

**Safety Citizenship Behavior: A Complimentary Paradigm to Improving Safety Culture Within the Organizational Driving Setting**

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Safety Citizenship Behaviour: A complementary paradigm to safety culture

**Safety Citizenship Behaviour: A complimentary paradigm to improving safety culture  
within the organisational driving setting.**

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### **STRUCTURED ABSTRACT**

**Purpose:** Driving for work has been identified as potentially one of the riskiest activities performed by workers within the course of their working day. Jurisdictions around the world have passed legislation and adopted policy and procedures to improve the safety of workers. However, particularly within the work driving setting, complying with legislation and the minimum safety standards and procedures is not sufficient to improve work driving safety. This chapter outlines the manner in which safety citizenship behaviour can offer further improvement to work-related driving safety by acting as a complimentary paradigm to improve risk management and current models and applications of safety culture.

**Approach:** Research on concepts associated with risk management and theoretical frameworks associated with safety culture and safety citizenship behaviour are reviewed, along with their practical application within the work driving safety setting.

**Findings:** A model incorporating safety citizenship behaviour as a complementary paradigm to safety culture is proposed.

**Originality/Value:** It is suggested that this model provides a theoretical framework to inform future research directions aimed at improving safety within the work driving setting.

### **Keywords:**

Safety citizenship behaviour; safety culture, work related road safety, risk management.

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**Introduction**

Ensuring the safety of workers within work organisational settings has become an extremely high priority and consequently, jurisdictions around the world have developed a myriad of safety related legislation, policy and procedures to mitigate risk and ensure work activities are undertaken in a safe manner. However, research has indicated that compliance with legislation and minimum safety standards and procedures alone are insufficient for the ongoing reduction of safety risk (Didla, Mearns, & Flin, 2009). Many work-related settings contain a degree of considerable at risk activities, but due to the over representation of work-related crashes and injuries within organisational settings, driving for work has been identified as potentially one of the riskiest activities undertaken by workers in the course of their work day (Haworth, Tingval, & Kowadlo, 2000; Mitchell, Friswell, & Mooren, 2012; Wishart, 2015; Wishart, Rowland, Freeman, & Davey, 2011; World Health Organisation, 2004).

In Australia, 15% of the crashes that occur on the roads are work-related (Australian Transport Council, 2011). Similar trends are found in other countries suggesting that a work-related crash resulting in injury or fatality is a significant public health problem (Robb, Sultana, Ameratunga, & Jackson, 2008). In the UK, a quarter of the national traffic casualties in 2013 were work-related, with an addition of 12% when commuting to and from work is considered as a work-related journey (Department for Transport, 2013). From 1997 to 2006, 10% of all road traffic fatalities in France occurred while at work and 18% while commuting to and from work (Charbotel, Martin, & Chiron, 2010).

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Alarming, Safe Work Australia (2012) reported that almost half of the fatalities that occurred in the Australian workforce involved a vehicle collision, rendering road trauma as the most common form of work-related death. Road trauma is also the most common cause of work-related fatality throughout Europe (European Agency for Safety and Health at Work [ESAW], 2010). Data analysis conducted by ESAW in 2010, revealed that 29% of fatal accidents at work throughout Europe are transport-related. In the US, nearly a quarter of fatal work injuries occurred on the road (Bureau of Labor Statistics, 2014).

Even though work-related crashes are overrepresented internationally, research has indicated that many organisations fail to mitigate risk associated with vehicle use with the same level of diligence and capabilities as other work-related hazards and risks (Rowland & Wishart, 2014). Consequently, road safety researchers and practitioners are devoting increased attention to improving work driving risk management along with better understanding the factors influencing driving behaviour within the organisational driving context. In addition, researchers are looking towards concepts such as safety culture and safety citizenship behaviour as a means of encouraging organisations to progress beyond minimum safety compliance and further improve safety at work.

This chapter will discuss concepts and review previous research associated with safety citizenship behaviour along with demonstrating the link between safety culture and safety citizenship behaviour. Safety citizenship behaviour refers to the behaviours performed by workers that go above and beyond the safety related activities that are defined within their normal work role (Hoffman et al., 2003). It will outline the potential benefits that improving safety citizenship behaviour can have on safety related activities within the organisational setting and suggest that safety citizenship behaviour should be viewed as a complimentary paradigm crucial to the improvement of safety culture. In addition, this chapter will propose that improving safety

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citizenship behaviour will be an important step to assist in progressing safety activities toward increased tangible benefits beyond those associated with safety culture, particularly within the organisational work driving context. Future directions regarding the operationalisation of safety citizenship behaviour in the work driving setting will be provided along with future research methodologies and directions.

### **Risk Management**

In order to discuss concepts and links between safety citizenship behaviour and safety culture and their applicability within the work driving setting, research associated with work-related road safety and risk management will be discussed. Within any organisational context, compliance with safety rules and regulations to reduce the risk of an incident can be considered an extremely high priority, particularly within high-risk industry settings such as those working in the high voltage electricity, gas, or mining sectors (Didla et al., 2009). However, while risk management systems have been highly developed within the technical domain, there needs to be an increased focus on better development of the human risk management systems to improve safety and diminish risky behaviour (Didla et al., 2009). For instance, although organisations often implement detailed checklists for workers to indicate compliance with safety processes while embarking upon work activities, organisations and workers may be prone to increased risk in situations requiring decision-making processes not in accordance with checklists. In addition, if an organisation has a culture of complacency in regard to safety through accepted norms, then risk mitigation may be compromised whereby the detailed checklist becomes a tick box action versus a thought provoking risk management and safety consideration process. Therefore, if basic risk management principles are not performed effectively, the ability of the safety system to maintain health and safety will be



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limited and therefore the process may degenerate into primarily a “paper system” (Makin & Winder, 2008; Rowland & Wishart, 2014).

Risk management is an extremely important process within a work setting to ensure the health and safety of workers and the community. Various legislation and regulations exist in many developed countries around the world outlining the minimum standards and risk management processes organisations and their workers must adopt and adhere to, in order to mitigate the risk of death or injury associated with conducting work-related activities. In addition, standardised processes of risk management have also been developed to ensure a consistent approach to identifying, assessing, and managing risk. Furthermore, a typical approach to general hazard and risk management involves adopting processes such as those highlighted within the hierarchy of control framework. Evidence particularly across high-risk work activities attest to the positive impact that proactive risk management strategies have on decreasing not only risk but also the frequency of work-related safety incidents (Wishart, 2015). However, traditional approaches to safety management could be considered somewhat narrow in focus and proponents of safety have become aware that to further improve safety, individuals will need to be proactive in addressing safety issues in contrast to simply following a set of rules to ensure compliance (Xuesheng & Xintao, 2011). Therefore, it could be argued that proactive behaviours such as those exhibited within the construct of safety citizenship behaviour are central to further future advancement in risk management particularly within an organisational context.

In contrast to much of the research in risk management and safety, research conducted within organisational fleet settings indicate that many risk management practices are often undertaken with a specific focus on workplace processes that the organisation considers central to their core business, while not addressing driving for work processes with similar levels of consideration

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(Davey, Freeman, Wishart, & Rowland, 2008; Haworth, Greig, & Wishart, 2008; Stuckey, LaMontagne, & Sim, 2007; Wishart, Davey, & Rowland, 2004; Wishart & Davey, 2004). This is despite previous research outlined above which provides evidence attesting to the high degree of risk associated with driving for work.

Processes associated with risk management practices relating to vehicle use can also have a large influence on work-related road safety and an employee's perceptions of the risks associated with driving (Wishart, Rowland, & Davey, 2010). As a consequence, the manner in which an organisation approaches risk management and safety within the work driving setting in comparison to other workplace hazards and risks, can have a direct impact on employee perceptions of risk. For instance, within the occupational safety context, a priority within many organisations is to focus on hazards and risks that management and employees consider as central to their work processes. For example, within the mining or high voltage electricity network, risk management processes relating to mining or high voltage activities are underpinned by a framework of zero harm (Wishart, Davey, Rowland, & Banks, 2009). Consequently, any activity that compromises safety within the workplace is considered unacceptable and not tolerated as evidenced by case study research within the utilities sector (Wishart & Rowland, 2010). In addition, proactive strategies such as allocation of appropriate resources, training programs, awareness programs and workplace health and safety management teams are often incorporated in risk management frameworks to provide education, assistance and guidance ensuring total compliance. When it comes to managing work driving safety however, many organisations lack policies relating to driving safety (Haworth et al., 2008) and suffer from being inadequately resourced in terms of personnel and education programs, and often attract lower levels of risk management diligence (Wishart & Rowland, 2010; Wishart et al., 2010). Consequently, a lack of appropriate risk

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management strategies and diligence toward work-related road safety can severely compromise safe driving practices within an organisational context and subsequently increase risk along with the severity and frequency of work-related crashes (Stuckey, Lamontagne, Glass, & Sim, 2010).

### **Safety Culture and Safety Climate in Driving Safety**

Research has indicated that other crucial aspects of the organisation influencing safety processes such as safety culture, safety climate, and safety citizenship behaviour should be considered when adopting a risk management approach. For instance, Gunningham and Sinclair (2014) conducted a study within an Australian mining company that was operating five mine sites, with a uniform safety management systems, risk management standards, safety policies, and key performance indicators across the sites. The study demonstrated that the mines varied in their safety outcomes although they had similar risk management systems in place. These results indicated that other factors, such as safety culture, appear to contribute to the safety performance at each mining site, beyond the organisation's standard safety procedures and corporate risk management systems.

Safety culture is referred to the shared values, norms, beliefs and ideas of safety within an organisation (Guldenmund, 2000) and it is crucial in shaping and defining how safety is presented and integrated in the organisation's daily processes, functions and management. Safety culture is complex as it is comprised of the underlying and enduring structure of the fundamental values, norms and assumptions towards safety in an organisation (Mearns & Flin, 1999). The importance of safety culture in an organisation can be traced back to the Chernobyl disaster, whereby a poor safety culture was viewed as a crucial contributing factor to the occurrence of the incident (Pidgeon, 1991). Ever since this disaster, safety culture had been regarded as a fundamental factor in promoting safety values and attitudes in the organisation and its members (Pidgeon, 1991).

