strategy, requires feedback loops within the strategy cycles informed by employees' perception of WHSW priorities based on normal work and risk. This was confirmed by both phases of the study. The variable 'Organizational context influences work health, safety and wellbeing strategy' clearly represented Factor one (F1,1.06) and was also evident in responses from interviewees.

Furthermore, the positive relationship between organisational culture, leadership, organisational context, strategy, employee engagement and efficacy, including WHSW outcomes have strong theoretical support in the literature. This was supported by the participants in the semi-structured interviews leading to a refinement of the initial conceptual framework presented to the participants to reflect this broader influence and the dynamic interactions between organisational culture and all variables rather than being limited to organisational context.

- **WHSW strategy.** The study proposed that the WHSW strategy process and content are interrelated and must focus on matching internal capabilities with the risk and opportunity management efforts of the organisation to achieve a future state of WHSW, acknowledged as an organisational strategic priority. This includes strategy formulation through the resource based view (Miller 2019) which adopts an "inside-out" view by focusing on the internal capabilities of the organisation, tangible and intangible resources and core competencies in order to be competitive and sustainable (Henry 2008). This is especially applicable in the case of human resources (talent) who are considered as being a source of competitive advantage and central to the execution of the organisation's strategy and achievement of strategic goals. Resilience engineering and "work as imagined versus work as done" concepts were incorporated within the conceptual framework because they enable early and ongoing employee engagement in strategy formulation and refinement which improves content due to the insights provided (Hollnagel 2013). However, as outlined in the literature and confirmed through the semi-structured interviews and online survey WHSW strategy conception, formulation, and implementation is dynamic and driven by context (Zou & Sunindijo 2015). Consequently, despite engaging employees, content may be subject to change due to factors outside the control of employees by leaders of the business. This could lead to misalignment between leaders and employees, resistance, and an ineffective implementation process, resulting in the desired individual and organisational outcomes not being realised.

The semi-structured interviews were able to confirm that WHSW strategy should be based on corporate governance, injury and illness prevention systems, health and wellness, promotion of worker wellbeing, and evaluation. Systematic management of risk was

considered central to WHSW strategy in the interviews. It was also evident that both individual and organisational leadership influences strategy implementation by providing employee “line of sight” which has broader implications in areas such as engagement and wellbeing.

This finding confirms Mintzberg’s view (2004) that middle manager capabilities are crucial in interpreting and actioning organisational strategy. Factor seven was explained by one variable that represented leadership attributes such as role clarity, leader feedback, workgroup support elements of the framework, and their reciprocal linkage with context. This was consistent with interview findings from phase one which indicated that leadership influenced all components within the WHSW strategy and employee engagement framework. This led to leadership being revised within the framework prior to validation in phase two.

- **WHSW employee engagement.** This study proposed that organisational processes and individual capacity to engage were to central employee engagement, which in turn affects the efficacy of WHSW and organisational strategy. The semi-structured interviews established that employee engagement in organisational strategy and purpose can be achieved through meaningful consultation, provision of ownership and ensuring. Understanding of, and alignment with strategy was considered central to employee motivation. This has been defined in the literature as “line of sight” (Boswell & Boudreau 2001). It was also evident that role clarity and autonomy, decision latitude, risk recognition, and the enabling of prosocial behaviours were critical to the effective implementation of WHSW strategy. The data analysis of the online survey was able to confirm such attributes, especially the UWES dimensions as they related to awareness and understanding (Absorption), personal commitment to action (Vigour), and motivation (Dedication). Consistent with the earlier studies this finding supported that the dimensions of UWES are closely related as reflected by the three variables unexpectedly loading onto different factors to previous results. This confirms earlier studies that have suggested the underlying attributes of the UWES may overlap because they are closely related.

The role of leader as an enabler of employee engagement was also evident through coaching and mentoring. In addition, strength of interpersonal relationships and the individual’s ability to influence and act on WHSW was also indicated in the interviews. This finding supports the view that from an organisational perspective strategic leadership is essential in articulating the organisations vision, motivating employees, coaching, and providing feedback, in addition to ensuring appropriate resources for implementation of the strategy and achievement of performance outcomes. This confirms Mintzberg et al.’s (2003) and

Mintzberg's (2004) seminal works concluding that leadership enables strategy and creates the conditions under which employees engage and make strategy real. These findings were consistent with the review of the conceptual framework in phase one and the inclusion of a reciprocal relationship between employee engagement and organisational processes and individual capability. This finding supports the definition proposed by this study of employee engagement.

- **WHSW strategy efficacy.** This study proposed that by establishing WHSW as a strategy individual and organisational outcomes can be realised. It is clear that the traditional focus of WHSW measurement has been limited to outcomes such as injuries, illnesses, and costs to business, which do not demonstrate a broader impact, nor as Hollnagel (2013) argues reflect a measure of workplace safety. The semi-structured interviews were able to establish that with the inclusion of people and organisational centric measures, including the completion of successful work a broader more humanistic approach to measurement and evaluation of WHSW priorities and the organisational strategy is possible. This humanistic approach can facilitate organisational learning at the operational, tactical, and strategic levels. The results for the interviews indicated that efficacy was an important sub-part of the strategy and needed to be considered in relation to all components and stages of strategy. Efficacy was also linked to the broader definition of health and wellbeing. When embedded throughout the strategy development process would lead to positive WHSW outcomes. This finding is consistent with the literature that suggests WHSW strategy efficacy depends on inclusion of holistic measures including those for physical health and psychological wellbeing (Pescud et al. 2015).

