Gordon Institute of Business Science
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The relationship between change leadership and individual innovative work behaviour in the context of crisis

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ABSTRACT

Research suggests that leadership contributes to the management of change (Boin, Kuipers, and Overdijk, 2013; Bundy, Pfarrer, Short, and Coombs, 2017) and individual innovative work behaviour (IWB) in times of crisis (Anderson, Potočnik, & Zhou, 2014). Crisis, for the purpose of the study, is defined as a high impact event, which is of low probability, is external to the organisation and threatens organisational viability. Further it is regarded as uncertain and triggered by change, therefore requires intervention of organisational innovation practices in order to address its specific consequences. The cultivation of innovation, as a result, has proven critical for organisational recovery and performance in times of crisis (Jaroensutiyotin, Wang, Ling, & Chen, 2019).

Leaders, through encouragement, exert influence on their followers to adopt innovation and creativity, and as a result effective leadership tends to encourage employee innovation levels and behaviours to improve performance outcomes in times of crisis (Fragouli & Ibidapo, 2015). To this end, the study aims to test the relationship between change leadership and employee innovative work behaviour (IWB) within the specific context of crisis.

A common theme among the extant definitions of leadership has been the directing and mobilization of individuals and groups alike, towards goal setting and achievement. To this end, Kotter (1999), suggests that leadership is a process that is associated with change because leadership may be defined as the setting of a strategic direction, and development of strategy in order to move forward in that very direction, in other words, the creation and achievement of a vision. Further, leaders challenge the status quo which inherently renders leadership as change focused (Cairns, 2000). Similarly Elliott, (1992) suggests that in the absence of change, leadership had in fact not occurred. In support hereof, Yukl, (2002) further suggests that the fundamental role of a leader is to lead change, and that all else is secondary hereto. It can therefore be concluded that, 'ultimately leadership is about change' (Zenger, Ulrich & Smallwood, 2000), and involves initiating change, mobilizing others to change and maintaining change (Smit, 2003). As a result leadership must be understood in the context of change (Higgs & Rowland, 2000).

Innovative work behaviour (IWB) involves the deliberate introduction and subsequent implementation of new ideas in order to develop novel solutions to extant challenges, such that an improvement is achieved in products/services, and new opportunities are proactively explored (De Jong & Den Hartog, 2010; Dong & Hawryszkiewycz, 2019). Moreover, it has been accepted widely that innovation is a critical contributor to success within organizations, with capitalization on employee innovative work

behaviour (IWB) deemed one of the most central means for organizations to become innovative, which in turn ensures continuous effectiveness and success. IWB suggests that employees can contribute to organizational success through the utilization of their innovative capabilities in order to generate new ideas, and through the implementation thereof, improve organizational products/services and or procedures (Hom & Xiao, 2011; Yuan & Woodman, 2010).

KEY WORDS

Change leadership, Individual innovative work behaviour (IWB), Crisis

DECLARATION

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

Student Name: Rushnique Lambert

Signature:

Date: 01 December 2020

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1.1 Research Title

The relationship between change leadership and individual innovative work behaviour in the context of crisis.

1.2 Research Problem

Since the industrial revolution, the pursuit of digitization, globalization and rapid technological change in markets, innovation has been suggested as a critical factor for addressing uncertainty, competition, and the acquisition of competitive advantage such that the organisation's survival and sustainability can be ensured (Vargas, 2015). Innovation has therefore over time, proven critical to achieving organisational effectiveness given the rapidly changing business environment (Shin, Yuan & Zhou, 2017). For these reasons, it is affirmed that a failure on the organisation's part to innovate is a threat to its survival and sustainability. Organisations, as a result are required to continuously cultivate an innovation climate to remain competitive, this act of survival and sustainability is supported by the noted increase in importance of cultivating innovation, among organizations and their leaders alike (Shanker, Bhanugopan, Van der Heijden, & Farrell, 2017).

Jaroensutiyotin, Wang, Ling, and Chen, (2019) suggest that the cultivation of innovation within organisations is critical for organisational recovery and performance specifically in times of crisis. Crises are regarded as uncertain events which are triggered by change, and require the intervention of organisational innovation practices in order to address their specific consequences. To this end, it is purported that a critical contributor to the effective management of uncertainty and crisis is leadership, (Boin et al., 2013) due to the leader's sense-making capabilities within the particular situation and environment, their potential to impact the performance of followers through framing the situation as dynamic or uncertain, the leader's suggestion that no singular approach to the situation may exist and the leader's engagement and encouragement of teams or individuals in voicing their unique opinions associated with addressing the uncertainty (Barton, Sutcliffe, Vogus, & DeWitt, 2015).

The literature review conducted in support of this study highlights evidence that the leader and their associated leadership behaviours have the propensity to impact innovation behaviour at a follower, employee or individual level. What has not yet been delved into in the extant literature however, is the nature and degree to which leadership influences follower innovation behaviour under the specific conditions of crisis (Anderson, De Dreu, & Nijstad, 2004).

Bowers, Hall, & Srinivasan , (2017), suggest that suitable leadership style (also known as a leader's behaviour) which is aliged with organisational culure, remains critical when managing crises, but notably, that leadership behaviours impact the effective handling of a crisis, as not all leadership

behaviours are best suited to the effective management of crises. For this reason, the orgnanisation must preceive, prepare and positon itself such that the crisis response selected is formlated with an understanding of the existing organisanal culture and appropriate leadership behaviours to best ensure that within the crisis envrionment at hand, the aforementtioned contibuting factors to successful crisis management, inform the selection of the most approptiate leasdership behaviours to employ in order to manage the cirsis effectively (Bowers et al., 2017). The latter suggests that there is a collection of "appropriate" or "best-fit" behaviours which may elicit more efective outcomes when a leader enagages in the management of crises, which in turn may impact an the organisation's recovery and performance in times of crisis. This forms the compelling motivation or rationale for the study from a business perspective, that is, understanding the relationship between leadership behaviour, and its effect on orgnisational effectiveness through the mechnism of employee innovation, within a crisis context.

Prevailing literature focuses primarly on leadership style and their respective impacts on crisis management within the organisation, as well as leadership style best suited for effective crisis management. Further, employee creativity has been studied extensively within extant literature, with some attention given to the impact of leadership on employee creativity. The construct of leadership and its association with employee innovation, has however not been adequately addressed more so within the specific conditions of crisis, as the prevailing literature has to date focused on these constructs under normal conditions.

A clear gap in literature therefore exsits for the study of leadershership and its effects on employee innovation under atypical conditions, that is, within a crisis context, the very nature of which requires the intervention of organisational innovation practices in order to address its specific consequences and ensure organisational recovery and performance in times of crisis (Jaroensutiyotin et al., 2019).

Employee innovation has been found to directly impact proponents of organisational performance, and has in turn been found to be impacted by leadership. Leadership, which is adequately aligned with organisational culture has been found to improve the probability of successful crisis management and future organisational recovery and performance. The current study while making only a partial contribution to better understanding leadership and employee innovation within crisis contexts, will make a positive contribution within the proposed sector of study, that is, Construction and the Built Environment which forms a critical case for the instance of crisis, as these industries typically experience change and crisis on a great scale and great frequency within the normal course of business. The study further remains of importance beyond the crisis context, as it impacts organisational recovery, sustainability and performance beyond the crisis situation.

1.3 Purpose of the Study

The definition of crisis is that of a high impact event, which is characterized by low levels of probability, is external to the organisation and threatens organisational viability. It is uncertain and triggered by change, and as a result requires organisational innovation practices as an intervention in order to address its specific consequences. The cultivation of innovation, as a result, is critical for organisational recovery and performance in times of crisis (Jaroensutiyotin et al., 2019).

Research suggests that leadership contributes to the management of change (Boin, et al., 2013; Bundy et al., 2017) and individual innovative behaviour in times of crisis (Anderson et al., 2014). Leaders, through encouragement, exert influence on their followers to adopt innovative and creative behaviours, and as a result effective leadership tends to encourage and improve employee innovation levels and behaviours to improve performance outcomes in times of crisis (Fragouli & Ibidapo, 2015). Accordingly, the suggested correlation between leadership and employee innovation behaviour, and the purported contribution employee innovation makes to organisational recovery and performance under conditions of crisis, provides impetus for the current study and its relevance during the current conditions of crisis experienced globally by organisations as a result of the COVID-19 global pandemic. Within the current crisis context the COVID-19 global pandemic has seen organisations finding themselves having to place particular focus on understanding the factors which make a contribution to organisational recovery and performance during times of crisis.

As a result the purpose of the study as expressed through its problem statement therefore resolves to test the aforementioned relationship due to its suggested contribution to organisational performance within the context of crisis.

The aim of the research as expressed through the problem statement, is further supported by the fact that organisations typically lack the propensity for pro-active crisis management preparedness (Bowers et al., 2017) and that the selected vehicles for managing environmental turbulence and uncertainty and its associated decision making do not provide an inherent guarantee of success under such conditions, instead the effective management of the change as informed by the strategic decisions taken to navigating environmental turbulence and uncertainty does (Serfontein, Basson, & Burden, 2009).

1.4 Significance of the Study

1.4.1 Significance to Literature

The literature review to follow affirms that there is an existing causal relationship between the variables under consideration which include those explicit in this study, change leadership and employee innovation behaviour. The review of extant literature also suggests that factors beyond the boundaries of this study, such as organisational culture, are important considerations to understand as means of

creating context and highlighting the complexity of such implicit factors which shall not be included in this study, but have been covered for the purpose of enhancement of the study context.

1.4.2 Significance to Business

The Institute for Crisis Management which was founded in 1990, focusses on research related to effective crisis planning and preparation. According to the Annual Crisis Report which is a collection of crises analysis, trends, news, assessment of high-risk industries and lessons learnt, is published annually and is currently in its 29th year, from 2015 to 2019 the ten most crisis-prone industries have been identified as energy, food, automotive manufacturing, banking and financial services, transportation, education, insurance and financial services, government, health and pharmaceuticals, aviation, and technology and retail (Institute for Crisis Management, 2019).

Accordingly, and as expressed in the purpose of this study, what remains as a gap in the current literature is the nature of the relationship between change leadership and employee innovative behaviour within the specific context of crisis, considered specifically within industries typically prone to crisis in this instance being the Construction and Built Environment sector which can be considered as forming part of the listed industries above as they execute their mandate within these sectors, and therefore represents a critical case for the study at hand, that is, instances of crisis are more likely to occur in this sample industry and therefore this specific sample proves critical in addressing the research aims and objectives (Saunders & Lewis, 2018), as this industry experiences change and crisis on a day to day basis and as a result is an appropriate industry for testing the aforementioned causal relationship.

In summation, the necessity of the study is affirmed by the extant literature pertaining to change leadership, within the context of its propensity for influencing the culture of the organisation, employee innovation, as well as the required need for organisations to remain competitive and sustain performance even when faced with prevailing conditions of crisis. Understanding the causal relationship between the two variables under investigation (change leadership and employee innovative behaviour), therefore remains impetrative in determining organisational performance and future sustainability in the context of crisis.

1.5 Definition of Terms

The following terms have been explicitly defined for the purpose of this study:

- *Change leadership* - involves initiating change, mobilizing others to change, maintaining change (Smit, 2003).

- *Individual innovative work behaviour (IWB)* – the deliberate introduction and implementation of novel ideas in order to propose new solutions to existing problems, such that an improvement is achieved in products/services, and new opportunities are proactively explored (De Jong & Den Hartog, 2010; Dong & Hawryszkiewycz, 2019). For the purpose of the study the term 'employee innovative work behaviour' is used interchangeably with the aforementioned and therefore shares the same definition.
- *Crisis* - a high impact event, which is low in probability, is external to the organisation and threatens organisational viability. It is considered an uncertain event which is triggered by change, and therefore requires the intervention of organisational innovation practices in order to address its specific consequences.

2 LITERATURE REVIEW

2.1 Introduction

Key aspects to be discussed in the literature review include, a review of the extant literature of the organisation within the context of environmental turbulence, uncertainty and crisis, individual innovative behaviour in the context of crisis and its impact on organisational performance, as well as the effect of change leadership on individual innovative behaviour.

2.2 The Organisation within the Context of Environmental Turbulence, Uncertainty and Crisis

In the typical course of business it may be noted that the environment within which the organisation operates can be subject to various environmental turbulences. The latter being defined as perceived hostility, complexity and dynamism. Dynamism specifically refers to the impact of technological change and market shift on the organisation's environment which as a result sees organisations being required to cultivate new capabilities, review technological assets or risk failure. Hostility is the viewed as a result of unfavourable market conditions or changes, adverse regulatory conditions or changes or shifts in competitors' positioning. In addition, environmental complexity makes specific reference to the degree of heterogeneity and homogeneity within the environment which more importantly highlights the perceived inter-dependencies between the various external forces which may influence the operation of the organisation. Environmental turbulence and by extension uncertainty regarding the environment within which the organisation finds itself, invariably renders future planning a taxing organisational endeavour (Serfontein et al., 2009).

In response to environmental turbulence organisations therefore often turn to response mechanism which have historically proven effective such as the establishment of a well-known brand, preferential distribution channel access and unrivalled industry knowledge which remain of great value to ensure customer loyalty. In addition hereto and as means of addressing the inherent challenges within the environment of business, organisations often choose to also engage in a diverse range of typical response mechanisms including acquisitions, joint ventures and alliances, which are considered as vehicles for effective risk and uncertainty management, invigorating maturing businesses and sharing costs associated with large-scale capital investments (Serfontein et al., 2009). Even in the face of such vehicles for managing risk these decisions are not an inherent guarantee of success, instead the effective management of the change associated with such strategic decisions is (Serfontein et al., 2009). Within the context of crisis however, these normative mechanisms for managing change may behave differently and therefore results in the focal point for change agency landing primarily on the leader, as the driver of change, and the custodian tasked with effective crisis management. To this end a crisis is generally defined as a high impact, low probability event which is external to the organisation

and threatens the viability of the organisational (Pearson & Clair, 1998; Weick, 1988). Further, crisis is uncertain, is change-triggered, and requires the intervention of organisational innovation practices in order to address its specific consequences or impacts on the organisation (Bessant, Rush, & Trifilova, 2015). Cultivation of innovation has been demonstrated as critical for organisational recovery and performance in times of crisis (Jaroensutiyotin et al., 2019).

Accordingly, the aforementioned literature review suggests that achieving adequate organisational performance within conditions of crisis as compared to normal or typical business conditions, varies, and that successful crisis management such that organisational recovery and future performance remains unstifled, depends on enhanced or atypical interventions with regards to crisis management which in turn highlights the need for the cultivation of innovation during crisis contexts, as a vehicle for successful crisis management and ensuring the threat to organisation viability as posed by crises, is effectively navigated and addressed.

2.3 Innovative Work Behaviour (IWB)

Innovative work behaviour (IWB) involves the deliberate introduction and subsequent implementation of new ideas in order to develop novel solutions to extant challenges, such that an improvement is achieved in products/services, and new opportunities are proactively explored (De Jong & Den Hartog, 2010; Dong & Hawryszkiewycz, 2019). Moreover, it has been accepted widely that innovation is a critical contributor to success within organizations success, with capitalization on employee' innovative work behaviour (IWB) deemed one of the most central means for organizations to become innovative, which in turn ensures continuous effectiveness and success. IWB suggests that employees are able to make a contribution to organizational success through the utilization of innovative behaviours in with the aim of generating and implementing these for the benefit and improvement of the organization, its products/services and or procedures (Hom & Xiao, 2011; Yuan & Woodman, 2010).

2.4 Individual Innovative Work Behaviour and its Impact on Organisational Outcomes

West and Farr, (1990), define employee innovation as an intentional cognition, promotion, and execution of novel concepts with the specific aim of benefiting employee performance, or the performance of a group, or the organization as a whole. De Jong & Den Hartog, (2007); Yuan & Woodman, (2010), further affirm individual innovative behaviour as a process of novel idea generation and its implementation in order to address or solve organisational challenges, thus contributing directly to innovation within the organisation and the resultant performance and competitiveness of the organisation (Anderson et al., 2014; Yang, Qian, Tang, & Zhang, 2016).

Within the extant literature, two prevailing vantages have generally been advanced in understanding the manner in which uncertainty affects the innovation behaviour of the individual employee, the first prevents individuals from adopting risky and innovate behaviour due to unpredictable outcomes, as

suggested by Staw, Sandelands, & Dutton, (1981) in threat rigidity theory, while the second results in individuals adopting innovative behaviour as means of clarifying an uncertain context in line with the postulations of Kramer, (1999) in uncertainty reduction theory. Within the context of the organisation, perceptions of uncertainty on the part of the employee, motivates that individual to scan the environment and seek information in order to clarify ambiguities (Chen, 2014; Morrison, 2002), this in turn strengthens the individual's knowledge base, which results in a contribution to new idea generation and implementation (Jaroensutiyotin et al., 2019).

Organisations have recognised that employee innovation is critical to promoting effectives, continuous development and growth within rapidly changing and uncertain environments (Odoardia, Montanic, Battistelli, & Peiród, 2019). Accordingly, employee innovation is a key contributor to organisational performance and competitive advantage and in times of uncertainty the need for and impact of employee innovation on organisational performance may be further compounded, primarily due to the fact that crisis requires organisational innovation practices as interventions for addressing its consequences (Jaroensutiyotin et al., 2019). Employee innovation is therefore an important variable for organisations to gain an understanding of in the context of crisis, in order to gain a view of the factors which may enhance or positively influence it, more so and as the focus of this study suggests, the impact that leaderships has on employee innovative work behaviour.

2.5 The Antecedents of Innovative Work Behaviour

Research suggests that innovative work behaviour (IWB) is primarily triggered by the organisational work environment and individual qualities, and how these two factors socialize (Munir & Beh, 2016). A harmonious organisational climate has been found to improve employee performance, improve creativity and innovation such that employees generate ideas, and exercise independence when implementing tasks and ideas which in turn enhances organisational performance (Munir & Beh, 2019). Moreover, research suggests that a cultivation of a supportive organisational climate of this nature, has the effect of enhancing employee perceptions of support for innovative work behaviour (Munir & Beh, 2016). To this end, prevailing literature endorses organisational climate as a key factor in the development of innovative work behaviour (IWB) Balkar, 2015; Ren & Zhang, 2015; Shanker & Bhanugopan, 2014; Noor & Dzulkifli, 2013; June & Kheng, 2013).

Ren and Zhang, (2015) further suggest that organizational innovation climate has a strong relation to idea generation and implementation, while Shanker & Bhanugopan, (2014) and June & Kheng, (2013) purport that innovative work behaviour such as idea generation and idea promotion and realization, are significantly influenced by the climate for innovation.

In addition, Hurmelinna-Laukkanen, Atta-Owusu, & Oikarinen, (2016), advance social interaction between colleagues as a significant influencing factor to enhancing employees' innovative behaviour.

High levels of connectedness or connectivity has also been suggested as a contributing factor to improving and strengthening relationships, top management innovative behaviour and the comprehensiveness of their strategic decision making (Friedman and Carmeli, 2018). Findings from an earlier study undertaken by Oude Luttikhuis in 2014, demonstrated that employees are more committed, demonstrate more creativity, and increased their actual efforts towards task performance, when 'freedom' within the organisational environment was communicated. The study concludes that there is a relationship between freedom and the individual innovation process which includes initiation or idea generation, and implementation or application behaviour (Nasurdin, Ling, & Hou, 2014).

Li, Lin, Tien, & Chen, (2017), further suggest that when employees are exposed to more challenging assignments, the likelihood of them trying new things increases, while creativity at an individual level is positively associated with a high level of employee engagement in their work. Singh and Sarkar, (2012) also suggest that higher levels of job involvement and innovative behaviour are significantly correlated to one another, while autonomy with respects to the job, empowers employees to be innovative and encourages freedom and autonomy with respects to the practice and cultivation of innovative work behaviours, supported by innovation trust, which is achieved through an organisational environment demonstrating support for innovation (Bysted, 2013).

The discretionary communication of concerns, suggestions, opinions or ideas pertaining to work related matters with an aim of improving the organization or functional department, refers to voice behaviour (Walumbwa, Morrison, & Christensen, 2012). Voice behaviour has been highlighted as being a significant contributor to enhancing individual creativity and further playing the role of transforming it into innovation. Former studies have emphasised that voice behaviour plays a critical role in supporting creativity at an individual level and eventually transitioning it to innovation (Chen & Hou, 2016; Walumbwa et al., 2012). To this end, leaders should embrace the notion of idea support, as their support towards innovation and innovative thinking will have the effect of aiding employees in being innovative. Research suggests that leader support, through the vehicle of work environment, drives individual innovation (Oude Luttikhuis, 2014). Moreover, time to innovate has been found to be important, as an adequate amount of time to innovate allows employees to engage in novel idea generation (Moultrie & Young, 2009).

Humour has been highlighted within previous empirical research as having a correlation with innovativeness and creative behaviour. (Hurmelinna-Laukkanen et al., 2016; Lang & Lee, 2010). To this end a study undertaken by Hurmelinna-Laukkanen et al., (2016) highlighted that various types of humour are positively associated with innovative work behaviour (coping humour and affiliate humour) while aggressive humour was found to have a negative association with IWB. This notion is furthered emphasised by Amjed and Tirmzi (2016), who postulate that humour which is self-enhancing and

affiliate humour are positively related to employee creativity. Research suggests that a humorous work climate can improve individual innovation and creativity through enabling feelings of relaxation, which in turn allows an individual to think, and subsequently leads to improved idea generation (Nasurdin et al., 2014).

Furthermore, Lu, Zhou, & Leung, (2011) have suggested that 'creativity requires conflict'. It has been found that conflict tends to drive individual creativity, as such individuals tend to increase their levels of innovation and creativity when under conditions of conflict or pressure. Furthermore, Imran, Zaheer, Fatima, & Khan, (2014), support this by denoting conflict as the driving force behind employee innovative behaviour. This has been further supported by more recent studies which indicate that conflict can improve communication, lead to healthy relationships and several other benefits which inculcate positive organisational behaviours (Reade & Lee, 2016) while enhancing innovation (Khan, Breitenecker, Gustafsson, & Schwarz, 2015). Constructive conflict is therefore key to the generation of improved solutions and decision making, as a result of increased access and exposure to information and argument rationale (Lu et al., 2011).

In addition, Nasurdin et al., (2014) suggests that debating encourages the verbal exchange of ideas, which in turn leads to innovation and creativity. This is in accordance with research conducted by Seyr & Vollmer (2014), which found that there is a significant link between innovation and debate, and that decision comprehensiveness which also affects innovation, may be achieved through debate.

Studies have also shown that risk is strongly related to creativity and innovation, as risk involves activity with unknown outcomes. An organisational climate which encourages risk-taking therefore plays a critical role in level of innovation behaviour (Kang, Matusik, Kim, & Phillips, 2016).

2.6 The Three Phases of Innovative Work Behaviour

Innovative work behaviour (IWB) at an employee or individual level has gained considerable attention within literature as it has been found to add directly to both organisational survival and performance (Amabile, 1988; Amabile, Schatzel, Moneta, & Kramer, 2004; Bos-Nehles, Bondarouk, & Nijenhuis, 2017; De Vries, Bekkers, & Tummers, 2016; De Jong & Den Hartog, 2007, 2010; Yindong & Xinxin, 2013). Within an increasingly dynamic and challenging business environment, employee work behaviour contributes directly to the alignment between the organisational vision with environmental turbulences, and continuous technological change. For this reason, employee innovative work behaviour, which involves developing, adopting and implementing new ideas, work methods or products, is considered a critical reason for some organizations surviving environmental turbulences (De Jong & Den Hartog, 2007, 2010). Consequently, more recently, research has highlighted the importance of effective leadership in influencing innovative work behaviour at an individual or employee level (Bos-Nehles et al., 2017; De Jong & Den Hartog, 2007; Javed, Naqvi, Khan, Arjoon, & Tayyeb,

2017; Jung, Wu, & Chow, 2008; Mumford & Licuanan, 2004; Scott & Bruce, 1994; Yindong & Xinxin, 2013).

Prevailing literature is aligned in terms of the components of innovative work behaviours which is suggested as comprising of three specific stages including that of idea generation, idea promotion and idea implementation (De Jong & Den Hartog, 2010; Scott & Bruce, 1994). When generating ideas, employees find themselves encountering work problems, and as such will embark on ways in which to improve the existing products or processes, and will seek alternative or novel ways of solving these work-related problems. Moreover, when promoting ideas, employees will actively engage in innovative work behaviours in order to embark on promoting the new ideas that they have developed to potential partners, this through building coalitions of allies and network building. Lastly, when implementing ideas, employees are now required to prepare a model of the novel process or idea with the aim of normalizing it to ensure that it becomes a part of the workplace routine (De Jong & Den Hartog, 2010).

2.7 Leadership and its Link to Innovative Work Behaviour

Innovative work behaviour has been theorized as discretionary, and occurs more often when employees experience good relationships with their supervisors, as a result researchers have associated effective leadership with innovative work behaviour (Mumford & Licuanan, 2004; Scott & Bruce, 1994). To this end, research predominantly recognizes the significance of innovation and its associated impact on organizational success, top management involvement and support has been recognized as key contributor to the promotion of innovation and innovative work behaviour (Amabile et al., 2004; Javed et al., 2017; Jung et al., 2008; Yindong & Xinxin, 2013). Amabile et al., (2004), rationalize this through the Componential Theory of Creativity, and suggest that leaders have the propensity to impinge on the process of creativity and innovation through their and the organisation's perceived support and encouragement which impacts the work environment. To this end effective leadership including transformational, ambidextrous, inclusive, and ethical leadership have been related to innovative work behaviour in the past, (Muchiri, McMurray, Nkhoma, & Pham, 2020).

2.8 Organisational Culture and the Reciprocal Influence between Leadership and Culture

While organisational culture will not explicitly be studied as a variable within this study, it remains important to understand its reciprocal relationship with leadership and acknowledge it as a contributor to organisational performance or outcomes as means of making a contribution to the richness of the current study and appreciate the relative complexity of the variables being studied beyond the battery limits of the current study.

In this regard, Edgar Schein (1988), defines culture as a characteristic of a group whose participants share mutual experiences in addressing a significant number of internal and external problems and as a result with time, form a collective perception or view of the world and the associated problem solving

that proves effective in this world. Further this shared or collective view leads to the development of a pattern of fundamental assumptions and/or beliefs that are learned responses to problems previously encountered by the unit in the past, and were used relatively well for the unit to survive both internal and external challenges. These beliefs have over time, been taken for granted and become engrained as they have proven to be effective and reliable, repeatedly in the past. Schein, (1988) further confirms that culture is a learned result of a group or collective experience and suggests that it can only originate where there is a significant history of togetherness in a defined group.

A critical feature of culture is that it is dynamic and can therefore evolve with new experiences through two distinct alternatives; as a result of a crisis or "burning platform "or through a skilled and managed evolution. It is therefore of paramount importance for management to understand organisational culture as it can assist in predicting how the organisation may likely respond to different situations as culture affects the way in which employees of the organisation feel, think, and behave within the bounds of the organisation (Christensen, 2006).

Leaders however, provide a shared identity to followers, embodying a single vision and common set of values, attitudes, goals and practices, and thus are integral in the formation of a superordinate identity that transcends existing subgroup identities without threatening the identity of each of the different sub groups. This approach to operationalising strategy through organisational culture, is informed aptly by Hofstede, (1980), in his definition of culture, which he described as the collective mental programming of persons or individuals in different contexts. In turn organisational culture can influence a managers' propensity for processing information, rationalizing and subsequently exercising appropriate discretion in the decision making process (Shao, 2019).

This therefore suggest that organisational culture can be shaped due to an existing or impending crisis, with culture being a critical determinant of the organisation's likely response to crisis. Leaders in turn play I vital role in the shaping of organisational culture through their cultivation of a superordinate identity for all cultural subgroups to identify with, which in turn can be used as a vehicle for operationalising organisation culture within a crisis context, as culture inevitably influences the decision making capacity of managers within the organisation.

2.9 Organisational Change and Leadership within the Context of Organisational Culture

As crisis is defined as an uncertain event which is change triggered, (Jaroensutiyotin et al., 2019) it is critical to understand leadership within the context of change. To this end, Shao, (2019) suggests that change is a dynamic, and time-bound process which is non-discrete and is evidenced as a difference in the state of a unit. Similarly, organisational change conforms to the very same definition however it is a change that is contextualised as being associated with the organisation and an initiative which

critically alters the organisation and its processes causing a resultant influence in individual behaviour and organisational outcomes (Shao, 2019).

To aid the understanding of leadership as a variable and its behaviour within the context of change, it is of importance to unpack organisational culture as it is a critical consideration in leadership decision making (Shao, 2019) and when positive cultural characteristics exist in an organisation it has proven vital for enabling innovation, agility and creativity within an organisation (Li, Bhutto, Nasiri, Shaikh, & Samo, 2018).

Correspondingly, the argument is advanced that organisational culture drives organisational member thoughts about, perceptions and reaction to both the internal and external environments. Culture thus remains a critical factor in guiding organisational strategy from both a formulation and implementation perspective (Shao, 2019). Since organisational change is an initiative which critically alters the organisation and its processes and causes a resultant influence in individual behaviour, understanding culture and its contribution to change is important, in support of the primary variables being studied.

One of the most widely accepted theoretical frameworks employed to quantitatively measure organisational culture is Quinn and Rohrbaugh (1983)'s Competing Values Model (CVM). The Competing Values Model allows for an organisation's culture to be described along the lines of co-existing and competing values or intentions with the first dimension describing an organisation's focus on stability or flexibility and the second describing the organisation's focus on external or internal environments. Organisational culture can therefore be classified along the lines of specific typologies, with the ability to exhibit a combination of these cultural typologies while typically demonstrating a dominating set of values (Quinn & Spreitzer, 1991).

The model therefore suggests that there is an appropriate fit or alignment between leadership and culture typology, as a result, specific types of leadership style or behaviour are supported by the values associated with certain organisational cultures, similarly appropriate leadership style when coupled with a specific organisational culture can result in lower instances of conflict and thus higher instances of efficiency, while the inverse misalignment of leadership and organisational culture can result in higher instances of conflict and as a result stifle organisational performance (Shao, 2019). Positive cultural characteristics have proven vital for enabling innovation, agility and creativity within an organisation (Li et al., 2018).

The aformentioned literature review highlights the significance of the characteristics of leadership and the prevailing organisational culture at the times of cirsis as determininants of the organisation's response to crises and the resultant impact on the trajectory and future recovery and performance of the organisation. As a result, demonstrating that the role of leadership is critical in ensuring that crises are addressed effectively and speedily (Bowers et al., 2017).

2.10 Leadership and Change

The prevailing literature has over time advanced several definitions of leadership, however the common theme among them has been the mobilization and direction of others within the organisation towards goal setting and goal achievement. Kotter (1999) further suggested that leadership is a process that is associated with change because leadership involves setting the strategic direction, and the development of strategy in order to move forward in that very direction, in other words, the creation and achievement of a vision. Further, leaders challenge the status quo which inherently renders leadership as change focused (Cairns, 2000). Similarly Elliott (1992) suggests that in the absence of change, leadership had in fact not occurred. In support hereof, Yukl (2002) further suggests that the fundamental role of a leader is to lead change, and that all else is secondary hereto. Moreover leadership has been purported to be the science and art of leading change (Kerfoot, 1999) and likewise defined as the act of creating or striving to create change, large or small, through a dynamic process wherein the leader and followers interact such that they generate change (Kellerman & Webster, 2001). It can therefore be concluded that, 'ultimately leadership is about change' (Zenger, Ulrich & Smallwood, 2000), and involves initiating change, mobilizing others to change, maintaining change (Smit, 2003). As a result leadership must be understood in the context of change (Higgs & Rowland 2000).

2.11 Change Leadership Competency/Behaviour: The Principal Change Leadership Competency Model (PCLCM)

In order to ensure that organisational change is successful, given the complex processes involved in undertaking organisational change, each specific process requires specific leadership competencies to be employed by the leader to ensure the change is a success (Nilakant & Ramanarayan, 2006). Informed by this principle, and with the aim of ascertaining the critical change leadership competencies required by school principals as part of a study involving 47 high performing Malaysian schools, Kin, Kareem, Nordin, & Bing, (2014) advanced the Principal Change Leadership Competency Model (PCLC) which serves as model for identifying change leadership behaviours or competencies which specifically enable change and maximise the efficacy of change, within the context of secondary schools within Malaysia.

The researchers started by reviewing extant literature on the change process and hereafter synthesised principles and processes of change as advanced by the various schools of thought in order to identify distinct similarities and differences. To this end the researchers discovered that the primary difference between the 4 change models considered was the respective number of change phases as detailed by Lewin's 3 steps, Kotter's 8 steps, Hayes' 5 steps and Nilakant & Ramanarayan's 4 steps of change. The researchers therefore synthesised the four planned change models into four overarching phases of change: 1) Recognise the compelling why, that is, the need for change; 2) Prepare for change; 3) Implement change; and 4) Institutionalise the change.

The first step, ‘Recognise the need for change’ is addressed in the very first step of Lewin’s (1958) change model which makes specific reference to ‘unfreezing’ which denotes the notion that people tend to become comfortable with an environment that is unchanged, and are therefore ‘frozen’ and in order to overcome this frozen state, the existing environment must be subjected to an ‘unfreezing’ period, through recognising the need to discard old behaviour, culture, processes and structures, effectively creating the impetus for change. Accordingly highlighting the importance of this stage as it improves an organisation’s ability to identify the need for change and to garner support for the impending change (Kin, Kareem, Nordin, & Bing, 2014).