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Safety culture has been associated with workers' safety-related behaviours and at-work injuries and incidents in various industries (Mearns & Flin, 1999; Wiegmann, von Thaden, & Gibbons, 2007). Although safety culture was initially examined in high-risk industries (e.g., manufacturing, oil and gas companies, building maintenance; Cox, Tomás, Cheyne, & Oliver, 1998; Wiegmann et al., 2007), safety culture research in other work settings (e.g., customer service industries) has also increased (Fernández-Muñiz, Montes-Peón, & Vázquez-Ordás, 2007). These studies suggest that safety culture is a fundamental determinant of safety in organisations, with a positive safety culture encouraging workers to exhibit safety behaviours subsequently reducing risk, injuries, fatalities and safety violations at work.

The concept of safety culture had also been applied in driving safety, both within the general driving population and work-related contexts (Bomel Ltd., 2004; Oz & Lajunen, 2008). While safety culture research within the work driving setting is limited with gaps still existing in the literature, previous research suggests that safety culture has a role in discouraging risky driving behaviour in workers. For instance, Oz and Lajunen (2008) investigated the relationship between organisational safety culture and risky driving behaviour among 73 professional drivers. They found that professional drivers who perceive their work environment as having a high traffic safety culture and work safety culture are less likely to report driving violations. These results suggest that within an organisational setting, placing a high importance on safety at work may result in lower reported frequencies of risky driving behaviours by employees.

Within the field of organisational safety research, safety climate is often used as an interchangeable term for safety culture (Mearns & Flin, 1999). While the two concepts are interrelated, there is a distinguishable difference between safety culture and safety climate (Mearns & Flin, 1999). Safety culture describes the deep, fundamental and often complex values and norms

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of the organisation in regards to safety. Safety climate on the other hand is often referred to as the shared perception of employees towards their organisations' safety culture and practices. It is generally accepted that safety climate is a psychological concept that represents workers' shared perception of their organisation's culture towards safety (Guldenmund, 2000; Schein, 2010). Similarly to safety culture research, several researchers proposed that within the work driving setting, improvement of safety climate could reduce the frequency incidents of work-related crashes (Wills, Watson, & Biggs, 2009; Wills, Watson, & Biggs, 2006).

In a sample of 323 employees working in Australian fleet settings, Wills et al. (2009) found that employee's perception of safety climate was a significant predictor of their current driving behaviours and future driving intentions over and above demographic characteristics (age and gender) and driving exposure (annual mileage and weekly driving hours). Safety climate explained the largest unique variance of the driver's behaviours compared to other factors (i.e., safety attitudes, perceived behavioural control and driving experience; Wills et al., 2009). In this study, employees' perception of the importance and practicality of safety rules, how safety issues are communicated within the organisation and management's commitment to safety were found to be the most influential safety climate elements on work-related driving behaviours (Wills et al., 2009). These results provide further evidence on the importance of having policies and rules regarding safe driving and the important contribution that safety culture and safety climate may have on driving safety within the organisational context.

While research suggests that a positive safety culture and safety climate promote positive driving behaviours in workers, other research has found inconsistent results in their relationship with other safety performance outcomes such as self-report crashes and traffic offences. For instance, Wills et al. (2009) found that safety climate is a significant predictor of workers' driving

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behaviours, but they did not significantly predict workers' self-reported crashes and traffic violations. Clarke (2006) conducted a meta-analysis with results indicating that safety climate has a moderate relationship with safety compliance and safety participation ( $r = .38$  and  $r = .44$ , respectively). However, a weaker correlation was found between safety climate measures and occupational accidents and injuries ( $r = .14$ ), although the size of the correlation could be due to large variability of results found in the studies reviewed.

Other research has determined that only certain elements identified in organisational safety climate are more predictive of work-related driving behaviours. For instance, in Mooren, Grzebieta, Williamson, Olivier, and Friswell's (2014) meta-analysis that examined safety management for heavy vehicle transport, they found that management commitment to safety is the most critical element to safety outcomes. Furthermore, Wills et al. (2006) identified that certain safety climate dimensions are more strongly related to certain driving behaviours. In their study, the safety rules dimension of safety climate was the only significant predictor of driving violations (as measured by the Driving Behaviour Questionnaire), while the clear communication dimension was the only significant predictor of pre-trip maintenance behaviours. Similarly, when Davey, Freeman, and Wishart (2006) examined the underlying dimensions of safety climate, they found that only the work pressure factor was the only significant predictor of work-related crashes.

It is evident in the safety climate research that there are some underlying interactions within safety climate factors that influence occupational driving behaviour, although the strength and complexity of these interactions are not yet fully understood. Research conducted by Bosak, Coetsee, and Cullinane (2013) found that management's commitment to safety is negatively correlated with risk behaviours, but the relationship is moderated by work pressure. Consequently, if management places high priority on safety in the workplace, despite the high demands for work,

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workers will not engage in risky behaviours. It is also possible that safety culture and safety climate could only measure compliance to safety standards and procedures within organisational settings, in contrast to the proactive extra-role behaviours related to safety that may be required when compliance to safety standards and procedures may be lacking and insufficient in certain situations (Clarke, 2000). Instead of a work culture that encourages rigid compliance to safety rules and procedures, organisations should strive for a culture that encourages behaviours that accurately recognise hazards, and act in a safe and appropriate manner according to the particular situation encountered (Clarke, 2000). Consequently, other factors should be considered when examining the relationship between perceptions of safety in an organisation's culture and workers' driving behaviours. The concept of safety citizenship behaviours are proposed to provide a complimentary paradigm to further explain the role of safety culture in work-related driving contexts, especially considering that safety citizenship behaviours are behaviours that go above and beyond the normal safety compliance contained within a person's work role. However, in order to better explain and understand culture and the potential links to safety citizenship behaviour, researchers may need to utilise various theories to provide a guiding framework. These will be discussed in the next section.

### **Theory and practical application**

All organisations have cultures even though some management may not acknowledge the existence of culture within their organisation. Subsequently, some cultures are supportive and others are not, with both supportive and non-supportive cultures impacting either positively or negatively on organisations' ability to achieve business goals (Dyck, 2007). Consequently, culture has the capacity to either "drive" or "drag" business strategy (Peppers & Rogers, 2012). Likewise, in relation to workplace safety, safety culture can drive or drag safety performance. Furthermore, although it is acknowledged that safety culture is broadly recognised, few organisations have

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implemented effective safety culture improvement initiatives. One reason inhibiting safety culture improvement is the absence of clear guidance on what constitutes a ‘good’ safety culture and how to generate such a culture.

In order to explain the safety culture construct and subsequent influence on behaviour, researchers have developed or utilised a variety of theories. For example, Deterrence Theory, Risk Homeostasis Theory, Theory of Planned Behaviour and a number of theories, models or approaches related to safe systems management, have all been applied to traffic safety. However, Social Cognitive Theory is potentially a useful concept for exploring the various interactions within organisations associated with safety culture, and more specifically work-related road safety culture.

### **Social Cognitive Theory**

Social Cognitive Theory depicts human behaviour as the outcome of the reciprocal interaction between the internal psychological factors of the person, and the external observation of the situation and behaviours (Ward, Linkenbach, Keller, & Otto, 2010). Ward et al. (2010, p. 12) further states “the theory posits the relationship between psychological factors, behaviours, and the situation is reciprocal”. This relationship between factors is illustrated in Cooper (2000) Reciprocal Safety Culture Model (See Figure 1). Cooper’s model provides an integrative framework for investigation of the safety culture construct (Fernández-Muñiz et al., 2007). In essence, the model highlights the multiple elements that determine or have an impact on safety culture within a specific context, including the integrative or reciprocal relationships between subjective internal psychological factors, observable safety-related behaviours and objective situational factors (Choudhry, Fang, & Mohamed, 2007; Cooper & Phillips, 2004; Fernández-Muñiz et al., 2007). In addition, Cooper maintains that organisational culture is the product of



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multiple goal-directed interactions between people (psychological), jobs (behavioural) and the organisation (situational) (Choudhry et al., 2007; Cooper, 2000), with each component able to be measured independently or in combination (Choudhry et al., 2007).

The model promotes the methodological use of triangulation, whereby within the academic setting triangulation refers to the use of a combination of research methods to gain a holistic understanding and to depict more accurately the phenomenon being investigated (Rowland & Wishart, 2014) and achieve convergent validity (Eeckelaert, Starren, Scheppingen, Fox, & Bruck, 2011; Guldenmund, 2010; Rowland & Wishart, 2014; Wishart et al., 2011). Similar to other researchers in the field (e.g., Guldenmund, 2000, 2010; Wishart et al., 2011), the use of triangulation is encouraged as it is argued to be critical in the investigation of multi-faceted constructs, with each individual method potentially limited in relation to what is revealed about each facet. A triangulated methodology enables a multi-level analysis of safety culture by conducting various methods, such as interviews, surveys, audits and document analysis, etc. (Choudhry et al., 2007; Glendon & Stanton, 2000). The three elements (psychological, situational and behavioural) of the Reciprocal Safety Culture Model can be measured through a combination of qualitative and quantitative methods (Cooper, 2000). For example, situational facets can be revealed in the structure of an organisation (e.g., policies, procedures, safety management system audits/inspections, etc.), behavioural facets can be measured through peer observations, self-reporting and outcome measures, and psychological facets are commonly examined through the use of safety climate questionnaires measuring employee's perceptions of safety (Choudhry et al., 2007; Cooper, 2000). Furthermore, previous research has emphasised that no single approach or technique is suitable for understanding or exploring safety culture. Rather, multiple methods and

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a holistic approach should be utilised when researching safety culture concepts (Antonsen, 2009; Eeckeleaert et al., 2011; Grote, 2008; Guldenmund, 2007; Haukelid, 2008).