Table 39 shows each of the constructs within the framework that were validated through interviews and their fit with the interview themes (variables) extracted from factor analysis of the surveys in phase two.

Table 39 – Comparison of phase one and two findings by construct

Construct	Phase one (Qualitative) (n=8)	Phase two (Quantitative) (n=95)	
	Interview response codes	Interviewee themes	Survey findings
Worker wellbeing	<ul style="list-style-type: none"> No harm to worker Physical injury Caring for workers Prevention of harm Promotion of physical safety being physically safe. Wellbeing of employees Lifestyle health as a strategic focus Psychological health Getting people into a positive cycle Psychological health effects work performance Feeling good about work Worker is part of the organisation Organisational health Social integration and connection Proactive “fix it” culture Self-driven performance and ownership Individual acknowledgement of risks Shared understanding of risks 	<ul style="list-style-type: none"> Prevention of harm, including physical safety is an inherent core of worker wellbeing Worker wellbeing includes employees managing lifestyle health and psychological health risk as an organisational priority. This positively affects employee commitment To be in optimal state of wellbeing employees need to be connected at the individual, team and organisational levels and have purpose in their work Individual risk awareness and proactive action are central to personal growth in their own WHSW capability 	<ul style="list-style-type: none"> EFA Factor Four: Worker Wellbeing
Organisational context	<ul style="list-style-type: none"> Legal compliance a foundation Senior management Due Diligence Corporate Governance Internal operating context influences strategy Different levels of context (individual, team, organisational) Strategy aligned with organisations culture Worker involvement in development Clear vision articulation Long term and short-term focus Engaging workers early in strategy development Understand personal contribution Changeable focus compliance and beyond compliance Performance measures and indicators 	<ul style="list-style-type: none"> Organisational culture effects WHSW strategy development over the short and long-term. Organisational context is dynamic and effects the short and long-term WHSW strategy content Employees need to be involved in WHSW strategy development at an early stage and be clear on their personal contribution as it relates to vision, mission and goals Legal obligations and organisational corporate governance requirements need to be understood and assessed as they influence the focus of strategy 	<ul style="list-style-type: none"> EFA Factor one: Organisational Context EFA Factor six: Cultural influences
WHSW strategy	<ul style="list-style-type: none"> Capability of internal resources for strategy Performance feedback influences strategy Link to mission and core purpose Focus on short term risks and long risks Alignment with organisational strategy Beyond traditional WHS Line management driven accountability Setting and communication of standards Verification of compliance Clear and coherent systems and processes 	<ul style="list-style-type: none"> Employees need to be involved in WHSW strategy development at an early stage and be clear on their personal contribution as it relates to vision, mission and goals WHSW strategy and resource allocation must be integrated and address immediate risks prior to longer term strategic risks 	<ul style="list-style-type: none"> EFA Factor eight: Strategy Process Content
WHSW employee engagement	<ul style="list-style-type: none"> Connection leads to better outcomes Ownership and continuing personal growth Capability for engagement Organisational role in behaviour change Alignment to vision and goals Valued meaningful collaboration Personal accountability Organisational and leader trust Leadership contextualising and articulating strategy Value based feedback Employee motivation Individual wellbeing Risk control action 	<ul style="list-style-type: none"> Connection with WHSW Strategy affects employee motivation and behaviours Ownership enhances personal growth and the capability to engage in WHSW strategy Personal risk awareness and control needs to be facilitated by the organisation as part of strategy implementation to engage employees in WHSW Meaningful consultation for understanding WHSW strategy implementation impacts on the level of employee engagement in the short and long term. Organisational and leader trust is dependent on values-based feedback that affects employee 	<ul style="list-style-type: none"> EFA Factor two: Individual Capacity EFA Factor three: Engagement and Efficacy EFA Factor five: Connection and Ownership. EFA Factor seven: Processes and Context PCA Component one: Dedication PCA Component two: Absorption PCA Component three: Vigor

		motivation and individual wellbeing	
WHSW strategy efficacy	<ul style="list-style-type: none"> • Successful work achieved • WHSW measurement contextualised • Broader measurement of outcomes • Short term and long-term efficacy • Strategy implementation milestones • Feedback loop to strategy • Workers perception of strategy progress • Behavioural change indicators 	<ul style="list-style-type: none"> • WHSW strategy measurement must focus on broader outcomes related to individual wellbeing, good work completed, worker perceptions on safety systems, risk management effectiveness and satisfaction with work 	<ul style="list-style-type: none"> • I understand my organisation's strategy (M=4.15, SD=.87) • My own level of health and wellbeing is high (M=4.00, SD=.97)
WHSW framework review	<ul style="list-style-type: none"> • Work as done feeds back into context/strategy • Work as done a driver of performance • Leadership style effects strategy efficacy • Good leadership motivates employees • Leadership is throughout the organisation • Leadership links back to context • Culture influences behaviours, strategy, outcomes • Understanding individuals and capabilities for implementation • Ownership and self-direction create buy in and motivation • WHSW processes link to business strategy • Employee alignment to strategy • Strategy must be clear and coherent • Ensuring the right climate for personal change. 	<ul style="list-style-type: none"> • Included in each Construct and framework 	<ul style="list-style-type: none"> • Included in each Construct and framework