The eight steps in Kotter’s (1999) model including, ‘Increase urgency’, ‘Build and guiding team’, ‘Create vision for change’ and ‘Communicate for buy-in’, are categorised as components of, ‘Recognise the need for change’. Correspondingly, Kotter (1999), suggests that the leader is required to furnish evidence that change is necessary, while further applying themselves to creating a ‘burning platform’ for change, as means of generating a sense of urgency with others within the organisation. To commence with the change, a group holding enough power to lead the change effort, is assembled, the change leader is responsible for encouraging this group to work together as a team. The leader hereafter ensures that they construct a vision and provide clear direction in order to make the proposed change effort a reality. Communication is of paramount importance in translating the vision such that followers fully understand and support the change effort (Kotter 1999).

Similarly, the first two steps within Nilakant & Ramanarayan’s (2006) change model denoted as - ‘Appreciating change’ and ‘Mobilising support’ – align with ‘Recognising the need for change’. To this end, ‘Appreciating change’ involves opening a dialogue in order to share the change need, and assisting followers in understanding the respective consequences associated with the change, and conversely with not changing. Moreover, ‘Mobilising support’ is stressed within Nilakant & Ramanarayan’s (2006) model, as part of the process for ‘Recognising the need for change’, it involves gathering support for the change, collecting ideas and information, establishing networks and mobilizing resources to execute the change.

In comparison, Hayes’ (2010) change model sees both the first and second step being synthesised as ‘Recognising the need for change’. The first step focusses on improving the organisation’s ability to recognize the need for change and take steps to translate this into a desire for change, that is, - ‘Recognising the need for change’ and commencing the process of the change, emphasises improving the organisation’s ability to sense required need for the change. Hereafter the second step, ‘Diagnosis’, involves reviewing the status quo in order to identify the future desired state of the organisation. Accordingly, diagnosis at an organisational level, involves the identification of that which is required to be changed (Hayes, 2010).

In line with the resultant congruencies and variances discussed in the aforementioned section, three common competencies for the first stage 'Recognise the need for change', can be identified as follows as synthesised from the four change models under consideration: a) Setting a clear vision – which involves recognising the change need and developing a vision in order to direct the change; b) Communication and sharing of the vision – which involves clearly articulating and sharing the vision, as well as entering into conversation in this regard and gathering follower support; and c) Determining desired outcomes – which involves evaluating the present situation in order to ascertain the desired outcomes and thereafter developing change goals and strategies to realise the vision. As informed by the aforementioned synthesis Kin, Kareem, Nordin, & Bing, (2014) termed the first stage of their change leadership model 'Visioning'.

'Prepare for the change' is advanced as the second stage of the change, and was addressed by Lewin's 1958 change model within its first step – 'unfreezing'. This stage focusses on overcoming resistance to change, building trust, and motivating followers by preparing them for the change. Accordingly, Lewin (1958), suggests that mitigating or removing parties resisting the change is more effective in the unfreezing effort within the organisation than an increase in the driving forces behind change. Kotter (1999), on the other hand, discussed the 'Prepare for the change' in his respective change model, as the fifth step – denotes as 'Empowering action 'which similarly sees the primary focus of this process being the removal of impediments to the change and altering those structures which have the effect of working against the vision.

Further, Nilakant & Ramanarayan (2006), in their fourth step of their change model detailed how the organisation may proceed to 'Prepare for the change' through 'Building change capability'. Here the model focuses on creating an organisational climate which improves participants' self-efficacy, promotes learning and ensures appropriate support mechanisms are in place. Comparatively, Hayes (2010), discussed the 'Prepare for the change' in his respective change model, in the third and fourth steps - 'Plan and prepare for change' and 'Change implementation'. The former involves developing implementation strategies, change plans and the selection of appropriate interventions, while the latter involves encouraging organisational learning, as well as training and development.

In summation, the 'Prepare for change' step can thus be seen as focussing on the development of organisational capacity in order to address change, ensuring participants are convinced that they have the ability to address the challenges associated with the change effort, ensuring that performance quality standards are met as required and lastly, defusing or mitigating change resistance and the associated conflict. Consequently, three further change leadership competencies have been identified as follows: a) Planning in order to enhance the change readiness within the organisation; b) 'Building competence to meet the change requirements'; and c) 'Defusing resistance to and conflict with

change'. As a result the researchers titled the second stage of their proposed change leadership model as 'Capacity Building' (Kin, Kareem, Nordin, & Bing, 2014).

Lewin's 1958 change model makes clear reference to the third step of change being 'Implement the change', which is denoted by Lewin's second step of 'Transition'. This involves the process of developing momentum or drive in order to mobilize the current system to a new equilibrium or future state. This point of inflection sees participants starting to believe in and behave in ways which are in support of the new direction or change and its implementation. Leadership has been proven critical during this period as the transition process can take time, and as such monitoring the impact of the change and fine-tuning of the change effort is required during this period.

In this regard, Kotter (1999), in steps 5 to 7, advances the third stage of change 'Implement the change', as follows: 'Empowering action', 'Create short term wins' and 'Build on the change'. These steps involve, empowering followers to execute on a change effort, to achieve clear performance improvements including recognition and reward of those involved in achieving same, and active monitoring of the change process in order to keep the momentum of change implementation even when short term wins are achieved (Kin, Kareem, Nordin, & Bing, 2014).

In accordance, Hayes (2010) and Nilakant & Ramanarayan (2006) utilised the terms 'Executing change' and 'Implementing change' to detail the need to establish the appropriate structures and processes, as well as novel routines, process and procedures, establishing effective coordination mechanisms, mobilising resources, and sustaining the momentum of change, as suggested by the third step of Nilakant & Ramanarayan's (2006) change model. While, Hayes (2010) focused on, improved performance management, development and implementation of practices, restructuring in support of strategic objectives, promoting synergy through coordination and empowerment of people, monitoring change progress to ensure realisation of change goals (Kin, Kareem, Nordin, & Bing, 2014).

The aforementioned clearly identifies the critical focus of the third stage of change to be the coordination and facilitation of various deliverables necessary to mobilize the organisation to a desired future state, which primarily entails establishing appropriate structures, processes, appropriate delegation of authority and enlisting appropriate coordination and monitoring mechanisms supported by sufficiency resourcing. Consequently, three further competencies were identified by the researches in this regard: a) The redesign of structures and associated resource mobilization; b) Coordination and empowerment; and c) Ensure realisation goals associated with the change through monitoring. In other words, 'Change execution', which is the third stage of the process (Kin, Kareem, Nordin, & Bing, 2014).

Kin et al., (2014), in their study therefore suggests that while the four change models under consideration all had varying views on the respective change of the change processs, consensus exists

between the models that the final stage of any change ffort is to ensure that the change is made permanement. The aforementioned is seen in Lewin's 'Refreezing', which focuses on ensuring affirmative reinforcement is employed to internalise new behaviours and attitudes; corresponds with Kotter's 'Make change stick', or step number 8 within his change model, and emphasis the need to make the change permanent by ensuring it is aligned with the organisation's practices and culture; lastly, Nilakant & Ramanarayan's advanced the final step in their change model, 'Sustain the momentum of change'; while Hayes's last step is, 'Sustain the change', these both involving the review of the change, making it stick and dissemination of the change. As such it is evident from the literature that sustaining a change involves, identifying and evaluating the limiting factors associated with the change outcome, institutionalising best practices, encouraging continuous improvement, and sustaining the change goals in a manner which will ensure that best practices become an organisational norm instead. For these reasons, this stage involves two critical change leadership competencies as follows: 'Evaluation for continuous improvement', and 'Institutionalising' as such the researches termed the last stage of the change process 'Institutionalising'.

Kin et al., (2014), accordinaly concluded that their model synthesised the above four change models and proposed that the management of change in schools specifically includes four critical phases of change and the associated competencies as seen in Figure 1 below: a) 'Visioning'; b) 'Capacity Building'; c) 'Change execution'; and d) 'Institutionalising'. Change is a continuous process, Figure 1 below depicts the four change processes as recursive, with the circular arrows indicating that the phases can overlap in most instances. Moreover, the proposed change process as advanced and informed by the models of Lewin (1958), Kotter (1999), Nilakant & Ramanarayan (2006) and Hayes (2010) is further illustrated from the perspective of competencies associated with each change phase, as listed in Figure 1 below.

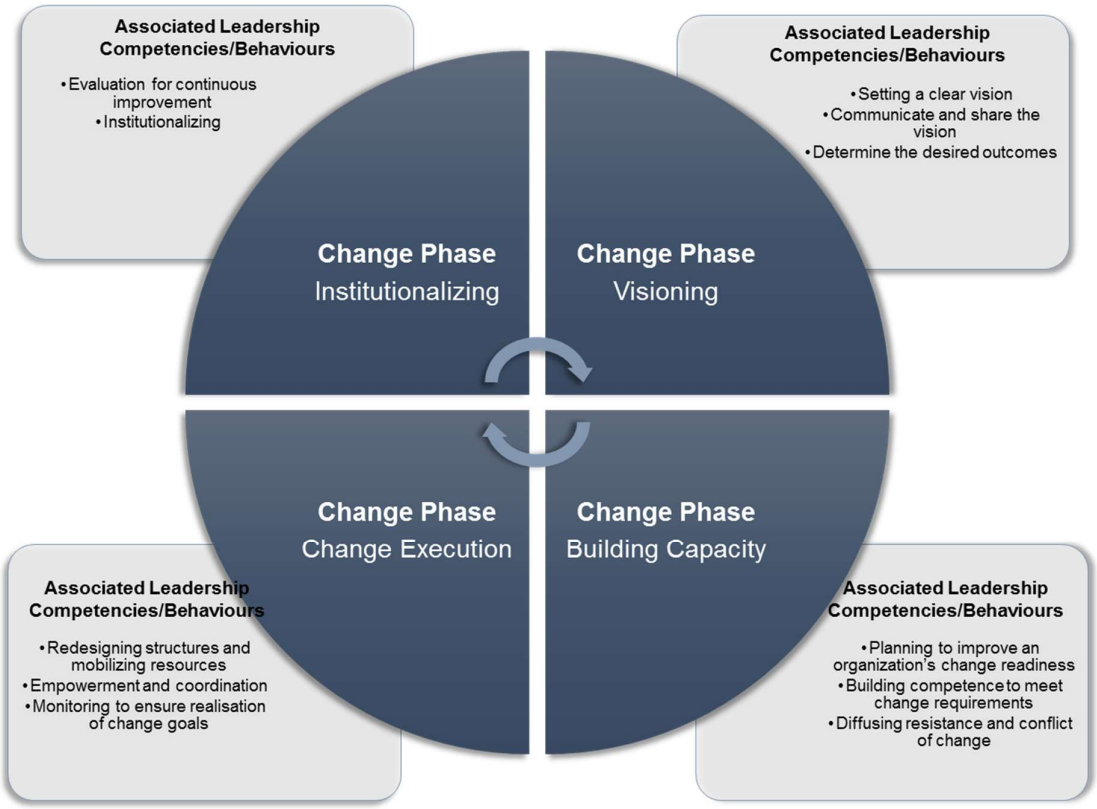

Figure 1: The four phases of change of the PCLCM and their associated competencies (Kin, Kareem, Nordin, & Bing, 2014).

2.12 Change Leadership and its Relationship with Individual Innovative Behaviour

As suggested by Jung, Chow, & Wu, (2003), leaders are able to influence follower innovation levels directly and indirectly by motivating them and creating an environment which supports new idea generation and implementation without fear of negative outcomes. Leadership is therefore considered a critical contributor to managing uncertainty and crises, (Boin et al., 2013; Bundy et al., 2017) as crises are uncertain events which are triggered by change and call for the intervention of innovation to address its specific consequences (Jaroensutiyotin et al., 2019). Change leadership as a construct, therefore is rendered critical in investigating the relationship between the effects of leadership (in this instance the variable being studies is change leadership) on employee innovation within the context of crisis, as it positions the study in such a way, that it fully encompasses the problem statement being addressed.

To this end change leadership focusses on the leader's engagement in and facilitation of the change process and its effective implementation within the organisation (Al-Ali, Singh, Al- Nahyan, & Sohal, 2017). It addresses the change at hand as critical, and calls for the articulation of a peripheral vision of what may lie ahead for the organisation upon completion of the targeted change effort once the organization has achieved the required change goal (Herold, Fedor, Caldwell, & Liu, 2008). Leading

change requires the leader as change agent to be focused on specific goals in their facilitation of the change effort, ensuring employee comfort during the change journey with the aim of reducing resistance to change (Northouse, 2013).

Change leadership therefore will serve to create a sense of urgency when addressing a targeted change or triggered change event, that is, a crisis, and the change leader as a result communicates this vision to the organisation with the aim of increasing employee engagement during change implementation (Jaroensutiyotin et al., 2019). Literature therefore suggests that the appropriate attributes for change leaders to possess are: the ability to communicate effectively, the ability to motivate and influence, relational attributes which allow for the involvement and support, as well as appropriate coaching of those impacted by the change (Gilley, Dixon, & Gilley, 2008).

Because crisis is considered change-triggered, and in light of the aforementioned attributes of the change leader, it is suggested that change leaders that lead crisis-induced change, facilitate individuals' innovation behaviour, due to the fact that organisational leaders of the change leadership orientation are more greatly inclined than others to change the status-quo as crises tend to inherently challenge the existing assumptions underlying the organisation. Change leaders therefore ensure the creation of an organisational environment supportive of change which allows all involved to incubate and develop, as well as more easily embrace new ideas and concepts, more simply put, change leadership allows for the cultivation of innovation at an individual level (Jaroensutiyotin, et al., 2019).

In summation, the aforementioned literature review affirms that an existing causal relationship exists between the two variables under consideration which include those explicit in this study, change leadership and individual innovative work behaviour. The review of extant literature also suggests that factors beyond the boundaries of this study, such as organisational culture, are important considerations to understand as means of creating context and highlighting the complexity of such implicit factors which shall not be included in this study, but have been covered as means of enhancement of the study context.

Moreover, the study necessity is affirmed by the extant literature pertaining to change leadership, within the context of its propensity for influencing both employee innovation and organisational culture, including the required need for organisations to remain competitive and sustain performance even when faced with prevailing conditions of crisis. Understanding the causal relationship between the two variables under investigation (change leadership and employee innovative work behaviour), therefore remains impetrative in determining organisational performance and future sustainability in the context of crisis.

3 RESEARCH QUESTION & HYPOTHESIS

3.1 Purpose Statement

The research sought to determine the relationship between change leadership and individual innovative work behaviour within the context of crisis.

3.2 Research Question and Hypothesis

The research sought to determine the following: Is change leadership positively related to individual innovative work behaviour within the context of crisis? (Jaroensutiyotin et al., 2019)

3.2.1 Research Hypothesis

The proposed research hypothesis, stemming from the research question is as follows and as represented in Figure 2 below:

Null Hypothesis (H_0): Change leadership is not positively related to individual innovative work behaviour in a crisis context (Jaroensutiyotin et al., 2019).

Hypothesis (H_1): Change leadership is positively related to individual innovative work behaviour in a crisis context (Jaroensutiyotin et. al, 2019).

Figure 2: Graphical representation of hypothesis, adapted from (Jaroensutiyotin, Wang, Ling, & Chen, 2019)

4 RESEARCH METHODOLOGY

4.1 Research Design

The aim of the research conducted was to identify the relationship between two variables including change leadership and individual innovative work behaviour within the context of crisis. For this reason the research conducted was deductive in nature as sought to identify the relationship between these variables in line with existing literature postulations. This research approach was deemed appropriate as extensive theory exists regarding the relationship between change leadership and employee/follower innovative work behaviour, hence the research in question sought to test this existing theoretical proposition within the somewhat novel context based on extant literature, that is, the context of crisis which was represented by the sample taken from a 'critical case' of crisis, being the South African Construction and Built Environment industry (Saunders & Lewis, 2018).

The research design is descripto-explanatory, because the study purpose was to test and describe an existing causal relationship between specific variables within a specific research context. While descriptive research is aimed at achieving an accurate description of events, situations or persons, explanatory research takes one step further by looking into an explanation behind a specific event or occurrence through investigating the causal relationships between the key variables in question (Saunders & Lewis, 2018).

A positivist approach to the research was adopted as positivism is regarded as the scientific method or empirical sciences and is based on the premise that observation and experiments produce true knowledge (Rahi, 2017). This approach was adopted due to the fact that the data collected was primarily quantitative in nature and highly structured methods to test causal relationships to create generalisations which may explain or predict events and or behaviour within organisations, could be employed (Saunders & Lewis, 2018). To this end the causal relationship which was tested is depicted in Figure 3 below, was limited to two variables and was tested within the specific context of crisis as follows:

- Independent variable – Change Leadership
- Dependent variable – Individual Innovative Work Behaviour

Figure 3: Graphical representation of hypothesis, adapted from (Jaroensutiyotin, Wang, Ling, & Chen, 2019)

The methodological choice for the study in question was a mono-method quantitative study, as one primary data collection technique was utilised in the form of a survey, that is, structured questionnaire was employed and the study aimed purely to test a causal relationship as supported by existing prevailing literature, and therefore did not require deeper, and richer data as may be the result of a multi-method approach (Saunders & Lewis, 2018). As a result the data collected was primarily quantitative in nature and appropriate statistical techniques were employed in order to summarise the data collected and calculate associated results. The quantitative research design was selected to support the researcher's aim to either accept or not accept the hypothesis of the study (Saunders & Lewis, 2018).

Furthermore, the survey strategy implemented saw the data collection instrument employed being a structured questionnaire, as the study was aimed at the collection of the same data from several respondents (Saunders & Lewis, 2018). In this regard, the researcher utilized a self-administered structured questionnaire disseminated on-line which was completed by the respondents. The objective in this regard was to ensure that a non-contrived research setting could be achieved, as such limiting researcher influence (Rahi, 2017). The structured questionnaire was therefore deemed an appropriate research instrument for this quantitative study as it required multiple respondents to answer the exact same questions in a predetermined order with the highly structured format placing much emphasis on the selection of a random sample such that results may be generalizable to contexts and situations other than the sample selected. In addition, the closed nature of the questions posed inherently prevents the respondents' ability to provide information which would be elaborative or illuminating in nature, (Gray, 2019) which best suited the nature of the current strategy because the primary aim of the current study was to achieve generalizability and demonstrate causality.

In this regard however, causality was demonstrated but limitations with respect to the sample size renders generalizability of the current study unachievable at present. Moreover, the research conducted was cross-sectional in nature and therefore is representative of data collected from multiple

respondents at a single point in time and therefore only represents a ‘snap-shot’ of the research setting in question at a particular time (Saunders & Lewis, 2018).

4.2 Defining the Population and Sample

4.2.1 Population

Construction is a relatively broad term, however the sector includes and is not limited to the construction of physical structures within several different industries as inputs to goods production and services, it further includes activities such as design, engineering, procurement and the execution of infrastructure projects ranging from small to mega projects and also includes maintenance, alteration and repair of infrastructure (Alagidede & Mensah, 2018).

Within the research study the population included professionals within the Construction and Built Environment sectors within South Africa. The population therefore consisted of both Contractor and Consultant firms within the construction and greater Built Environment industry within South Africa in line with the extant definition of construction sector. The sampling scheme for the purpose of the study was that of a critical case sampling scheme as the variables and causal relationships under consideration in this study were deemed to most likely occur within the sample selected (Saunders & Lewis, 2018), the chosen group within the selected industry were identified as having specific characteristics related to their frequency and nature of exposure to crisis, as such their inclusion provided compelling insight regarding the causal relationship under study (Collins, 2015). Moreover, the South African construction industry being identified as a critical case for the study in question, is deemed as such because it has navigated various crises in recent years including gross economic decline, a rapid reduction in government infrastructure spending and the violent disruption of work on construction sites by various illegal forums (Propertywheel, 2019). The industry was therefore deemed prone to environmental turbulence and crises and as a result has become known to operate under conditions of uncertainty and crisis within recent years.

The study solicited responses from employees currently discharging duties within the Construction and the Built Environment sector, who are within categories of management from First-line management to General management, and have witnessed crisis within the organisations that they serve. Further these respondents were sought from three primary categories of organisation type including Construction firms, Consultancy firms, Engineering firms, and Government or State Owned Enterprises. While organisation size ranged from micro which denotes less than 10 employees to large which denotes greater than 250 employees.

To this end 20% of responses were received from Construction firms, 37% from Consultancy firms, 2% from Engineering firms, 29% from Government or State Owned Enterprises, while 12% were indicated as 'Other'.

4.2.2 Unit of Analysis

The study unit of analysis is each respondent who undertook to answer the self-administered structured questionnaire. The data collected comprised employees within Supervisory to Executive Management levels currently discharging duties within organisations which operate in South Africa, those which operate both within South Africa and internationally as well as a significantly lower proportion of respondent organisations which only operate internationally.

4.2.3 Sample, Size and Sampling Method

The research study sought to employ a sampling frame consisting of Supervisory to Executive Manager level employees within all construction companies within South Africa as listed within the Construction Industry Development Board Register of Contractors, associated with General Building and Civil Engineering classes of works (which are not considered specialist works and as such more dominate between the various categories) currently registered within the CIDB grading category 9 which denotes contractors who are eligible for execution of works unlimited in rand value and generate a best annual turn 200 million rands per annum. The number of contractors identified which held active registrations within this category as at the end of 4th quarter of 2019 was approximately 169 number entities across all provinces in Southern Africa (Construction Industry Development Board, 2020).

The Construction Industry Development Board, (CIDB), is a public entity which was established by Parliament Act 38 of 2000, in order to promote a developmental and regulatory framework that seeks to build service delivery capabilities specifically in support of South Africa's social and economic growth as well as establishing construction industry that is capable of delivering to globally competitive standards, yet is proudly South African (CIDB, 2020). The Register of Contractors is a publicly available list of registered contractors operating in the construction industry in Southern Africa. The register serves as a macro risk management tool in support of improved procurement for infrastructure projects within the public sector within Southern Africa. It further categorizes contracting entities according to both financial capability and execution competency in the carrying out of construction projects. The Construction Industry Development (CID) Regulations of 2004, is binding upon public sector entities, as such only contractors registered on the CIDB Register of Contractors may be awarded tenders within the public sector (CIDB, 2020). The register therefore provides a conclusive snapshot of the construction industry within South Africa and is an adequate representation of the population under discussion.

While the Register of Contractors is a publicly available list of registered contractors within the South African construction industry, their respective contact details are not published within the register. This posed a limitation to the study in that the initially planned access to the entire population was not achievable given the timelines of the research, the researcher's inability to retrieve a complete list of contact details in order to disseminate the questionnaire to all within the population.

To overcome this limitation the researcher amended the population and sampling frame and utilized non-probability sampling, which denotes sampling techniques for the selection of a sample where the researcher does not have access to a complete list of the population which is relies on chance or probability when selecting a sample at random from the population (Saunders & Lewis, 2018). This was due to the fact that access to a complete list of the population proved a challenge as contact information for CIDB registered contractors were not readily available and due to the specialist nature of the industry, which relies on existing relationships and networks, this access remained unattainable for the duration of the data collection window. To this end, the entire population is not represented when conducting non-probability sampling, consequently, the findings of this study cannot be generalised.

As a result, self-selection sampling was utilised which saw the researcher inviting possible sample members to identify themselves and volunteer to partake in the study through LinkedIn posts, direct messages and e-mail requests. In addition snowball sampling was further employed which saw the first sample members identify subsequent sample members to volunteer to partake in the study. Qualifying respondents were therefore primarily sought through the LinkedIn professional social network, direct e-mail, and the resultant network effects achieved from the first sample members.

The minimum required sample size for the study of causal-comparative research methods testing a two-tailed hypothesis was identified as being approximately 51 participants (Collins, 2015), therefore the total study responses as of 41, as solicited through the structured questionnaire, falls short of the required sample size by approximately 20%. In this regard the researcher employed various techniques to meet the required sample size including reminder posts on social media platforms and via e-mail, requesting and encouraging first sample members to identify additional subsequent sample members, over and above their initial sample members introduced to the study, and lastly, the data collection period was increased from an initial 3 weeks to 5 weeks in total. These mechanisms improved the number of total respondents to 61, however of this total, 19 responses were not valid with reference to the study parameters and had to be excluded from the final data analysis.

4.2.4 Research Instrument

The researcher utilised a structured questionnaire as measurement instrument. The structured questionnaire was guided by the Jaroensutiyotin et al., (2019) study of change leadership and its effects on individual innovative behaviour in a crisis context within 42 organisations (247 respondents) affected by the 2011 Thailand flooding crisis. To augment this instrument the researcher introduced further adapted questions from Kin et al., (2014) and their study which involved 936 teachers from 47 high-perfroming Malaysian schools and advanced a substantiated Principal Change Leadership Competency Model (PCLCM) as an instrument for the identification of change leadership phases and associated competencies or behaviours which facilitate change and maximise change effectiveness in secondary schools. Further, previous studies undertaken by (Munir & Beh, 2019) and (Muchiri et al., 2020) in measuring innovative work behaviour within a sample of 352 Malaysian start-ups and a conceptual review of the mapping of antecedents of innovative work behaviour, respectively, were utilised and adapted to compile the innovative work behaviour constructs tested.

In accordance, the categories of data that was collected, was from the three specific sections within the questionnaire. Section 1 which included 12 demographic questions, Section 2 which included 21 questions related to change leadership within the context of crisis, and Section 3 which included 22 questions related to employee innovative work behaviour within the context of crisis (See Appendicies 1 - 3: Research Instrument – Questionnaire):

- Firstly, prequalifying questions related to the respondents industry of work as well as whether or not their company has experienced crisis, and whether or not they are currently actively discharging duties within the sector.
- Secondly, Section 1 Demographic Information – this section of the questionnaire focused on a number of introductory questions which relate to specific demographic information related to the respondent and their organisation, these included gender, age, education level, current type, organisation size, tenure within organisation, current role within organisation, and number of years within this role amongst others. The responded was required to select the most appropriate response as associated with each question in this section.
- Thirdly, Section 2 Change Leadership within the context of crisis - within the second section of the questionnaire respondents were required to provide their responses to a set of questions specifically testing leader behaviour/competency in line with four change phases as synthesised by Kin et al., (2014) including, Goal Framing, Capacity building, Defusing resistance and conflict and Change execution, and Institutionalising. That is, the responded was required to rate, competencies/behaviours observed in their organisation's current leadership within the time of crisis.

- Within this section of the questionnaire the researcher employed a five-point Likert scale, denoting 5 as strongly agree, 4 as agree, 3 as neither agree nor disagree, 2 as disagree and lastly 1 as strongly disagree. To this end, respondents ranging from Supervisory to Executive Management level were required to rate 21 statements pertaining to change leadership within the context of crisis, as informed by their observations within their organisation in question. The 21 statements were categorised in accordance with Kin et al., (2014) principal change leadership competency model (PCLC) which serves as an tool for the identification of change leadership behaviours/competencies that specifically enable change and maximise the efficacy of the change, within the context of secondary schools within Malaysia. The change phases included, Goal Framing, Capacity Building, Defusing resistance and conflict and executing change, Institutionalisation.
- Lastly, Section 3 – Employee Innovative Work Behaviour in the context of crisis - within the third section of the questionnaire respondents were required to provide their responses to a set of questions specifically testing innovative work behaviour (IWB) within the context of crisis. The aforementioned sentiment was tested in line with the specific phases of Innovative Work Behaviour proposed within studies undertaken by Munir & Beh, (2019) as well as Muchiri et al., (2020), which include; Idea Generation, Idea Promotion and Idea Implementation**.** That is, respondents rated their perceived individual contribution to innovation in their immediate environment or organisation as a whole within the time of crisis.
- The researcher employed a five-point Likert scale, denoting 5 as always, 4 as often, 3 as sometimes, 2 as rarely and lastly 1 as never. To this end, respondents ranging from Supervisory to Executive Management level were required to rate 22 statements pertaining to employee innovative work behaviour within the context of crisis, as informed by their observations within their organisation in question. The 22 statements were categorised in accordance with the reference study undertaken by Muchiri et al., (2020) which details three phases/constructs of innovative work behaviour as part of their analysis of the antecedents of innovative work behaviour, and resultant conceptual framework which elucidates the relationship between leader-member exchange, transformational leadership, innovative work behaviour and employee perceptions of fairness. The framework goes non to advance theories related to effective leader behaviour innovative work behaviour as well as perceptions of fairness (Muchiri et al., 2020). The researchers, within their study proposed the following three phases/constructs of Innovative Work Behaviour within their conceptual framework: 1) Idea Generation; 2) Idea Promotion; and 3) Idea Implementation. To augment this study which was limited to a review of extant literature, the reference study undertaken by Jaroensutiyotin et al., (2019), was also used to inform Employee Innovative Work Behaviour with sligh adaptations to the scale included.

4.2.5 Procedure Data Gathering Process

The data was collected through an on-line survey link distributed via social media posts, in this instance LinkedIn, e-mailed and sent via WhatsApp to the respondents within the sample. The cover post accompanying the survey link highlighted the topical nature of the study and its relevant importance within the Construction and Built Environment industry in recent years. The questionnaire included a covering letter detailing the research, a statement advising that participants voluntarily take part in the research accompanied by a confirmation of same by the participant in the form of the first survey question. Further anonymity and confidentiality was guaranteed and no participant was required to provide their name or other personal identification information. Each section of the questionnaire provided an explanation of the literature associated with the core construct, as well as instructions on how to complete responses within the specific section.

The questionnaire responses were collected on-line via the Survey Monkey service. A total of 61 responses were received, 19 of which were not valid and were excluded from the data analysis process. To this end a total number of 41 valid responses were utilized in the data analysis process which translates to a response rate of 80% based on a required sample of 51.

An initial response period of 3 weeks was initiated for data collection, however after an insufficient number of valid responses were received , an extension to the data collection period was initiated in the order of an additional 2 weeks.

4.2.6 Data Analysis Process

The researcher conducted analysis of the data collected through the online questionnaire, by utilising statistical software SPSS, in order to undertake statistical analysis of date. Descriptive data analysis was undertaken though the use of Survey Monkey functionality as well as Microsoft Excel.

The data analysis process aimed to answer the research question posed within this study and was therefore divided into three sections as detailed within earlier sections of this chapter and summarised as follows:

- Firstly, prequalifying questions related to the respondents industry of work as well as whether or not their company has experienced crisis, and whether or not they are currently actively discharging duties within the sector. This data was imported into, summarised and analysed within Survey Monkey and Excel.
- Secondly, Demographic Information – this section of the questionnaire focused on a number of introductory questions which relate to specific demographic information related to the respondent and their organisation, these included gender, age, education level, current type,

organisation size, tenure within organisation, current role within organisation, and number of years within this role amongst others. The responded was required to select the most appropriate response as associated with each question in this section. This data was imported into, summarised and analysed within Survey Monkey and Excel.

- Thirdly, Section 2 Change Leadership within the context of crisis - within the second section of the questionnaire respondents were required to provide their responses to a set of questions specifically testing leader behaviour/competency in line with four change phases as synthesised by Kin, et al., (2014) including, Goal Framing, Capacity building, Defusing resistance and conflict and Change execution, and Institutionalising. This data was imported into, summarised and analysed within Survey Monkey and Excel with further statistical analysis undertaken within SPSS hereafter.
- Lastly, Section 3 Employee Innovative Work Behaviour in the context of crisis - within the third section of the questionnaire respondents were required to provide their responses to a set of questions specifically testing innovative work behaviour (IWB) within the context of crisis. The aforementioned sentiment was tested in line with the specific phases of Innovative Work Behaviour proposed within studies undertaken by Munir & Beh, (2019) as well as Muchiri et al., (2020), which include, Idea Generation, Idea Promotion and Idea Implementation. This data was imported into, summarised and analysed within Survey Monkey and Excel with further statistical analysis undertaken within SPSS hereafter.

In addition, mandatory reliability tests were conducted utilising SPSS. No data transformations were employed. Detailed findings are compiled under Chapter 6 of this research report.

Quality Controls Employed

Quality controls employed include controlling for significant outliers, the discarding of incomplete, erroneous questionnaires and questionnaires which were not declared valid in line with the parameters of the study (19 no. responses excluded as a result). Further, respondent anonymity was maintained through the use of Survey Monkey survey application tool which generates unique responded identifiers in no way indicative of the personal information of the respondent. The application did record respondent IP addresses, however these cannot identify respondents without significant effort being employed in tracing same.

4.2.7 Research Assumptions

The researcher notes the following assumptions applicable to the research:

- The crisis context in question could be a present or past event.
- Organisational leader behaviour was observable by the study participant.

- Oblique approaches to factor rotation have been employed, which assumes that the underlying constructs being studied during factor analysis are correlated, as orthogonal factor rotation approaches often incorrectly assume that the underlying factors are uncorrelated (Pallant, 2013).

4.2.8 Limitations of the Study

The researcher notes the following limitations applicable to the research:

- The use of a professionally homogeneous sample inherently limits the generalizability of the study results and the application of trends within construction industry professions to other professions (Kelley, Galbraith, & Strong, 2020).
- The study did not control for differences in location which may impact respondent perception of crisis. (Kelley et al., 2020).
- The researcher is not an expert in designing structured questionnaires, or analysing the resultant data, as such both the input and resultant output of the study may have been impacted by this limitation.
- The results cannot be fully extended to other populations as the sample includes only construction industry professionals (Kelley et al., 2020).
- The minimum required sample size for the study of causal-comparative research methods testing a two-tailed hypothesis was identified as being approximately 51 participants (Collins, 2015), this number of participants was not reached, as such the results are not generalizable and cannot be fully extended to other populations.
- As the study is cross-sectional and therefore represents a snap-shot of the crisis at a given point in time, this also present constraints with regards to fully understanding the causality among the variables examined. Therefore it may be difficult to infer causality from the results of the current study. In this regard, a longitudinal study may assist in better understanding the variables under examination and the causal relationship between them (Jaroensutiyotin et al., 2019).
- Data was only collected from employees who had experienced a crisis at least once. In order to improve the generalizability of findings employees who have experienced more than one crisis should be studied in future studies (Jaroensutiyotin et al., 2019).