INSERT FIGURE 1 HERE

### **Social Exchange Theory**

It has been suggested that Social Exchange Theory is one of the most influential frameworks for understanding the employer – organisation relationship and exchange behaviour in organisations (Cropanzano & Mitchell, 2005). Previous research has indicated that Social Exchange Theory involves a progression of interactions over time with an expectation that doing so would be socially rewarding for all participants (Cropanzano & Mitchell, 2005; Maurer, Pierce, & Shore, 2002; Xerri, 2013). In essence, Social Exchange Theory describes the reciprocal relationship between two parties (Xerri, 2013). Within the workplace, reciprocity refers to the cooperative exchange between employees or between the organisation and employees (Dabos & Rousseau, 2004). Basically, such reciprocal relationships are based on the assumption that any exchange or ‘good’ deed from one entity will be returned by the receiver at some point in time (Xerri, 2013). Ideally, within the working environment these reciprocal interactions under ideal conditions have the potential to generate high quality relationships (Cole, Schaninger, & Harris, 2007; Maurer et al., 2002). Consequently, if employees are satisfied with the outcomes of workplace relationship exchanges they are inclined to respond with increased workplace performance (Shaw, Dineen, Fang, & Vellella, 2009).

Previously, Social Exchange Theory has been utilised as a theoretical framework for research addressing safety citizenship behaviour (Hofmann, Morgeson, & Gerras, 2003). Didla et al. (2009) suggest that the concept of citizenship behaviour is based on the principle of reciprocity. Within organisations supervisors are pivotal in the Social Exchange Theory framework by

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supporting and influencing the relationship an employee has with the organisation (Tekleab & Chiaburu, 2011). This process is enabled through the exchange relationship a supervisor maintains with the employee, especially where the reciprocal supervisor-employee relationship is built upon mutual trust, support and fairness (Dabos & Rousseau, 2004; Didla et al., 2009). Similarly, the characteristics related to a person's employment including job satisfaction, organisational commitment and supervisor fairness, are considered integral or the "driving force" for employees to engage in citizenship behaviours (Didla et al., 2009; Podsakoff, MacKenzie, Paine, & Bachrach, 2000). In addition, research has found that across the various levels and types of organisational relationships, "increased social exchange is associated with stronger employee contributions, such as higher commitment, lower intention to quit, higher organisational citizenship behaviour, and better performance" (Shore, Coyle-Shapiro, Chen, & Tetrick, 2009, p. 291).

### **Safety Culture and the Level of Organisational Safety Participation**

Holistically, safety culture is a useful concept for understanding and influencing safety policy, processes and performance within an organisation (Biggs, Banks, Davey, & Freeman, 2013; Dingsdag, Biggs, & Sheahan, 2006). In contrast, research has indicated the effectiveness of safety improvement strategies/interventions are reliant on workplace culture and interventions may fail if the workplace culture is not conducive to change (Hengel, Joling, Proper, Blatter, & Bongers, 2010; Judd & Keleher, 2013). Although all organisations have a safety culture, the degree in which a safety culture is executed differs in maturity and effectiveness across organisations (Biggs et al., 2013). In addition, research has also indicated "safety culture is amenable to manipulation and intentional change" (Wiegmann et al., 2007, p. 7).

### **Safety Culture Maturity Model**

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The Safety Culture Maturity Model has been utilised within the discipline of safety management and has been recently applied to safety culture development within a number of potentially hazardous industries (Foster & Hoult, 2013), including aviation (Gordon, Kirwan, & Perrin, 2007), rail (Keil Centre, 2004; Kyriakidis, Hirsch, & Majumdar, 2012), offshore natural resource extraction (Fleming, 2001; Hudson, 2007) and petro-chemical industries (Filho, Andrade, & de Oliveira Marinho, 2010; Lardner, 2002). In relation to safety culture, considerable research has indicated that no clear guidance exists regarding what a good culture looks like and how to create such a culture. In an endeavor to address these limitations, Fleming (2001) developed a Safety Culture Maturity Model that portrayed the evolutionary steps or stages of safety culture development. Fleming's model involved three stages of safety culture (Fleming & Lardner, 1999; Foster & Hoult, 2013):

- 1) dependent – emphasis on management and supervisory control, with an emphasis on compliance with written rules and procedures;
- 2) independent – the focus is on personal commitment for and responsibility for safety. Whilst compliance with rules and procedures are still required, employees look after their own safety; and
- 3) interdependent – the focus is on team commitment to safety with all personnel acquiring a sense of responsibility for safety beyond their own work tasks and care for the safety of others.

Along with other researchers who have developed additional versions of the maturity model framework (Reason, 1993; Westrum, 1996, 2004), Hudson's (2001) five stage Safety Culture Maturity Model has been utilised to determine the level of safety culture maturity within high hazard or high-risk organisations (see Figure 2). The Safety Culture Maturity Model developed by

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Hudson (2003) illustrates a five step progression from a “pathological” stage indicating limited care for safety and no safety systems, through to a “generative” stage where managing safety risks is a way of life and fully integrated safety systems are effectively in place (Foster & Hoult, 2013). The descriptions for the stages of safety culture are provided below (Filho et al., 2010; Foster & Hoult, 2013; Hudson, 2003):

- Pathological – Safety problems are caused by workers. The primary drivers of the organisation are the business, not safety, and a desire not to get caught by regulators.
- Reactive – Organisations start to treat safety seriously. However, safety action is generally undertaken in reaction to safety incidents or events.
- Calculative – Safety is steered by management systems which are primarily driven by management. Involvement by other entities within the workforce is limited.
- Proactive – Safety problems are proactively identified and addressed before safety incidents transpire. The organisation starts to move from purely a top down approach and employees experience increased safety participation.
- Generative – There is active participation at all levels. Safety is perceived to be an inherent part of organisations’ operations.

INSERT FIGURE 2 HERE

The Safety Culture Maturity Model has yet to be applied to the work-related road safety setting. However, results from recent work-related road safety research suggest that both organisations and vehicle drivers operating within the work-related road safety area are operating at differing levels in relation to safety culture and the identification of and addressing core work-related driving issues (Davey, Wishart, Rowland, Freeman, & Banks, 2008; Rowland & Wishart, 2014; Wishart & Rowland, 2012, 2013). Therefore, these differing levels of organisational safety

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culture could be considered a barrier to the implementation of any potential future initiative to improve safety, such as the introduction of safety citizenship behaviour. For example, Figure 2 illustrates the potential levels or stages of an organisation's safety culture. Organisations' operating in the early stages are reactive in nature and may not be acquiescent to any initiative to proactively improve safety. Whereas, organisations operating in the later stages are considerably more proactive and congruent to initiatives to improve their safety culture.

Subsequently, primary barriers to organisations incrementally reaching a level of safety culture compatible to introducing safety citizenship behaviour would include bureaucratic cultures, safety legislation and a basic requirement of compliance, management failure, and the perceived difficulty of cultural change. Previous research has suggested that the characteristics of an individuals' work task such as job satisfaction, organisational commitment and leadership (including supervisor fairness) are the steering influences for employees to engage in citizenship behaviours (Podsakoff et al., 2000). For example, research has shown that effective working relationships between workplace leaders and employees including a positive safety climate where the importance of safety is emphasised and valued, contributed to higher levels of employee safety citizenship behaviours (Hofmann et al., 2003). Subsequently, poor working relationships and a lack of management/leader commitment would have a diverse effect, which would hinder the development of safety citizenship behaviour. In addition, although safety legislation compliance is an organisational requirement for certain organisations safety compliance is the sole focus, especially where resources are limited. Consequently, compliance only organisations potentially would be less committed to fostering proactive processes related to safety citizenship behaviours.

The process of transforming organisational safety culture to a level whereby employees exhibit positive safety citizenship behaviours can have implications at the employee or individual

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level. For example, research indicated that citizenship behaviour has been associated with role overload, job stress and work-family conflict (Bolino & Turnley, 2005). Basically, some individuals feel pressured to handle too many responsibilities associated with the implementation of safety citizenship behaviour, especially when required to perform numerous activities whilst restricted by time, training and available resources (Mullen, 2004). Therefore, organisational leadership needs to ensure individuals have the necessary time, training and resources to adequately perform their responsibilities associated with the implementation of safety citizenship behaviour. For some organisations the leadership, commitment and process required to create cultural change could be perceived as too difficult. However, leadership, commitment and support by both management and employees have been identified as integral to the development of effective and innovative behaviours such as safety citizenship behaviour (Cropanzano & Mitchell, 2005).

### **Current Research on Organisational Citizenship Behaviour and Safety Citizenship Behaviour**

It is proposed that future research needs to explore safety citizenship behaviour as means of improving the management of work driving risk within the organisational context and mitigate risky work driving behaviour along with enhancing the development of a safe organisational work driving culture. Safety citizenship behaviour has its origins in organisational citizenship behaviour (OCB) research and can be defined as those safety related risk management activities associated with personnel going above and beyond outlined safety processes and organisational expectations (Gyekye & Salminen, 2005). In other words, safety citizenship behaviour consists of individual actions and responsibilities whereby employees within an organisation, “Walk the talk but walk beyond” the outlined minimum requirements stipulated by organisations and legislation.

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Previous research has suggested that employees exhibiting high OCBs are often referred to good corporate citizens or good soldiers, in part due to the extra productive activities undertaken, advancement of the organisation and extra effort beyond normal acknowledged or expected reward (Kidder & Parks, 2001; Organ, 1988). OCBs are defined as: “behaviours that are discretionary, not directly or explicitly recognised by the formal reward system, and that in the aggregate promote the effective functioning of the organisation” (Organ, 1988). For instance, employees who volunteer to help a co-worker finish a task and those who participate in various professional development programs to benefit the organisation are exhibiting OCBs. Research on OCB suggests that, although these behaviours are not necessarily expected in one’s role in organisations, they are crucial in the effectiveness, performance and even the survival of the organisation (Gyekye & Salminen, 2005). Benefits associated with employees engaging in OCB include employees promoting a better quality of service to customers (e.g., Bell & Menguc, 2002), less turnover and absenteeism (e.g., Podsakoff, Whiting, Podsakoff, & Blume, 2009), and an increase in the ability of an organisation to attract and retain effective employees (e.g., Podsakoff et al., 2000).