(Source: Developed for this research)

This chapter has outlined the findings from the semi-structured interviews and online survey. In total there were 17 key findings of this study into WHSW strategy and employee engagement. The next chapter (Chapter 6 - Conclusion) summarises these findings and the conclusions from the study and, also reports on the limitations and further research requirements.

CHAPTER 6 – CONCLUSION

This chapter outlines the conclusions and recommendations for future research arising from this mixed-methods study on WHSW strategy and employee engagement.

More specifically the aim of this chapter is to:

- Outline the contribution of the research to professional practice.
- Report on the limitations of this study, including the research methodology.
- Outline recommendations for future research in WHSW strategy and employee engagement.

6.1 Contribution to Knowledge

This study made a significant contribution to the literature by addressing the gap pertaining to the definition and operationalisation of WHSW strategy and employee engagement. Based on this definition, the study contributed to the areas of workplace health and safety, wellbeing, and business, especially strategy, employee engagement and human resources. Importantly, it was able to address the calls for further research into WHSW from a business perspective because of a paucity of research with a limited focus on health and wellbeing as a priority within organisational strategy as noted in the literature.

As outlined above the study findings contribute significantly to knowledge and theory, and therefore, have broader application than the local level (Queensland) as outlined in the stated objectives of the study. More specifically this study provided new knowledge within professional practice through its insights into WHSW and its relationship with organisational strategy and employee engagement in the following ways:

- **Work Health, Safety and Wellbeing construct.** The wellbeing (and health) of workers, and their engagement within the context of organisational strategy was the underlying theoretical basis of this research. This was because wellbeing, a prominent societal issue, has lately assumed considerable importance in the workplace (Litchfield et al. 2016). The review of workplace health and safety, wellness and wellbeing literature found that WHSW definitions primarily focused on work and non-work-related physical health and mental health and in some instance's social aspects and employee engagement. A limitation within the existing literature for work-related wellbeing was that the primary focus was on mitigating pathologies in the workplace and, 'in practice it seems to be often discussed one-dimensionally' (Laine & Rinne 2015, p.91). The conceptual definition of worker wellbeing derived for this study evolved by shifting the focus of work-related wellbeing from

problems associated with ill-being to that of positive individual and organisational outcomes.

For this study the construct of worker wellbeing was derived from workplace health safety, wellbeing and human resources literature and comprised of: (a) *Work safety* informed by the Resilience engineering and “Safety 2” literature (Dekker et al. 2008; Hollangel 2013; Provan et al. 2020) which seem to be dominant theories in work safety with a focus on work injury and illness prevention, accident prevention, physical work environment maintenance and compliance. They provided for a more agile, proactive approach to organisational and worker safety whereby, employees are seen as being crucial to both safety and business performance, (b) *Work health and wellness* informed by the World Health Organization (2020, p.1) definition which is, ‘the state of complete physical, social and mental well-being, and not merely the absence of disease or infirmity’, (c) *Wellbeing and Quality of Work Life* informed by contributions from Dodge et al. (2012), and Pescud et al. (2015) who view wellbeing as a broad subjective concept comprised of personal satisfaction, work-life satisfaction and general health (psychological and physical); and Swamy (2015) who argues that organizational conditions or practices, including safe working conditions are essential for workers to experience a high quality of work life, and (c) *Engagement* informed by the UWES (Schaufeli & Bakker 2003) as a prominent theory in the literature. Also informing this dimension was Job Diagnostics Survey (Hackman & Oldham 1976) which has been validated in several studies and has become the most influential model in work design (Truss et al. 2013a).

Another factor that was considered in the study was the increasing amount of evidence that seeking purpose and finding meaning in work has become more prominent for employees, including a sense of personal achievement and accomplishment (Warr & Nielsen 2018). This is analogous with personal growth, which to date has not been comprehensively examined within the WHSW literature and is underdeveloped. Personal growth in relation to WHSW appeared to be related to a number of elements such as: individuals having clear purpose and goals as they relate to WHSW; their relationship with organisations objectives; having meaningful work (capability and skills recognition); learning and shared understanding of risk as it relates to WHSW contribution to the organisation; autonomy that enables prosocial behaviour in relation to risk management; and the ongoing adaptation and adoption and refinement of risk models and controls, tools and systems. Hence, the inclusion of personal growth was of significance in the study as it further informed the wellbeing, “Safety 2” and Resilience literature in terms of workers as a valuable resource within the system (Provan et al. 2020). This research identified the need in the work

wellbeing literature to investigate, refine, and define personal growth as an element of worker wellbeing and, therefore WHSW strategy. A recent contribution by Czerw (2017) is a questionnaire that diagnoses Eudemonic Wellbeing which incorporates measures of personal growth. This research contributed original knowledge through the operationalisation of a validated construct in phase one and two that informed work-related wellbeing theory. As such, on the basis of the results, defined Worker Wellbeing as:

A state facilitated by the organisation which enables good work-related social connection, promotes physical and psychological health, satisfaction with the job and personal growth. This leads to optimal worker motivation and engagement resulting in positive outcomes in an employee working life, social life, and organisational performance.