5 RESEARCH RESULTS

5.1 Introduction

The research methodology was discussed within the previous chapter. The research results will be discussed within this chapter. The measurement instrument employed was a questionnaire which comprised of three sections. Section 1 which included 12 demographic questions, Section 2 which included 21 questions related to change leadership within the context of crisis, and Section 3 which included 22 questions related to individual innovative work behaviour within the context of crisis. The data collected comprised organisations which operate in South Africa and those which operate both within South Africa and internationally. A significantly lower proportion of respondent organisations only operate internationally.

5.1.1 Sample

The study sought to test the relationship between change leadership and employee innovative work behaviour within the specific context of crisis. To this end, a crisis is considered a high impact event, which is of low probability, is external to the organisation and threatens organisational viability. Further it is uncertain and is triggered by change, and therefore requires the intervention of organisational innovation practices in order to address its specific consequences. The cultivation of innovation, as a result, is identified as a critical for organisational recovery and performance in times of crisis (Jaroensutiyotin et al., 2019). Research suggests that leadership contributes to the management of change (Boin et al., 2013; Bundy et al., 2017) and individual innovative behaviour in times of crisis (Anderson, et al., 2014). Leaders, through encouragement, exert influence on their followers to be innovative and creative, and as a result effective leadership tends to promote employee innovation levels and behaviours to improve performance outcomes in times of crisis (Fragouli & Ibidapo, 2015).

The sample consisted of 61 respondents, however a total number of 41 complete questionnaires were received and analysed as 11 respondents did not pass the qualifying criteria to complete the survey, while 7 respondents submitted incomplete questionnaires and 2 responses were incomplete. As such a total of 20 respondents were removed from the dataset and a resultant total of 41 number of valid responses utilized in the analysis. The questionnaire sections are outlined as below, with the analysis and results included.

5.1.2 Section 1 – Demographic Information

This section of the questionnaire focused on a number of introductory questions which relate to specific demographic information related to the respondent and their organisation.

Current employment within the Construction and Built Environment sector

Responses indicated that the 41 respondents are all currently actively employed with thin the Construction and Built Environment sectors. The 2nd question confirmed the respondent's voluntary participation within the study, which all respondents agreed to.

Organisation experience with crisis at present or in the past

All responses indicated that their organisation is currently and has in the past experienced crisis, which within the questionnaire was denoted as a high impact, low probability event which may be external to the organisation and threatens organisational viability.

Age and Gender

Respondents' age and gender are represented in Tables 1 and 2 respectively. With respect to age, the mode for the sample group was the 31 to 39 category, closely followed by the 40 to 49 age category which saw 19 and 14 of the 41 respondents forming part of these categories respectively. The sample leaned towards the 40-49 age categories, with no respondents between the ages of 18 and 25 taking part in the study, and only one participant between the ages of 26 to 30 participating. With respect to gender, the mode for the sample group was male while the distribution was 85% male and 15% female. This may indicate that there may be more males employed in this sector in line with the fact that construction has historically been a male dominant sector, and that those employed in the sector may be more middle aged individuals.

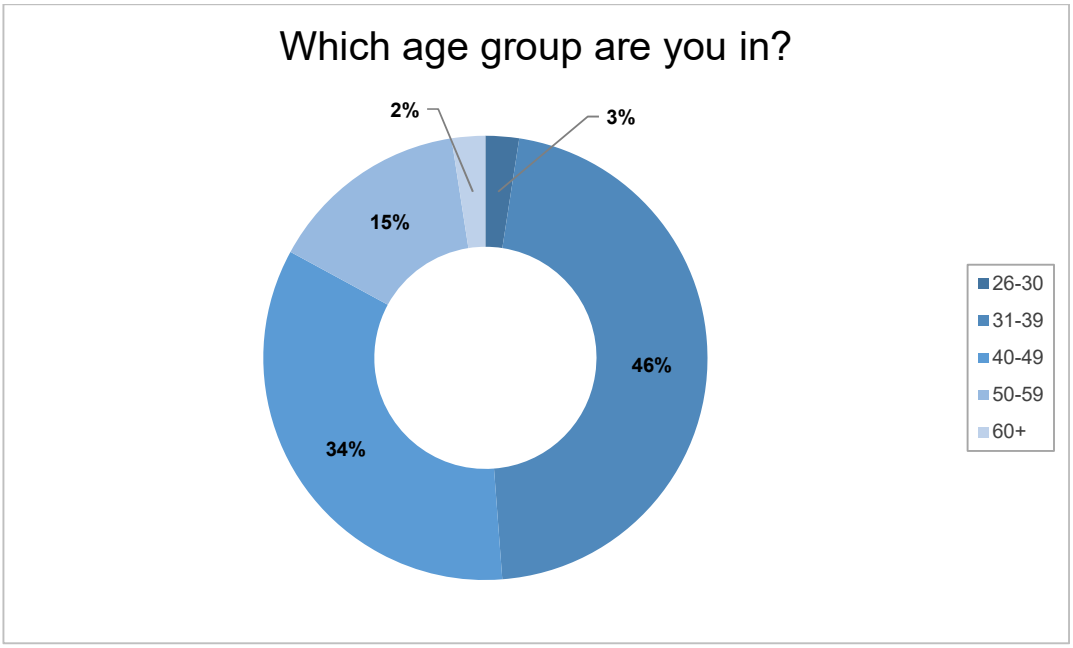

Table 1: Sample age distribution

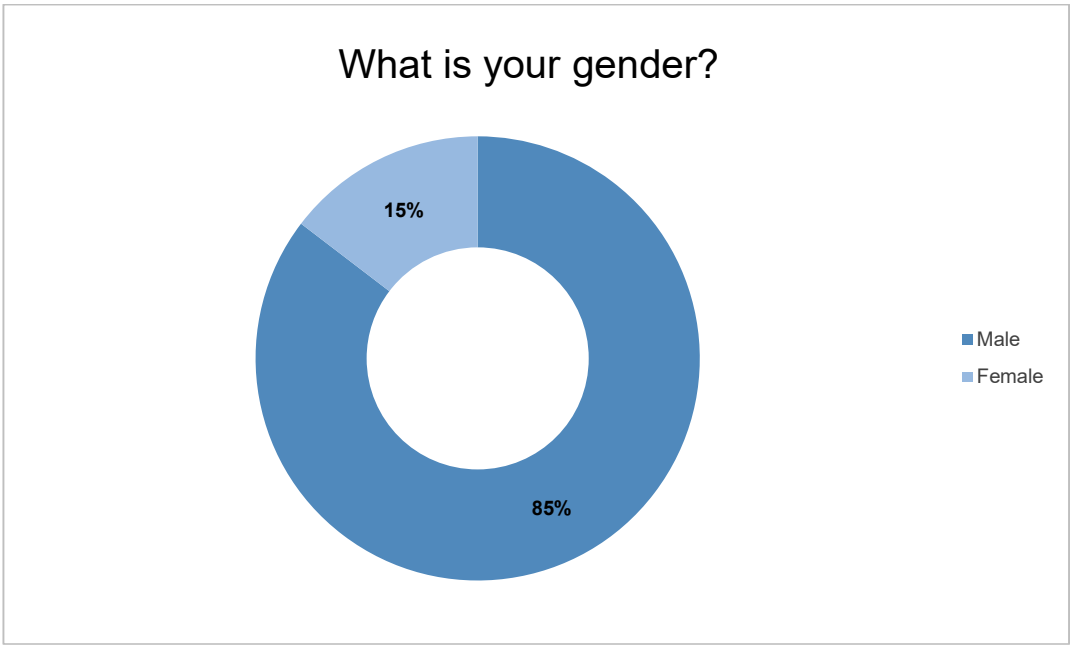

Table 2: Sample gender distribution

Level of education

Table 3 below demonstrates that within the sample, 6 varying education levels were represented with the highest education level held by any respondent being a Master's degree (6 no. respondents in

total). The second highest level of education held is an Honours degree (13 no. of respondents in total) thereafter Bachelor's degree (5 no. respondents in total), BTech degree (11 no. of respondents in total) and National Diploma (5 no. respondents in total). Only one respondent had a Certificate/N-course qualification. In summary, all respondents had a tertiary qualification from a total of 12 education categories as demonstrated below. This may suggest that the individuals are well qualified.

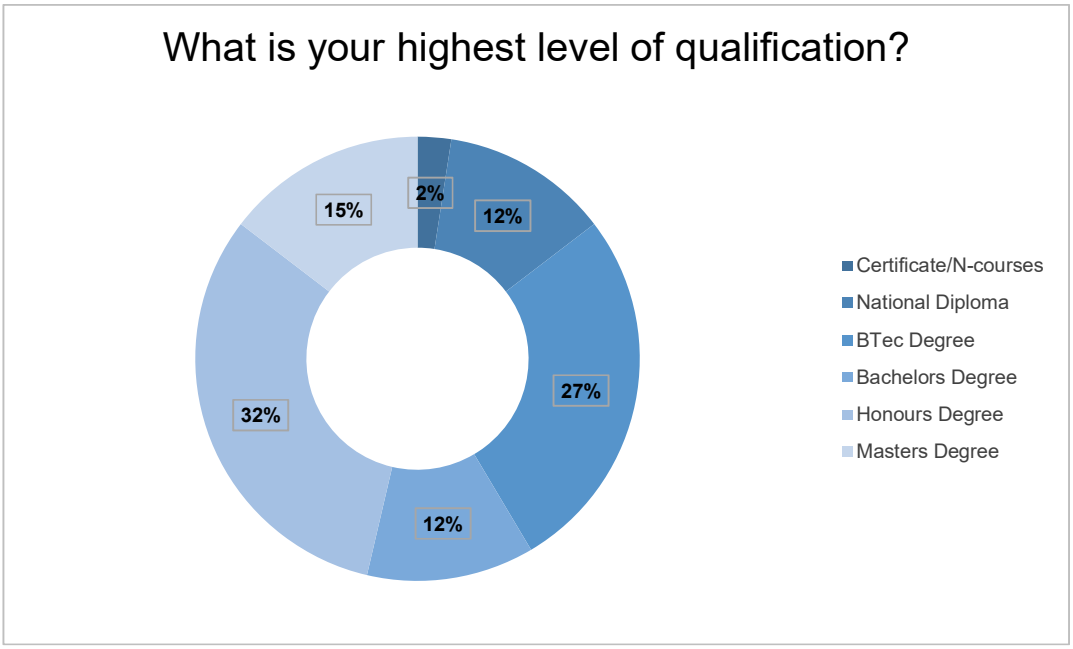

Table 3: Sample level of education

Organization size, nature and geographical footprint

As demonstrated in Table 4 below, the sample consisted of companies categorized as one of the following: Micro (less than 10 employees, Small (10 to 15 employees), Medium (51 to 250 employees) and Large (greater than 250 employees). In summary, the distribution of organisation size demonstrates that 71% of organisations falling within the large category while 15% fall within the medium category, with the remaining respondents identifying small to medium enterprises as their respective organisations.

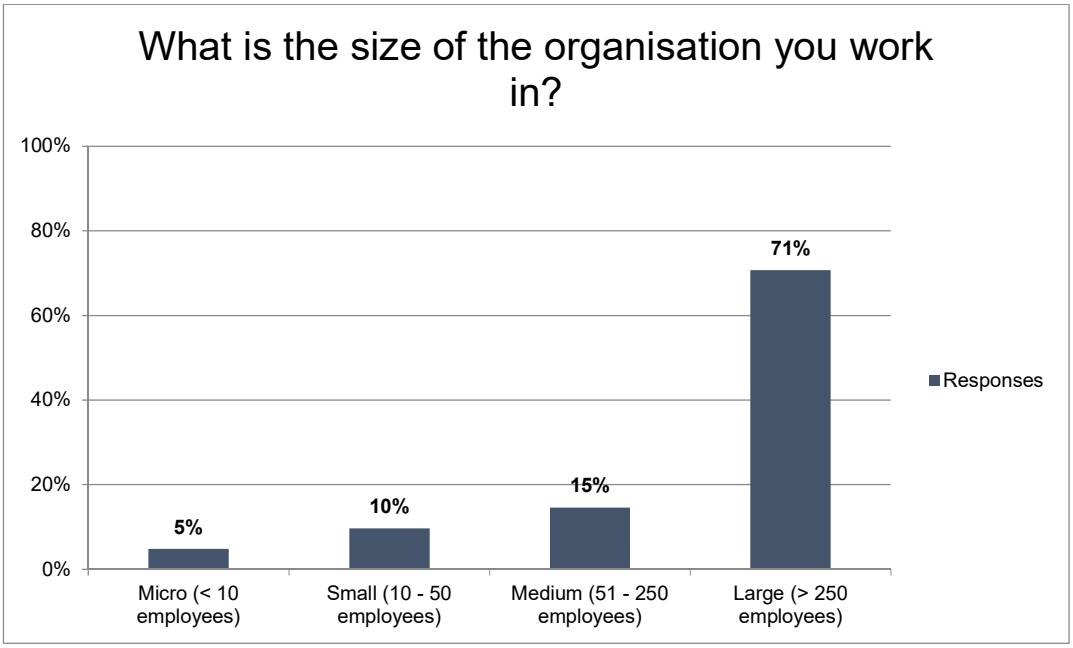

Table 4: Organization size

Moreover, as demonstrated in Table 5 below, the sample consisted of 5 company type categories including 'Other' which denotes respondents who did not specify their company type within the description field provided. The data collected from the sample indicates the mode is Consultancy Firms with 37% of respondents identifying their organisation as falling within this category. Hereafter, 29% of respondents discharge duties within Government or State Owned Enterprises while, 20% categorize their organisations as falling within the Contractor/Construction Firm category and the remaining respondents discharging duties within Engineering Firms (2% of total respondents) and unspecified firm types (12%).

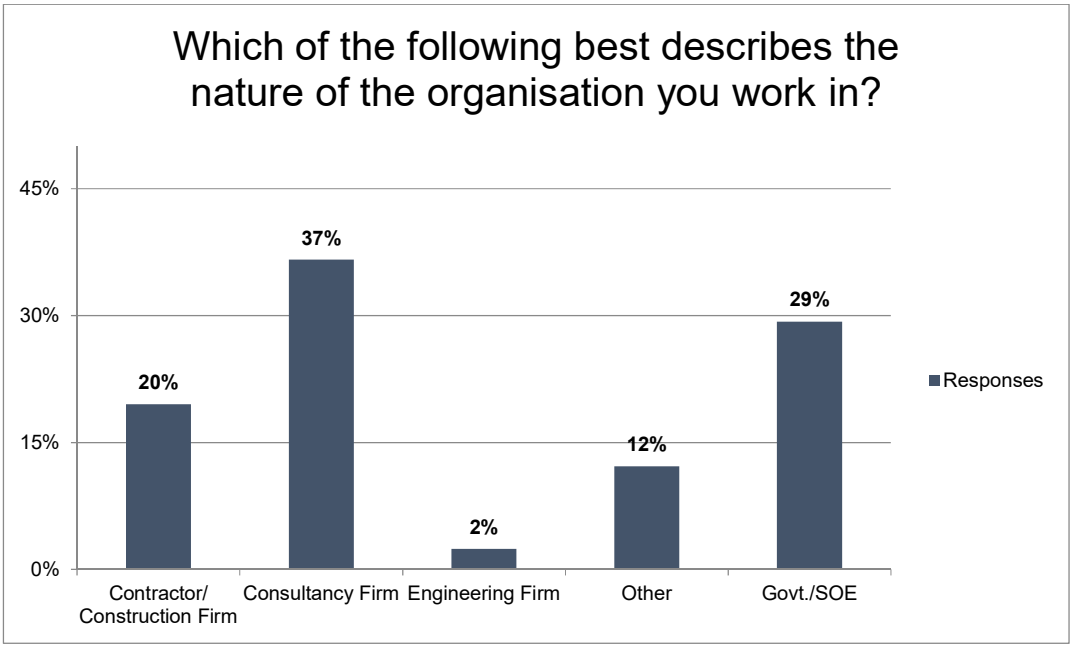

Table 5: Organization type

In accordance with the data collected and reflected in Table 6 below, 54% of respondent indicated that their organisation has an operational footprint in South Africa only, while 39% indicated that their organisation operates both within South Africa and internationally (outside of South Africa including the rest of the African continent), and 7% of respondents declared that their organisation has an international operational footprint only.

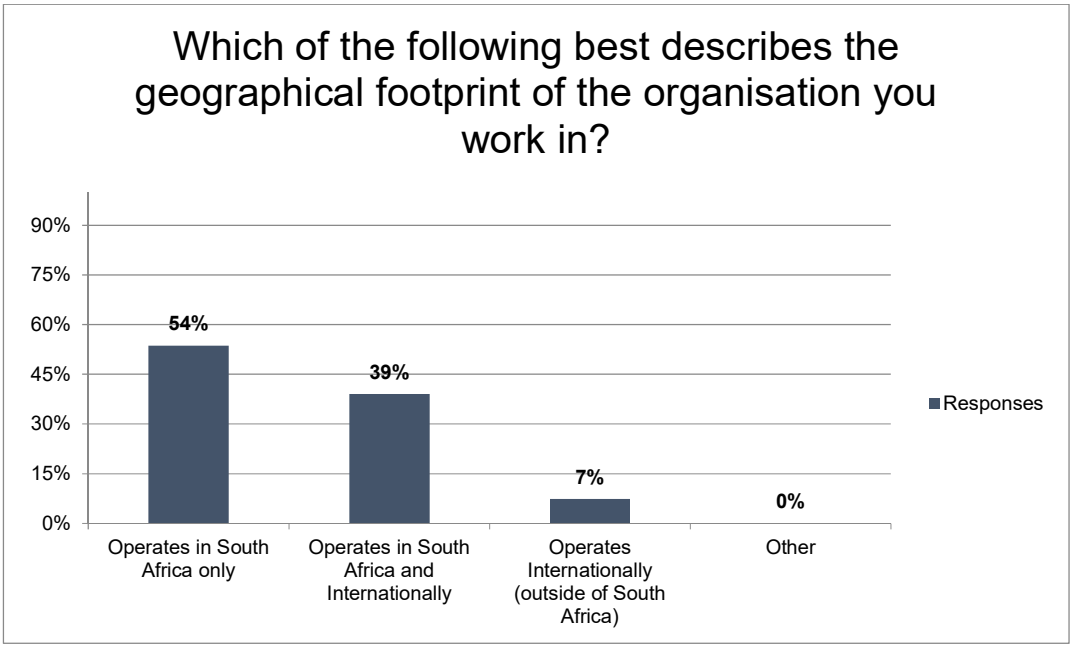

Table 6: Organization operational footprint

Role within organisation and work experience in the organisation and role

Table 7 below demonstrates that within the sample, 7 varying management levels were represented including the category 'Other'. In this regard, the mode of the sample distribution is the Senior Manager category (49% of respondents), with the next highest category being Middle Manager (32%). The remaining respondents are distributed between the Executive Manager, Supervisor, General Manager and Other levels of management at 7%, 5%, 2% and 5% respectively. Within the 'Other' category, respondents declared that they execute the role of Managing Director and Inspector of Works. Within the sample the management category First Line Manager was not represented. In summary, all respondents are currently executing duties within a management role. It is important to note that the participants consisted of a cross section of employees at various level of management.

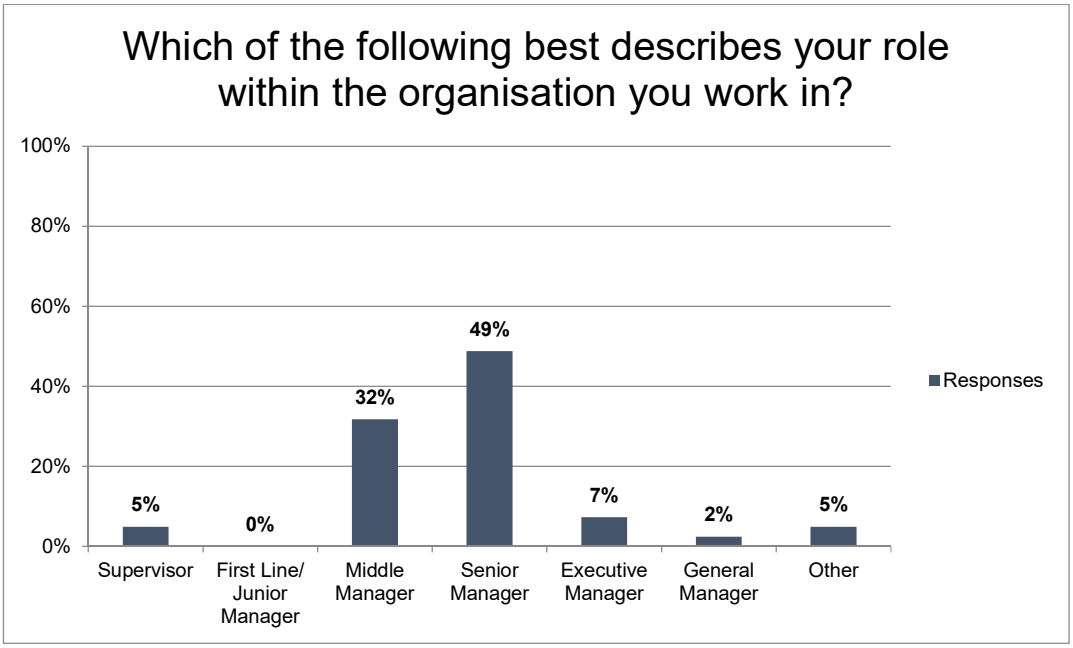

Table 7: Participant cross section of management roles

Table 8 below demonstrates that 24% of respondents have tenure within the current organisation of between 5 and 10 years while 22% of the respondents have discharged duties within their current organisation for a period between 1 and 3 years, a further 22% have worked within the current organisation for more than 15 years, while 17% of respondents have been in their current organisation for less than 15 but more than 10 years and lastly 2% of respondents have been working within their current organisations for no more than 1 year.

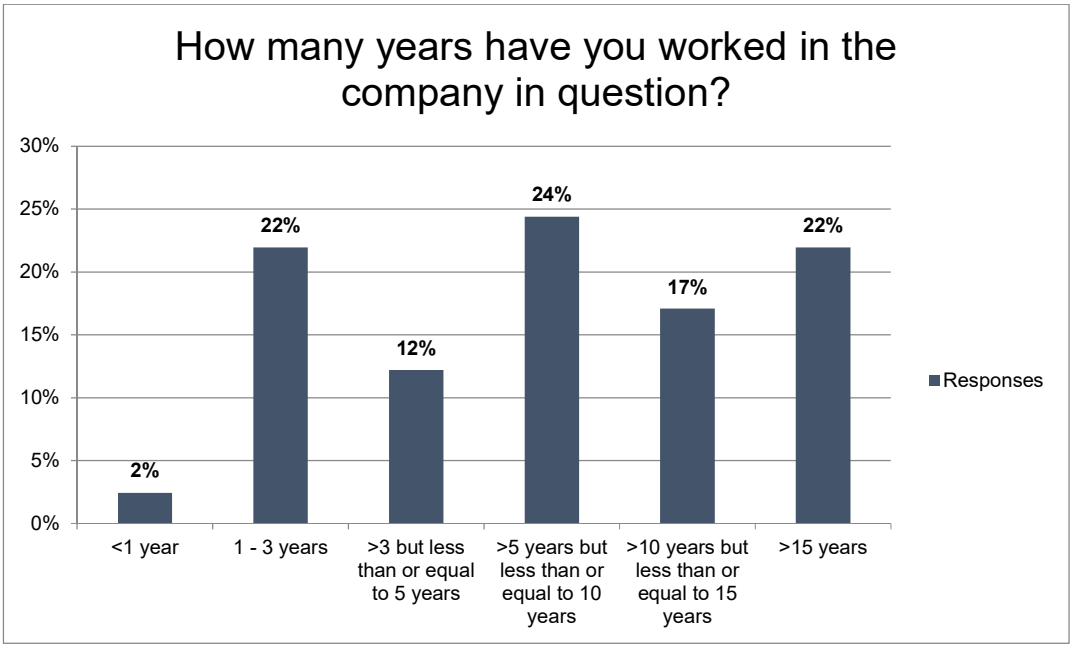

Table 8: Participant organisational tenure

Moreover Table 9 below demonstrates that 24% of respondents have tenure of between 5 and 10 years within their current role while 22% of the respondents have discharged duties within their current role exceeding 3 years but less than 5 years, 20% of respondents have been in their current role for less than 3 years and 34% for greater than 10 years.

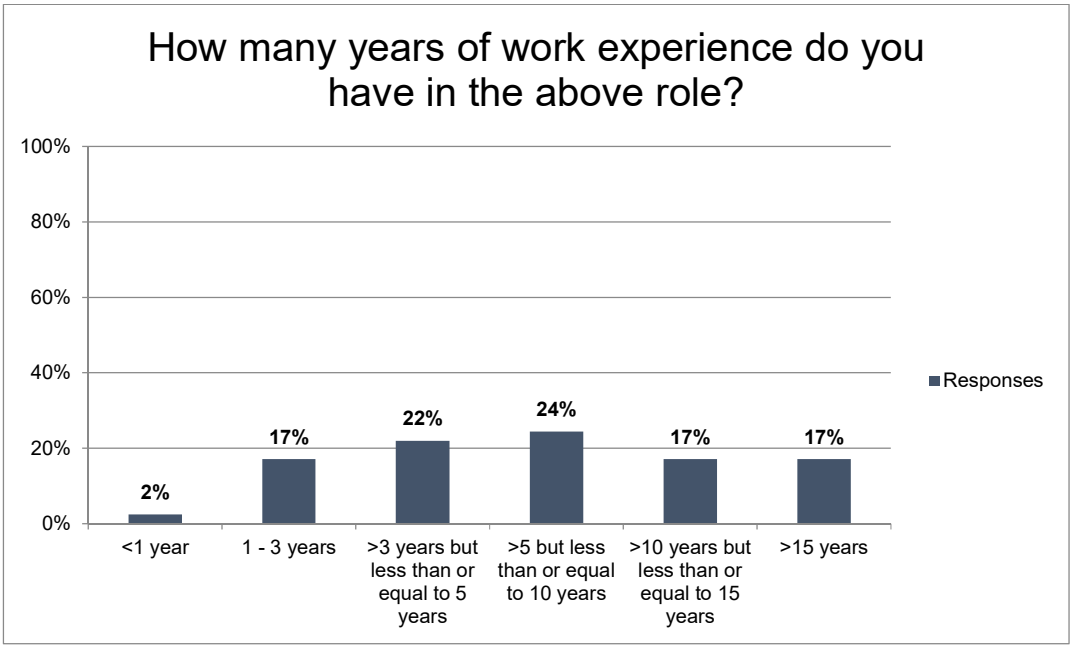

Table 9: Participant no. of years' experience in current role

5.1.3 Section 2 – Change Leadership within the Context of Crisis

Within the second section of the questionnaire respondents were required to provide their answers to questions specifically testing leader behaviour/competency in line with four change phases as synthesised by Kin et al., (2014) including, *Goal Framing*, *Capacity Building*, *Defusing resistance and conflict* and *Change execution, and Institutionalising*.

To this end, the prevailing literature has over time advanced several definitions of leadership, however the common theme among them has been the mobilization and directing of individuals and groups towards the setting and achievement of goals. Kotter (1999) further suggested that leadership is a process that is associated with change because leadership involves setting a strategic direction, and developing a strategy in order to move forward in that very direction, in other words, the creation and achievement of a vision. Further, leaders challenge the status quo which inherently renders leadership as change focused (Cairns, 2000). Similarly Elliott (1992) suggests that in the absence of change, leadership had in fact not occurred. In support hereof, Yukl (2002) further suggests that the principal role of a leader is to lead change, and that all else is secondary hereto. It can therefore be concluded that, 'ultimately leadership is about change' (Zenger et al., 2000), and involves initiating change, mobilizing others to change, and maintaining change (Smit 2003). Crisis has been descried throughout this study as a high impact event which is low in probability, is external to the organisation and threatens organisational viability. A crisis is uncertain and is triggered by change, thus requires the intervention of organisational innovation practices in order to address its specific consequences (Jaroensutiyotin et al., 2019). As a result leadership must be understood in the context of change (Higgs & Rowland 2000).

Questionnaire statement: In a crisis context our organisational leader developed an attainable vision for the organisation

Table 10 below indicates the majority (54%) of respondents 'agree' with this statement, while 7% 'strongly agree'. In contrast a cumulative total of 22% disagree and 'strongly disagree' with this statement. Further 17% of respondents remain indifferent regarding this statement and their specific observations relating to their organisational leader.

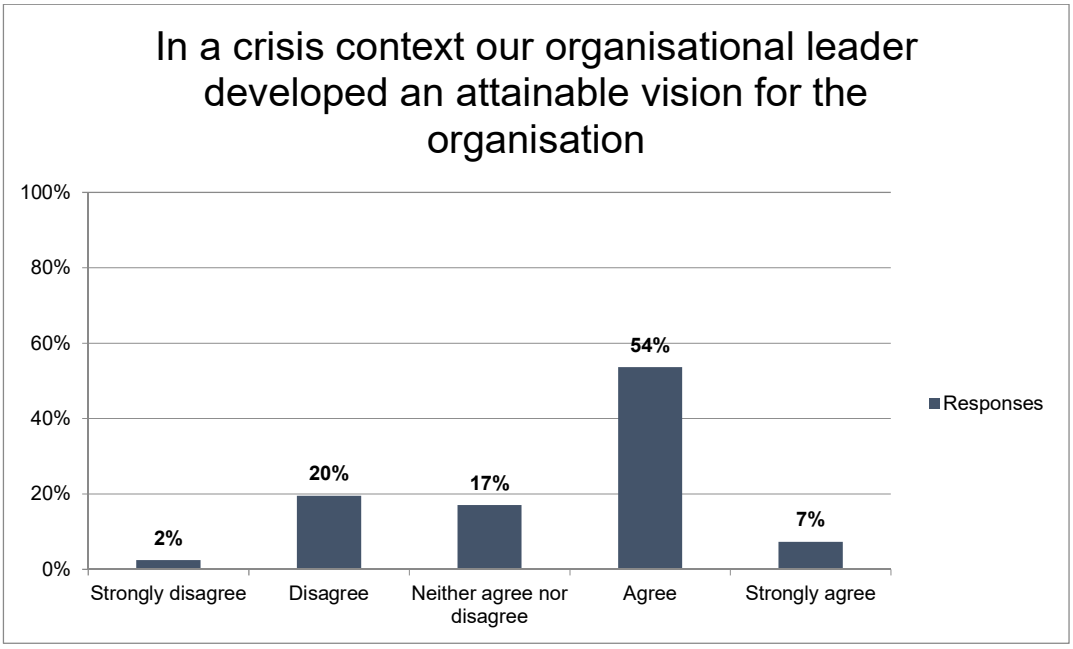

Table 10: Participant responses – organisational leader development of attainable vision

Questionnaire statement: In a crisis context our organisational leader communicated and shared the change goal

Table 11 below indicates the mode with respects to the response to this statement is 'agree' with 73% of respondents agreeing with this statement, while 2% strongly agreed. Conversely a cumulative total of 17% 'disagree' with this statement. None of the respondents 'strongly disagree' with this statement. Further 7% of respondents remain indifferent regarding this statement and their specific observations relating to their organisational leader. It is therefore evident that the sentiment as expressed by the sample responses leans towards agreement with the statement.

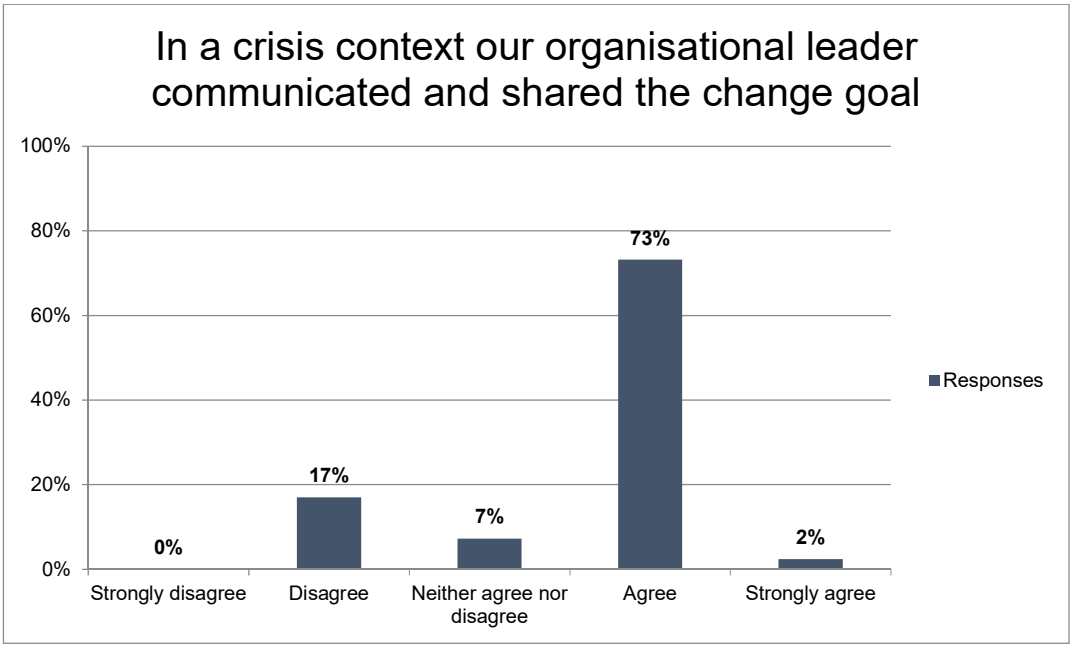

Table 11: Participant responses – organisational leader communication and sharing of change goal

Questionnaire statement: As a manager/supervisor/leader, I understood the rationale for the need for change as articulated by our organisational leader in a crisis context

Table 12 below indicates the mode with respects to the response to this statement, which is 'agree', as 76% of respondents agreed with this statement, while 7% strongly agreed. In contrast, 12% of respondents 'disagree with this statement'. None of the respondents 'strongly disagree' with this statement. Further, 5% of respondents remain indifferent regarding this statement and their specific observations relating to their organisational leader. It is therefore evident that the sentiment as expressed by the sample responses leans towards agreement with the statement.