Research has also demonstrated a relationship between OCBs and work safety. Research in an industrial setting conducted by Gyekye and Salminen (2005) compared employees not actively performing OCB with those who did perform OCBs and found that those employees actively performing OCB’s had stronger perceptions of safety climate compared to non-participants. The authors suggest that this evidence indicates that employees may increase their overall effort in response to perceived concern for their safety.

A recent study using a sample of nurses conducted by Clark, Zickar, and Jex (2014) further demonstrated the link between safety and OCB with results indicating that if employees work in a safe environment they engage in more OCBs particularly in relation to helping each other and



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putting in extra effort. In contrast, employees working in an unsafe workplace refrain from performing over and above what is required. Consequently, research has also suggested that OCB will become more important for organisations in the future as a means of sustaining profitability especially as resources and budgets become leaner and competition increases (Organ, Podsakoff, & MacKenzie, 2006; Organ, 2007).

### **Research on Safety Citizenship Behaviour**

In regards to safety, other research has found that evidence exists indicating that workers exhibiting safety citizenship behaviours tend to be more compliant with safety management policies and are involved in fewer work-related safety accidents (Hofmann et al., 2003; Gyeke & Salminen, 2005). In addition, Hofmann et al. (2003) investigated in a military unit consisting of 127 transportation team members, a belief that subordinates will reciprocate high quality leader member exchange relationships within a work setting and as result employees would expand their roles and exhibit behaviours beyond the minimum expectations of the work role. Hofmann et al. (2003) results indicated that organisational climate and the quality of the leader member exchange interacted and also predicted the degree to which employees viewed citizenship behaviours as part of their formal role and the degree to which they engage in these citizenship behaviours. Of particular note to safety practitioners in regard to their results, are the implications for safety of the relationships between employees and leaders in conjunction with organisational climate on employees' safety citizenship behaviours. Consequently, it is suggested that safety citizenship behaviour may be an important concept associated with safety and promotion, and improvement within the organisational context that can lead to enhancing individual commitment and personal responsibility, which may translate into improvements in tangible risk management and consequently improved safety behaviours.

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According to Xuesheng and Xintao (2011) in order to better understand safety citizenship behaviour and the concepts full potential distinctions need to be recognised between safety citizenship behaviour and its counterpart safety compliance behaviour. Safety compliance behaviour consist of behaviours synonymous with adhering to rules regulations policies and procedures relating to safety, many of which are typical in traditional safety strategies. For example, wearing personal protective equipment, conducting risk assessment strategies in accordance with designated policies and procedures, etc. Although strategies associated with safety compliance behaviours are an extremely important and necessary set of activities, increases in safety risk and incidents may often occur when something relating to the work process occurs that is outside the normal routine processes and procedures. It is during these circumstances that safety citizenship behaviour has the potential to increase safety outcomes beyond those offered by safety compliance behaviours (Xuesheng and Xintao, 2011). Firstly, legislation and standards in conjunction with an organisation's policies and procedures rarely cover all possible safety contingencies (Xuesheng and Xintao, 2011). Secondly, according to Zohar and Erev (2007) while compliance is necessary, it can often fail due to the potential benefit to profitability that may be obtained by taking shortcuts potentially compromising safety. Consequently to maximise safety in any work environment researchers have suggested that any safety programs must include both safety compliance and safety citizenship behaviours as a way of providing reliability and routine or work procedures but also to ensure safety in less predictable circumstances (Zohar, 2008; Clarke, 2006).

It should be noted that other recent research has suggested that although safety citizenship behaviour may appear to enhance and improve safety, there may be situations or instances whereby safety citizenship behaviours can be detrimental to safety or the individual. For example, Burt,

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Banks, and Williams (2014) as a result of one of the authors witnessing a tragic work-related fatality conducted two studies investigating the possibility that employee engagement in particular safety related OCB's such as helping, may result in an increase in safety risk. Burt and colleagues (2014) suggest that when an employee goes beyond what is expected in regard to helping a colleague there are four main mechanisms associated with the helping process that may actually increase safety risk. These are labelled: the forgetting mechanism, the unexpected mechanism, the unknown mechanism and the time pressure mechanism. The forgetting mechanism occurs when an employee in endeavouring to help a fellow colleague forgets where they were in their own work, or something they planned to do or had done prior to engaging in helping. The unexpected mechanism consists of a situation developing whereby the help being offered was unexpected and actually exposes workers to increased risk through colleagues not expecting the presence of a helper within the workspace. The unknown mechanism refers to the concept that an employee not being aware the help is offered or the helper actually creating a further hazard. The time pressure mechanism may involve the helper upon helping creating further time pressure associated with their own job tasks. The results across both studies indicated that all four mechanisms compromise safety within a work setting and suggest that helping needs to either be discouraged, or that strategies and interventions be developed and put in place to ensure that the OCB of helping does not compromise safety.

### **Dimensions of Safety Citizenship Behaviour**

As previously noted the origins of safety citizenship behaviour are intrinsically linked in the development of OCB. Therefore, in order to better understand safety citizenship behaviour and determine the manner in which safety citizenship behaviour can provide a complimentary paradigm to safety culture, the dimensions associated with OCB will be discussed. Original

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conceptualisations of OCB included five dimensions (Organ, 1988), however more recent research indicated seven overarching categories (Organ et al., 2006) in OCB research. Initially, the five factors that comprised the OCB concept developed by Organ (1998) were:

- **Altruism** - all discretionary behaviours aim to helping other co-workers with an work-related task or problem
- **Conscientiousness** - involves going “far beyond the minimum necessary” on job role requirements
- **Sportsmanship** - is defined as “the avoidance of complaining, petty grievances, railing against real or imagined slights, and making federal cases out of small potatoes”
- **Courtesy** - entails “touching base with those parties whose work would be affected by one's decisions or commitments” (e.g., leaving the place in a better condition than how you found it).
- **Civic virtue behaviour** - involves “participating responsibly in the political life of the organisation, such as by attending meetings, giving personal time to organisationally relevant issues, and voicing concerns”.

More recently however, Organ et al. (2006) found more than 25 dimensions for the concept, yet most research still uses the five factors mentioned above. Organ et al. (2006) has grouped the 25 dimensions into seven overarching categories of OCB. Sportsmanship and Civic Virtues were the only two constructs that remained from the previous dimensions and their definitions were unchanged. The remaining revised dimensions are:

- **Helping** – recent confirmatory factor analyses on OCB items suggests that altruism, peace-making, courtesy and cheer-leading fits into a broader construct of “helping”. Similar to the previous altruism factor, the broader construct helping refers to discretionary behaviour

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that is aimed at helping a specific individual in the organisation (e.g., co-worker, supervisor, and customer).

- **Organisational loyalty** – in this category, workers are seen as self-appointed ambassadors of goodwill for their company and constantly expresses how proud they are of their company. Workers who partake in these discretionary behaviours “talk up” their organisation, focusing the positives of their work as they chat to potential future employees and customers and countering criticisms about their organisation.
- **Organisational compliance** – while this dimension is similar to civic virtue, organisational compliance is different as it does not simply imply an obedience to the mundane rules but it encompasses the general adherence to the overall structure of the organisation and self-disciplined behaviours in regards to organisational rules and use of time and resources
- **Self-development** – is beyond the formal role requirement and one’s involvement in self-development includes the discretionary organisational behaviours that people do to improve their skills and knowledge for work. Examples of self-development include participation in company-sponsored training courses and informal study.
- **Individual initiative** – is a broad category that defines behaviours that goes beyond the instructions and expectations to solve or prevent a problem.

It is important to note that these citizenship behaviours do not occur in a vacuum (Didla et al., 2009). Behaviours that go beyond expected roles are clearly influenced by organisational factors that promote such behaviours. Previous studies on OCB suggest that certain dispositional variables promote OCB in individuals (e.g., people high in conscientiousness are more likely to elicit OCBs). However, recent studies suggest that personalities and other dispositional variables

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explain little variance in OCB (Podsakoff et al., 2009). More studies are suggesting that organisational factors, such as incentives and rewards, have a stronger effect on the promotion of OCB in the workplace (Podsakoff et al., 2009).

Hofmann et al. (2003) developed a measure of safety citizenship behaviours containing six dimensions of proactive safety behaviours based on previous OCB research:

- **Helping** – include behaviours that help out the organisation and its members by volunteering to be in safety committees, teaching safety procedures and practices to newcomers and current members, assisting others in working safely, conducting safety activities and safety related responsibilities to help others work more safely. This dimension is related to helping factor from the recent OCB research.
- **Voice** – is related to voicing out safety related recommendations and opinions on safety matters even if others may disagree, encouraging other members to get involved in safety related issues and speaking out safety concerns during meetings and planning stages.
- **Stewardship** - behaviours are generally related to taking action to prevent safety violations and protect the well-being of the organisation members. These include protecting others from safety hazards, injuries and risky situations, and going out of their way to ensure that their co-workers are safe.
- **Whistleblowing** – are behaviours which are similar to the voice dimension but instead, it is more related to reporting and monitoring of other members unsafe behaviours and potential safety violations. These include explaining to other members that safety violations will be reported, and reminding others to follow safe working procedures and violations of these procedures are not tolerated.

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- **Safety Civic Virtue (Keeping Informed)** – dimension include behaviours that are related to maintaining an up to date knowledge on the safety issues in the organisation. Some of the behaviours include attending safety-oriented meetings even though they are non-mandatory and always keeping informed of new changes relating to safety policies and procedures.
- **Initiating Safety-Related Change (Improving Safety)** – include behaviours that try to improve the overall safety of the organisation that are self-initiated. These include trying to improve the safety policies and procedures, changing the nature of the job to make it safer and giving suggestions to ensure that the job will be completed safely.