- **WHSW Strategy construct.** The literature established that WHSW models and frameworks primarily follow the management systems paradigm and are often detached from organisational strategy. The recognition that organisations are complex systems required creating a balance between safety and productivity requirements in strategies, plans and systems so that the organisational goals are achieved effectively (Provan et al. 2020). Consequently, the primary objective of this study was to develop and validate a WHSW strategy and employee engagement framework that incorporated both safety and productivity aspects that indicated a direct bearing on employee engagement. Underpinning the development of WHSW strategy was the definition of strategy by Rumelt (2011, cited in Johnsen 2015, p.5) ‘a cohesive response to an important challenge’ consisting of: (1) Strategy context, (2) Strategy process, and (3) Strategy content (Zou & Sunindijo 2015) and the strategy theory resource-based view (RBV) (Prahalad & Hamel 1990). RBV is concerned with core competence, matching capabilities with resources and the capacity to respond to threats and opportunities. In terms of integrating WHS with business requires risk evaluation, assessment and prioritisation and inclusion of business practices such as enterprise risk management and corporate governance as key dimensions of business strategy for WHSW. This research extended the WHS framework reported in the literature by Carden, Boyd and Valenti (2015).

The WHSW strategy dimensions in the conceptual framework were informed by, and was able to extend the frameworks outlined by Zou and Sunindijo (2015), Yorio, Willmer and Moore (2015), World Health Organisation and Burton (2010) and O’Neill and Wolfe (2017). They established three levels of organisational controls, cultural, technical and governance. It was also evident that the evolving safety sciences literature on “work as done versus work as imagined” paradigm (Hollnagel 2013) was prominent in informing current thinking in relation to WHSW strategy development. These WHSW and business dimensions, the strategy formulation process and content phase were validated through

phase one and two of this study. This business strategy formulation methodology outlined by Zou and Sunindijo (2015) was found suitable for WHSW strategy development, and these dimensions, practices and tools collectively provided an integrated strategy framework as new knowledge and was found suitable for further investigation and refinement. To further WHSW and business strategy theory resilience engineering or “Safety 2” theories fitted with the objective of this study (Provan et al. 2020) and had attributes that are analogous with the RBV and the strategy formulation process outlined by Zou and Sunindijo (2015). The concept of “guided adaptability” informed by the resilience engineering and “Safety 2” theories is a shift from traditional thinking to a more proactive business centric approach adopted to balance safety and organisational performance requirements through organisational capacity.

Guided adaptability dimensions of anticipation, readiness to respond, synchronization and proactive learning (Provan 2020, p.6) were incorporated in the framework to support the creation, revision, and refinement of risk models in strategy development that meet operational demands. As such, the dynamic iterative cycle adopted for this study also related to organisational context corresponds with strategy development as outlined by Zou and Sunindijo (2015); and with the *Anticipation* phase and the *Plan and revise* phase of Resilience engineering. In this study, *Readiness and respond* phase were aligned with the matching of resources and capabilities, *Synchronization* and *Proactive learning* phases were related to the feedback loops as iterative cycles and strategy efficacy indicators were included in the conceptual framework developed for this study. This research, therefore, made original contribution to the research in WHSW through the operationalisation and validation of WHSW strategy in phase one and two, and re-defined WHSW strategy as:

A strategic direction and allocation of resources dedicated to matching internal capabilities with opportunities and threats in achieving a future state of WHSW, as embedded in, and acknowledged as a priority of the organisational strategy while being underpinned by the organisational mission, values, and priorities.

- **Employee and work engagement construct.** The literature review established that employee engagement is central to WHSW and organisational performance, especially strategy implementation (van der Laan & Yap 2016). As such, employee engagement relates to the behavioural element of the strategy. There was limited evidence in the literature that operationalised the role of employee engagement in WHSW strategy from a business perspective. This study informed this distinct gap in the literature through the operationalisation and validation of the conceptual framework in phase one and two of this study. The WHSW employee engagement construct was informed by the framework outlined by Yorio, Willmer and Moore (2015) and “Line of Sight” practice outlined in the