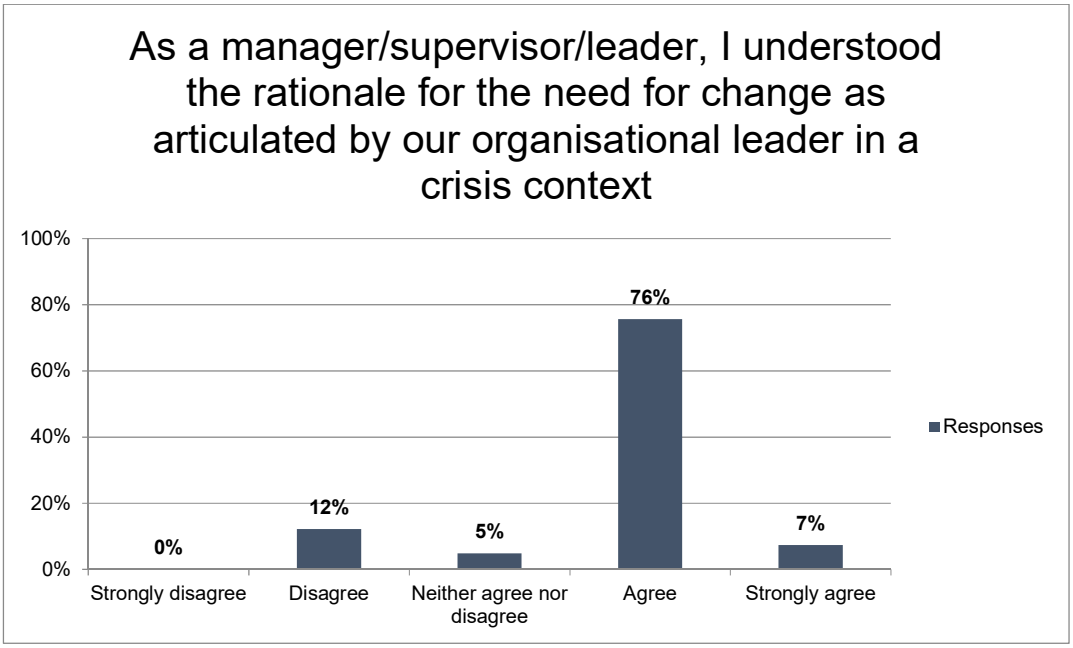

Table 2: Understanding the rationale and need for change

Questionnaire statement: In a crisis context our organisational leader determined the desired change outcome

Table 13 below indicates the mode with respects to the response to this statement is 'agree', with 51% of respondents agreeing with this statement, while 10% strongly agreed. In contrast, 24% of respondents 'disagree' with this statement. None of the respondents 'strongly disagree' with this statement. Further, 15% of respondents 'neither agree not disagree' with respects to this statement and their specific observations relating to their organisational leader. It is therefore evident that the sentiment as expressed by the sample responses leans towards agreement with the statement.

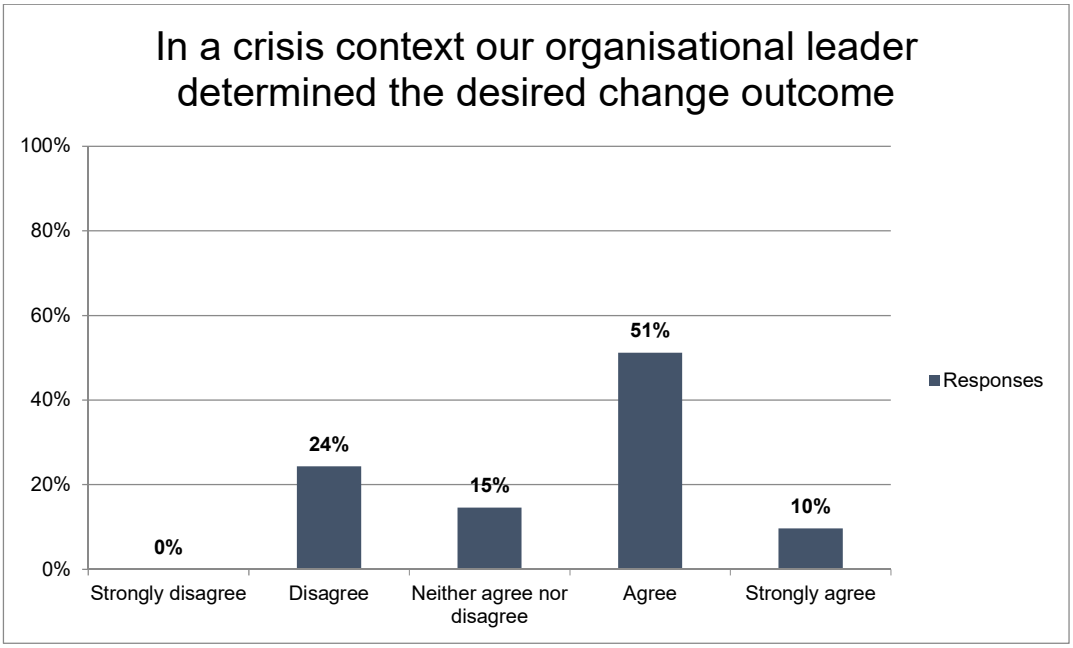

Table 13: Participant responses - organisational leader determined desired outcome

Questionnaire statement: In a crisis context our organisational leader developed and articulated a clear direction of how to achieve a specific goal

Table 14 below indicates the mode with respects to the response to this statement is 'agree', with 44% of respondents agreeing with this statement, while 7% strongly agreed. Conversely, 32% of respondents 'disagree' with this statement. None of the respondents 'strongly disagree' with this statement. Moreover, 17% of respondents neither agree not disagree with respects to this statement and their specific observations relating to their organisational leader. It is therefore evident that the sentiment as expressed by the sample responses leans towards agreement with the statement.

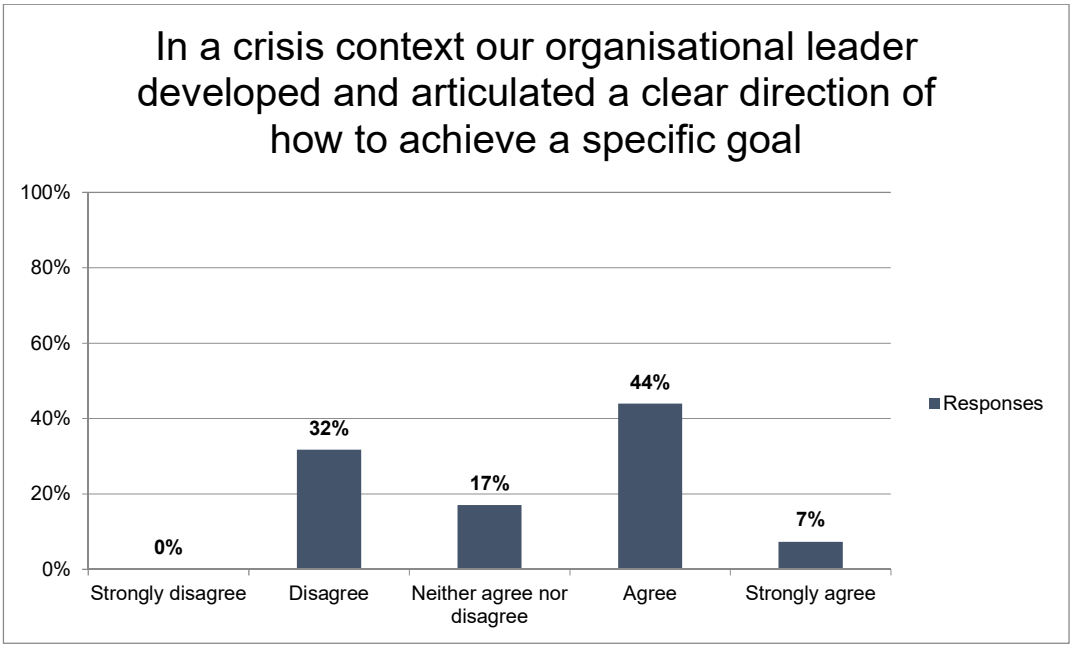

Table 14: Participant responses - organisational leader development and articulation of a clear direction of how to achieve change goal

Questionnaire statement: In a crisis context our organisational leader sought ways to improve the organisation's change readiness

Table 15 below indicates the mode with respects to the response to this statement is 'agree' with 41% of respondents agreeing with this statement, while 5% strongly agreed. In contrast, 32% of respondents 'disagree' with this statement. None of the respondents 'strongly disagree' with this statement. Moreover, 22% of respondents 'neither agree not disagree' with respects to this statement and their specific observations relating to their organisational leader. It is therefore evident that the sentiment as expressed by the sample responses leans towards agreement with the statement, but that a notable proportion of respondents remained indifferent regarding this specific statement.

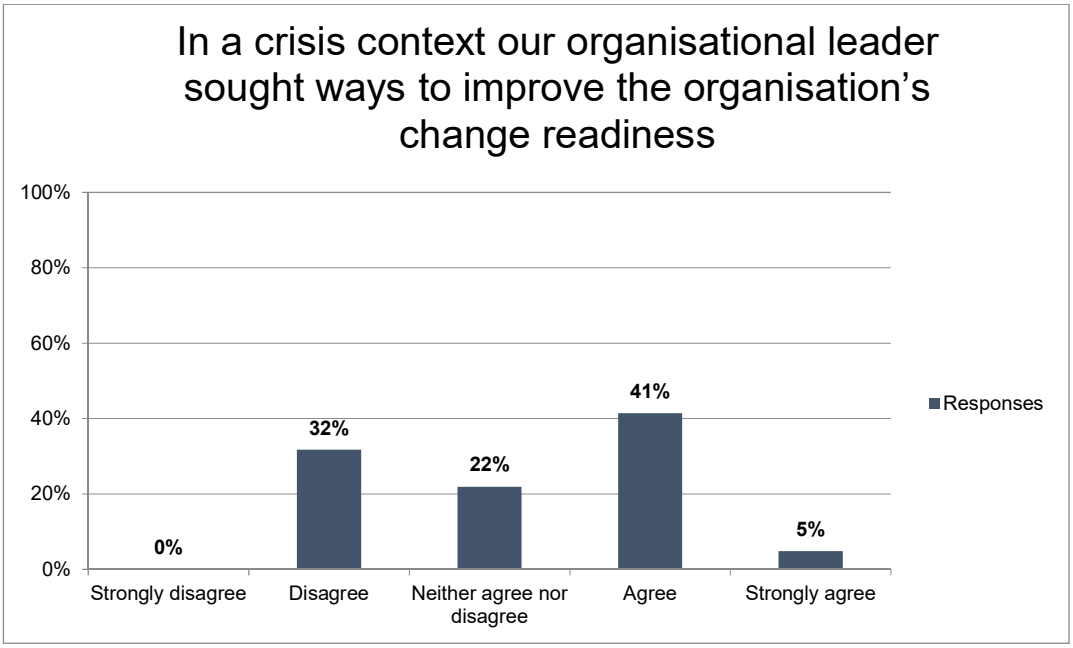

Table 15: Participant responses - organisational leader seeking ways to improve change readiness

Questionnaire statement: In a crisis context our organisational leader set out to build competence to meet change requirements

Table 16 below indicates the mode with respects to the response to this statement is 'disagree' with 46% of respondents not in agreement with this statement, while 22% remain indifferent. In contrast, 29% of respondents 'agree' with this statement, while 2% 'strongly agree'. None of the respondents strongly disagreed with this statement. It is therefore clear that the sentiment as expressed by the sample responses leans towards disagreement with the statement, but that a notable proportion of respondents remained indifferent regarding this specific statement.

Table 16: Participant responses - organisational leader built competence to meet change requirements

Questionnaire statement: In a crisis context our organisational leader sought to ensure that resistance to change is diffused

Table 17 below demonstrates the mode with respects to the response to this statement is 'neither agree nor disagree' with 41% of respondents being indifferent with respects to their observations of their organisational leader. Followed closely by 39% of respondents agreeing with the statement and 20% of respondents disagreeing. None of the respondents strongly disagreed or strongly agree with the statement.

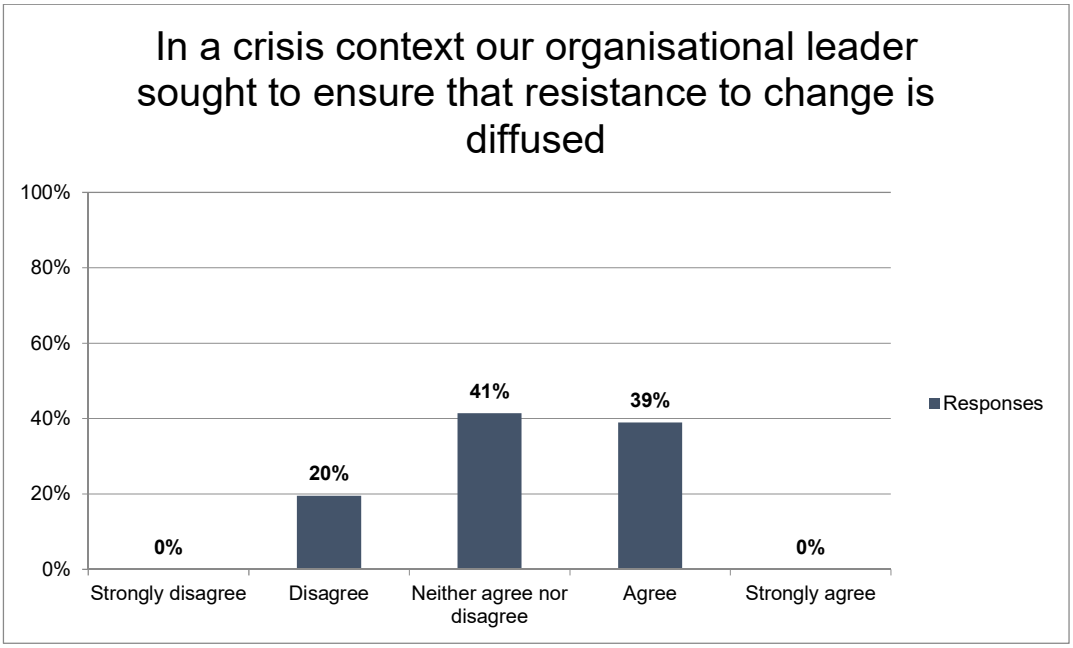

Table 17: Participant responses - organisational leader seeks to ensure that resistance to change is diffused

Questionnaire statement: In a crisis context our organisational leader sought to ensure that conflict due to change is diffused

Table 18 below demonstrates the mode with respects to the response to this statement is 'agree' with 41% of respondents agreeing to this statement with respects to their observations of their organisational leader. Followed closely by 39% of respondents 'neither agreeing nor disagreeing' and the same proportion of respondents disagreeing with the statement. None of the respondents strongly disagreed or strongly agree with the statement.

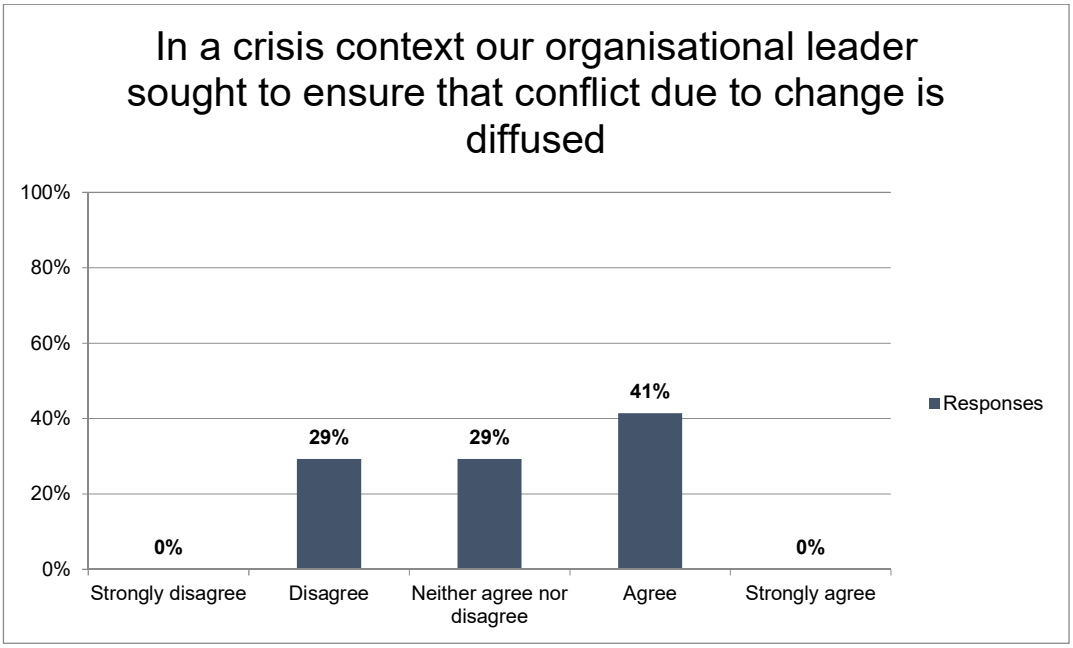

Table 18: Participant responses - organisational leader seeks to ensure that conflict due to change is diffused

Questionnaire statement: In a crisis context our organisational leader encouraged training and coaching among the staff

Table 19 below demonstrates the mode with respects to the response to this statement is 'agree' with 34% of respondents agreeing to this statement with respects to their observations of their organisational leader, followed closely by 32% of respondents 'disagreeing' and 20% of respondents 'neither agreeing nor disagreeing' with the statement. The remaining respondents strongly agree (10%) and strongly disagree (5%).

Table 19: Participant responses - organisational leader encourages training and coaching among staff

Questionnaire statement: In a crisis context our organisational leader ensured that staff are able and equipped to perform new tasks

Table 20 below demonstrates the mode with respects to the response to this statement is 'agree' with 39% of respondents agreeing to this statement with respects to their observations of their organisational leader, followed by 24% of respondents 'disagreeing' and 22% of respondents 'neither agreeing nor disagreeing' with the statement. The remaining respondents strongly disagree agree (10%) and strongly agree (5%).

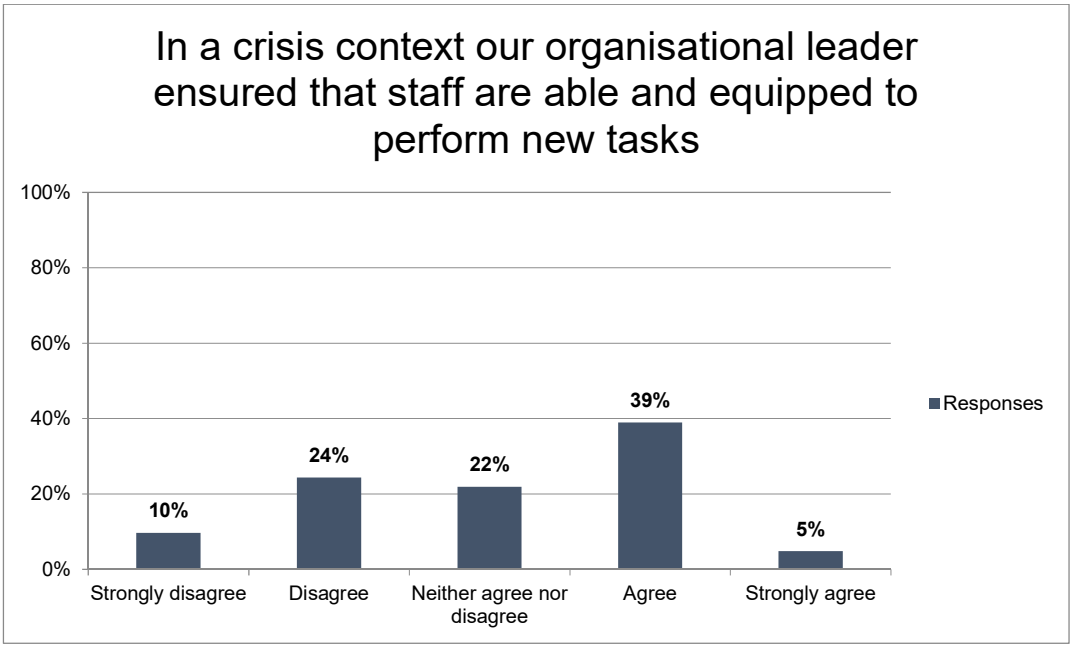

Table 20: organisational leader ensures that staff are able and equipped to perform new tasks.

Questionnaire statement: In a crisis context our organisational leader redesigned structures and mobilised resources in support of the change goal

Table 21 below indicates the mode with respects to the response to this statement is 'agree' with 56% of respondents in agreement with this statement, while 10% strongly agree and 17% remain indifferent. In contrast, 17% of respondents disagree with this statement. None of the respondents strongly disagreed with this statement. It is therefore clear that the sentiment as expressed by the sample responses tends towards agreement with the statement, but that a notable proportion of respondents remain indifferent regarding this specific statement.

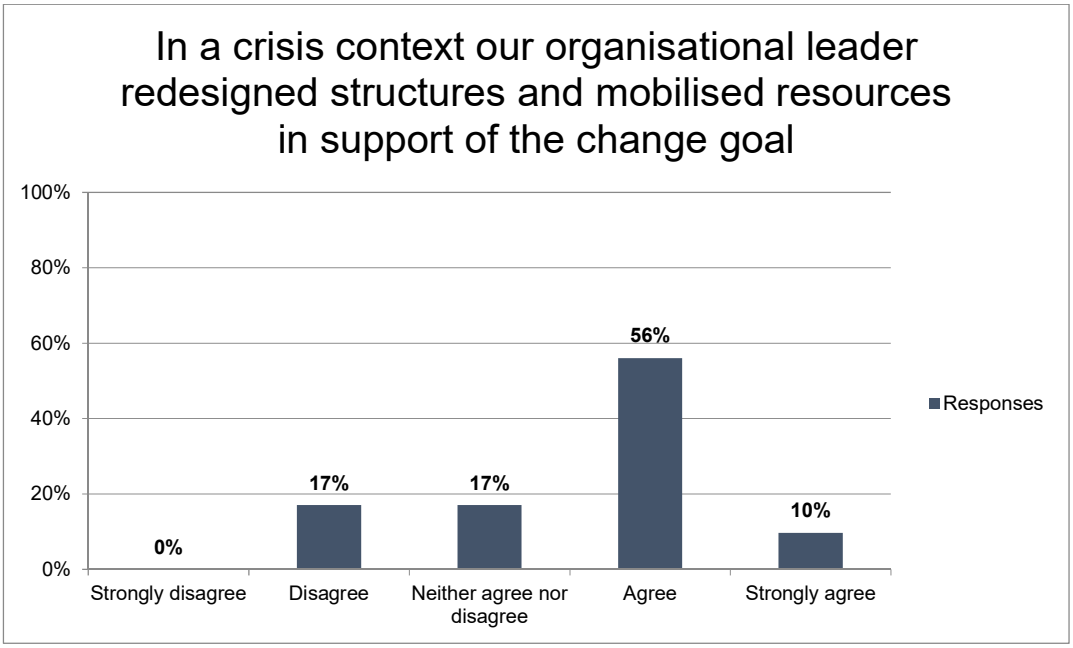

Table 21: Participant responses - organisational leader redesigned structures and mobilised resources in support of the change goal.

Questionnaire statement: In a crisis context our organisational leader focused on empowerment and coordination of staff in support of the change goal

Table 22 below indicates the mode with respects to the response to this statement is 'neither agree nor disagree' with 37% of respondents expressing indifference with regards to their observations of their organisational leader, while 32% agree and 24% disagree. A total of 2% and 5% of respondents strongly disagreed and strongly agree respectively. It is therefore inconclusive as to the tendency of the responder sentiment with respects to this statement at this stage of the analysis.

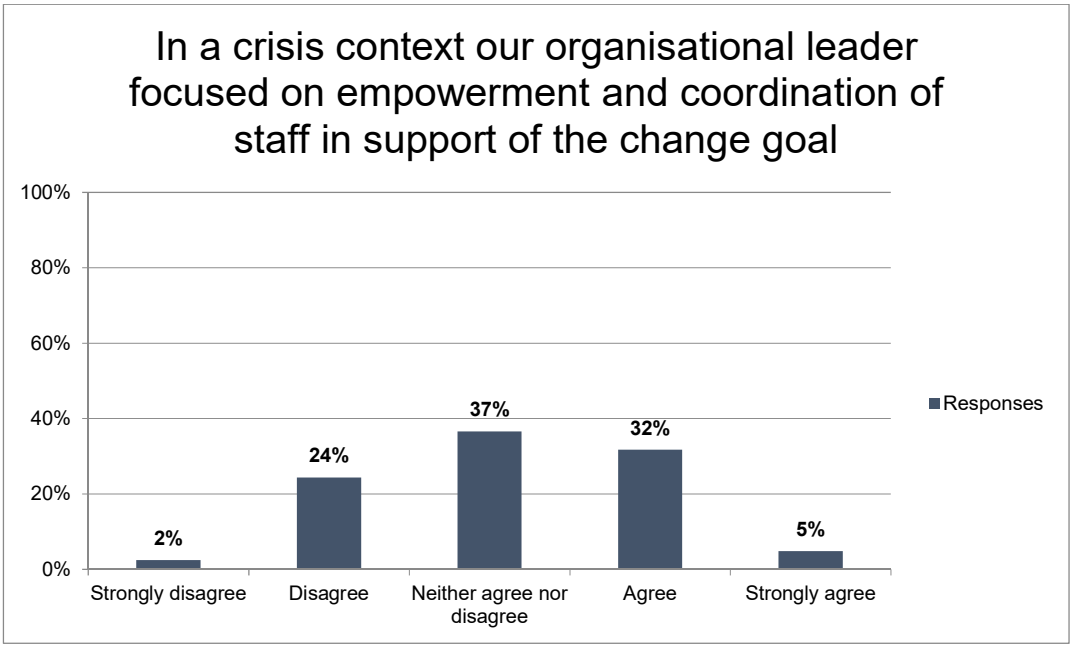

Table 22: Participant responses - organisational leader focused on empowerment and coordination of staff in support of the change goal.

Questionnaire statement: In a crisis context our organisational leader anticipated resistance behaviour that threatens the change effort

Table 23 below indicates the mode with respects to the response to this statement is 'agree' with 41% of respondents expressing their agreement with this statement and 2% of respondents strongly agreeing with the statement. In contrast, 34% of respondents disagree with this statement while 22% expressed indifference with regards to their observations of their organisational leader. None of the respondents strongly disagreed with this statement.

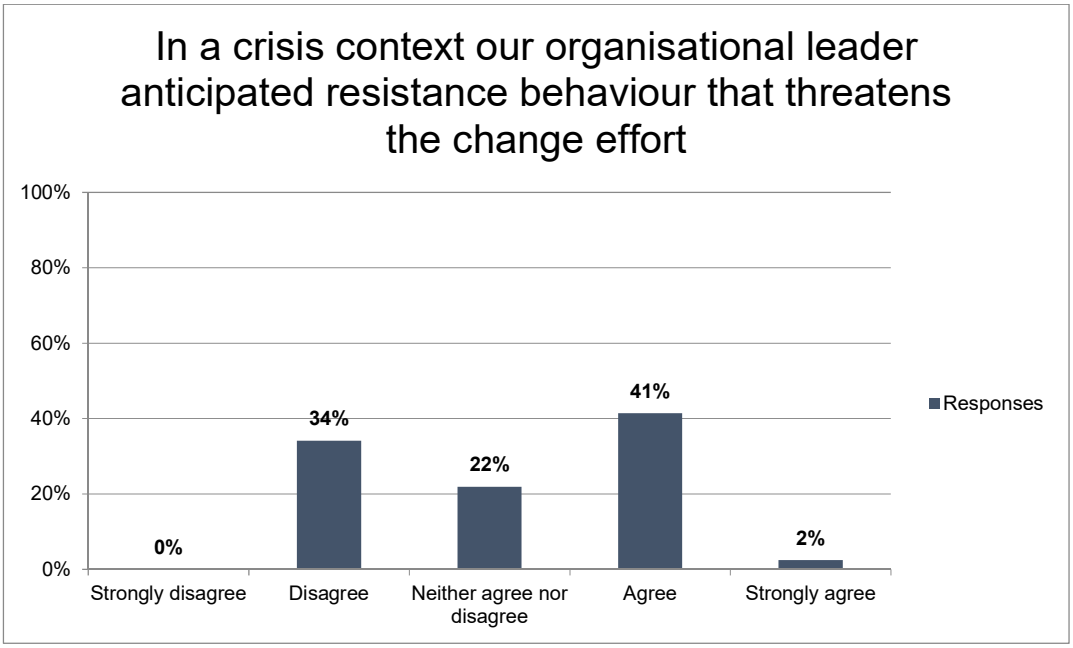

Table 23: Participant responses - organisational leader anticipated resistance behaviour that threatens the change effort

Questionnaire statement: In a crisis context our organisational leader made individuals who resist change feel confident to raise their views

As seen in Table 24 below the mode with respects to the response to this statement is 'agree' with 39% of respondents expressing their agreement with this statement and 5% of respondents strongly agreeing with the statement. In contrast, 22% of respondents disagree with this statement and 7% strongly agree, while 27% expressed indifference with regards to their observations of their organisational leader.

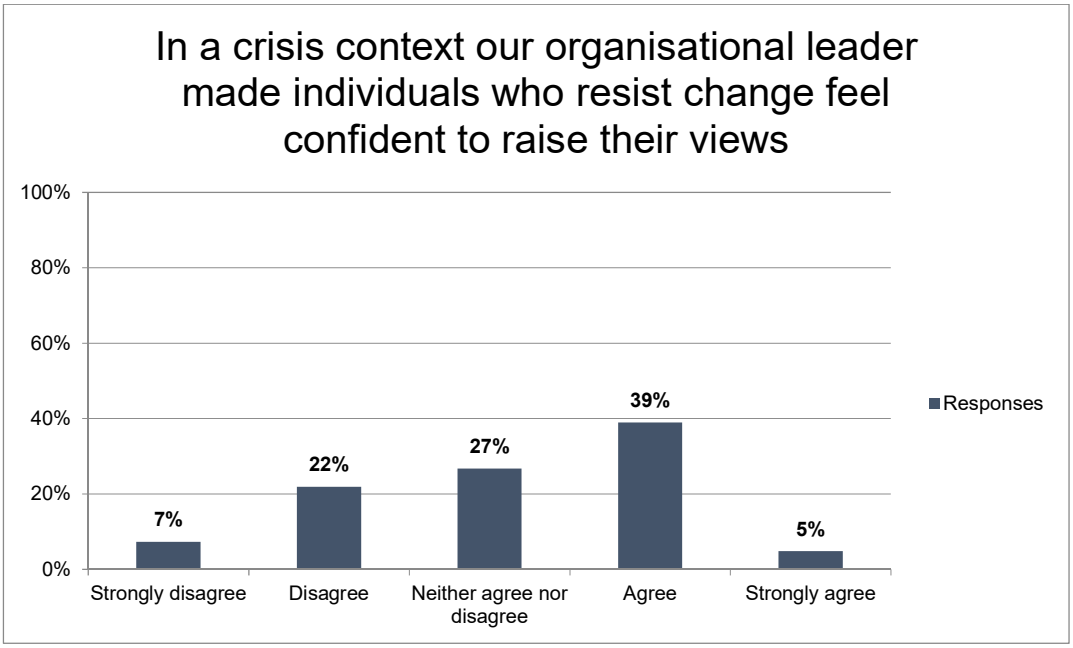

Table 24: Participant responses - organisational leader made individuals who resist change feel confident to raise their views.

Questionnaire statement: In a crisis context our organisational leader managed change conflict effectively by seeking to reach agreement from different parties.

As seen in Table 25 below the mode with respects to the response to this statement is 'agree' with 39% of respondents expressing their agreement with this statement. In contrast, 29% of respondents disagree with this statement and 5% strongly agree, while 27% expressed indifference with regards to their observations of their organisational leader. None of the respondents strongly agreed with this statement.