### **Safety Citizenship Behaviours, Safety Culture and Safety Climate**

While research is scarce, available studies on the relationship between safety citizenship behaviours and safety culture suggest that a positive organisational culture that emphasise the importance of safety behaviours in the organisation could consequently increase workers' safety citizenship behaviours. For instance, Hofmann et al. (2003) found that in positive safety climate environments, workers are more likely to view safe behaviours as essential in their organisation and therefore engage in more safe behaviours beyond what is normally required. Hence, an organisational climate that promotes safety as necessary and beneficial to the performance of the company would encourage safety citizenship behaviours in its workers. This relationship however, is not found in less positive safety climate. Similar results were found in a qualitative study by Didla et al. (2009). Interviews with supervisory-level employees of a British oil and gas production company strongly suggested that safety culture is a significant motivator for engaging in safety citizenship behaviours (Didla et al., 2009). This assertion could be further supported by Xuesheng

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and Xintao (2011) where a Structural Equation Modelling method found a positive relationship between safety climate and safety citizenship behaviours.

Zohar, one of the pioneers of safety climate research, further expanded the relationship between safety climate and safety citizenship behaviours (Zohar, 2008). He argued that theoretically, safety citizenship behaviours could contribute to the overall performance of an organisation beyond the presence of safety climate in organisations. In essence, safety climate could only capture safety compliance and behaviours that are mostly related to passive adherence to rules and procedures. In routine and predictable work, having a positive safety climate where employees comply with safety rules and regulations could be adequate for maintaining safe practices. However, if work has less routine and predictability, such as driving for work (due to other drivers on the road, road conditions, weather, etc.), proactive safety citizenship behaviours may be required to guide safe practices where compliance to rules and procedures may fall short (Zohar, 2008).

Roberts and Geller (2001) also proposed the actively caring hypothesis, which refers to an “ultimate goal in occupational safety, namely that employees care enough about the safety of their co-workers to act accordingly” (Roberts and Geller 2001, p. 72). Workers who exhibit active caring behaviours are constantly looking for organisational hazards and unsafe work practices. When faced with unsafe behaviours and practices, workers who actively care would intervene with corrective procedures (Roberts & Geller, 1995). Similar to the safety citizenship concept, these behaviours go beyond their roles and expectations. Roberts and Geller (1995) found that high self-esteem, optimism and group belonging promote actively caring behaviours in a sample of workers of a fibre-manufacturing plant. Dula and Geller (2007) further argued that having safety as a value in the organisation (rather than as a goal) reinforces actively caring behaviours of safety within the



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organisation. Dula and Geller (2007) asserted that promoting active caring behaviours in organisations would create a total safety culture as workers will “cultivate self-directed responsibility for safety” (p. 16) and would continually show concern for the safety of themselves and others.

Research by Fugas and colleagues (Fugas, Meliá, & Silva, 2011; Fugas, Silva, & Meliá, 2012) also expanded the relationship between organisational safety climate, safety citizenship behaviours and compliance safety behaviours. In this research, Fugas et al. (2011) used the term proactive safety behaviours for safety citizenship behaviours (as opposed to safety compliance behaviours, which describe safe behaviours expected within one’s role). Fugas et al. (2012) found that supervisor’s safety norms and one’s perceived behavioural control mediated the relationship between safety climate and safety compliance behaviours in workers. However, co-workers’ safety norms and one’s attitudes to safety is more influential in promoting proactive safety behaviours in workers. These results suggest that there are different cognitive and social mechanisms that influence workers’ participation in safety compliance behaviours and proactive safety behaviours (or safety citizenship behaviours).

Consequently, promotion and improvement in safety citizenship behaviour within the organisational context can lead to enhancing individual commitment and personal responsibility that translate into improvements in tangible risk management and safety behaviours. It is proposed that enhancing safety citizenship behaviour may provide a complimentary paradigm to improving safety culture within the organisational context and translate into better risk management behaviours. This may occur as a consequence of enhanced safety related risk management activities associated with personnel going above and beyond outlined safety processes and organisational expectations.

### **Safety Citizenship Behaviour Model**

Traditionally, organisations have utilised a risk management approach to safety with mixed results and outcomes, relying primarily on meeting only minimum safety compliance requirements. Consequently, organisations generally target work-related road safety in reaction to either an increased number of incidents or occurrence of a severe incident. In addition, there are limited instances where the management of risks is performed addressing proactive measures aimed at improving work-related road safety. Previously, this chapter indicated that organisational culture is the product of multiple goal-directed interactions between people (psychological), jobs (behavioural) and the organisation (situational) (Cooper, 2000). In addition, the Reciprocal Safety Culture Model promotes the use of triangulation, which enables a multi-level analysis of the current safety culture in an organisation. Consequently, improvement of an organisation's safety culture is contingent on the reciprocal relationships mentioned above. Although all organisations have some form of safety culture, the level of maturity and influence of the culture varies across and sometimes within organisations in relation to the manner in which safety is addressed. The authors suggest that prior to developing safety citizenship behaviours, organisations must firstly determine their current level of safety culture maturity. In essence, organisations operating at an early stage in relation to their safety culture maturity, such as compliance alone, or reactive culture, would be less conducive to developing more proactive strategies to improving safety within their organisation. Likewise, the introduction and application of safety citizenship behaviours within organisations that are operating at a lower level of safety culture maturity would be ineffective, without significant changes to their own safety culture. A smooth transition to a safety culture encompassing proactive safety citizenship behaviours, requires organisational commitment, leadership and positive work relationships,

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which intrinsically are characteristics of the more mature levels depicted in the safety culture maturity model (e.g., Proactive and Generative). Furthermore, the effectiveness of the safety citizenship behaviour process is reliant on positive influences relative to the antecedents of safety citizenship behaviour (refer to Figure 3).

INSERT FIGURE 3 HERE

Secondly, once an organisation's current level of safety culture is ascertained, measures can be taken to identify those areas of safety culture that require improvement, and subsequently develop a suite of improvement strategies and initiatives. The aim of this process is to promote an organisation's safety culture to a higher or more proactive level of safety culture maturity conducive to the introduction of safety citizenship behaviours. Organisations with safety compliance only operations may not have the necessary systems, processes and organisational internal relationships relevant to successful application and support for effective safety citizenship behaviour. For instance, the introduction of strategies targeting the antecedents of safety citizenship behaviour, including improving psychosocial factors and fostering relationships between management, supervisory staff and employees. Thirdly, when an organisation has reached a more proactive level of safety culture, a thorough review of the systems and processes supporting the proactive level of safety culture is required. For example, if relevant systems and processes are not in place to support ongoing proactive safety performance, then organisational safety culture may degenerate to a lower level of safety culture maturity.

Social Exchange Theory posits that increased social exchange and improved relationships within the workplace, increases employee contribution and commitment. Consequently, effective safety citizenship behaviours are reliant on workplace relationships built upon mutual trust, support and fairness. Furthermore, development, application and ongoing effectiveness of safety

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citizenship behaviours requires active participation by all levels within the organisational structure; including management, supervisory/team leaders and employees/drivers. Interestingly, the characteristics of effective safety citizenship behaviours are intrinsically similar to the generative level outlined in the Safety Culture Maturity Model. Finally, the development and application of suitable safety citizenship behaviours provides a complimentary paradigm to safety culture, whereby safety is promoted as a priority and potential safety issues are addressed as a natural course of the workplace process.

### **Conclusions and Future Directions**

This chapter has highlighted the increased risk associated with driving within a work context along with the over representation of work-related crashes and injuries within organisational settings. Risk management is an important process that organisations constantly undertake to mitigate risk and improve work safety; however, there is a need for organisations to further develop and translate risk management strategies to ensure their applicability and relevance to the work driving setting.

Safety culture has been demonstrated to be an important component in improving organisational safety and research has also shown the benefits of safety culture in work-related driving safety. However, many of the safety benefits obtained, although attributed to improvements associated with an organisation's safety culture particularly within the work driving setting, often only achieve minimum levels of compliance. Safety citizenship behaviour in contrast encourages employees to engage in activities going beyond compliance. Consequently, safety citizenship behaviour has the opportunity to vastly improve work driving safety within an organisational setting and thus provides a complimentary paradigm to models and activities associated with safety culture. However, further research particularly within the

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work driving setting is required as the direct impact that safety citizenship behaviour potentially has on work driving safety remains unclear.

Future research is needed to evaluate the new proposed model of safety citizenship behaviour and its contribution as a complimentary paradigm to work driving safety culture. It is proposed that safety citizenship behaviour through the activities of going above and beyond compliance will result in vast improvements to risk management strategies currently lacking in the work driving safety domain. Research is also needed to test the new proposed model to better understand the relationship that safety citizenship behaviour has with various levels of safety culture already in existence within an organisation. In addition, the relationship that safety citizenship behaviour has with the antecedents of safety culture improvement requires further investigation.

Although previous research has demonstrated benefits associated with safety citizenship behaviour, research is required to determine the impact that safety citizenship behaviour has on work driving safety, above and beyond the contribution of safety culture. In addition, within the work driving setting, research is required to explore the way in which workers can be educated and encouraged to engage in safety citizenship behaviours. Due to the complexities associated with the organisational and work driving environment, any improvement to the promotion of safety citizenship behaviour will require strategies aimed at both the individual and organisational levels.

## REFERENCES

- Antonsen, S. (2009). Safety culture and the issue of power. *Safety science*, 47(2), 183-191. doi: 10.1016/j.ssci.2008.02.004
- Australian Transport Council. (2011). *National Road Safety Strategy: 2011-2020*. Canberra: ATC Retrieved from [https://www.infrastructure.gov.au/roads/safety/national\\_road\\_safety\\_strategy/files/NRSS\\_2011\\_2020\\_15Aug11.pdf](https://www.infrastructure.gov.au/roads/safety/national_road_safety_strategy/files/NRSS_2011_2020_15Aug11.pdf).
- Bell, S. J., & Menguc, B. (2002). The employee-organization relationship, organizational citizenship behaviors, and superior service quality. *Journal of Retailing*, 78(2), 131-146.
- Biggs, S. E., Banks, T. D., Davey, J. D., & Freeman, J. E. (2013). Safety leaders' perceptions of safety culture in a large Australasian construction organisation. *Safety Science*, 52, 3-12. doi: 10.1016/j.ssci.2012.04.012
- Bolino, M. C., & Turnley, W. H. (2005). The personal costs of citizenship behavior: the relationship between individual initiative and role overload, job stress, and work-family conflict. *Journal of Applied Psychology*, 90(4), 740. doi: 10.1037/0021-9010.90.4.740
- Bomel Ltd. (2004). *Safety Culture and Work-Related Road Accidents, Road Safety Research Report No. 51*. Department for Transport, Her Majesty's Stationery Office: London.
- Bosak, J., Coetsee, W., & Cullinane, S.-J. (2013). Safety climate dimensions as predictors for risk behavior. *Accident Analysis & Prevention*, 55, 256-264. doi: 10.1016/j.aap.2013.02.022
- Bureau of Labor Statistics. (2014). *Census of Fatal Occupational Injuries Charts, 1992-2014 (preliminary data)*. Washington, DC: Bureau of Labor Statistics. Retrieved from <http://www.bls.gov/iif/oshcfoi1.htm>.