business strategy literature by Boswell, Bingham and Colvin (2006). The literature recognised that engagement is influenced by organisational processes and an individual's capacity to engage. However, the literature appeared to discuss these independently from different disciplines perspectives (i.e., HRM and WHS) rather than as integrated perspectives. At individual work level, the UWES theory (Schaufeli & Bakker 2003), that has been validated through several previous studies, was used to inform the conceptual framework for this study. Phase one and two of this study confirmed that the UWES could be applied to WHSW employee engagement as its dimensions: Strategy understanding and awareness (Absorption), Personal commitment to action (Vigour) and Motivation (Dedication) indicated relationships with the key elements of strategy implementation. Organisational processes were informed by Hackman and Oldham (1976) Job Diagnostics Survey which is considered the most influential model in work design (Truss et al. 2013a), and the Work Design Questionnaire (Morgeson & Humphrey 2006) which addressed job design from a motivational work perspective. This research made original contribution by operationalising and validating the construct, WHSW strategy and employee engagement, and defined WHSW engagement as:

a workplace approach designed to ensure that employees are committed to their organisation's goals and values, motivated to contribute to organisational success, and are able at the same time to enhance their own sense of well-being through a positive, fulfilling, work-related state of mind that is characterised by vigour, dedication, and absorption.

The findings from this study as they relate to the framework has contributed to new knowledge which is summarised in section 6.1.1.

6.1.1 Final WHSW Strategy and Employee Engagement Framework

The primary objective of this study was to develop and validate a WHSW Strategy and Employee Engagement Framework for businesses which leads to broader impact on organisational performance. Section 2.4 outlined the initial conceptual framework based on the gaps identified during literature review and research questions to inform the framework that emerged as the outcome of this study. The framework was subsequently "validated" through thematic analysis, EFA and joint comparison of the findings from phase one and two. This triangulation of findings culminated in the final framework in figure 8. Although regression analysis was possible with a "good fit" of data indicated, due to the relatively small sample size obtained in phase two, the framework and associations outlined need to be tested further through rigorous quantitative methods such as confirmatory factor analysis to establish cause and effect relationships, which it is noted again was not intended by this exploratory mixed methods study. This includes the WEES instrument developed as part of this study. The

contribution to knowledge from the findings of this study related to the WHSW strategy and employee engagement framework are summarised below.

- Finding 1 confirmed that Worker Wellbeing can be redefined as a more holistic construct consisting of physical safety, health, psychological health, social and personal growth elements. With the inclusion of health and wellbeing as a strategic priority the impact on organisational performance was perceived to be enhanced given the linkages between individual factors, work experience and organisational performance. There was strong recognition around personal wellness and wellbeing obligations in the business context. The emergent dimension of personal growth extends the role of WHS beyond the traditional focus of WRH prevention. The inclusion of this dimension in WHSW strategy development enables employees to feel more connected with the organisation and be more proactive in individual risk control responses. Recognition of the personal growth dimension can enhance the Quality of Work Life (e.g., Shah & Marks 2004) which emphasises the strategic significance of worker wellbeing. Its importance is further supported in literature as, ‘human capital management is now seen by many, including the investor community, as an indicator of companies’ long-term prospects—the wellbeing of an organisation and the wellbeing of its workers are inextricably linked’ (Litchfield et al., 2016, p.9).
- Finding 10 confirmed that Organisational context influences the WHSW Strategy content. Therefore, organisational context is not distinct but interrelated and reciprocates with WHSW strategy as suggested by Zou and Sunindijo (2015). This study was able to add further to the strategic models reported by Zou and Sunindijo (2015), Carden, Boyd and Valenti (2015) and Yorio, Willmer and Moore (2015) by shifting the focus of the WHSW research from a traditional operational safety management to a strategic risk-based approach to WHSW. It recognised that allocation of resources in line with the risk profile, and strategy dimensions that is, technical (e.g., hazard and risk management), cultural (e.g., motivation, behaviour) and governance (e.g., resources, strategy) act as internal control, and include legal obligations and corporate governance requirements (Finding 3). The study also recognised that employees need to be involved in WHSW strategy development at an early stage because they are best placed to provide insights into the nature of work, which includes WHSW requirements and implications as suggested within the more recent safety sciences literature (Hollnagel 2013). Their personal contribution in providing clear “line of sight” regarding their health, safety, and wellbeing were recognised as of strategic importance (Zwetsloot & van Scheppingen 2010) and crucial to strategy implementation as employees could “internalise” the requirements at individual level (Finding 2). This

outcome resonated with human resources (talent) as a source of competitive advantage and central to the execution of the organisation's strategy and achievement of strategic goals as demonstrated by the RBV of strategy formulation (Miller 2019). Findings 4, 5, 6, 7, 8, 11 and 12 confirmed the significance of interpersonal relationships, especially individual and organisational leadership, and their influence on strategy implementation. Line managers were found to be central actors in strategy implementation due to their ability to provide context and support for individual and teams. This outcome is consistent with the view that both management and employees are crucial in the development and execution process (Melander et al. 2016; Mitzenberg et al. 2004; van der Laan & Yap 2016). The research confirmed that line managers enable connection and ownership through factors such as greater personal job control, interpersonal contact, satisfaction with the job and added the factor of personal growth which included risk awareness. The consideration of these factors in WHSW indicated relevance to facilitating positive motivation, behaviours, engagement, and improved wellbeing in the WHSW and organisational strategy. This outcome is supported in the literature that strategies targeted at improving job design and involvement promote higher quality of work life, and have a broader organisational impact across a range of indicators such as reduced injuries, reduced workers compensation costs, improved productivity, presenteeism, job satisfaction and employee engagement (Zwetsloot & van Scheppingen 2007; Bevan 2010; O'Neill, Martinov-Bennie & Cheung 2013; Hafner et al. 2015).