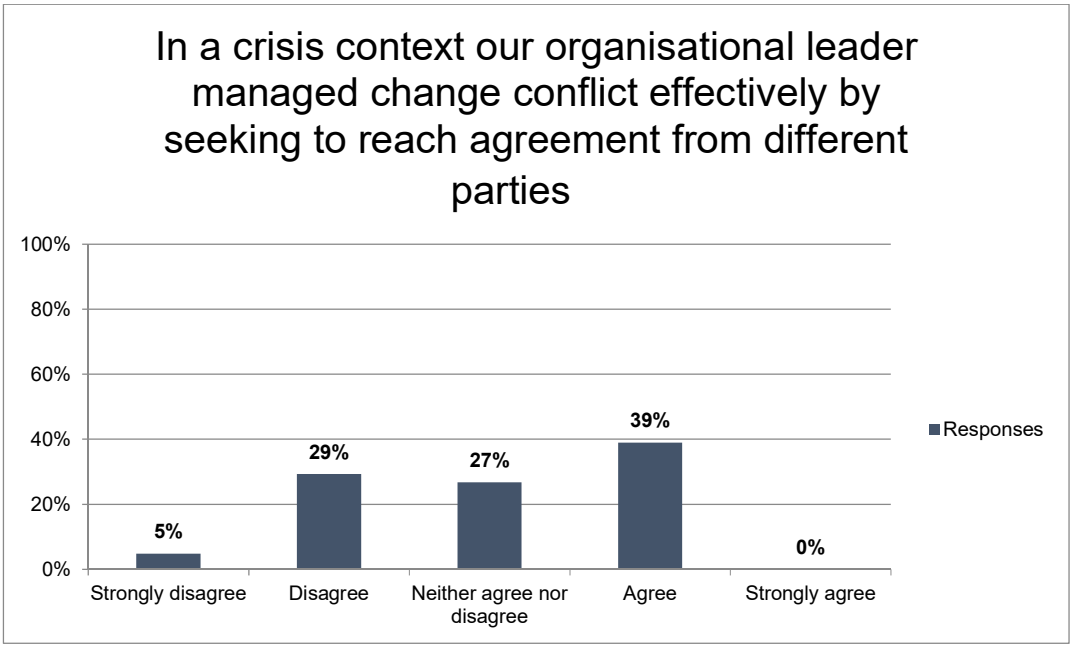

Table 25: Participant responses - organisational leader managed change conflict effectively by seeking to reach agreement from different parties

Questionnaire statement: In a crisis context our organisational leader implemented monitoring to ensure realisation of the change goal

As seen in Table 26 below the mode with respects to the response to this statement is 'agree' with 59% of respondents expressing their agreement with this statement, while 2% strongly agree. Conversely, 20% of respondents disagree with this statement and 2% strongly disagree, while 17% expressed indifference with regards to their observations of their organisational leader.

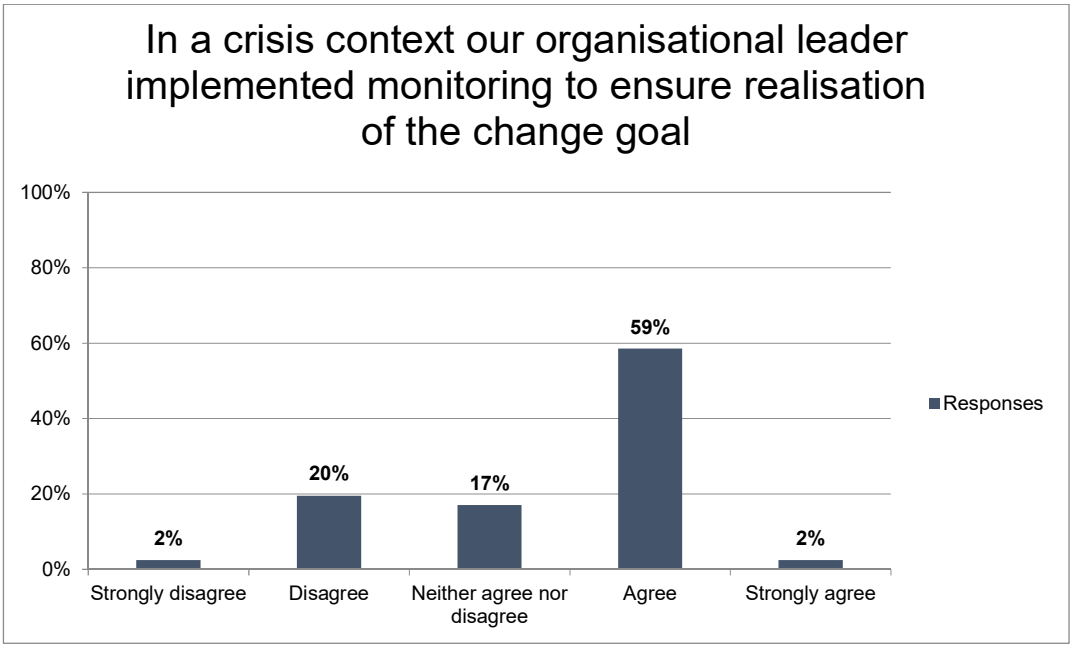

Table 26: Participant responses - organisational leader implemented monitoring to ensure realisation of the change goal

Questionnaire statement: In or after the crisis context our organisational leader implemented evaluation of the change outcome for continuous improvement

Table 27 below indicates the mode with respects to the response to this statement is both 'agree' and 'neither agree nor disagree' with 34% of respondents expressing their agreement with this statement, while the same proportion of respondents expressed indifference with regards to their observations of their organisational leader. This is followed closely by 32% of respondents disagreeing with this statement, while none of the respondents strongly agree or strongly disagree with this statement.

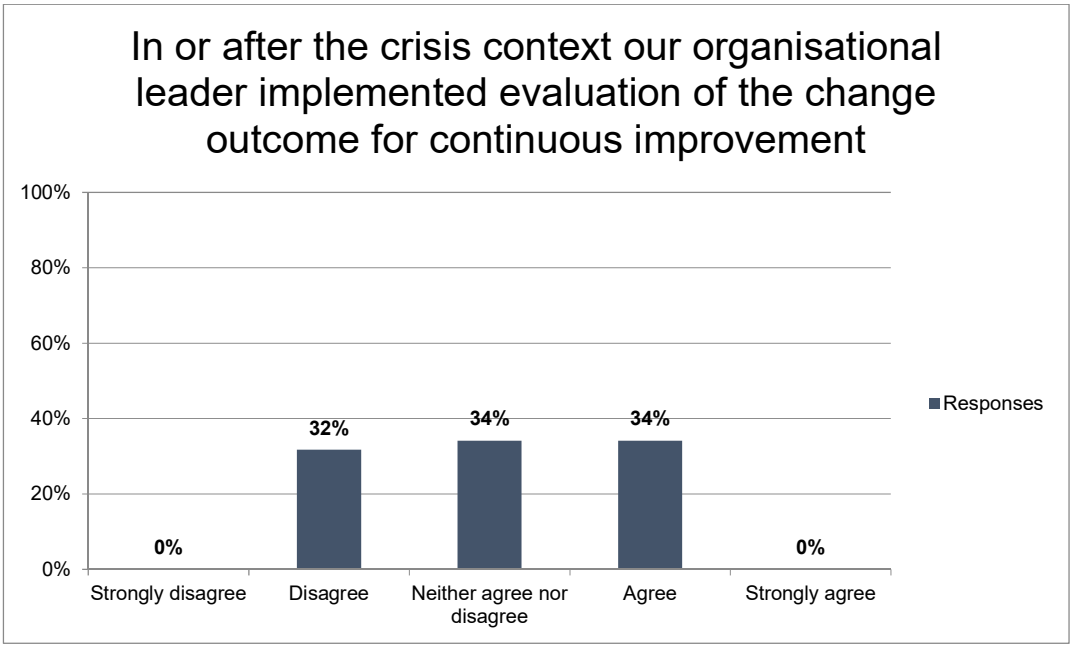

Table 27: Participant responses - our organisational leader implemented evaluation of the change outcome for continuous improvement

Questionnaire statement: In or after the crisis context our organisational leader created opportunities for sharing best practices and knowledge sharing among departments

Table 28 below indicates the mode with respects to the response to this statement is 'disagree' (39%), followed by 32% of respondents expressing their agreement with this statement, while 24% of respondents expressed indifference with regards to their observations of their organisational leader. Approximately 2% of the respondents strongly agree and the same proportion strongly disagree with this statement.

Table 28: Participant responses - organisational leader created opportunities for sharing best practices and knowledge sharing among departments.

Questionnaire statement: In or after the crisis context our organisational leader implemented institutionalising of best practices

Table 29 below indicates the mode with respects to the response to this statement is 'agree' (32%), followed by 29% of respondents expressing their disagreement with this statement, while 27% of respondents expressed indifference with regards to their observations of their organisational leader. Approximately 2% of the respondents strongly agree and the same proportion strongly disagree with this statement.

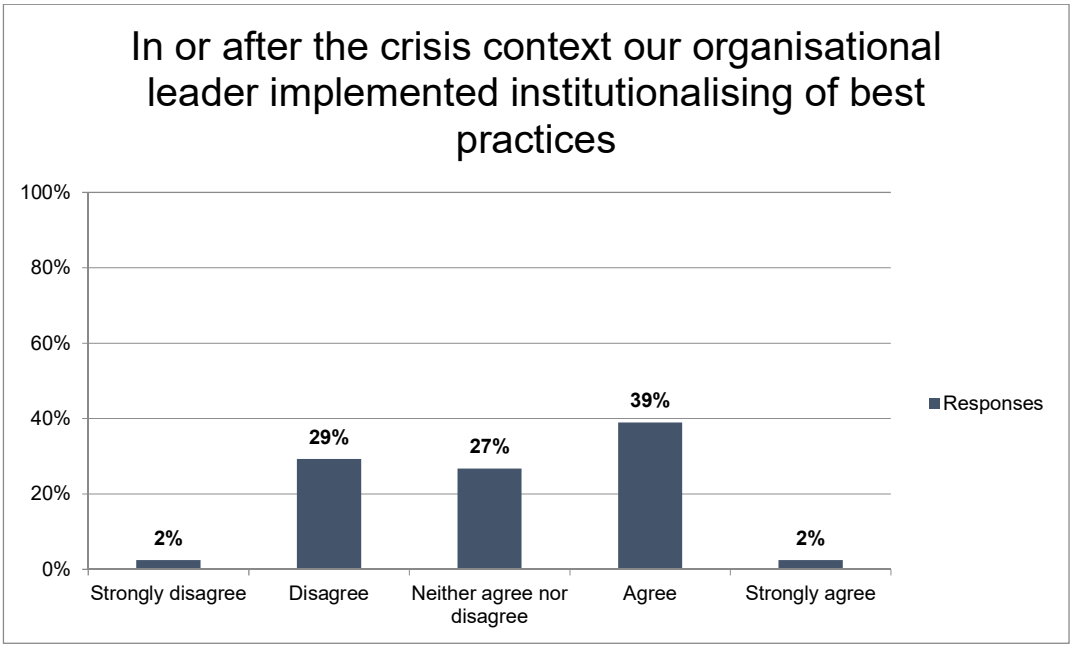

Table 29: Participant responses - our organisational leader implemented institutionalising of best practices.

Questionnaire statement: In or after the crisis context our organisational leader ensured that employees continue to contribute to change

Table 30 below indicates the mode with respects to the response to this statement is 'agree' (54%), followed by 24% of respondents expressing indifference with regards to their observations of their organisational leader and 20% of respondents disagreeing with this statement. Moreover, 2% of the respondents strongly disagree while none of the respondents strongly agree with the statement.

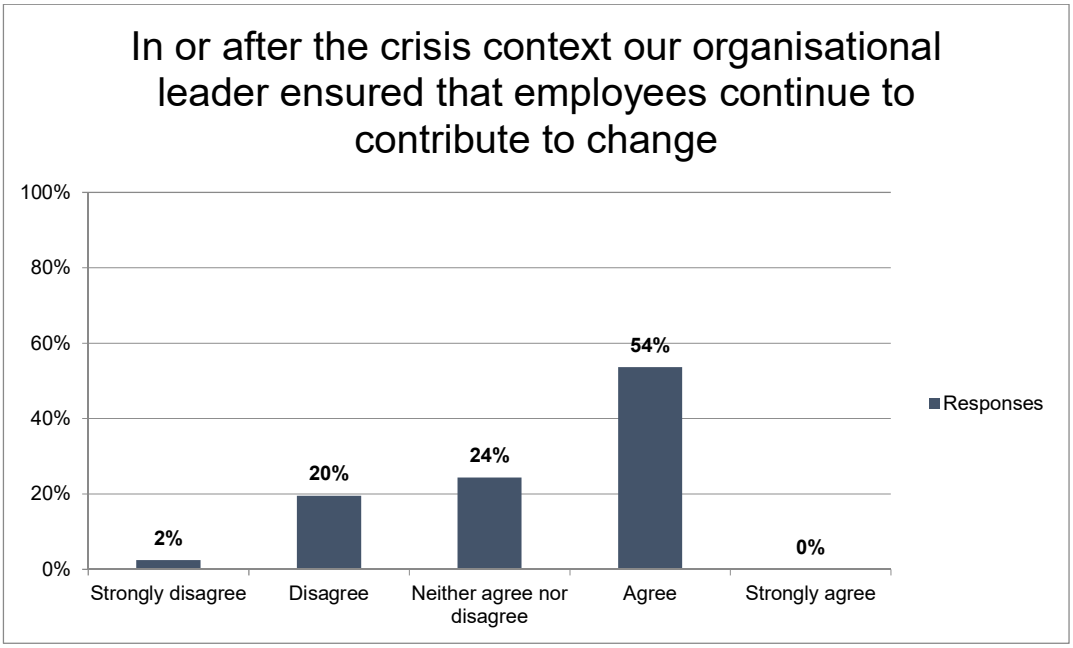

Table 30: Participant responses - organisational leader ensured that employees continue to contribute to change.

5.1.4 Summary of Analysis – Change Leadership

In summary, the following inferences may be made based on the aggregated responses received for each of the questionnaire statements as associated with each Change Leadership construct:

Goal Framing – Based on the results as presented above, it may be inferred that organisational leaders are generally effective at initiating change efforts through their goal framing behaviours. In this regard the average response received from respondents was 'Agree' (with responses ranging between 44% - 76% of total responses per statement). Employees therefore are of the view that, within the context of crisis, their organisational leaders appropriately, developed an attainable vision for the organisation, communicated and shared the change goal, that as managers they generally understood the rationale and need for the change as articulated by their organisational leader, that their organisational leader determined a desire change outcome in addition to developing and articulating a clear direction of how to achieve the specific goal.

Capacity Building – Based on the results presented above, it may be inferred that organisational leaders within the Construction and Built Environment sector when faced with a crisis context appropriately, consistently seek ways to improve the organisations' change readiness, seek to ensure that conflict due to change is diffused, encourage training and coaching during these times, and ensure that staff are able and equipped to perform new tasks. The aforementioned enablers as undertaken by organisational leaders are evident as a result of the prevailing participant responses in this regard being 'Agree'. On the other hand, 46% of respondents disagree that their organisational leader, within

the context of crisis, set out to build competence to meet change requirements, while 41% of respondents generally were indifferent about whether or not their organisational leader sought to ensure that resistance to change is diffused. The latter may be an early indication that the leaders within the sector in question do not fully mobilize change, through building competency to meet the requirement of change, or deliberately employing efforts to diffuse resistance to change. This may be as a result of learned behaviour within the Construction and Built Environment which is representative of a critical case, as it is historically crisis prone, as a result leaders may have adopted change leadership competencies which do not revolve around competency development and diffusing resistance, as these typically are resolved as a by-product of continuous improvement in change readiness, reducing conflict related to the change, undertaking training and coaching and ensuring employees are equipped to address new tasks that may surface due to the change.

Diffusing resistance and conflict and change execution - Based on the results presented above, it may be inferred that organisational leaders within the Construction and Built Environment sector when faced with a crisis context appropriately, redesign structures and mobilise resources in support of the change goal, anticipated resistance behaviour which threatens the change effort, empower individuals who resist the change to share their views, manage change conflict though seeking agreement between parties, and implement monitoring in order to ensure realisation of the change goal. The aforementioned enablers as undertaken by organisational leaders are evident as a result of the prevailing participant responses in this regard being 'Agree'. In contrast, 37% generally were indifferent about whether or not their organisational leader focussed on empowering and coordinating staff in support of the change goal. This may be an indicator that leaders within this sector generally thrive at executing change and diffusing resistance and conflict, but may be lacking with regards to the pragmatic dissemination of the empowerment and coordination effort through lower levels of management.

Institutionalizing - Based on the results presented above, it may be inferred that organisational leaders within the Construction and Built Environment sector when faced with a crisis context do not consistently apply themselves to maintaining and embedding the change. Respondents indicated both 'Agree' and 'Neither Agree nor Disagree' as the highest average response to their organisational leader evaluating the change outcome for continuous improvement. In addition, respondents generally disagreed to their organisational leader creating opportunities for the sharing of best practices and knowledge sharing among departments. The latter may be in indication that knowledge management is not a mature function within the sector under study. In comparison, respondent agreed that their organisational leader implemented institutionalising of best practices, this however when compared to the contrasting two sentiments tested, may support the notion that the Construction and Built Environment sector while implementing knowledge sharing policy or procedure, may not be following

through effectively in ensuring the actual execution thereof. It may further be deduced from these results that a culture of knowledge management and sharing may not have yet reached maturity throughout the Construction and Built Environment sector.

5.1.5 Section 3 – Employee Innovative Work Behaviour in the Context of Crisis

The third section of the questionnaire required responded to provide their responses for a set of questions specifically testing innovative work behaviour (IWB) within the context of the crisis. The aforementioned sentiment is tested in line with the specific phases of innovative work behaviour proposed within studies undertaken by Munir & Beh, (2019) as well as Muchiri et al., (2020), which includes: *Idea Generation, Idea Promotion and Idea Implementation*.

Innovative work behaviour (IWB) involves the deliberate introduction and subsequent implementation of new ideas in order to develop novel solutions to extant challenges, such that an improvement is achieved in products/services, and new opportunities are proactively explored (De Jong & Den Hartog, 2010; Dong & Hawryszkiewycz, 2019). Moreover, it has been accepted widely that innovation is a critical contributor to success within organizations success, with capitalization on employee' innovative work behaviour (IWB) deemed one of the most central means for organizations to become innovative, which in turn ensures continuous effectiveness and success. IWB suggests that employees can contribute to organizational success through the utilization of their innovative capabilities in order to generate novel ideas, and through the implementation thereof, improve organizational products/services and or procedures (Hom & Xiao, 2011; Yuan & Woodman, 2010).

Moreover, Innovative Work Behaviour is analysed within the context of crisis, which is defined as a high impact, low probability event which is external to the organisation and threatens organisational viability. It is further regarded as an uncertain event which is triggered by change, and requires the intervention of organisational innovation practices in order to address its specific consequences (Jaroensutiyotin et al., 2019).

Questionnaire statement: In a crisis context I am supported and encouraged to exercise freedom in generating new ideas

Table 31 below indicates the mode with respects to the response to this statement is 'sometimes' (34%), while 27% indicated that this occurs 'often' and 15% indicating that it 'always' occurs. Conversely a cumulative total of 25% state that this rarely and never occurs.

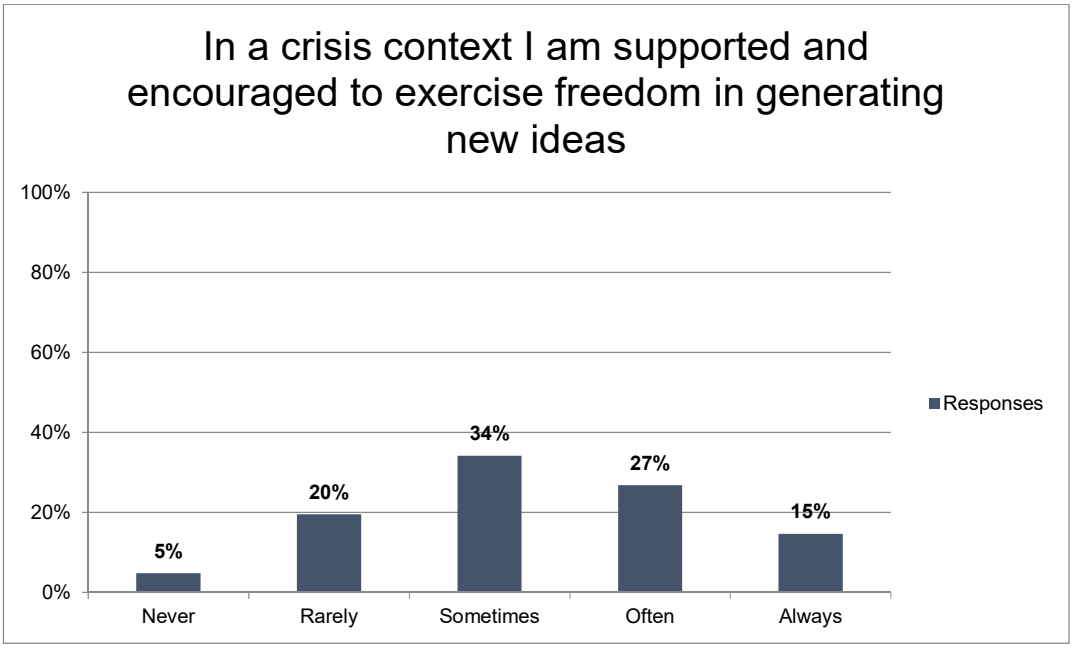

Table 31: Participant responses - I am supported and encouraged to exercise freedom in generating new ideas

Questionnaire statement: In a crisis context I am supported and encouraged to trying new things

Table 32 below indicates the mode with respects to the response to this statement is 'often' (39%), while 27% indicated that this occurs 'sometimes' and the same proportion of respondents indicating that it 'rarely' occurs. Further, 2% of respondents indicated that the occurrence 'always' occurs and in contrast 5% of respondents indicated that it 'never' occurs.

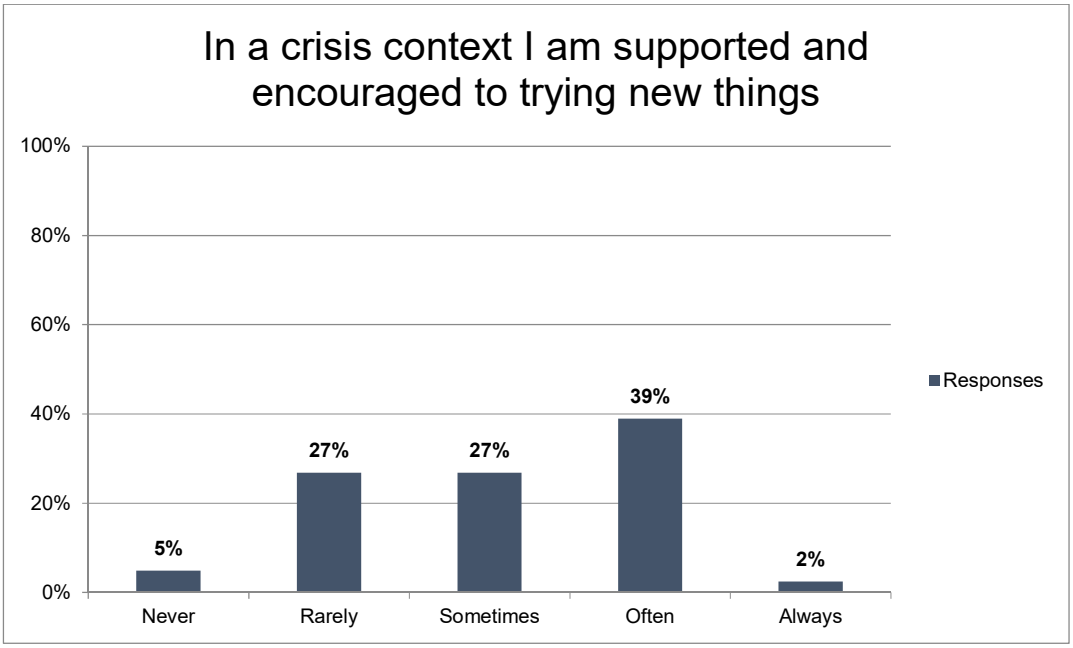

Table 32: Participant responses - I am supported and encouraged to trying new things

Questionnaire statement: In a crisis context I am exposed to more challenging assignments

As seen in Table 33 below, the mode with respects to the response to this statement is 'often' (46%), while 24% indicated that this occurs 'always'. Further, 17% of respondents indicated that the occurrence 'sometimes' takes place, while in contrast 5% of respondents indicated that it 'rarely' occurs and 7% indicated that it 'never' takes place.

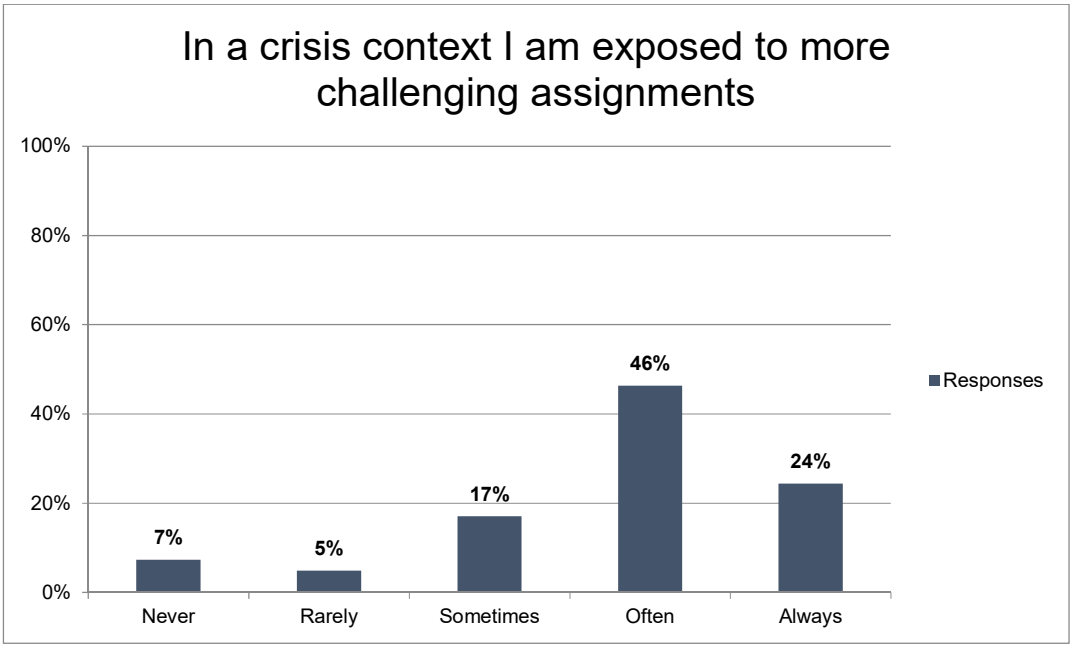

Table 33: Participant responses - I am exposed to more challenging assignments

Questionnaire statement: In a crisis context I feel more engaged in my work assignments

As seen in Table 34 below, the mode with respects to the response to this statement is 'often' (54%), while 20% indicated that this occurs 'sometimes' and the same proportion of respondents indicated that this 'rarely' occurs. Further, 2% of respondents indicated that the occurrence 'always' takes place, while in contrast 5% of respondents indicated that it 'never' occurs.

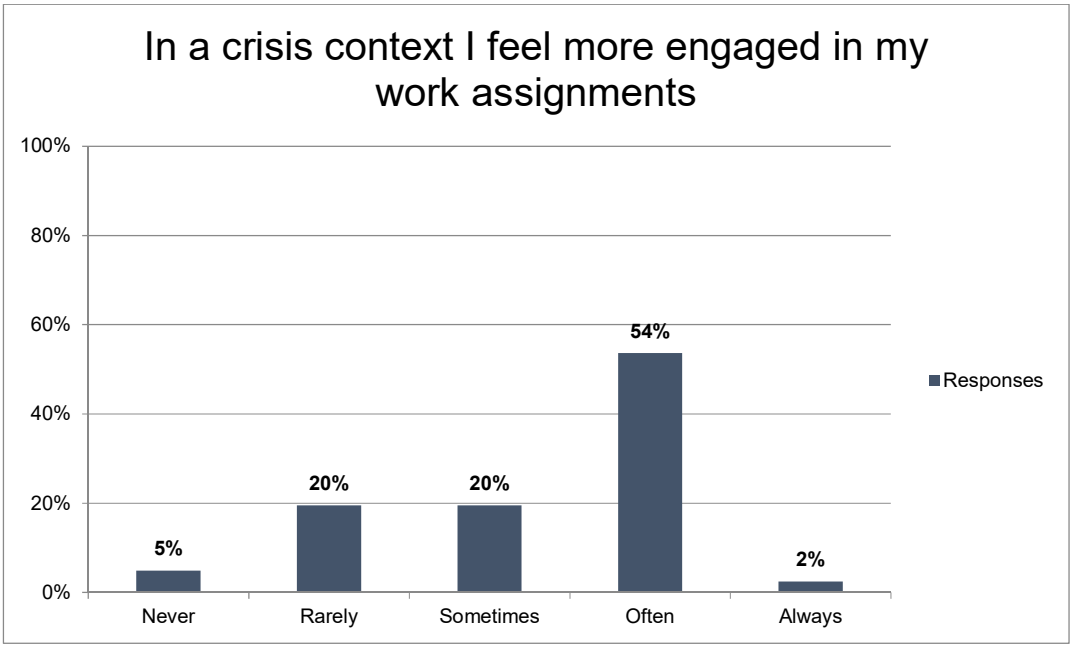

Table 34: Participant responses - I feel more engaged in my work assignments.

Questionnaire statement: In a crisis context I am able to exercise autonomy in my assignments

As seen in Table 35 below, the mode with respects to the response to this statement is 'sometimes' (39%), while 32% indicated that they 'often' are able to exercise autonomy in their assignments and 2% of respondents indicated that this 'always' occurs. Further, 17% of respondents indicated that the occurrence 'rarely' takes place, while 10% of respondents indicated that it 'never' takes place.

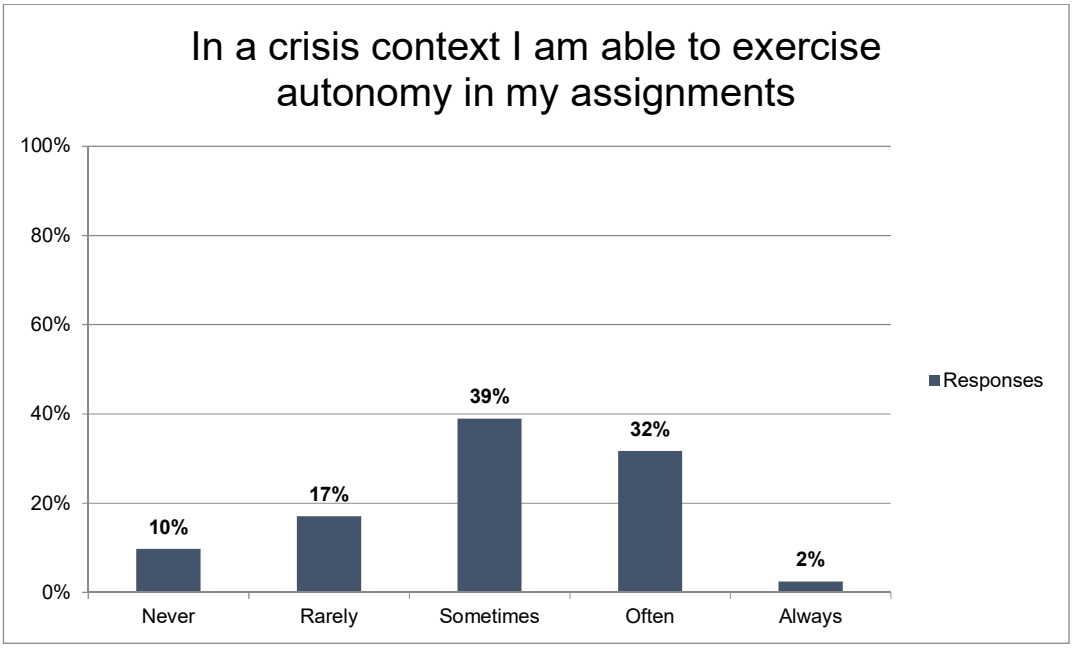

Table 35: Participant responses - I am able to exercise autonomy in my assignments

Questionnaire statement: In a crisis context I am empowered to be innovative.

As seen in Table 36 below, the mode with respects to the response to this statement is 'often' (37%), while 34% indicated that this occurs 'sometimes' and 5% of respondents indicated that this 'always' occurs. Further, 15% of respondents feel they are 'rarely' empowered to innovate, while 10% of respondents indicated that it is their perception that they 'never' feel empowered to innovate.

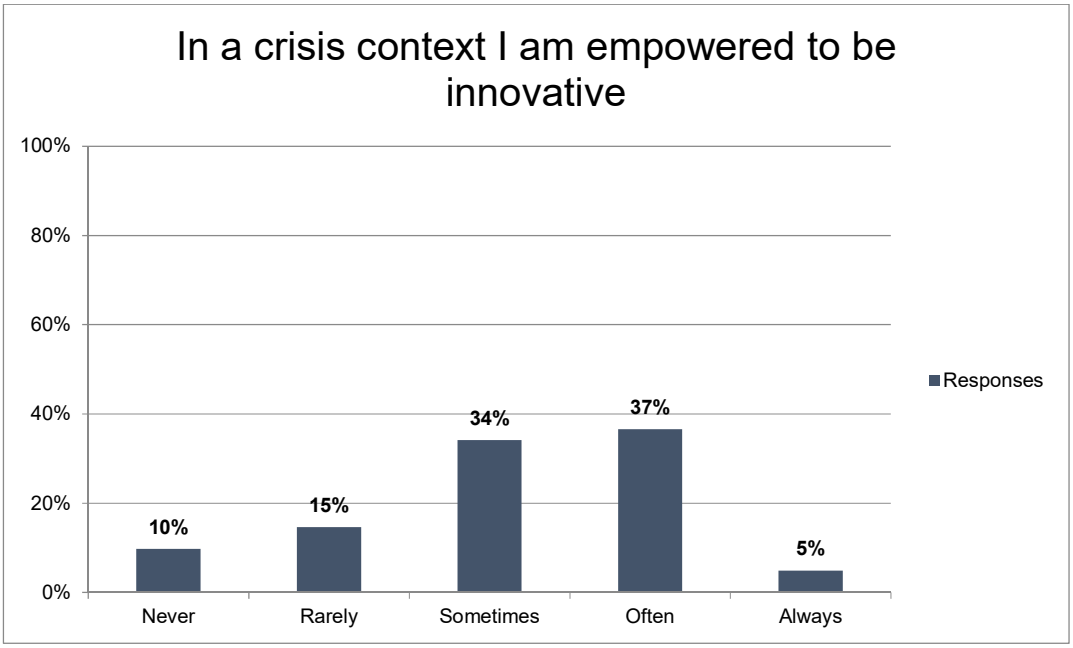

Table 36: Participant responses -I am empowered to be innovative.