## Safety Citizenship Behaviour: A complementary paradigm to safety culture

Burt, C. D., Banks, M. D., & Williams, S. D. (2014). Safety risks associated with helping others.

*Safety Science*, 62, 136-144. doi: 10.1016/j.ssci.2013.08.006

Choudhry, R. M., Fang, D., & Mohamed, S. (2007). The nature of safety culture: A survey of the

state-of-the-art. *Safety Science*, 45(10), 993-1012. doi: 10.1016/j.ssci.2006.09.003

Clark, O. L., Zickar, M. J., & Jex, S. M. (2014). Role definition as a moderator of the

relationship between safety climate and organizational citizenship behavior among

hospital nurses. *Journal of Business and Psychology*, 29(1), 101-110. doi:

10.1007/s10869-013-9302-0

Clarke, S. (2000). Safety culture: under-specified and overrated? *International Journal of*

*Management Reviews*, 2(1), 65-90. doi: 10.1111/1468-2370.00031

Clarke, S. (2006). The relationship between safety climate and safety performance: a meta-

analytic review. *Journal of Occupational Health Psychology*, 11(4), 315. doi:

10.1037/1076-8998.11.4.315

Cole, M., Schaninger, W., & Harris, S. (2007). The workplace social network exchange: a

multilevel, conceptual examination. *Group & Organization Management*, 27(1), 142-

167. doi: 10.1177/1059601102027001008

Cooper, M. D. (2000). Towards a model of safety culture. *Safety Science*, 36(2), 111-136. doi:

10.1016/s0925-7535(00)00035-7

Cooper, M. D., & Phillips, R. A. (2004). Exploratory analysis of the safety climate and safety

behavior relationship. *Journal of Safety Research*, 35(5), 497-512. doi:

10.1016/j.jsr.2004.08.004

## Safety Citizenship Behaviour: A complementary paradigm to safety culture

- Cox, S., Tomás, J. M., Cheyne, A., & Oliver, A. (1998). Safety culture: the prediction of commitment to safety in the manufacturing industry. *British Journal of Management*, 9(s1), 3-11. doi: 10.1111/1467-8551.9.s1.2
- Cropanzano, R., & Mitchell, M. S. (2005). Social exchange theory: An interdisciplinary review. *Journal of Management*, 31(6), 874-900. doi: 10.1177/0149206305279602
- Dabos, G. E., & Rousseau, D. M. (2004). Mutuality and reciprocity in the psychological contracts of employees and employers. *Journal of Applied Psychology*, 89(1), 52. doi: 10.1037/0021-9010.89.1.52
- Davey, J., Freeman, J., & Wishart, D. (2006). *A study predicting crashes among a sample of fleet drivers*. Paper presented at the Proceedings Road Safety Research, Policing and Education Conference, Gold Coast, Queensland.  
[http://eprints.qut.edu.au/5959/1/5959\\_1.pdf](http://eprints.qut.edu.au/5959/1/5959_1.pdf)
- Davey, J., Freeman, J., Wishart, D., & Rowland, B. (2008). *Developing and implementing fleet safety interventions to reduce harm: Where to from here?* Paper presented at the Proceedings International Symposium on Safety Science and Technology VII, Beijing, China.
- Davey, J., Wishart, D., Rowland, B., Freeman, J., & Banks, T. (2008). *Sunwater organisational work related road safety situational analysis report*. Unpublished Manuscript. Centre for Accident Research and Road Safety – Queensland, Queensland University of Technology, Brisbane, Australia.



## Safety Citizenship Behaviour: A complementary paradigm to safety culture

Department for Transport. (2013). *Reported Road Casualties Great Britain: 2013*. London, UK:

National Statistics Retrieved from

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/359311/rrc-gb-2013.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/359311/rrc-gb-2013.pdf).

Didla, S., Mearns, K., & Flin, R. (2009). Safety citizenship behaviour: a proactive approach to risk management. *Journal of Risk Research*, 12(3-4), 475-483. doi:

10.1080/13669870903041433

Dingsdag, D., Biggs, H., & Sheahan, V. (2006). Changing safety behaviour in the construction industry, using enforcement and education as the stick and the carrot to improve safety culture. In K. Brown, K. Hampson & P. Brandon (Eds.), *Clients Driving Construction Innovation: Moving Ideas into Practice*. (pp. 214-219). Brisbane: Net Pty Ltd.

Dyck, D. E. G. (2007). *Occupational health & safety: Theory, strategy & industry practice*.

Ontario, Canada: LexisNexis Canada.

Dula, C. S., & Geller, E. S. (2007). Creating a total safety traffic culture. *Improving Traffic Safety Culture in the United States, Vol 177*. Washington, DC: AAA Foundation for Traffic Safety. Retrieved from

<https://www.aaafoundation.org/sites/default/files/DulaGeller.pdf>

Eeckeleaert, L., Starren, A., Scheppingen, A. v., Fox, D., & Bruck, C. (2011). *Occupational Safety and Health culture assessment-A review of main approaches and selected tools*.

Luxembourg: European Agency for Safety and Health at Work. Retrieved from

<https://osha.europa.eu/en/tools-and>

[publications/publications/reports/culture\\_assessment\\_soar\\_TEWE11005ENN](https://osha.europa.eu/en/publications/publications/reports/culture_assessment_soar_TEWE11005ENN)

## Safety Citizenship Behaviour: A complementary paradigm to safety culture

- European Agency for Safety and Health at Work. (2010). *A review of accidents and injuries to road transport drivers*. Luxembourg: European Agency for Safety and Health at Work  
Retrieved from [https://osha.europa.eu/en/tools-and-publications/publications/literature\\_reviews/Road-transport-accidents.pdf](https://osha.europa.eu/en/tools-and-publications/publications/literature_reviews/Road-transport-accidents.pdf).
- Fernández-Muñiz, B., Montes-Peón, J. M., & Vázquez-Ordás, C. J. (2007). Safety culture: Analysis of the causal relationships between its key dimensions. *Journal of Safety Research*, 38(6), 627-641. doi: 10.1016/j.jsr.2007.09.001
- Filho, A. P. G., Andrade, J. C. S., & de Oliveira Marinho, M. M. (2010). A safety culture maturity model for petrochemical companies in Brazil. *Safety Science*, 48(5), 615-624. doi: 10.1016/j.ssci.2010.01.012
- Fleming, M. (2001). Safety Culture Maturity Model. *UK HSE Offshore Technology Report OTO 2000/049* (pp. 3-7). Sudbury, UK.
- Fleming, M., & Lardner, R. (1999). Safety culture - The way forward. *Chemical Engineering*, 689, 16-18.
- Foster, P., & Houlst, S. (2013). The safety journey: Using a safety maturity model for safety planning and assurance in the UK coal mining industry. *Minerals*, 3(1), 59-72. doi: 10.3390/min3010059
- Fugas, C. S., Meliá, J. L., & Silva, S. A. (2011). The “is” and the “ought”: How do perceived social norms influence safety behaviors at work? *Journal of Occupational Health Psychology*, 16(1), 67. doi: 10.1037/a0021731
- Fugas, C. S., Silva, S. A., & Meliá, J. L. (2012). Another look at safety climate and safety behavior: Deepening the cognitive and social mediator mechanisms. *Accident Analysis & Prevention*, 45, 468-477. doi: 10.1016/j.aap.2011.08.013

## Safety Citizenship Behaviour: A complementary paradigm to safety culture

- Glendon, A. I., & Stanton, N. A. (2000). Perspectives on safety culture. *Safety Science*, 34(1), 193-214. doi: 10.1016/s0925-7535(00)00013-8
- Gordon, R., Kirwan, B., & Perrin, E. (2007). Measuring safety culture in a research and development centre: A comparison of two methods in the Air Traffic Management domain. *Safety Science*, 45(6), 669-695. doi: 10.1016/j.ssci.2007.04.004
- Grote, G. (2008). Diagnosis of safety culture: A replication and extension towards assessing “safe” organizational change processes. *Safety Science*, 46(3), 450-460. doi: 10.1016/j.ssci.2007.05.005
- Guldenmund, F. W. (2000). The nature of safety culture: a review of theory and research. *Safety Science*, 34(1), 215-257. doi: 10.1016/s0925-7535(00)00014-x
- Guldenmund, F. W. (2007). The use of questionnaires in safety culture research—an evaluation. *Safety Science*, 45(6), 723-743. doi: 10.1016/j.ssci.2007.04.006
- Guldenmund, F. W. (2010). (Mis) understanding safety culture and its relationship to safety management. *Risk Analysis*, 30(10), 1466-1480. doi: 10.1111/j.1539-6924.2010.01452.x
- Gunningham, N., & Sinclair, D. (2014). The Impact of Safety Culture on Systemic Risk Management. *European Journal of Risk Regulation*, 5(4), 505-516.
- Gyekye, S. A., & Salminen, S. (2005). Are “good soldiers” safety conscious? An examination of the relationship between organizational citizenship behaviors and perception of workplace safety. *Social Behavior and Personality: An International Journal*, 33(8), 805-820. doi: 10.2224/sbp.2005.33.8.805
- Haukelid, K. (2008). Theories of (safety) culture revisited—An anthropological approach. *Safety Science*, 46(3), 413-426. doi: 10.1016/j.ssci.2007.05.014