- Finding 13 confirmed the proposed relationship between WHSW employee engagement and its influence on WHSW strategy efficacy. Employee engagement using UWES attributes of Vigour, Dedication and Absorption appeared to be multidimensional and influenced by both organisational processes and individuals' capacity to engage in reciprocal relationships. This outcome is consistent with the existing literature (Schaufeli, Salanova, Gonzalez-Roma & Bakker 2002) and confirmed that work engagement can be measured through the UWES (Schaufeli & Bakker 2003, Finding 14). Findings 15,16 and 17 suggest that the underlying attributes of the UWES may overlap across the three dimensions because they are closely related, as reported by Schaufeli and Bakker (2003).
- Finding 9 supported the existing literature that a focus on a broader humanistic approach to measurement and evaluation of the WHSW priorities and the organisational strategy is required, especially the inclusion of individual's wellbeing and satisfaction with work. It was consistent with the evolving safety sciences view '...that it [WHSW] must look ahead, not only to avoid that things go wrong but also – and more importantly – to ensure that they

go right' (Hollnagel 2013, p.1), this includes that the safety measurement process needs to include a focus on successful completion of normal work.

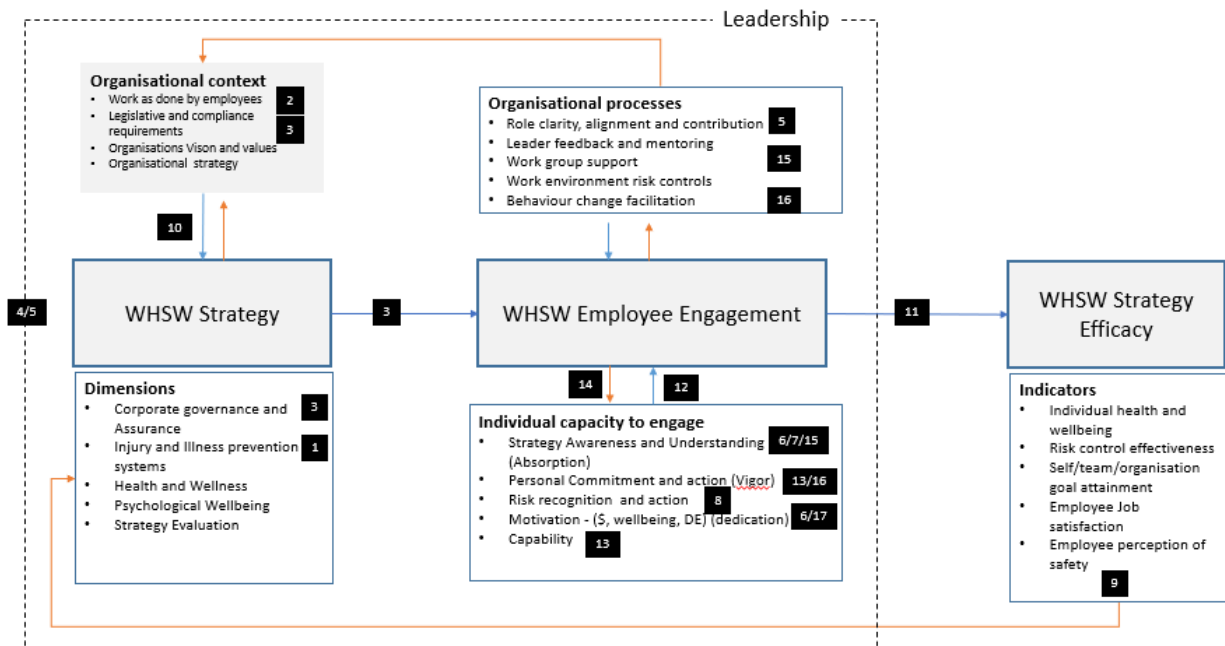


Figure 8 - Final WHSW Strategy and employee engagement framework with findings mapped

6.2 Contribution to Practice

In the context of professional studies this research makes a significant contribution to the practice area by providing a peer reviewed, and “validated” WHSW strategy and employee engagement framework for businesses to use. The nature of work has changed, and workplace health and safety practice need to recognize both individual and organisational health and the management of strategic risks to achieve desired business outcomes. Therefore, a paradigm shift is required through new models that connect WHSW with business. This change also necessarily recognises that people are crucial to business success rather than being a risk to overcome, especially in strategy execution (van der Laan & Yap 2016). Therefore, human resources (talent) not only need to be in an optimal state free from injury and illness and in good mental health, but also thrive and are satisfied with the quality of their work life, inclusive of positive rewarding work relationships (social connection). Accordingly, this research contributes to practice in the following ways:

- **A business oriented strategic approach to WHSW.** This provides a valuable framework for organisations because it establishes the attributes of a holistic strategy and the linkages to achieve strategic outcomes through WHSW at the individual and business levels. Especially as there has been limited insight due the apparent compartmentalization of strategic management and operational WHSW management. In practice this framework

provides insight into the role of corporate governance, organisational structure and strategic leadership (Zou & Sunindijo 2015); and the strategic framework that illustrates the relationship between corporate governance, WHS and risk management from an enterprise wide risk management perspective (Carden, Boyd & Valenti 2015). It is also apparent that many of the existing models remained safety centric and there was a need to provide a practice-based model that placed emphasis on health and wellbeing within the overall organisation's strategy. A limitation of existing models grounded in the safety and health areas is that they have remained detached from broader business strategy. This study provides practice-oriented integrated framework which bridges this gap by incorporating distinct elements from safety, health and wellness, and mental wellbeing with elements from the business area, such as corporate governance and risk management within the organizational strategy and culture. It significantly includes a behavioural component through employee engagement in strategy development and implementation.

- **WHSW Strategy development process.** The strategic implications of WHSW have been discussed and reported in literature yet strategy formulation and content has remained largely missing. Accordingly, this study outlines the essential dimensions of WHSW strategy beyond the traditional focus of mitigating pathologies at work to one which promotes the benefits of health at work. Hence, it integrates the design of both the organisational and WHSW strategy so that it includes evaluation of business risks as they relate to WHSW to ensure that business priorities align with WHSW. Therefore, it provides a more strategic approach to risk management rather than the traditional operational focus (Walaksi 2017). It adds in the element of employees' engagement as essential in the development of WHSW strategy because they are best placed to provide insights into the nature of work. Hence, advancing thinking around "work as imagined" versus "work as done" considerations outlined in "Safety 2" (Hollnagel 2013). It supports the application of RBV approach to WHSW strategy formulation, specifically the concept of "Line of Sight", especially in organisational strategy implementation (Boswell & Boudreau 2001; Boswell, Bingham & Colvin 2006).
- **Development of individual capability in WSHW risk.** This research contributes to human resources (talent) as a critical resource in WHSW strategy implementation and achievement by including personal growth as an emergent element within WHSW. The inclusion of this attribute will contribute to enhanced connection of the employees with the organisation and consequently more proactive behaviour towards exercising individual risk control to improve the overall safety climate. Such responses have been reported in the

safety climate literature. In practice, the implication of personal growth inclusion in strategy is that organisations need to incorporate employee organisational development focusing on role design, skill and career development and learning and development in personal risk awareness and decision making. Especially strategic leadership roles which require decision making, actions and policies, that are based on relationships across the whole work system ‘as safety is dependent on the activities of individuals at every level’ (Donovan, Salmon & Lenné 2015, p. 437) and allows individuals to ‘express their preferred self in the role’ (Kahn 1990, p.3, cited in Truss et al. 2013a) to improve engagement.

- **Holistic approach to the measurement of WHSW efficacy.** The traditional focus of WHSW practice has been to use outcome indicators such as injury, illnesses, diseases, or workers compensation cost as a measure of efficacy. This study suggests that the strategic measurement of WHSW requires a business centric approach that applies performance evaluation framework. This is because the three elements of management control systems (setting objectives, formulating strategy and exercising control) necessarily align with the strategy process (O’Neill, Wolfe & Holley 2015). Importantly, this framework supports due diligence and governance requirements to address problems relating to inadequate resources, inadequate training, and poor motivation. Such a holistic approach to strategy building that closely aligns WHSW measures with business measures will enable organisations to make informed decisions in a timely manner and in meeting defined objectives. The increased focus on worker wellbeing in organisational evaluations will build the morale of the employees and therefore promote both employee wellbeing and organisational development.

6.3 Study limitations and future research directions

This study added to the limited number of reported mixed-methods studies in the literature pertaining to WHSW. However, no research strategy is perfect and in accordance with established research practice potential limitations were determined prior to commencement and were reflected in the objectives of this study. Methodological limitations were also identified, and strategies employed to mitigate the effects on overall validity and reliability as detailed in Chapter 3. Following is a review of the key limitations pertaining to this exploratory mixed-methods study.

1. Due to the short duration and cross-sectional nature of the study, with limited resources, only a selective literature relevant to the constructs that underpinned the theoretical basis of this study was comprehensively examined. A further examination of the literature as it

relates to the final framework and key findings would enhance the knowledge in this domain and support framework refinement.