Questionnaire statement: In a crisis context I have enough time at work to come up with new ideas or be innovative

As seen in Table 37 below, the mode with respects to the response to this statement is 'sometimes' (37%), while 34% indicated that this occurs 'rarely' and 12% of respondents indicated that this 'never' occurs. Further, 15% of respondents feel they 'often' have enough time to develop novel ideas and be innovative in the context of crisis, while 2% of respondents indicated that it is their perception that they 'always' have enough time to develop novel ideas and innovate.

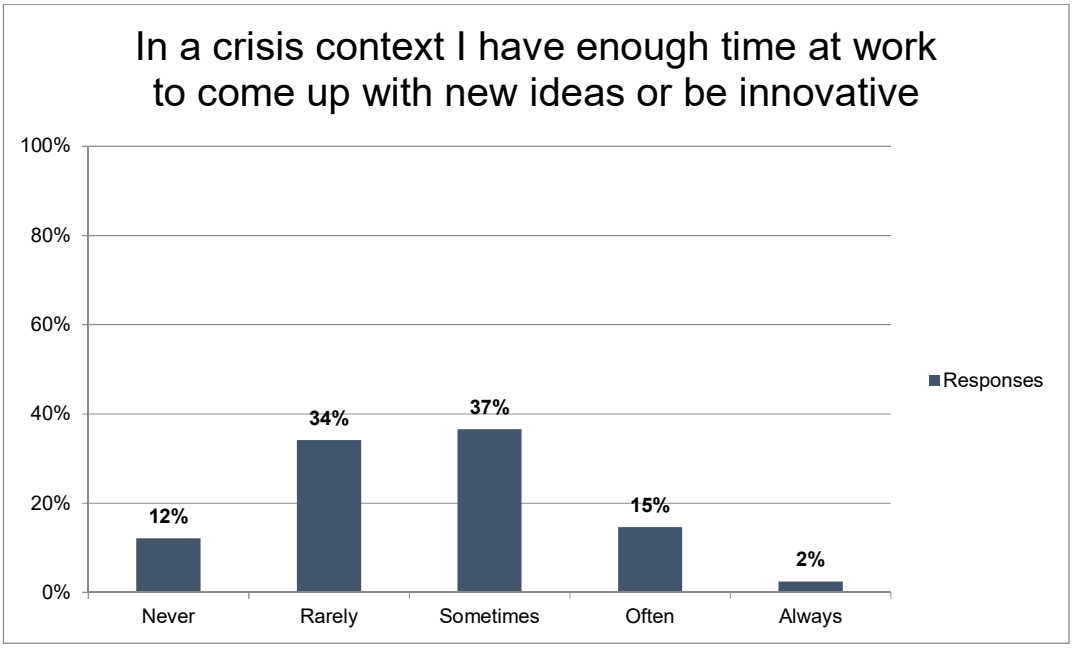

Table 37: Participant responses - I have enough time at work to come up with new ideas or be innovative

Questionnaire statement: In a crisis context I feel that I am comfortable with and can trust my organisation to support new ideas

As seen in Table 38 below, the mode with respects to the response to this statement is 'sometimes' (41%), while 27% indicated that this occurs 'rarely' and 5% of respondents indicated that this 'never' occurs. Further, it is the experience of 24% of respondents that they 'often' are comfortable with and can trust their organisation to support new ideas, while 2% of respondents indicated that in their view they are 'always' comfortable and trust that their ideas are supported by the organisation.

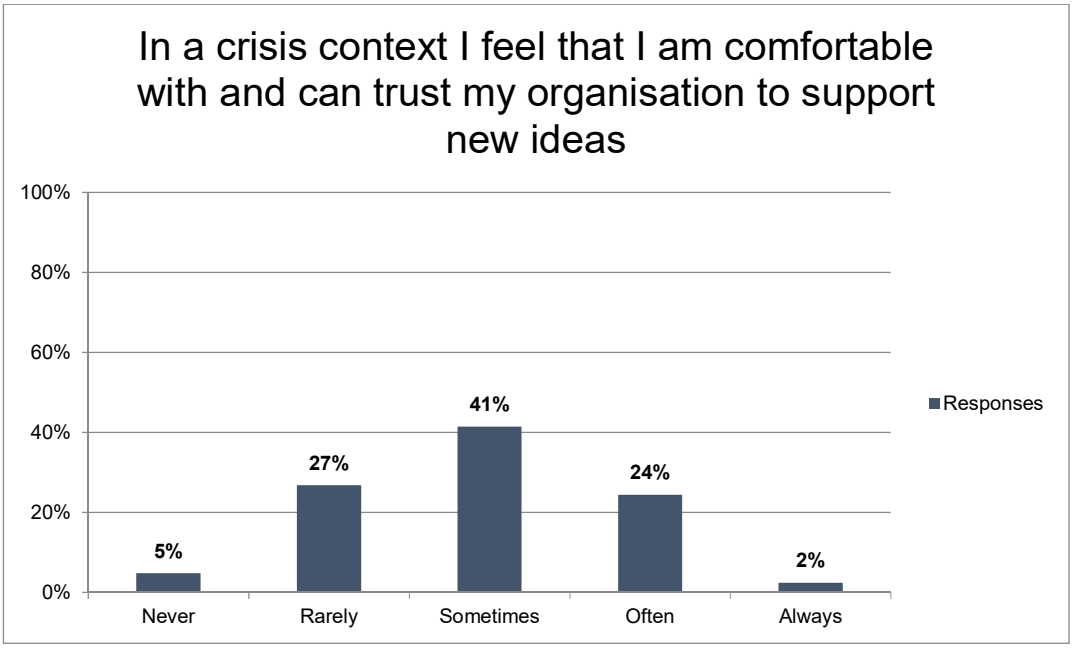

Table 38: Participant responses - I feel that I am comfortable with and can trust my organisation to support new ideas

Questionnaire statement: In a crisis context my immediate work environment can still be described as a 'humorous work climate'

As seen in Table 39 below, the mode with respects to the response to this statement is 'sometimes' (54%), while 29% indicated that this occurs 'rarely' and 5% of respondents indicated that this 'never' occurs. In contrast, it is the experience of 12% of respondents that their immediate work environment 'often' can still be described as a 'humorous work climate', while none of the respondents indicated that this is 'always' the case.

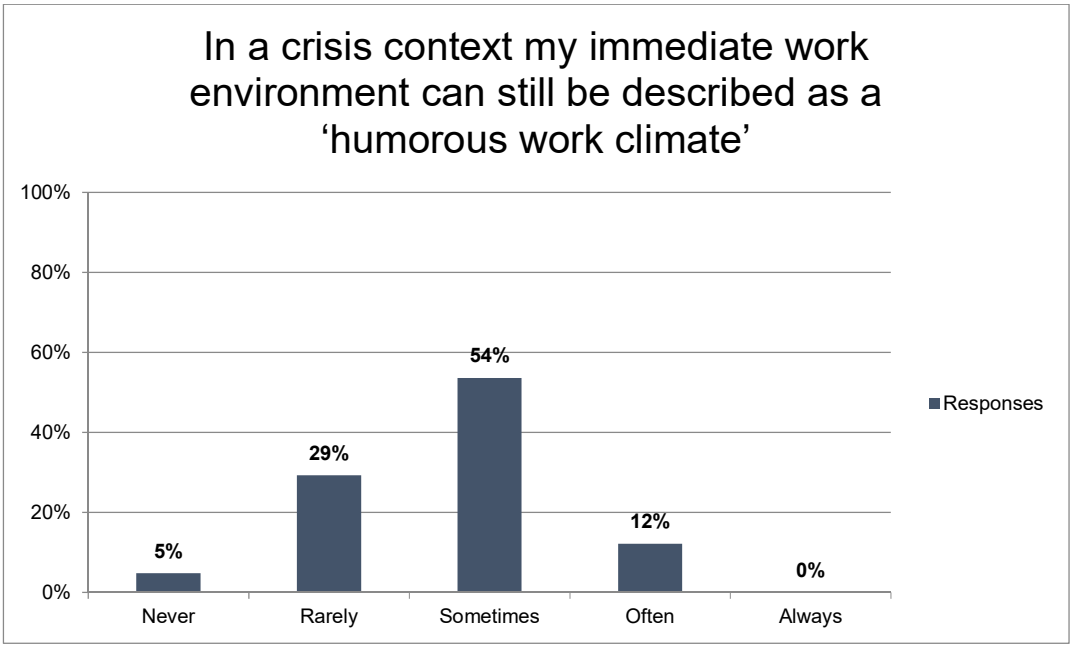

Table 39: Participant responses - my immediate work environment can still be described as a 'humorous work climate'.

Questionnaire statement: In a crisis context I am encouraged to engage in social interactions with other colleagues

As seen in Table 40 below, the mode with respects to the response to this statement is 'sometimes' (27%), closely followed by 24% of respondents indicated that this occurs 'rarely' and 10% of respondents indicated that this 'never' occurs. In contrast, it is the experience of 22% of respondents that they are 'often' encouraged to engage in social interactions with other colleagues in the context of crisis, while 17% of the respondents indicated that this is 'always' the case.

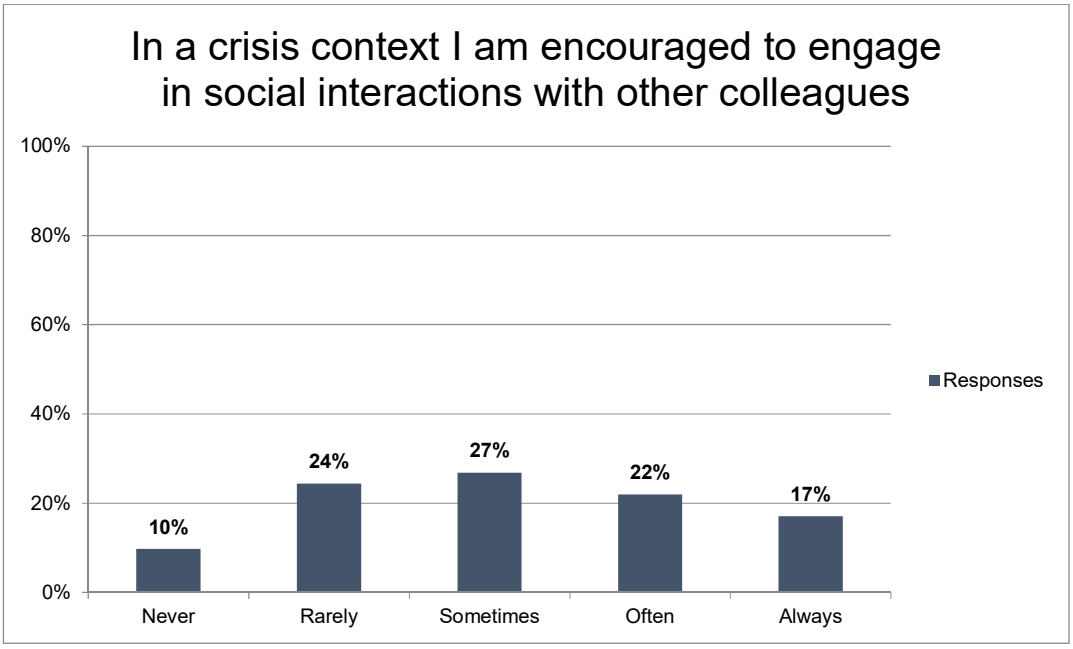

Table 40: Participant responses - I am encouraged to engage in social interactions with other colleagues

Questionnaire statement: In a crisis context I am encouraged to build networks and partner with other colleagues

As seen in Table 41 below, the mode with respects to the response to this statement is 'sometimes' (37%), closely followed by 24% of respondents indicated that this occurs 'often' and 17% of respondents indicated that this 'always' occurs. In contrast, it is the experience of 15% of respondents that they are 'rarely' encouraged to build networks and partner with other colleagues in the context of crisis, while 7% of the respondents indicated that this 'never' occurs.

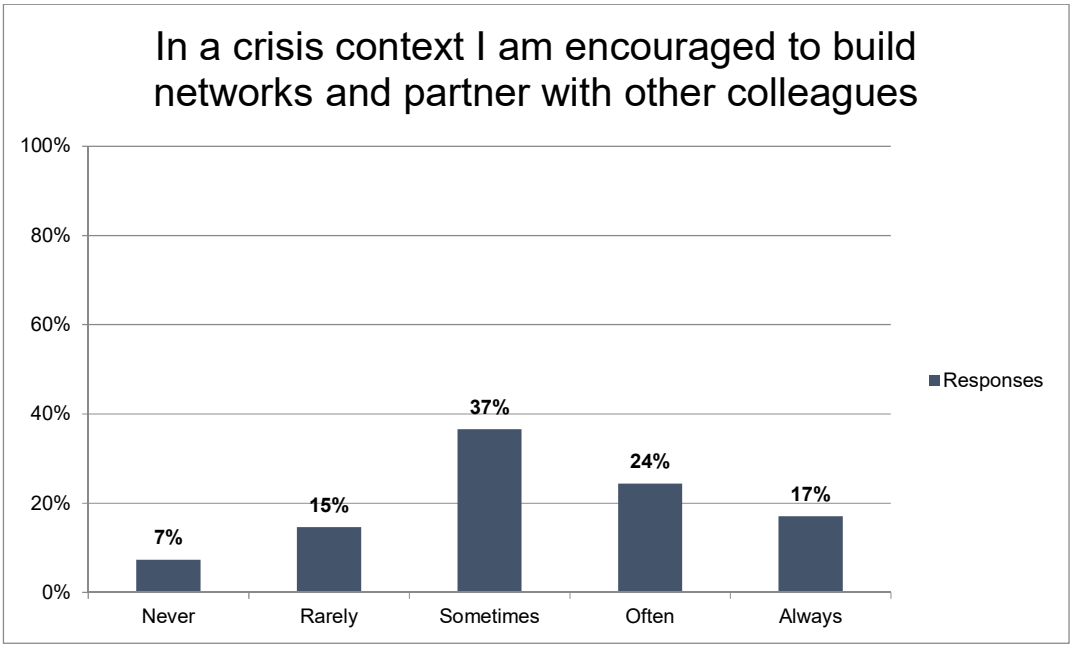

Table 41: Participant responses - I am encouraged to build networks and partner with other colleagues

Questionnaire statement: In a crisis context I am encouraged to express my ideas, suggestions, concerns or opinions about work-related issues which may improve my department or the organisation

Table 42 below demonstrates that the mode with respects to the response to this statement is 'sometimes' (37%), closely followed by 24% of respondents indicated that this occurs 'often' and 15% of respondents indicated that this 'always' occurs. In contrast, it is the experience of 7% of respondents that they are 'rarely' encouraged to express their ideas, suggestions, concerns or opinions about work related issues which may improve their department or organisation in the context of crisis, while 17% of the respondents indicated that this 'never' occurs.

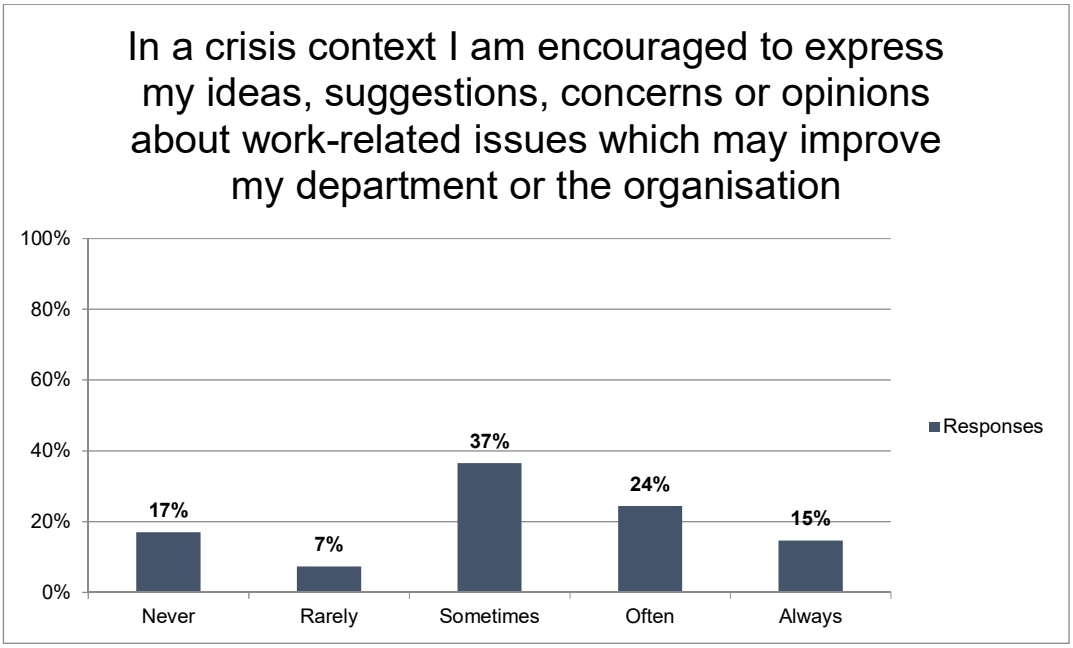

Table 42: Participant responses -I am encouraged to express my ideas, suggestions, concerns or opinions about work-related issues which may improve my department or the organisation

Questionnaire statement: In a crisis context our organisational leaders demonstrate connectedness

Table 43 below demonstrates that the mode with respects to the response to this statement is 'sometimes' (44%), closely followed by 27% of respondents indicated that this occurs 'rarely' and 10% of respondents indicated that this 'never' occurs. In contrast, it is the experience of 20% of respondents that their organisational leaders 'often' demonstrate connectedness within the context of crisis, while none of the respondents indicated that this is 'always' the case.

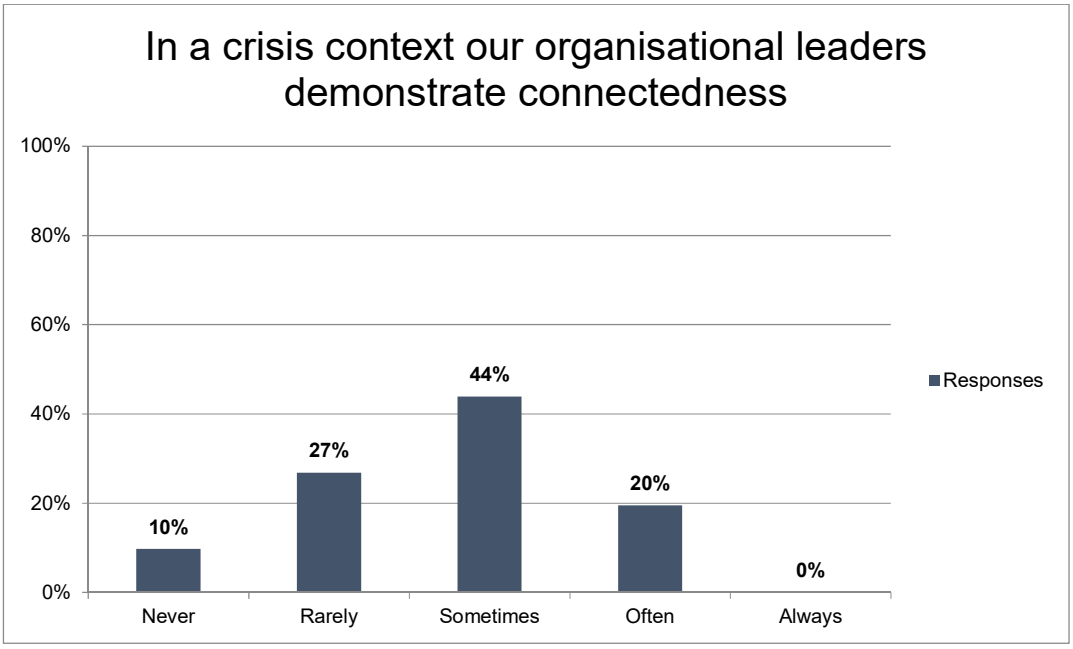

Table 43: participant responses - organisational leaders demonstrate connectedness.

Questionnaire statement: In a crisis context our organisational leaders encourage innovative behaviour

Table 44 below indicates that the mode with respects to the response to this statement is 'sometimes' (32%), closely followed by 29% of respondents indicated that this occurs 'rarely' and 5% of respondents indicating that this 'never' occurs. Conversely, it is the experience of 27% of respondents that their organisational leaders 'often' encourage innovative behaviour within the context of crisis, while 7% of respondents indicated that this is 'always' the case.

Table 44: Participant responses - organisational leaders encourage innovative behaviour

Questionnaire statement: In a crisis context our organisational leaders engage in innovative behaviour

Table 45 below indicates that the mode with respects to the response to this statement is 'sometimes' (54%), closely followed by 29% of respondents indicated that this 'rarely' occurs and 2% of respondents indicating that this 'never' occurs. Conversely, it is the experience of 15% of respondents that their organisational leaders 'often' engage in innovative behaviour within the context of crisis, while none of the respondents indicated that this is 'always' the case.

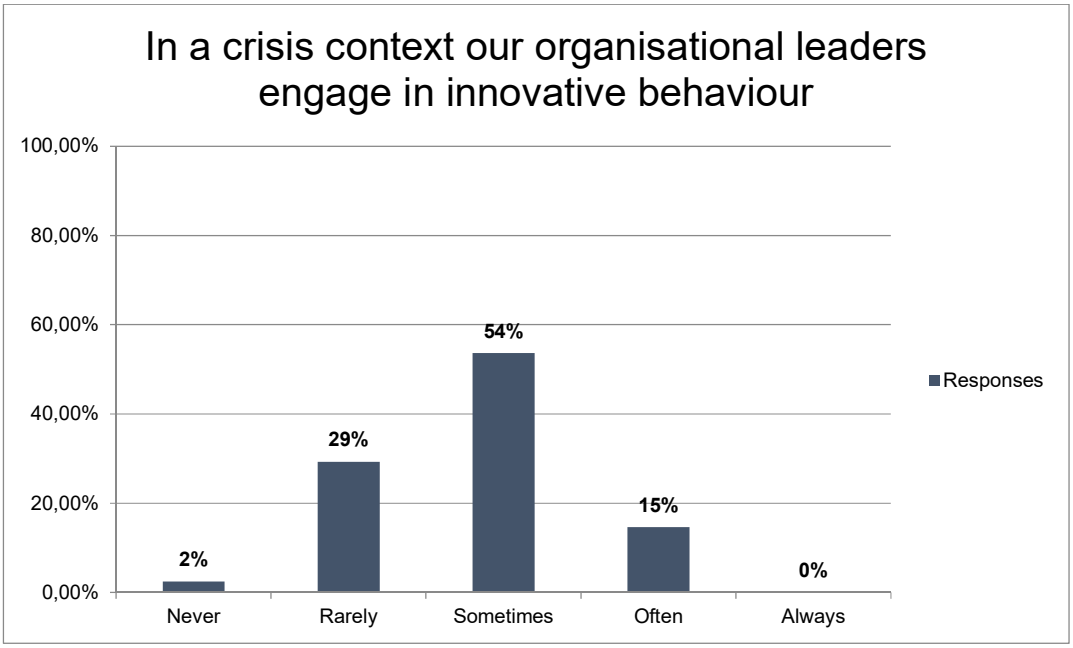

Table 45: Participant responses - organisational leaders engage in innovative behaviour

Questionnaire statement: In a crisis context our organisational leaders support employees' innovative thinking

Table 46 below indicates that the mode with respects to the response to this statement is 'sometimes' (41%), closely followed by 27% of respondents indicated that this 'rarely' occurs and 5% of respondents indicating that this 'never' occurs. In comparison, it is the experience of 24% of respondents that their organisational leaders 'often' support employees' innovative thinking within the context of crisis, while 2% of respondents indicated that this is 'always' the case.

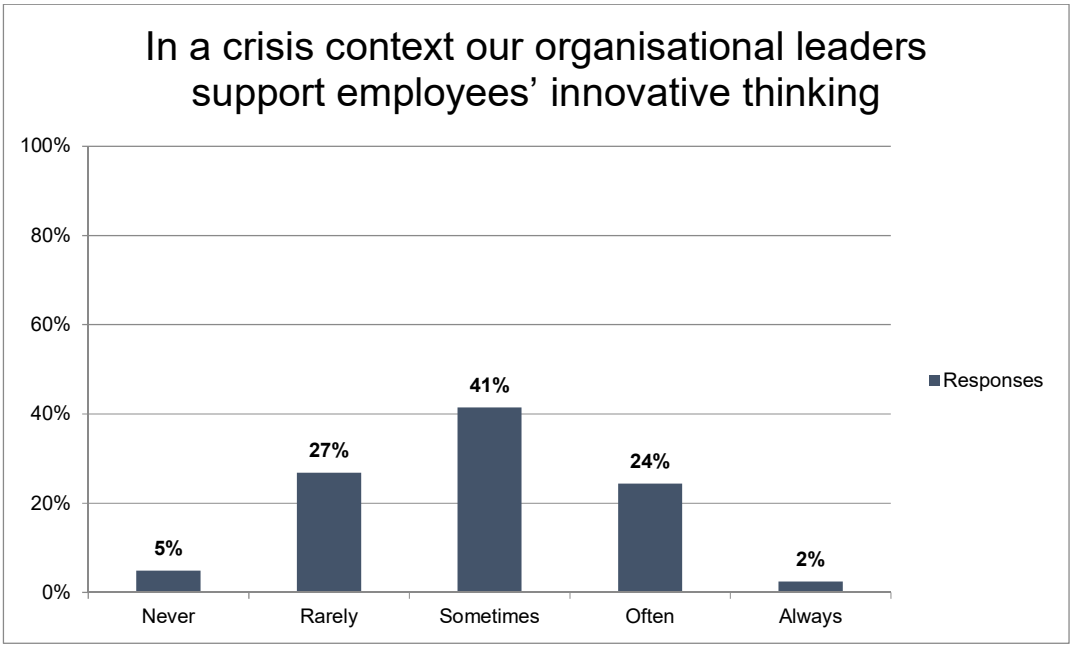

Table 46: Participant reposes - organisational leaders support employees' innovative thinking

Questionnaire statement: In a crisis context I am encouraged to debate, challenge and exchange ideas verbally with others

Table 47 below indicates that the mode with respects to the response to this statement is 'sometimes' (34%), closely followed by 24% of respondents indicated that this 'rarely' occurs and 12% of respondents indicating that this 'never' occurs. In comparison, it is the experience of 22% of respondents that they are 'often' encouraged to debate, challenge and exchange ideas verbally with others within the context of crisis, while 7% of respondents indicated that this is 'always' the case.

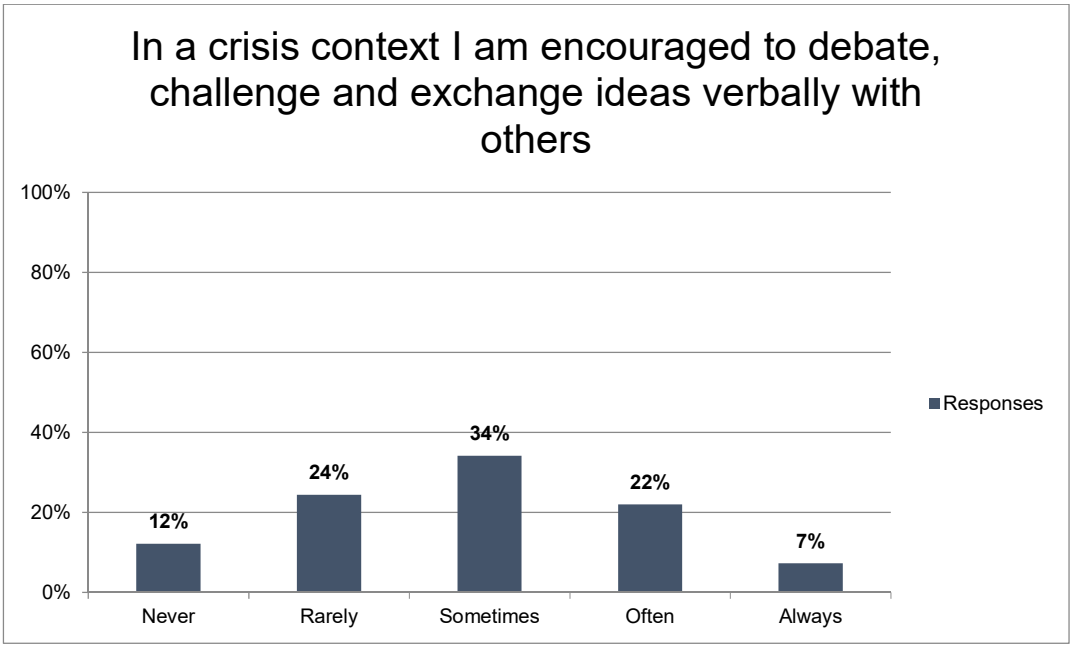

Table 47: Participant responses - I am encouraged to debate, challenge and exchange ideas verbally with others

Questionnaire statement: In a crisis context I am encouraged to engage in constructive conflict when making decisions or developing solutions

Table 48 below indicates that the mode with respects to the response to this statement is 'sometimes' (46%), and 15% of respondents indicated that this 'rarely' occurs while 7% of respondents indicated that this 'never' occurs. In comparison, it is the experience of 27% of respondents that they are 'often' encouraged to engage in constructive conflict when making decisions or developing solutions within the context of crisis, while 5% of respondents indicated that this is 'always' the case.

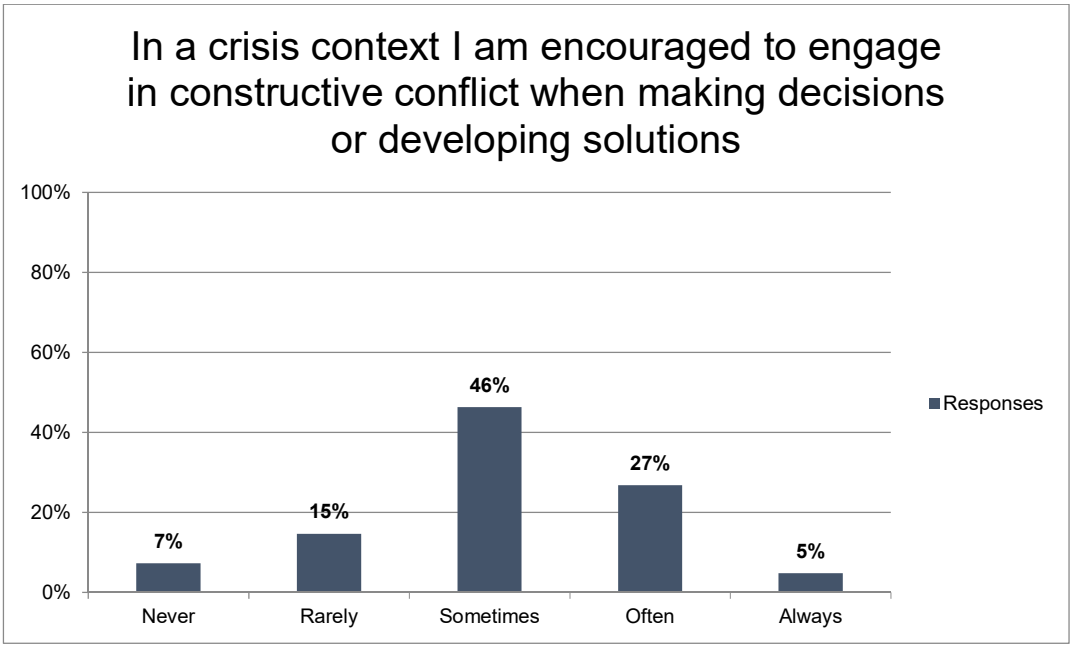

Table 48: Participant responses -I am encouraged to engage in constructive conflict when making decisions or developing solutions

Questionnaire statement: In a crisis context my organisation does not approve of employee risk-taking when making decisions or developing solutions

As demonstrated within Table 49 below, the mode with respects to the response to this statement is 'sometimes' (39%), closely followed by 32% of respondents indicated that this 'often' occurs while 12% of respondents indicated that this 'always' occurs. In comparison, it is the experience of 15% of respondents that their organisation 'rarely' approves of employee risk-taking when making decision or developing solutions within the context of crisis, while 2% of respondents indicated that this 'never' takes place.