## Safety Citizenship Behaviour: A complementary paradigm to safety culture

- Haworth, N., Greig, K., & Wishart, D. (2008). *Improving fleet safety: Current approaches and best practice guidelines* (AP321/08). Sydney, Australia.
- Haworth, N., Tingval, C., & Kowadlo, N. (2000). *Review of best practice road safety initiatives in the corporate and/or business environment* (pp. 1-119). Clayton: Monash University Accident Research Centre.
- Hengel, K. M. O., Joling, C. I., Proper, K. I., Blatter, B. M., & Bongers, P. M. (2010). A worksite prevention program for construction workers: Design of a randomized controlled trial. *BMC Public Health*, *10*(1), 1. doi: 10.1186/1471-2458-10-336
- Hofmann, D. A., Morgeson, F. P., & Gerras, S. J. (2003). Climate as a moderator of the relationship between leader-member exchange and content specific citizenship: safety climate as an exemplar. *Journal of Applied Psychology*, *88*(1), 170. doi: 10.1037/0021-9010.88.1.170
- Hudson, P. (2001). *Aviation safety culture*. Paper presented at the Safeskies Conference, Canberra, Australia.
- Hudson, P. (2003). Applying the lessons of high risk industries to health care. *Quality and Safety in Health Care*, *12*(suppl 1), i7-i12. doi: 10.1136/qhc.12.suppl\_1.i7
- Hudson, P. (2007). Implementing a safety culture in a major multi-national. *Safety Science*, *45*(6), 697-722. doi: 10.1016/j.ssci.2007.04.005
- Judd, J., & Keleher, H. (2013). Reorienting health services in the Northern Territory of Australia: a conceptual model for building health promotion capacity in the workforce. *Global Health Promotion*, *20*(2), 53-63. doi: 10.1177/1757975913486685
- Keil Centre. (2004). *Managing Safety Culture in the UK Rail Industry: Report on the Review of Safety Culture Tools and Methods*. Rail Safety & Standards Board: London, UK.

## Safety Citizenship Behaviour: A complementary paradigm to safety culture

- Kidder, D. L., & Parks, J. M. (2001). The good soldier: who is s(he)? *Journal of Organizational Behavior*, 22(8), 939-959. doi: 10.1002/job.119
- Kyriakidis, M., Hirsch, R., & Majumdar, A. (2012). Metro railway safety: An analysis of accident precursors. *Safety Science*, 50(7), 1535-1548. doi: 10.2139/ssrn.2506584
- Lardner, R. (2002). *Towards a Mature Safety Culture*. Retrieved from <http://www.keilcentre.co.uk/media/1064/towards-a-mature-safety-culture-lardner-2002.pdf>
- Makin, A., & Winder, C. (2008). A new conceptual framework to improve the application of occupational health and safety management systems. *Safety Science*, 46(6), 935-948. doi: 10.1016/j.ssci.2007.11.011
- Maurer, T. J., Pierce, H. R., & Shore, L. M. (2002). Perceived beneficiary of employee development activity: A three-dimensional social exchange model. *Academy of Management Review*, 27(3), 432-444. doi: 10.2307/4134388
- Mearns, K. J., & Flin, R. (1999). Assessing the state of organizational safety—culture or climate? *Current Psychology*, 18(1), 5-17. doi: 10.1007/s12144-999-1013-3
- Mitchell, R., Friswell, R., & Mooren, L. (2012). Initial development of a practical safety audit tool to assess fleet safety management practices. *Accident Analysis and Prevention*, 47, 102–118. doi: 10.1016/j.aap.2012.01.021
- Mooren, L., Grzebieta, R., Williamson, A., Olivier, J., & Friswell, R. (2014). Safety management for heavy vehicle transport: A review of the literature. *Safety Science*, 62, 79-89. doi: 10.1016/j.ssci.2013.08.001
- Mullen, J. (2004). Investigating factors that influence individual safety behavior at work. *Journal of Safety Research*, 35, 275-285. doi: 10.1016/j.jsr.2004.03.011

## Safety Citizenship Behaviour: A complementary paradigm to safety culture

Organ, D. W. (1988). *Organizational citizenship behavior: The good soldier syndrome*.

Lexington, MA: Lexington Books.

Organ, D. W., Podsakoff, P. M., & MacKenzie, S. B. (2006). *Organizational citizenship behavior: Its nature, antecedents, and consequences*. Thousand Oaks: SAGE Publications.

Oz, B., & Lajunen, T. (2008). Effects of Organisational Safety Culture on Driver Behaviours and Accident Involvement Amongst Professional Drivers. In L. Dorn (Ed.), *Driver Behaviour and Training* (Vol. 3, pp. 143-154). Aldershot, UK: Ashgate Publishing Limited.

Peppers, D., & Rogers, M. (2008). *Rules to break and laws to follow: How your business can beat the crisis of short-termism*. (1<sup>st</sup> Edn.). John Wiley & Sons Inc. Hoboken, New Jersey.

Pidgeon, N. F. (1991). Safety culture and risk management in organizations. *Journal of Cross-Cultural Psychology*, 22(1), 129-140. doi: 10.1177/0022022191221009

Podsakoff, N. P., Whiting, S. W., Podsakoff, P. M., & Blume, B. D. (2009). Individual-and organizational-level consequences of organizational citizenship behaviors: A meta-analysis. *Journal of Applied Psychology*, 94(1), 122-141. doi: 10.1037/e518442013-522

Podsakoff, P. M., MacKenzie, S. B., Paine, J. B., & Bachrach, D. G. (2000). Organizational citizenship behaviors: A critical review of the theoretical and empirical literature and suggestions for future research. *Journal of Management*, 26, 513-563. doi: 10.1177/014920630002600307

Reason, J. (1993). Managing the Management Risk: New approaches to organisational safety. In B. Wiklert & T. Qvale (Eds.), *Reliability and Safety in Hazardous Work Systems*. Hove, UK: Lawrence Erlbaum Associates (pp. 7-22). East Sussex, UK: Lawrence Erlbaum Associates.

## Safety Citizenship Behaviour: A complementary paradigm to safety culture

- Robb, G., Sultana, S., Ameratunga, S., & Jackson, R. (2008). A systematic review of epidemiological studies investigating risk factors for work-related road traffic crashes and injuries. *Injury Prevention, 14*(1), 51-58. doi: 10.1136/ip.2007.016766
- Roberts, D. S., & Geller, E. S. (1995). An “actively caring” model for occupational safety: A field test. *Applied and Preventive Psychology, 4*, 53-59.
- Roberts, D. S., & Geller, E. S. (2001). An “actively caring” model for occupational safety. In E. S. Geller & J. H. Williams (Eds.), *Keys to Behaviour-Based Safety*. (pp. 71-83). Rockville, MD: ABS Consulting, Government Institutes.
- Rowland, B., & Wishart, D. (2014, 1-4 June 2014). *Organizational work-related road safety situational analysis: More than just an audit tool*. Paper presented at the 24th Canadian Multidisciplinary Road Safety Conference, Vancouver, BC.
- Safe Work Australia. (2012). *Work-related Traumatic Injury Fatalities, Australia 2009–10*. Canberra, Australia: Safe Work Australia. Retrived from <http://www.safeworkaustralia.gov.au/sites/SWA/about/Publications/Documents/662/Traumatic%20Injury%20Fatalities%202009-10.pdf>
- Schein, E. H. (2010). *Organizational culture and leadership, Vol. 2*. San Francisco, CA: John Wiley & Sons.
- Shaw, J. D., Dineen, B. R., Fang, R., & Vellella, R. F. (2009). Employee-organization exchange relationships, HRM practices, and quit rates of good and poor performers. *Academy of Management Journal, 52*, 1016-1033. doi: 10.5465/amj.2009.44635525
- Shore, L. M., Coyle-Shapiro, J. A. M., Chen, X. P., & Tetrick, L. E. (2009). Social exchange in work settings: Content, process, and mixed models. *Management and Organization Review, 5*, 289-302. doi: 10.1111/j.1740-8784.2009.00158.x

## Safety Citizenship Behaviour: A complementary paradigm to safety culture

- Stuckey, R., Lamontagne, A. D., Glass, D. C., & Sim, M. R. (2010). Occupational light vehicle use: Characterising the at-risk population. *Journal of Health and Safety Research and Practice*, 2(1), 167-179. doi: 10.1179/oh.2005.11.2.167
- Stuckey, R., LaMontagne, A. D., & Sim, M. (2007). Working in light vehicles—a review and conceptual model for occupational health and safety. *Accident Analysis & Prevention*, 39, 1006-1014. doi: 10.1016/j.aap.2007.01.009
- Tekleab, A. G., & Chiaburu, D. S. (2011). Social exchange: Empirical examination of form and focus. *Journal of Business Research*, 64, 460-466. doi: 10.1016/j.jbusres.2010.03.005
- Ward, N. J., Linkenbach, J., Keller, S. N., & Otto, J. (2010). *White paper on traffic safety culture*. Western Transportation Institute, College of Engineering Montana State University. Retrieved from <http://safety.transportation.org/doc/web2%20Safety%20Culture%20White%20Paper.pdf>
- Westrum, R. (1996). Human factors experts beginning to focus on organizational factors in safety. *ICAO Journal*, 51(8), 6-8, 26. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/11541836>
- Westrum, R. (2004). A typology of organisational cultures. *Quality and Safety in Health Care*, 13(suppl 2), ii22-ii27. doi: 10.1136/qshc.2003.009522
- Wiegmann, D. A., von Thaden, T. L., & Gibbons, A. M. (2007). A review of safety culture theory and its potential application to traffic safety. *Improving Traffic Safety Culture in the United States, Vol. 113*. AAA Foundation for Traffic Safety: Washinton, DC. Retrieved from <http://atcvantage.com/files/Culture-WiegmannVonThadenGibbons.pdf>



## Safety Citizenship Behaviour: A complementary paradigm to safety culture

- Wills, A. R., Watson, B., & Biggs, H. (2009). An exploratory investigation into safety climate and work-related driving. *Work*, 32, 81-94. doi: 10.3233/WOR-2009-0818
- Wills, A. R., Watson, B., & Biggs, H. C. (2006). Comparing safety climate factors as predictors of work-related driving behavior. *Journal of Safety Research*, 37, 375-383. doi: 10.1016/j.jsr.2006.05.008
- Wishart, D. (2015). *The challenge of developing a fleet driving risk assessment tool: What can be learned from the process?*, Retrieved from QUT ePrints. Queensland University of Technology, Brisbane, Australia.
- Wishart, D., Davey, J., & Rowland, B. (2004). *Analysis of City Fleet motor vehicle incidents*. Unpublished Manuscript. Centre for Accident Research and Road Safety – Queensland, Queensland University of Technology, Brisbane, Australia.
- Wishart, D., Davey, J., Rowland, B., & Banks, T. (2009). *CARRS-Q Work related road safety workshop: The challenge to change*. Series of workshops presented to industry 2009-2010. Centre for Accident Research and Road Safety – Queensland, Queensland University of Technology, Brisbane, Australia.
- Wishart, D., & Davey, J. D. (2004). *A research based case study approach to the development of fleet safety interventions in large vehicle fleets*. Paper presented at the Safety in Action Conference, Melbourne, Australia.
- Wishart, D., & Rowland, B. (2010). *Origin organisational work related road safety situational analysis report*. Unpublished Manuscript. Centre for Accident Research and Road Safety – Queensland, Queensland University of Technology, Brisbane, Australia.