2. Phase one of the study employed a convenience sampling strategy. The cases were selected from the investigators immediate professional network which brings potential bias due to personal experiences and the non-randomness of case selection. Consequently, the sample may not be representative of the population leading to generalisations. This study was not intended to explain causality and the generalisability to other populations. However, the findings suggest that this study contributes new knowledge and theory in this area, and therefore has broader application than the local level (Queensland) as outlined in the stated objectives of the study. Due to the limited resources the conceptual framework was not applied within a situated research setting to test the associations of the findings that emerged and develop theory further. The rigour of future studies could be improved by increasing the sample size using purposive sampling.
3. Participants for phase one were identified by the researcher with participation being voluntary. A noted limitation of this approach is that those who consent to participate may be different from those who decline within the intended sampling frame resulting in *Self-selection bias*. According to Robinson (2014) it is not possible to negate this bias in interview research and the potential for the impact on generalisability of findings should be considered and acknowledged.
4. The WEES instrument utilised in phase two to validate the framework presents further limitations in that: (a) most of the questions contained in the survey had not been applied in a research setting before, and (b) a similar framework had not been tested such as the one developed for this study. Given these limitations it was not possible to assess *Convergent* validity and *Criterion* validity in this current study which is considered as being desirable when developing new instruments. This limitation could be addressed in future studies by administering the survey more than once to the sample group on longitudinal basis and comparing the results as required by the test-retest methodology. The results could be compared with the findings of this study to further develop internal and external validity of the framework and explain the relationships within the framework.
5. The WEES instrument utilised in phase two was designed especially for this study and the nominal response time of 15 minutes was determined and confirmed through the pilot survey using participants from phase one. As such, it is recommended that future studies carefully assess the time taken complete the survey prior to application in larger and more diverse populations.

6. This study was unable to achieve the target sample size in phase two. This was due to the difficulty in the recruitment of participants as the sample population was not completely accessed despite utilising several methods to increase the sample size. This is a noted challenge in organisational and business research and affects the degree of homogeneity of the sample and subsequent representativeness of the population. This was indicated by the variability in the roles which consisted of Human Resource, WHSW and a cross section of line management and business professional's responses to achieve an adequate sample. This reduced the viability of using exploratory factor analysis in theory development and validating the instrument used. This limitation to access a more complete sample frame and meet sampling quotas could be addressed in future through discipline specific research, and by recruiting participants in partnership with an employer, employee, or research body. This could include providing incentive to participate which has been shown as one method to improve participation.
7. Organisational culture was identified as a dimension within the initial conceptual framework based on the literature review. An outcome of the semi-structured interviews for this study was this dimension being removed from the initial framework due to the weightage of emphasis by participants. This was because of the view that the influence of culture extends beyond organisational context which is consistent with the literature. Accordingly, it is recommended that future research should consider this dimension to enhance and support framework refinement. This is supported by the literature which confirms a positive relationship between organisational culture and WHSW outcomes.
8. The study commenced prior to the COVID 19 pandemic which subsequently emerged throughout the course of this study. However, as outlined the strategic significance of worker health and wellbeing was the underlying basis this study. As such, the following should be considered in the context of pandemics. Firstly, vulnerable groups are particularly exposed to specific health risks and outcomes, often due to their social context and precarious employment conditions. As pandemics often provide further uncertainty around consistent stable work, future studies should consider the implications of these aspects further. Secondly, mental health and psychosocial hazards and their consequences have increased significantly prior to the pandemic. Given the changing working arrangements that have emerged because of the pandemic the potential for a further increase in the prevalence and incidence of these illness and disorders should be considered in future studies. Especially, given the recognition of the need to provide multidisciplinary approaches for "worker health" within the broader community context.

9. Further studies are required to apply the framework in practice across more diverse settings that further operationalise the findings that emerged from this research to demonstrate measurable improvement in WHSW and organisational performance.

6.4 Conclusion

It was apparent from the literature that despite being a prominent business issue there is limited evidence about the relationship between business strategy, WHSW and performance measurement. Models and frameworks that have attempted to illustrate the complexity of this proposed relationship are also rare. Whilst the literature reports numerous studies into the relationship between employee engagement and efficacy, it does not define and operationalise WHSW strategy. This practice based exploratory mixed-methods study established this relationship by including health and wellbeing as a strategic priority. The linkages between individual and organisational performance, more specifically associations between employee engagement, wellbeing, and business strategy enhanced the impact on organisational performance. This is because the literature review found that human resources (talent) were crucial as a source of competitive advantage. The research highlighted the importance of the employee's involvement in strategy development to promote ownership and to ensure that all employees understand how their role contributes to the broader purpose and direction of the organisation and the WHSW priorities described as a "Line of Sight" in the literature.

In conclusion this study achieved the broad objectives of contributing to the limited body of knowledge and practice in the area of WHSW strategy and employee engagement by providing an industry validated framework that enables high risk businesses to strategically improve WHSW and business performance, thereby addressing the calls for further research in WHSW from a management and business perspective.

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APPENDICES

Volume II

Appendix 1 – USQ Research Ethics Approval

Appendix 2 – Interview Participant Information Sheet (Interviews)

Appendix 3 – USQ Interview Participant Information Sheet

Appendix 4 – Semi structured Interview Questions

Appendix 5 – Online survey questionnaire

Appendix 6 – Australian Institute of Managers and Leaders Invitation

Appendix 7 – Australian Institute of Health and Safety Invitation

Appendix 8 – Survey participation invitation on LinkedIn

Appendix 9 - Probability Plots WHSW Strategy and employee engagement survey

Appendix 10 – Employee Engagement Regression Analysis probability plots

Appendix 11 - Publications from this Research