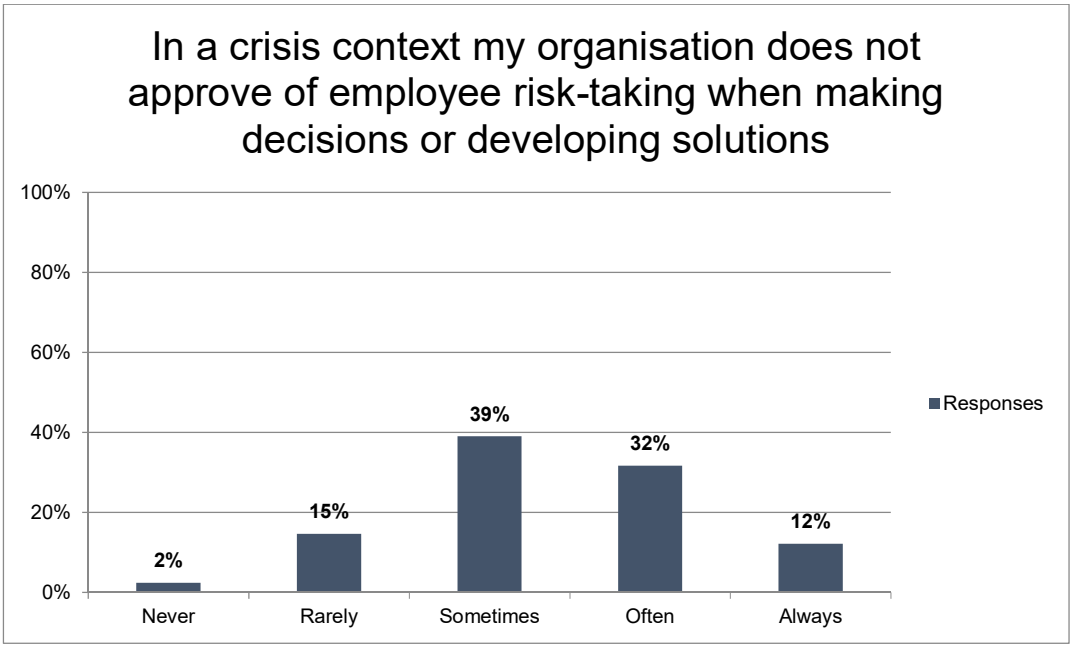

Table 49: Participant responses - my organisation does not approve of employee risk-taking when making decisions or developing solutions

Questionnaire statement: In a crisis context our organisation cultivates an innovation climate

As demonstrated within Table 50 below, the mode with respects to the response to this statement is 'sometimes' (49%), closely followed by 32% of respondents indicated that this 'rarely' occurs while 15% of respondents indicated that this 'often' occurs. It is the experience of 5% of respondents that their organisation 'always' cultivates and innovation climate within the context of crisis, while none of the respondents are of the view that this 'never' takes place.

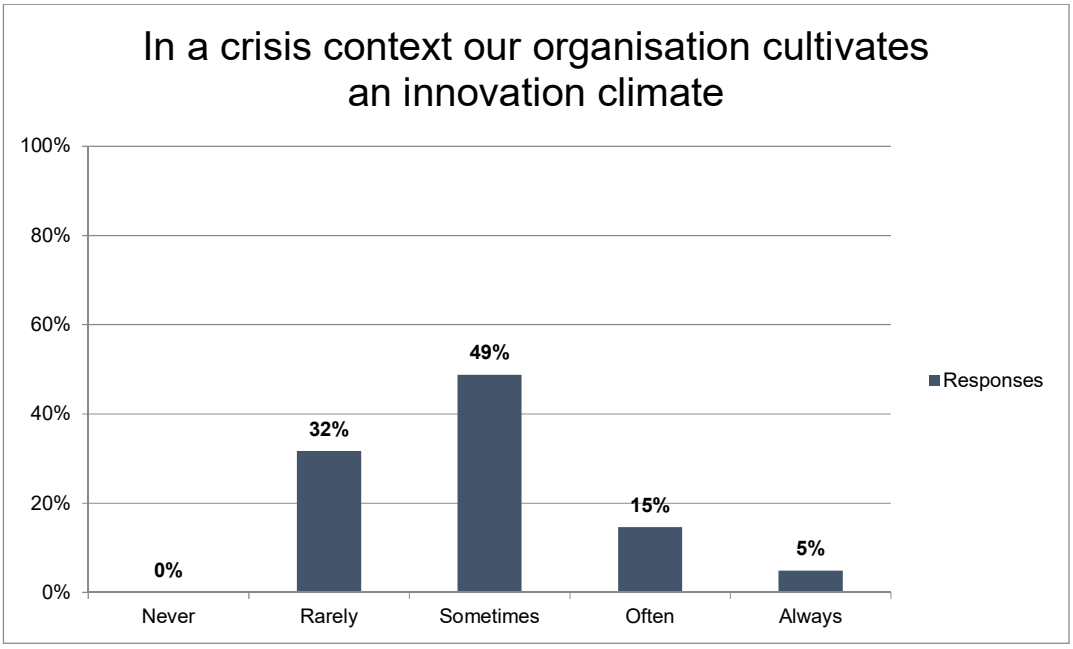

Table 50: Participant responses - our organisation cultivates an innovation climate

Questionnaire statement: In a crisis context I am supported and encouraged to exercise freedom in implementing new ideas

As demonstrated within Table 51 below, the mode with respects to the response to this statement is 'sometimes' (46%), followed by 20% of respondents indicating that this 'rarely' occurs while 12% of respondents indicated that this 'never' occurs. In contrast, is the experience of 17% of respondents that they are 'often' supported and encouraged to exercise freedom in implementing new ideas within the context of crisis, while 5% of the respondents are of the view that this is 'always' the case.

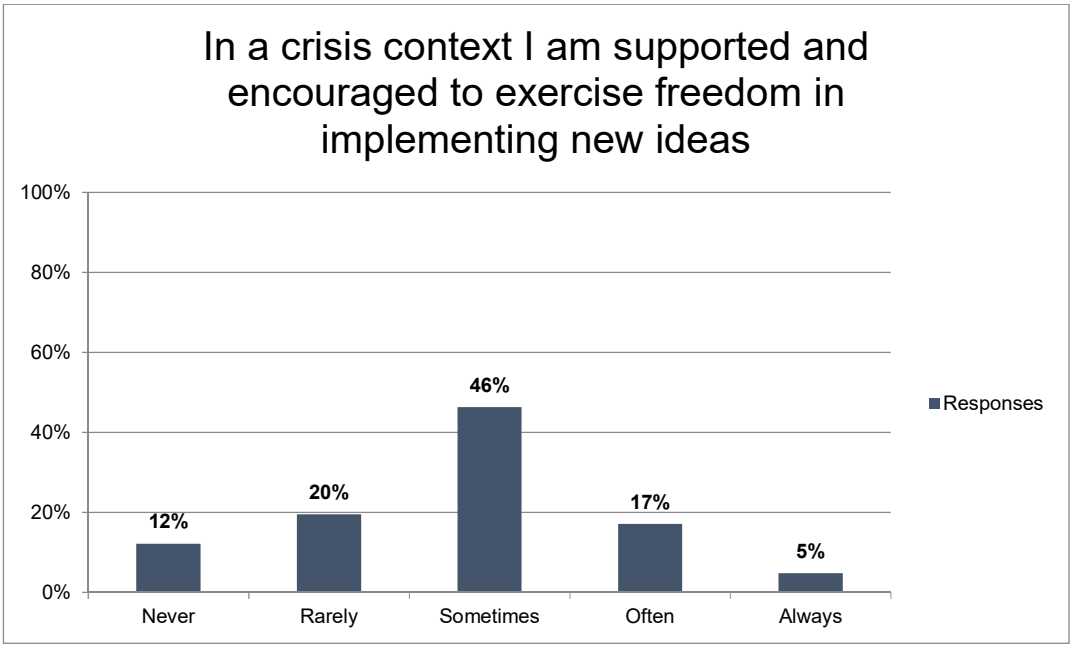

Table 51: Participant responses - I am supported and encouraged to exercise freedom in implementing new ideas

Questionnaire statement: In a crisis context our organisational leader supports employees' implementation of new or innovative ideas

As demonstrated within Table 52 below, the mode with respects to the response to this statement is 'sometimes' (49%), followed by 27% of respondents indicating that this 'often' occurs while none of the respondents indicated that this 'always' occurs. In contrast, is the observation of 17% of respondents that their organisational leader 'rarely' supports employee' implementation of new or innovative ideas within the context of crisis, while 7% of the respondents are of the view that this is 'never' the case.

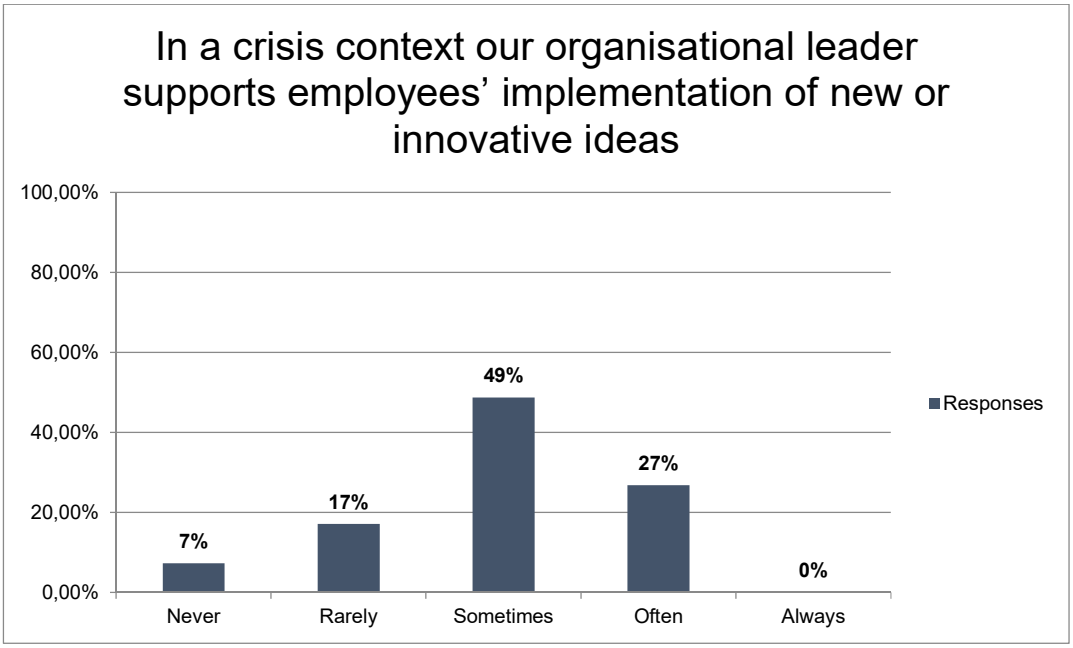

Table 52: Participant responses - organisational leader supports employees' implementation of new or innovative ideas

5.1.6 Summary of Analysis – Innovative Work Behaviour

In summary, following inferences may be made based on the aggregated responses received for each of the questionnaire statement as associated with each Innovative Work Behaviour construct:

Idea Generation – Based on the results as presented above, it may be inferred that employees are generally encouraged to try new things, are exposed to more challenging assignments, feel more engaged in their work assignments, and are empowered to innovate, within the context of crisis, as denoted by 'often' being the highest response on average for the aforementioned statements. In contrast, it may be inferred that other innovative work behaviours are not as widely practiced or encouraged as denoted by 'sometimes' which was the prevailing participant response. These include, exercising freedom in generating new ideas, exercising autonomy in assignments, having enough time to come up with new ideas or to innovate, feeling comfortable with and trusting that the organisation will support new ideas, and lastly still exercising humour within the immediate work environment. The latter may be an indication of the general nature of organisations operating within the Construction and Built Environment industries, and their dominant organisational effectiveness model, when considering the competing values model, being 'rational goal model' which denotes organisations that are typically less flexible, exert high levels of control, and therefore rely on goal setting and planning as primary means and productivity and efficiency as primary ends (Quinn & Rohrbaugh, 1983). This would render these organisations typically less flexible, and as a result, more rigid in their approach to employee

freedom and autonomy, thus impacting the level of trust between organisational leaders and employees.

Idea Promotion – Based on the results presented above, it is evident that the highest response category on average from participants is 'sometimes' as associated with this construct. This category of responses were highest for all statements, and ranged from 27% - 54% of total responses for any given statement. This may be indicative of the fact that generally, employees in their role as management, only on occasion, are encouraged to have social interactions with others, build networks and partner with others, express their opinions and ideas related to continuous improvement in the organisation or their department. Furthermore, organisational leaders on occasion, encourage their employees to and themselves participate in innovative behaviour, and certainly not consistently so within the context of crisis. Also, organisational leaders generally are only sometimes in support of employees' innovative thinking, encouraging of debate, and verbal exchange of ideas between employees, or encouraging employee engagement in constructive conflict when developing solutions or making decisions, and generally only approve of employee risk taking when making decisions, at times. These results may be a clear indicator that Idea Promotion is not fully implemented and or supported/encouraged within the Construction and Built Environment sector within the context of crisis and additionally that connectedness may not be a priority for these organisations, based on the fact that collectivist behaviours within innovative work behaviour are not consistently encouraged, cultivated or supported. Alternatively, it may also be an indicator that some of these behaviours are sufficiently matured within the sector in question, and as such are not consistently encouraged, supported or demonstrated by leaders within these organisations.

Idea Implementation - Based on the results as presented above, it may be inferred that participants to not always receive support from their organisational leader to implement new or innovative ideas (49% of participants answered sometimes), nor do they always feel encouraged to exercise freedom in this regard (46% of participants answered sometimes), and lastly, their remain indifferent about their organisations' cultivation of an innovation climate and participants indicated that this happens sometimes (49% of participants answered sometimes), As a result it may be inferred that Idea implementation may not fully or widely be supported from the organizational and leader perspectives within the context of crisis. It may further be deduced from these results that a culture of innovation is not particularly mature throughout the Construction and Built Environment sector.

5.2 Research Question/Hypothesis

5.2.1 Research Question 1: Is change leadership positively related to individual innovative behaviour within the context of crisis?

The results obtained from the questionnaire containing Section 1 – Demographic Information, Section 2 – Change Leadership within the context of crisis and Section 3 – Employee Innovative Work Behaviour within the context of crisis, assisted the researcher in answering the research question as within the succeeding analysis that follows.

5.2.2 Cronbach's Alpha Test

Change Leadership

The researcher employed a five-point Likert scale, denoting 5 as strongly agree, 4 as agree, 3 as neither agree nor disagree, 2 as disagree and lastly 1 as strongly disagree. To this end, respondents ranging from Supervisory to Executive Management level were required to rate 21 statements pertaining to change leadership within the context of crisis, as informed by their observations within their organisation in question. The 21 statements were categorised in accordance with Kin et al., (2014) principal change leadership competency model (PCLC) which serves as a tool for the identification of change leadership behaviours or competencies that specifically enable change and maximises change effectiveness within the context of secondary schools within Malaysia. To this end the researchers studied 4 change models within extant literature and discovered that the primary difference between the models considered was the respective number of stages of change as detailed by Lewin's three steps, Kotter's eight steps, Hayes' five steps and Nilakant & Ramanarayan's four steps within the change process. The researchers therefore synthesised the 4 planned change models into 4 overarching phases of change: 1) 'Goal Framing'; 2) 'Capacity Building'; 3) 'Defusing resistance and conflict and change execution'; and 4) 'Institutionalising'. In addition the study advanced key leader behaviour or competency required within each phase as follows: 1) 'Setting a clear change goal', 2) 'Building competence to meet the requirements for change', 3) 'Mitigating resistance and conflict', 4) 'Evaluating for continuous improvement and institutionalising'.

The reliability of a scale is an indicator of how free it is from random error. In this regard internal consistency was tested as a reliability measure, in order to test the degree to which the items contained within the scale, all measure the same underlying attribute (Pallant, 2013). Cronbach's coefficient alpha is a common measure of internal consistency and serves as a test for reliability of an ordinal scale by indicatively providing the average correlation between all items making within the scale (Pallant, 2013). Therefore its use in this instance is appropriate, that is, where testing the reliability of a scale which employs multiple Likert questions making up a questionnaire that further contains

multiple constructs. A Cronbach's coefficient alpha test was undertaken for each of the 4 phases of change or change constructs and for all questions overall within this section of the questionnaire. The results are detailed within Table 53 below:

Change Phase & Leadership Behaviour/Competency	Item	Cronbach's Alpha	N
Goal Framing Setting a clear change goal	In a crisis context our organisational leader developed an attainable vision for the organisation.	**0.841**	41
	In a crisis context our organisational leader communicated and shared the change goal.		41
	As a manager/supervisor/leader, I understood the rationale for the need for change as articulated by our organisational leader in a crisis context.		41
	In a crisis context our organisational leader determined the desired change outcome.		41
	In a crisis context our organisational leader developed and articulated a clear direction of how to achieve a specific goal.		41
Capacity Building Building competence to meet change requirements	In a crisis context our organisational leader sought ways to improve the organisation's change readiness.	**0.854**	41
	In a crisis context our organisational leader set out to build competence to meet change requirements.		41
	In a crisis context our organisational leader sought to ensure that resistance to change is diffused.		41
	In a crisis context our organisational leader sought to ensure that conflict due to change is diffused.		41
	In a crisis context our organisational leader encouraged training and coaching among the staff.		41
	In a crisis context our organisational leader ensured that staff are able and equipped to perform new tasks.		41
Defusing resistance & conflict and Change execution Mitigating resistance and conflict	In a crisis context our organisational leader redesigned structures and mobilised resources in support of the change goal.	**0.767**	41
	In a crisis context our organisational leader focused on empowerment and coordination of staff in support of the change goal.		41
	In a crisis context our organisational leader anticipated resistance behaviour that threatens the change effort.		41
	In a crisis context our organisational leader made individuals who resist change feel confident to raise their views.		41
	In a crisis context our organisational leader managed change conflict effectively by seeking to reach agreement from different parties.		41
	In a crisis context our organisational leader implemented monitoring to ensure realisation of the change goal.		41
Institutionalising Evaluation for continuous improvement and institutionalising	In or after the crisis context our organisational leader implemented evaluation of the change outcome for continuous improvement.	**0.794**	41
	In or after the crisis context our organisational leader created opportunities for sharing best practices and knowledge sharing among departments.		41
	In or after the crisis context our organisational leader implemented institutionalising of best practices.		41
	In or after the crisis context our organisational leader ensured that employees continue to contribute to change.		41

Table 53: Reliability Testing - Cronbach's Coefficient Alpha values as an indicator of internal consistency of Change Leadership constructs

Cronbach's alpha values typically range between 0 to 1, where greater reliability is indicated by higher values. It is recommended that the minimum value of 0.70 be achieved in order for the test result to be deemed acceptable (Pallant, 2013).

In this regard, Table 53 above demonstrates that 2 of the 4 change phase constructs and their associated statements had resultant Cronbach's coefficient alpha values greater than 0.7 while the other 2 had resultant Cronbach's coefficient alpha values greater than 0.8, therefore all 4 constructs may be grouped to form a summated scale for the change leadership construct overall. This is in alignment with the Cronbach's coefficient alpha value calculated for all change phases overall which was **0.932** and as such is in indicator that the reliability of the scale overall for the construct of change leadership is excellent this is in line with the Cronbach's coefficient alpha of **0.93** calculated for change leadership within the reference study conducted by Jaroensutiyotin, Wang, Ling, & Chen, (2019).

Employee Innovative Work Behaviour

The researcher employed a five-point Likert scale, denoting 5 as always, 4 as often, 3 as sometimes, 2 as rarely and lastly 1 as never. To this end, respondents ranging from Supervisory to Executive Management level were required to rate 22 statements pertaining to employee innovative work behaviour within the context of crisis, as informed by their observations within their organisation in question. The 22 statements were categorised in accordance with the reference study undertaken by Muchiri et al., (2020) which details three phases/constructs of innovative work behaviour as part of their analysis of the antecedents of innovative work behaviour, and resultant conceptual framework which elucidates the relationship between leader-member exchange, transformational leadership, innovative work behaviour and employee perceptions of fairness. The framework goes non to advance theories related to effective leader behaviour innovative work behaviour as well as perceptions of fairness (Muchiri et al., 2020). The researchers, within their study proposed the following three phases/constructs of Innovative Work Behaviour within their conceptual framework: 1) 'Idea Generation'; 2) 'Idea Promotion'; and 3) 'Idea Implementation'. To augment this study which was limited to a review of extant literature, the reference study undertaken by Jaroensutiyotin et al., (2019), was also used to inform Employee Innovative Work Behaviour with sligh adaptations to the scale included.

With respects to Employee Innovative Work Behaviour, 22 statements were utilised within the study to represent three aforementioned constructs including Idea Generation, Idea Promotion and Idea Implementation within the specific context of crisis. The Cronbach's coefficient alpha value calculated for all constructs overall was **0.953** and as such is an indicator that the reliability of the scale overall for the constructs of employee innovative work behaviour is excellent. This result is slightly higher than that of the Cronbach's coefficient alpha of **0.89** calculated for individual innovative behaviour within the

reference study conducted by Jaroensutiyotin et al., (2019), which may be as a result of the sligh adapatation to the scale utilised within this study. The results are detailed within Table 54 below:

IWB Phase	Item No.	Item	Cronbach's Alpha	N
Idea Generation	1	In a crisis context I am supported and encouraged to exercise freedom in generating new ideas.	**0.901**	41
	2	In a crisis context I am supported and encouraged to trying new things.		41
	3	In a crisis context I am exposed to more challenging assignments.		41
	4	In a crisis context I feel more engaged in my work assignments.		41
	5	In a crisis context I am able to exercise autonomy in my assignments.		41
	6	In a crisis context I am empowered to be innovative.		41
	7	In a crisis context I have enough time at work to come up with new ideas or be innovative.		41
	8	In a crisis context I feel that I am comfortable with and can trust my organisation to support new ideas.		41
	9	In a crisis context my immediate work environment can still be described as a 'humorous work climate'.		41
Idea Promotion	10	In a crisis context I am encouraged to engage in social interactions with other colleagues.	**0.895**	41
	11	In a crisis context I am encouraged to build networks and partner with other colleagues.		41
	12	In a crisis context I am encouraged to express my ideas, suggestions, concerns or opinions about work-related issues which may improve my department or the organisation.		41
	13	In a crisis context our organisational leaders demonstrate connectedness.		41
	14	In a crisis context our organisational leaders encourage innovative behaviour.		41
	15	In a crisis context our organisational leaders engage in innovative behaviour.		41
	16	In a crisis context our organisational leaders support employees' innovative thinking.		41
	17	In a crisis context I am encouraged to debate, challenge and exchange ideas verbally with others.		41
	18	In a crisis context I am encouraged to engage in constructive conflict when making decisions or developing solutions.		41
	19	In a crisis context my organisation does not approve of employee risk-taking when making decisions or developing solutions.		41
Idea Implementation	20	In a crisis context our organisation cultivates an innovation climate.	**0.830**	41
	21	In a crisis context I am supported and encouraged to exercise freedom in implementing new ideas.		41
	22	In a crisis context our organisational leader supports employees' implementation of new or innovative ideas.		41

Table 54: Reliability Testing – Cronbach's Coefficient Alpha values as an indicator of internal consistency of Innovative Work Behaviour (IWB) statements and associated constructs

5.2.3 Factor Analysis

The Researcher utilised factor analysis as a data reduction technique to reduce a large number of scale items and questions related to change leadership into a smaller number of coherent subscales in order to facilitate further analysis. In this regard factor analysis will only be employed for the change leadership constructs and will be used in order to derive/analyse shared variances for each change construct currently being studied (Pallant, 2013).

Some authors recommend the use of a large sample ranging from 150 – 300 cases in order to facilitate factor analysis techniques, while others suggest that the sample size overall is not as important as the ratio of participants to items. In this regard between 5 and 10 cases for each item is deemed adequate (Pallant, 2013). To this end the four constructs being tested may be summarised for sample size adequacy as follows: Goal framing – 5 items (8.2 to 1 ratio), Capacity Building – 6 items (6.83 to 1 ratio), Defusing resistance and conflict and Change execution – 6 items (6.83 to 1 ratio), and Institutionalising – 4 items (10.25 to 1 ratio).

The following resultant Kaiser-Meyer-Olkin (KMO) measure of sample adequacy and Bartlett's Test for Sphericity values were calculated which indicate that the sample is appropriate for factor analysis given all KMO values are greater than 0.60 and all Bartlett's values are significant (a value smaller than 0.05). Further, a review of the resultant correlation matrix indicates very few values (10 in total) which have a correlation coefficient lower than 0.3 (Pallant, 2013).

Change Phase & Leadership Behaviour/Competency	Item No.	Item	KMO	Bartlett's Test of Sphericity
Goal Framing Setting a clear change goal	Q13	In a crisis context our organisational leader developed an attainable vision for the organisation.	**0.827**	**0.000**
	Q14	In a crisis context our organisational leader communicated and shared the change goal.		
	Q15	As a manager/supervisor/leader, I understood the rationale for the need for change as articulated by our organisational leader in a crisis context.		
	Q16	In a crisis context our organisational leader determined the desired change outcome.		
	Q17	In a crisis context our organisational leader developed and articulated a clear direction of how to achieve a specific goal.		
Capacity Building Building competence to meet change requirements	Q18	In a crisis context our organisational leader sought ways to improve the organisation's change readiness.	**0.801**	**0.000**
	Q19	In a crisis context our organisational leader set out to build competence to meet change requirements.		
	Q20	In a crisis context our organisational leader sought to ensure that resistance to change is diffused.		
	Q21	In a crisis context our organisational leader sought to ensure that conflict due to change is diffused.		
	Q22	In a crisis context our organisational leader encouraged training and coaching among the staff.		
	Q23	In a crisis context our organisational leader ensured that staff are able and equipped to perform new tasks.		
Defusing resistance & conflict and Change execution Mitigating resistance and conflict	Q24	In a crisis context our organisational leader redesigned structures and mobilised resources in support of the change goal.	**0.710**	**0.000**
	Q25	In a crisis context our organisational leader focused on empowerment and coordination of staff in support of the change goal.		
	Q26	In a crisis context our organisational leader anticipated resistance behaviour that threatens the change effort.		
	Q27	In a crisis context our organisational leader made individuals who resist change feel confident to raise their views.		
	Q28	In a crisis context our organisational leader managed change conflict effectively by seeking to reach agreement from different parties.		
	Q29	In a crisis context our organisational leader implemented monitoring to ensure realisation of the change goal.		
Institutionalising Evaluation for continuous improvement and institutionalising	Q30	In or after the crisis context our organisational leader implemented evaluation of the change outcome for continuous improvement.	**0.693**	**0.000**
	Q31	In or after the crisis context our organisational leader created opportunities for sharing best practices and knowledge sharing among departments.		
	Q32	In or after the crisis context our organisational leader implemented institutionalising of best practices.		
	Q33	In or after the crisis context our organisational leader ensured that employees continue to contribute to change.		

Table 55: KMO and Bartlett's Test of Sphericity results informing Principal Component Analysis

The following underlying dimensions/components/items were extracted based on only those components with eigenvalues greater than 1, with the Principal Component Analysis extraction method being used coupled with Oblimin rotation (Pallant, 2013), as detailed in the below output tables detailing the results of the factor extraction:

Goal Framing

Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.070	61.394	61.394	3.070	61.394	61.394
2	.692	13.841	75.235			
3	.512	10.234	85.469			
4	.416	8.328	93.798			
5	.310	6.202	100.000			

Table 56: Goal Framing Eigenvalues

Capacity Building

Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.509	58.476	58.476	3.509	58.476	58.476
2	1.077	17.955	76.432	1.077	17.955	76.432
3	.437	7.278	83.710			
4	.422	7.033	90.744			
5	.320	5.336	96.080			
6	.235	3.920	100.000			

Table 57: Capacity Building Eigenvalues

Defusing resistance and conflict and change execution

Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.830	47.165	47.165	2.830	47.165	47.165
2	1.093	18.222	65.386	1.093	18.222	65.386
3	.817	13.624	79.010			
4	.553	9.215	88.225			
5	.393	6.547	94.773			
6	.314	5.227	100.000			

Table 58: Defusing resistance and conflict and change execution Eigenvalues

Institutionalising

Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.484	62.101	62.101	2.484	62.101	62.101
2	.751	18.776	80.877			
3	.486	12.159	93.037			
4	.279	6.963	100.000			

Table 59: Institutionalising Eigenvalues

Based on the results above each construct of change leadership or change leadership phase retained between 1 and 2 components/items after undertaking Principal Component Analysis with Oblimin rotation. Of the resultant components, one per construct was selected on the basis that the retained factor attributes the highest variance explained for the construct in question. To this end the following components were retained for further analysis as detailed in Table 60 below:

Change Phase & Leadership Behaviour/Competency	Component	Item No.	Retained Component	% of Variance
Goal Framing Setting a clear change goal	1	Q14	In a crisis context our organisational leader communicated and shared the change goal.	**61.39%**
Capacity Building Building competence to meet change requirements	1	Q19	In a crisis context our organisational leader set out to build competence to meet change requirements.	**58.48%**
Defusing resistance & conflict and Change execution Mitigating resistance and conflict	1	Q24	In a crisis context our organisational leader focused on empowerment and coordination of staff in support of the change goal.	**47.17%**
Institutionalising Evaluation for continuous improvement and institutionalising	1	Q32	In or after the crisis context our organisational leader implemented institutionalising of best practices.	**62.10%**

Table 60: Change Leadership - Retained Components

Based on the results within Table 60 above the retained factor for Goal Framing explains 61% of the variance, the retained factor for Capacity Building explains 59% of the variance, the retained factor for Defusing resistance and conflict and Change execution explains 47% of the variance, and lastly the retained factor for Institutionalising explains 62% of the variance.

5.2.4 Correlation

Correlation analysis employing Spearman's Rho as the correlation coefficient, was undertaken between the change leadership factors extracted during factor analysis which now represent each of the 4 change leadership phases/behaviours and from constructs in this regard and the 22 employee innovative work behaviour statements tested within the questionnaire, in order to determine an answer to the research hypothesis posed within this study:

Research Question 1 - Is change leadership positively related to individual innovative behaviour within the context of crisis?

Change Leadership and Innovative Work Behaviour

As detailed within Table 61 below, the independent variable change leadership (average score per respondent based on an average of their responses to each of the 21 change leadership statements tested) and dependent variable individual innovative work behaviour (average score per respondent based on an average of their responses to each of the 22 IWB statements tested) are positively correlated with the strength of the correlation registering as medium with statistical significance at a confidence interval of 95%. These results indicate that change leadership is positively related to IWB.

Correlations				
			Change Leadership	IWB
Spearman's rho	Change Leadership	Correlation Coefficient	1.000	.360*
		Sig. (2-tailed)	.	.021
		N	41	41
	IWB	Correlation Coefficient	.360*	1.000
		Sig. (2-tailed)	.021	.
		N	41	41

Table 61: Correlation Spearman's Rho – Change Leadership and IWB variables

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

Goal Framing

As highlighted in Table 62 below, 6 of the 22 employee innovative work behaviour statements have a significant correlation with Goal Framing. The respective coefficient of determination indicates that item no. 8 '*In a crisis context I feel that I am comfortable with and can trust my organisation to support new ideas',* helps to explain approximately 22% of the variance in respondents' scores related to Change Leadership Phase – Goal Framing, while items 2, 13, 15, 16, 17 and 22 explain 13%, 17%, 20%, 20%, 11% and 13% respectively. These items also indicated statistical significance, at confidence intervals of 95% and 99%.

The remainder of the items demonstrate only small (r between .10 and .29) to medium (r between .30 and .49) relationship strengths (Pallant, 2013).

Change Phase & Leadership Behaviour/Competency	Item No.	Item	Spearman's Rho	Sig. (2 tailed)	Coefficient of Determination	N
Goal Framing Setting a clear change goal	1	In a crisis context I am supported and encouraged to exercise freedom in generating new ideas.	.275	.082	7,56%	41
	2	In a crisis context I am supported and encouraged to trying new things.	**.358***	**.022**	**12,82%**	41
	3	In a crisis context I am exposed to more challenging assignments.	.183	.252	3,35%	41
	4	In a crisis context I feel more engaged in my work assignments.	.146	.363	2,13%	41
	5	In a crisis context I am able to exercise autonomy in my assignments.	.193	.226	3,72%	41
	6	In a crisis context I am empowered to be innovative.	.196	.219	3,84%	41
	7	In a crisis context I have enough time at work to come up with new ideas or be innovative.	.112	.487	1,25%	41
	8	In a crisis context I feel that I am comfortable with and can trust my organisation to support new ideas.	**.467****	**.002**	**21,81%**	41
	9	In a crisis context my immediate work environment can still be described as a 'humorous work climate'.	.282	.074	7,95%	41
	10	In a crisis context I am encouraged to engage in social interactions with other colleagues.	-.026	.873	0,07%	41
	11	In a crisis context I am encouraged to build networks and partner with other colleagues.	.096	.550	0,92%	41
	12	In a crisis context I am encouraged to express my ideas, suggestions, concerns or opinions about work-related issues which may improve my department or the organisation.	.027	.867	0,07%	41
	13	In a crisis context our organisational leaders demonstrate connectedness.	**.418****	**.007**	**17,47%**	41
	14	In a crisis context our organisational leaders encourage innovative behaviour.	.307	.051	9,42%	41
	15	In a crisis context our organisational leaders engage in innovative behaviour.	**.451****	**.003**	**20,34%**	41
	16	In a crisis context our organisational leaders support employees' innovative thinking.	**.451****	**.003**	**20,34%**	41
	17	In a crisis context I am encouraged to debate, challenge and exchange ideas verbally with others.	**.329***	**.036**	**10,82%**	41
	18	In a crisis context I am encouraged to engage in constructive conflict when making decisions or developing solutions.	.270	.088	7,29%	41
	19	In a crisis context my organisation does not approve of employee risk-taking when making decisions or developing solutions.	.143	.374	2,04%	41
	20	In a crisis context our organisation cultivates an innovation climate.	.214	.179	4,58%	41
	21	In a crisis context I am supported and encouraged to exercise freedom in implementing new ideas.	.256	.106	6,55%	41
	22	In a crisis context our organisational leader supports employees' implementation of new or innovative ideas.	**.361***	**.021**	**13,03%**	41

Table 62: Correlation Spearman's Rho – Change Leadership Construct Goal Framing and IWB statements

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

Capacity Building

As highlighted in Table 63 below, 3 of the 22 employee innovative work behaviour statements have a significant correlation with Capacity Building.