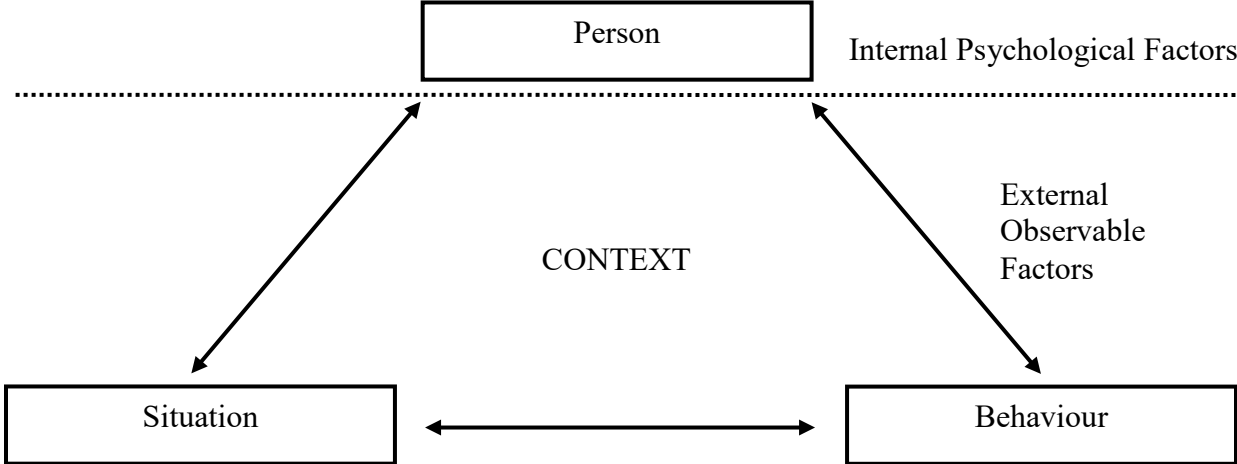
## Safety Citizenship Behaviour: A complementary paradigm to safety culture

- Wishart, D., & Rowland, B. (2012). *QGC organisational work related road safety situational analysis report*. Unpublished Manuscript. Centre for Accident Research and Road Safety – Queensland, Queensland University of Technology, Brisbane, Australia.
- Wishart, D., & Rowland, B. (2013). *Santos desktop review of work related road safety processes*. Unpublished Manuscript. Centre for Accident Research and Road Safety – Queensland, Queensland University of Technology, Brisbane, Australia.
- Wishart, D., Rowland, B., & Davey, J. (2010). *Third council work related road safety benchmark report*. Unpublished Manuscript. Centre for Accident Research and Road Safety – Queensland, Queensland University of Technology, Brisbane, Australia.
- Wishart, D., Rowland, B. D., Freeman, J. E., & Davey, J. (2011). *Fleet safety: Risk reduction for work related vehicle use*. Paper presented at the Proceedings of 9th Industrial and Organisational Psychology Conference, Brisbane Convention and Exhibition Centre, Brisbane, Qld.
- World Health Organization. (2004). *Road Safety: A public health issue*. Retrieved from [http://www.who.int/features/2004/road\\_safety/en/](http://www.who.int/features/2004/road_safety/en/)
- Xerri, M. (2013). Workplace relationships and the innovative behaviour of nursing employees: a social exchange perspective. *Asia Pacific Journal of Human Resources*, 51, 103-123. doi: 10.1111/j.1744-7941.2012.00031.x
- Xuesheng, D., & Xintao, Z. (2011). An empirical investigation of the influence of safety climate on safety citizenship behavior in coal mine. *Procedia Engineering*, 26, 2173-2180. doi: 10.1016/j.proeng.2011.11.2422
- Zohar, D. (2008). Safety climate and beyond: A multi-level multi-climate framework. *Safety Science*, 46, 376-387. doi: 10.1016/j.ssci.2007.03.006

Safety Citizenship Behaviour: A complementary paradigm to safety culture

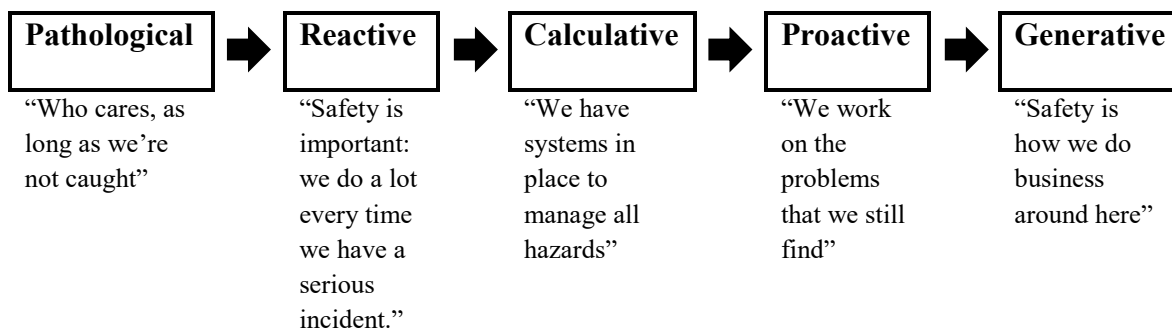
Zohar, D., & Erev, I. (2007). A decision-making analysis of safety behavior: Why is it so difficult to maintain safety behavior at work. *International Journal of Risk Assessment and Management*, 7, 122-136.

**FIGURES**



*Figure 1.* Reciprocal Safety Culture Model (Source: Cooper, 2000)

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*Figure 2. Safety Culture Maturity Model (Source: Hudson, 2003)*

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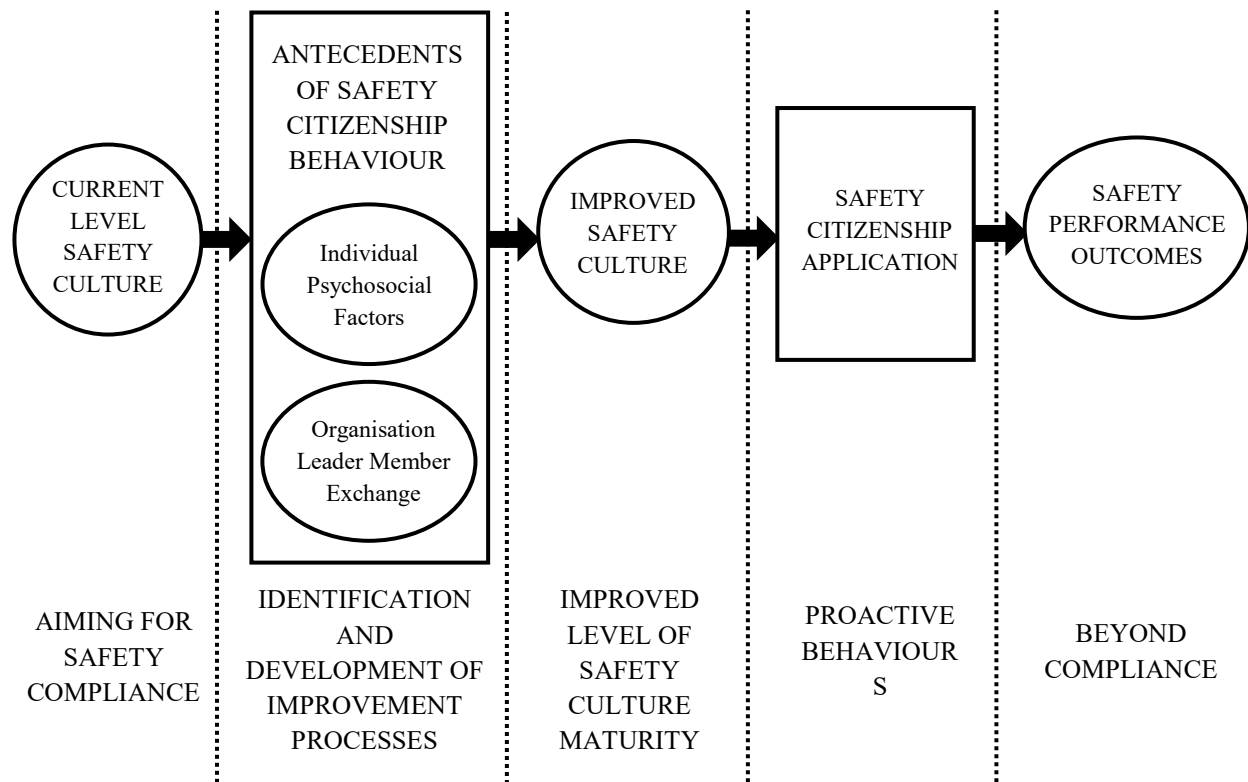


Figure 3: Safety Citizenship Behaviour Model as a complimentary paradigm to safety culture