The respective coefficient of determination indicates that item no. 15 '*In a crisis context our organisational leaders engage in innovative behaviour',* helps to explain approximately 14% of the variance in respondents' scores related to Change Leadership Phase – Capacity Building, while items 1, and 20 explain 11% and 13% respectively. These items also indicated statistical significance, at confidence interval of 95%.

The remainder of the items demonstrate only small (r between .10 and .29) relationship strengths (Pallant, 2013).

Change Phase & Leadership Behaviour/Competency	Item No.	Item	Spearman's Rho	Sig. (2 tailed)	Coefficient of Determination	N
Capacity Building Building competence to meet change requirements	1	In a crisis context I am supported and encouraged to exercise freedom in generating new ideas.	**.328***	**.036**	**10,76%**	41
	2	In a crisis context I am supported and encouraged to trying new things.	.069	.667	0,48%	41
	3	In a crisis context I am exposed to more challenging assignments.	-.053	.741	0,28%	41
	4	In a crisis context I feel more engaged in my work assignments.	.097	.548	0,94%	41
	5	In a crisis context I am able to exercise autonomy in my assignments.	.058	.719	0,34%	41
	6	In a crisis context I am empowered to be innovative.	.205	.199	4,20%	41
	7	In a crisis context I have enough time at work to come up with new ideas or be innovative.	.032	.840	0,10%	41
	8	In a crisis context I feel that I am comfortable with and can trust my organisation to support new ideas.	.281	.075	7,90%	41
	9	In a crisis context my immediate work environment can still be described as a 'humorous work climate'.	.103	.520	1,06%	41
	10	In a crisis context I am encouraged to engage in social interactions with other colleagues.	.233	.142	5,43%	41
	11	In a crisis context I am encouraged to build networks and partner with other colleagues.	.097	.544	0,94%	41
	12	In a crisis context I am encouraged to express my ideas, suggestions, concerns or opinions about work-related issues which may improve my department or the organisation.	.003	.983	0,00%	41
	13	In a crisis context our organisational leaders demonstrate connectedness.	.222	.163	4,93%	41
	14	In a crisis context our organisational leaders encourage innovative behaviour.	.212	.184	4,49%	41
	15	In a crisis context our organisational leaders engage in innovative behaviour.	**.369***	**.018**	**13,62%**	41
	16	In a crisis context our organisational leaders support employees' innovative thinking.	.132	.412	1,74%	41
	17	In a crisis context I am encouraged to debate, challenge and exchange ideas verbally with others.	.189	.237	3,57%	41
	18	In a crisis context I am encouraged to engage in constructive conflict when making decisions or developing solutions.	.159	.322	2,53%	41
	19	In a crisis context my organisation does not approve of employee risk-taking when making decisions or developing solutions.	-.096	.552	0,92%	41
	20	In a crisis context our organisation cultivates an innovation climate.	**.366***	**.019**	**13,40%**	41
	21	In a crisis context I am supported and encouraged to exercise freedom in implementing new ideas.	.220	.168	4,84%	41
	22	In a crisis context our organisational leader supports employees' implementation of new or innovative ideas.	.030	.854	0,09%	41

Table 63: Correlation Spearman's Rho – Change Leadership Construct Capacity Building and IWB statements

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

Defusing resistance and conflict and change execution

As highlighted in Table 64 below, 0 of the 22 employee innovative work behaviour statements have a significant correlation with Defusing resistance and conflict and change execution.

The respective coefficients of determination indicate that no one item representative of Employee Innovative Work Behaviour, demonstrates an attributable variance greater than 10% as such the is not much overlap between respondents' scores here and respondents' scores related to Change Leadership Phase – Defusing resistance and conflict and change execution. In addition, all items demonstrate only small (r between .10 and .29) relationship strengths (Pallant, 2013). In addition, some statement indicate a negative correlation which is small in relationship strength and not statistically significant.

Change Phase & Leadership Behaviour/Competency	Item No.	Item	Spearman's Rho	Sig. (2 tailed)	Coefficient of Determination	N
Defusing resistance & conflict and Change execution Mitigating resistance and conflict	1	In a crisis context I am supported and encouraged to exercise freedom in generating new ideas.	.177	.269	3,13%	41
	2	In a crisis context I am supported and encouraged to trying new things.	.253	.110	6,40%	41
	3	In a crisis context I am exposed to more challenging assignments.	.200	.210	4,00%	41
	4	In a crisis context I feel more engaged in my work assignments.	-.095	.554	0,90%	41
	5	In a crisis context I am able to exercise autonomy in my assignments.	-.039	.807	0,15%	41
	6	In a crisis context I am empowered to be innovative.	.064	.691	0,41%	41
	7	In a crisis context I have enough time at work to come up with new ideas or be innovative.	-.092	.567	0,85%	41
	8	In a crisis context I feel that I am comfortable with and can trust my organisation to support new ideas.	.116	.469	1,35%	41
	9	In a crisis context my immediate work environment can still be described as a 'humorous work climate'.	.203	.203	4,12%	41
	10	In a crisis context I am encouraged to engage in social interactions with other colleagues.	.150	.351	2,25%	41
	11	In a crisis context I am encouraged to build networks and partner with other colleagues.	.165	.303	2,72%	41
	12	In a crisis context I am encouraged to express my ideas, suggestions, concerns or opinions about work-related issues which may improve my department or the organisation.	-.013	.936	0,02%	41
	13	In a crisis context our organisational leaders demonstrate connectedness.	.112	.487	1,25%	41
	14	In a crisis context our organisational leaders encourage innovative behaviour.	.180	.259	3,24%	41
	15	In a crisis context our organisational leaders engage in innovative behaviour.	.217	.172	4,71%	41
	16	In a crisis context our organisational leaders support employees' innovative thinking.	.220	.167	4,84%	41
	17	In a crisis context I am encouraged to debate, challenge and exchange ideas verbally with others.	.204	.200	4,16%	41
	18	In a crisis context I am encouraged to engage in constructive conflict when making decisions or developing solutions.	.214	.179	4,58%	41
	19	In a crisis context my organisation does not approve of employee risk-taking when making decisions or developing solutions.	.151	.348	2,28%	41
	20	In a crisis context our organisation cultivates an innovation climate.	.282	.075	7,95%	41
	21	In a crisis context I am supported and encouraged to exercise freedom in implementing new ideas.	.159	.321	2,53%	41
	22	In a crisis context our organisational leader supports employees' implementation of new or innovative ideas.	.150	.350	2,25%	41

Table 64: Correlation Spearman's Rho – Change Leadership Construct Defusing Resistance and conflict and change, and IWB statements

Institutionalizing

As highlighted in Table 65 below, 10 of the 22 employee innovative work behaviour statements have a significant correlation with Institutionalizing. The respective coefficient of determination indicates that item no. 20, *'In a crisis context our organisation cultivates an innovation climate',* helps to explain approximately 32% of the variance in respondents' scores related to Change Leadership Phase – Institutionalizing, while items 1, 6, 8, 9,10,11,14, 15,18 and 21 explain 20%, 12%, 13%, 13%,15%, 11%, 19%, 24%, 12% and 14% respectively. These items also indicated statistical significance, at confidence intervals of 95% and 99%.

The remainder of the items demonstrate only small (r between .10 and .29) to medium (r between .30 and .49) relationship strengths (Pallant, 2013).

Change Phase & Leadership Behaviour/Competency	Item No.	Item	Spearman's Rho	Sig. (2 tailed)	Coefficient of Determination	N
Institutionalising Evaluation for continuous improvement and institutionalising	1	In a crisis context I am supported and encouraged to exercise freedom in generating new ideas.	**.443****	**.004**	**19,62%**	41
	2	In a crisis context I am supported and encouraged to trying new things.	.292	.064	8,53%	41
	3	In a crisis context I am exposed to more challenging assignments.	.138	.390	1,90%	41
	4	In a crisis context I feel more engaged in my work assignments.	.199	.212	3,96%	41
	5	In a crisis context I am able to exercise autonomy in my assignments.	.058	.717	0,34%	41
	6	In a crisis context I am empowered to be innovative.	**.347***	**.026**	**12,04%**	41
	7	In a crisis context I have enough time at work to come up with new ideas or be innovative.	.119	.460	1,42%	41
	8	In a crisis context I feel that I am comfortable with and can trust my organisation to support new ideas.	**.365***	**.019**	**13,32%**	41
	9	In a crisis context my immediate work environment can still be described as a 'humorous work climate'.	**.359***	**.021**	**12,89%**	41
	10	In a crisis context I am encouraged to engage in social interactions with other colleagues.	**.383***	**.014**	**14,67%**	41
	11	In a crisis context I am encouraged to build networks and partner with other colleagues.	**.325***	**.038**	**10,56%**	41
	12	In a crisis context I am encouraged to express my ideas, suggestions, concerns or opinions about work-related issues which may improve my department or the organisation.	.131	.414	1,72%	41
	13	In a crisis context our organisational leaders demonstrate connectedness.	.280	.076	7,84%	41
	14	In a crisis context our organisational leaders encourage innovative behaviour.	**.432****	**.005**	**18,66%**	41
	15	In a crisis context our organisational leaders engage in innovative behaviour.	**.491****	**.001**	**24,11%**	41
	16	In a crisis context our organisational leaders support employees' innovative thinking.	.278	.079	7,73%	41
	17	In a crisis context I am encouraged to debate, challenge and exchange ideas verbally with others.	.305	.052	9,30%	41
	18	In a crisis context I am encouraged to engage in constructive conflict when making decisions or developing solutions.	**.353***	**.024**	**12,46%**	41
	19	In a crisis context my organisation does not approve of employee risk-taking when making decisions or developing solutions.	.032	.841	0,10%	41
	20	In a crisis context our organisation cultivates an innovation climate.	**.569****	**.000**	**32,38%**	41
	21	In a crisis context I am supported and encouraged to exercise freedom in implementing new ideas.	**.369***	**.018**	**13,62%**	41
	22	In a crisis context our organisational leader supports employees' implementation of new or innovative ideas.	.305	.052	9,30%	41

Table 65: Correlation Spearman's Rho – Change Leadership Construct Institutionalizing, and IWB statements

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

5.2.5 Data Transformations

No data transformations were undertaken during the aforementioned data analysis process.

6 DISCUSSION OF RESULTS

6.1 Introduction

The purpose of the research was to determine the relationship between change leadership and employee innovative work behaviour within the context of crisis. To this end a quantitative study was conducted by the researcher. The study solicited responses from 41 employees currently discharging duties within the Construction and the Built Environment sector, who are within categories of management from First-line management to General management, and have witnessed crisis within the organisations that they serve. Further these respondents were sought from three primary categories of organisation type including Construction firms, Consultancy firms, Engineering firms, and Government or State Owned Enterprises. While organisation size ranged from micro which denotes less than 10 employees to large which denotes greater than 250 employees.

The objective of the research was to seek an answer to the research question posed throughout the study. In this regard, data was collected in order to meet this objective, with results detailed under Chapter 5 and decomposed into three specific sections including: Section 1 which included demographic questions, Section 2 which included questions related to change leadership within the context of crisis, and Section 3 which included questions related to employee innovative work behaviour within the context of crisis.

As discussed in Chapter 2 of this study, research suggests that leadership contributes to the management of change (Boin et al., 2013; Bundy et al., 2017) and individual innovative work behaviour (IWB) in times of crisis (Anderson, et al., 2014). Leaders, through encouragement, exert influence on their followers to be innovative and creative, and as a result effective leadership tends to promote employee innovation levels and behaviours to improve performance outcomes in times of crisis (Fragouli & Ibidapo, 2015). In accordance, the literature review conducted under Chapter 2 detailed the extant literature associated with the aforementioned relationship between change leadership, individual innovative work behaviour, as well as crisis as summarised in Figure 4 below:

Crisis in the Context of the Organisation	Change Leadership	Individual Innovative Work Behaviour (IWB)
▪ Shao, (2019). ▪ Jaroensutiyotin et al., (2019). ▪ Li, Bhutto, Nasiri, Shaikh, & Samo, (2018). ▪ Bowers, M., Hall, J., & Srinivasan , M. (2017). ▪ Bundy, J., Pfarrer, M. D., Short, C. E., & Coombs, W. T. (2017) ▪ Bessant, Rush, & Trifilova, (2015). ▪ Szczepańska-Woszczynaa, K. (2015). ▪ Boin, A., Kuipers, S., & Overdijk, W. (2013). ▪ Serfontein et al., (2009). ▪ Christensen, C.M. (2006). ▪ Pearson, C. M., & Clair, J. A. (1998). ▪ Kramer, M. W. (1999). ▪ Quinn, R. E., & Spreitzer, G. M. (1991). ▪ Schein, E. (1988), ▪ Weick, K. E. (1988). ▪ Schein, E. H. (1984). ▪ Robert E. Quinn, & John Rohrbaugh. (1983). ▪ Staw, B. M., Sandelands, L. E., & Dutton, J. E. (1981). ▪ Hofstede, G. (1980).	▪ Jaroensutiyotin, J., Wang, Z., Ling, B., & Chen, Y. (2019). ▪ Shao, (2019) ▪ Li, W., Bhutto, T., Nasiri, A., Shaikh, H., & Samo, F. (2018). ▪ Al-Ali, A. A., Singh, S. K., Al-Nahyan, M., & Sohal, A. S. (2017). ▪ Bowers, M., Hall, J., & Srinivasan , M. (2017). ▪ Szczepańska-Woszczynaa, K. (2015). ▪ Kin, Kareem, Nordin, & Bing, (2014) ▪ Boin, A., Kuipers, S., & Overdijk, W. (2013). ▪ Northouse, P. G. (2013). ▪ Hayes, (2010) ▪ Herold, D. M., Fedor, D. B., Caldwell, S., & Liu, Y. (2008). ▪ Gilley, A., Dixon, P., & Gilley, J. W. (2008). ▪ Nilakant & Ramanarayan's (2006) ▪ Schein, E. H. (1984). Christensen, C.M. (2006). ▪ Jung, D.I., Chow, C. and Wu, A. (2003). ▪ Higgs & Rowland, (2000) ▪ Kramer, M. W. (1999). ▪ Kotter (1999) ▪ Quinn, R. E., & Spreitzer, G. M. (1991). ▪ Robert E. Quinn, & John Rohrbaugh. (1983). ▪ Staw, B. M., Sandelands, L. E., & Dutton, J. E. (1981). ▪ Hofstede, G. (1980). ▪ Lewin (1958),	▪ Muchiri, McMurray, Nkhoma, & Pham, (2020). ▪ Jaroensutiyotin et al., (2019). ▪ Dong & Hawryszkiewycz, (2019) ▪ Odoardia, C., Montanic,, F., Battistelli, A., & Peiród, J. (2019). ▪ Munir & Beh, (2016). ▪ Hurmelinna-Laukkanen et al., (2016) ▪ Yang, Qian, Tang, & Zhang, (2016) ▪ Amjed and Tirmzi (2016), ▪ Li et al. (2017), ▪ Chen and Hou, (2016). ▪ Yang, F., Qian, J., Tang, L., & Zhang, L. (2016). ▪ Szczepańska-Woszczynaa, K. (2015). ▪ Khan et al., (2015). ▪ Bessant, J., Rush, H., & Trifilova, A. (2015). ▪ Balkar, (2015). ▪ Ren & Zhang (2015) ▪ Chen, J. (2014, January). ▪ Nasurdin et al., (2014). ▪ Lu et al., (2011). ▪ Hom & Xiao, (2011) ▪ Walumbwa et al., (2012). ▪ De Jong & Den Hartog, (2010) ▪ Yuan & Woodman, (2010) ▪ Gilley, A., Dixon, P., & Gilley, J. W. (2008). ▪ De Jong, J. P. J., & Den Hartog, D. N. (2007). ▪ Anderson, N. R., De Dreu, C. K. W., & Nijstad, B. A. (2004). ▪ Jung, D.I., Chow, C. and Wu, A. (2003). ▪ Morrison, E. W. (2002). ▪ Kramer, (1999) ▪ Scott & Bruce, (1994). ▪ West and Farr, (1990) ▪ West, M. A., & Farr, J. L. (1990).

Figure 4: Summary of Literature Review

In this regard, the literature reviewed as detailed within Chapter 2 and the results of the current study as detailed in Chapter 5 have not been synthesised or integrated. This chapter therefore aims to achieve this aforementioned objective within the succeeding discussions.

6.2 Research Question - Is change leadership positively related to individual innovative behaviour within the context of crisis?

The researcher sought to study one research question with a resultant hypothesis in order to determine the relationship between change leadership and individual innovative work behaviour (IWB) within the context of crisis. The objective of this chapter of the report is to compare and synthesize the results detailed within Chapter 5 with the literature review conducted in Chapter 2.

Research Question 1: Is change leadership positively related to individual innovative behaviour within the context of crisis?

The proposed research hypothesis stemming from the research question is as follows and as represented in Figure 5 below:

Null Hypothesis (H_0): *Change leadership is not positively related to individual innovative behaviour in a crisis context.*

Hypothesis (H_1): *Change leadership is positively related to individual innovative behaviour in a crisis context.*

Figure 5: Graphical representation of hypothesis, adapted from (Jaroensutiyotin, Wang, Ling, & Chen, 2019)

6.2.1 Discussion

Research suggests that leadership contributes to the management of change (Boin et al., 2013; Bundy et al., 2017) and individual innovative work behaviour (IWB) in times of crisis (Anderson, et al., 2014). Crisis, for the purpose of the study, is considered a high impact event of low probability which is external to the organisation and threatens organisational viability. Crisis is deemed uncertain and is triggered by change, therefore requires the intervention of organisational innovation practices in order to address its specific consequences. The cultivation of innovation, as a result, is critical for organisational recovery and performance in times of crisis (Jaroensutiyotin et al., 2019).

Accordingly, and as detailed within the literature review conducted in Chapter 2, the prevailing literature has over time advanced several definitions of leadership, however the common theme among them have has been the mobilizing and directing of others towards goal setting and goal achievement. Kotter, (1999) further suggested that leadership is a process that is associated with change as leadership is defined as the setting of a strategic direction, and development of strategy in order to move forward in that very direction, in other words, the creation and achievement of a vision. Further, leaders challenge the status quo which inherently renders leadership as change focused (Cairns, 2000). Similarly Elliott, (1992) suggests that in the absence of change, leadership had in fact not occurred. In support hereof, Yukl, (2002) further suggests that the fundamental role of a leader is to lead change, and that all else is secondary hereto. It can therefore be concluded that, 'ultimately leadership is about change' (Zenger et al., 2000), and involves initiating change, mobilizing others to change, maintaining change (Smit, 2003). As a result leadership must be understood in the context of change (Higgs & Rowland 2000).

Moreover, as detailed within the literature review conducted in Chapter 2, the importance of innovative work behaviour (IWB) within the context of the organization is well substantiated within the extant

literature. Innovative work behaviour (IWB) involves the deliberate introduction and subsequent implementation of new ideas in order to develop novel solutions to extant challenges, such that an improvement is achieved in products/services, and new opportunities are proactively explored (De Jong & Den Hartog, 2010; Dong & Hawryszkiewycz, 2019). Moreover, it has been accepted widely that innovation is a critical contributor to success within organizations success, with capitalization on employee' innovative work behaviour (IWB) deemed one of the most central means for organizations to become innovative, which in turn ensures continuous effectiveness and success. IWB suggests that employees can contribute to organizational success through the utilization of their innovative capabilities in order to generate novel ideas, and through the implementation thereof, improve organizational products/services and or procedures (Hom & Xiao, 2011; Yuan & Woodman, 2010).

Following this, 3 specific statistical tests were undertaken within this study including Cronbach's coefficient alpha, factor analysis (PCA) and correlation analysis utilizing Spearman's Rho, in order to test the aforementioned relationship postulated within a 'critical case' for crisis, that is, the Construction and Built Environment sector.

Firstly, as detailed within the Chapter 5 results, the Cronbach's coefficient alpha was calculated for the independent variable change leadership overall, here after the 4 change leadership constructs/phases, in order to test the reliability of the scale employed, as an indicator of how free it is from random error. In this regard the internal consistency was tested in order to determine the degree to which the items contained within the scale all measure the same underlying attribute (Pallant, 2013).

The results indicate that 2 of the 4 change phase constructs and their associated statements had resultant Cronbach's coefficient alpha values greater than 0.7 while the other 2 had resultant Cronbach's coefficient alpha values greater than 0.8, therefore all 4 constructs are suitable for grouping to form a summated scale for the change leadership construct overall. This is in alignment with the Cronbach's coefficient alpha value calculated for all change phases overall (change leadership variable overall) which was **0.932** and as such is in indicator that the reliability of the scale overall for the construct of change leadership is excellent and further is in line with the Cronbach's coefficient alpha of **0.93** calculated for change leadership within the reference study conducted by Jaroensutiyotin, Wang, Ling, & Chen, (2019).

The suceeding factor analysis undertaken demonstrated that each construct of change leadership or change leadership phase retained between 1 and 2 components/items after undertaking Principal Component Analysis with Oblimin rotation. Of the resultant components, one per construct was selected on the basis that the retained factor attributes the highest variance explained for the construct in question. As a result the underlying dimensions/components/items which were extracted per construct include:

- Goal Framing - *'In a crisis context our organisational leader communicated and shared the change goal'*, which explains 61% of the variance.
- Capacity Building – '*In a crisis context our organisational leader set out to build competence to meet change requirements',* which explains 59% of the variance.
- Defusing resistance and conflict and Change execution - *In a crisis context our organisational leader focused on empowerment and coordination of staff in support of the change goal',* which explains 47% of the variance.
- Institutionalising - *In or after the crisis context our organisational leader implemented institutionalising of best practices',* which explains 62% of the variance.

The final statistical test conducted was correlation analysis employing Spearman's Rho as the correlation coefficient. This was undertaken between the independent variable change leadership and dependent variable IWB overall, and thereafter for the change leadership factors extracted during factor analysis which represent each of the 4 change leadership phases/behaviours and form constructs in this regard, and the 22 individual innovative work behaviour (IWB) statements tested within the questionnaire, in order to determine an answer to the research question posed within this study.

6.2.2 Summary of Results

The results indicate that, the independent variable change leadership and dependent variable IWB are positively correlated with a relationship strength that registers as medium and a significance at the 95% confidence interval. Furthermore, the 4 change leadership phases/constructs and their associated leadership competencies or behaviours, as denoted in this study by the constructs Goal Framing, Capacity Building, and Institutionalising, have significant positive correlations with a total of 17 of the individual innovative work behaviour statements posed, with the highest correlation values as indicated by the respective Spearman's Rho correlation coefficient, to follow below, in order of highest coefficient of determination.

In contrast, 'Defusing resistance and conflict and change execution', resulted in small correlations which were not statistically significant, between the change leadership construct in question and the innovative work behaviour statements posed. In addition some correlations were negative.

Change Leadership and IWB Overall

The results indicate that the independent variable change leadership and dependent variable individual innovative work behaviour are positively correlated with the strength of the correlation registering as medium (r is 0.360) with statistical significance at a confidence interval of 95%. These results indicate that change leadership is positively related to IWB.

Goal Framing

- Question 41 - In a crisis context I feel that I am comfortable with and can trust my organisation to support new ideas. With Spearman's Rho - .467** Significance at the 0.01 confidence interval - .002 and Coefficient of determination - 21,81%
- Question 48 - In a crisis context our organisational leaders engage in innovative behaviour. With Spearman's Rho - .451** Significance at the 0.01 confidence interval - .003 and Coefficient of determination - 20,34%
- Question 49 - In a crisis context our organisational leaders support employees' innovative thinking. . With Spearman's Rho - .451** Significance at the 0.01 confidence interval - .003 and Coefficient of determination - 20,34%
- Question 46 - In a crisis context our organisational leaders demonstrate connectedness. With Spearman's Rho - .418** Significance at the 0.01 confidence interval - .007 and Coefficient of determination - 17,47%
- Question 55 - In a crisis context our organisational leader supports employees' implementation of new or innovative ideas. With Spearman's Rho - .361* Significance at the 0.05 confidence interval - .021 and Coefficient of determination - 13,03%
- Question 35 - In a crisis context I am supported and encouraged to trying new things. With Spearman's Rho - .358* Significance at the 0.05 confidence interval - .022 and Coefficient of determination - 12,82%
- Question 50 - In a crisis context I am encouraged to debate, challenge and exchange ideas verbally with others. With Spearman's Rho - .329* Significance at the 0.05 confidence interval -.036 and Coefficient of determination - 10,82%

Accordingly, the results indicate that there is a positive correlation between Goal Framing and individual innovative work behaviour (IWB) within the context of crisis, as denoted by 7 key correlations between the variables in question, which are medium in strength and significant at a 95% and 99% confidence interval.

Capacity Building

- Question 48 - In a crisis context our organisational leaders engage in innovative behaviour. With Spearman's Rho - .369* Significance at the 0.05 confidence interval - .018 and Coefficient of determination - 13,62%
- Question 53 - In a crisis context our organisation cultivates an innovation climate. With Spearman's Rho - .366* Significance at the 0.05 confidence interval - .019 and Coefficient of determination - 13,40%

- Question 34 - In a crisis context I am supported and encouraged to exercise freedom in generating new ideas. With Spearman's Rho - .328* Significance at the 0.05 confidence interval -.036 and Coefficient of determination - 10,76%

Consequently, the results indicate that there is a positive correlation between Capacity Building and individual innovative work behaviour (IWB) within the context of crisis, as denoted by 3 key correlations between the variables in question, which are medium in strength and significant at a 95% confidence interval.

Defusing resistance and conflict and Change execution

The respective coefficients of determination indicate that no one item representative of employee innovative work behaviour, demonstrates an attributable variance greater than 10% or is statistically significant, as such there is not much overlap between respondents' scores here and respondents' scores related to Change Leadership Phase – Defusing resistance and conflict and change execution. In addition, all items demonstrate only small (r between .10 and .29) relationship strengths (Pallant, 2013).

Following this, the results indicate that there is not a positive correlation between Defusing resistance and conflict and change execution and individual innovative work behaviour (IWB) within the context of crisis, as there are no significant correlations between the variables in question, and the relationship strengths are all small. In addition the direction of some relationships are negative.

Institutionalising

- Question 53 - In a crisis context our organisation cultivates an innovation climate. With Spearman's Rho - .569** Significance at the 0.01 confidence interval -.000 and Coefficient of determination - 32,38%
- Question 48 - In a crisis context our organisational leaders engage in innovative behaviour. With Spearman's Rho - .491** Significance at the 0.01 confidence interval - .001 and Coefficient of determination - 24,11%
- Question 34 - In a crisis context I am supported and encouraged to exercise freedom in generating new ideas. With Spearman's Rho - .443** Significance at the 0.001 confidence interval - .004 and Coefficient of determination - 19,62%
- Question 47 - In a crisis context our organisational leaders encourage innovative behaviour. With Spearman's Rho - .432** Significance at the 0.01 confidence interval -.005 and Coefficient of determination - 18,66%

- Question 43 - In a crisis context I am encouraged to engage in social interactions with other colleagues. With Spearman's Rho - .383* Significance at the 0.05 confidence interval -.014 and Coefficient of determination - 14,67%
- Question 54 - In a crisis context I am supported and encouraged to exercise freedom in implementing new ideas. With Spearman's Rho - .369* Significance at the 0.05 confidence interval -.018 and Coefficient of determination - 13,62%
- Question 41 - In a crisis context I feel that I am comfortable with and can trust my organisation to support new ideas. With Spearman's Rho - .365* Significance at the 0.05 confidence interval - .019 and Coefficient of determination - 13,32%
- Question 42 - In a crisis context my immediate work environment can still be described as a 'humorous work climate'. With Spearman's Rho - .359* Significance at the 0.05 confidence interval -.021 12,89%
- Question 51 - In a crisis context I am encouraged to engage in constructive conflict when making decisions or developing solutions. With Spearman's Rho - .353* Significance at the 0.05 confidence interval -.024 and Coefficient of determination - 12,46%
- Question 39 - In a crisis context I am empowered to be innovative. With Spearman's Rho - .347* Significance at the 0.05 confidence interval -.026 and Coefficient of determination - 12,04%
- Question 44 - In a crisis context I am encouraged to build networks and partner with other colleagues. With Spearman's Rho - .325* Significance at the 0.05 confidence interval -.038 and Coefficient of determination - 10,56%

Therefore, the results indicate that there is a positive correlation between Institutionalizing and individual innovative work behaviour (IWB) within the context of crisis, as denoted by 11 key correlations between the variables in question, which are medium to high in strength and significant at a 95% and 99% confidence interval.

The aforementioned results are within the expected range, as they are consistent with the prevailing literature presented as part of this study. As discussed in Chapter 2 of this study, research suggests that leadership contributes to the management of change (Boin et al., 2013; Bundy et al., 2017) and individual innovative work behaviour (IWB) in times of crisis (Anderson, et al., 2014). Effective leadership is therefore highlighted within literature as a critical contributor in influencing innovative work behaviour at an individual or employee level. (Bos-Nehles et al., 2017; De Jong & Den Hartog, 2007; Javed et al., 2017; Jung et al., 2008; Mumford & Licuanan, 2004; Scott & Bruce, 1994; Yindong & Xinxin, 2013). Leaders through encouragement, exert influence on followers to adopt innovative behaviour, and cultivate creativity, and as a result, effective leadership tends to improve employee

innovation levels and behaviours to improve performance outcomes in times of crisis (Fragouli & Ibidapo, 2015).

Further, change leadership is a critical contributing factor to moulding the individual innovative behaviours of employees within a crisis context, as leading within a crisis through employing change leadership sees the leader directing their focus to the crisis-induced changes the organisation is experiencing while encouraging employees to adopt innovative behaviours. It is further suggested that leadership within this context has the effect of increasing employee engagement in the change process while encouraging employees to employ innovative behaviours (Jaroensutiyotin et al., 2019).

Moreover, Innovative work behaviour has been theorized as discretionary, and as such tends to occur more often when employees experience good relationships with their supervisors. For this reason it is suggested that effective leadership is positively associated with innovative work behaviour (Mumford & Licuanan, 2004; Scott & Bruce, 1994). To this end, top management involvement and support has been recognized as a key contributor to the promotion of innovation and innovative work behaviour (Amabile et al., 2004; Javed et al., 2017; Jung et al., 2008; Yindong & Xinxin, 2013). Leaders therefore have the propensity to impinge on the process of creativity and innovation through their and the organisation's perceived support and encouragement of innovation (Amabile et al., 2004). Moreover, the leader's ability to make sense of the situation and environment, the leader's potential to impact the performance of followers through framing the situation as dynamic or uncertain, the leader's suggestion that no singular approach to the situation may exist and the leader's engagement and encouragement of teams or individuals in voicing their unique opinions associated with addressing the uncertainty, renders change leadership critical within a crisis context (Barton, Sutcliffe, Vogus, & DeWitt, 2015).

6.2.3 Results Discussion Summary

The results indicate that the independent variable change leadership and dependent variable individual innovative work behaviour are positively correlated as such, the result confirm that change leadership is positively related to IWB.

The results further demonstrate that the highest correlation values as indicated by the respective Spearman's Rho correlation coefficient is 0.569 for question 53 as related to Institutionalising, which is indicative of a large positive correlation between the Institutionalising and organisations cultivating an innovation climate in a crisis context. While all other correlation coefficient values ranged between 0.30 and 0.49, which are indicative of a medium positive correlation amongst the two variables under consideration and inferences in this regard, as a result, may be made as follows:

- *Goal framing* behaviours as leadership competencies employed by change leaders within a crisis context, have significant positive impacts on: employees feeling comfortable with and

being able to trust their organisation to support new ideas, organisational leaders engaging in innovative behaviour, organisational leaders supporting employees' innovative thinking, organisational leaders demonstrating connectedness, organisational leaders supporting employees' implementation of new or innovative ideas, employees being supported and encouraged to try new things, and employees being encouraged to debate, challenge and exchange ideas verbally with others. This is confirmatory of the extant literature which suggests that voice behaviour is a significant contributor to enhancing individual creativity and further playing the role of transforming it into innovation. Leaders therefore should embrace the notion of idea support, as their support towards innovation and innovative thinking will have the effect of aiding employees in being innovative (Oude Luttikhuis, 2014). In addition, Nasurdin et al., (2014) suggests that debating encourages the verbal exchange of ideas, which in turn leads to innovation and creativity. Also, Seyr and Vollmer (2014), found that there is a strong relationship between innovation and debate, and that debate leads to decision comprehensiveness which also affects innovation

- *Capacity building behaviours* as leadership competencies employed by change leaders within a crisis context, have significant positive impacts on: organisational leaders engaging in innovative behaviour, organisations cultivating an innovation climate, and employees being supported and encouraged to exercise freedom in generating new ideas. This is consistent with literature which postulates that innovative work behaviour is discretionary, and occurs more often when employees experience good relationships with their supervisors (Mumford & Licuanan, 2004; Scott & Bruce, 1994), with top management involvement and support being recognized as a key contributor to the promotion of innovation and innovative work behaviour (Amabile et al., 2004; Javed et al., 2017; Jung et al., 2008; Yindong & Xinxin, 2013). In addition, high levels of connectedness or connectivity has also been suggested as a contributing factor to improving and strengthening relationships, levels of top management innovative behaviour and the comprehensiveness of their strategic decision making (Friedman and Carmeli, 2018). Lastly, employees are more committed, demonstrate more creativity, and increase their actual efforts towards task performance, when 'freedom' within the organisational environment is communicated (Oude Luttikhuis, 2014).
- *Defusing resistance and conflict and change execution behaviours* as leadership competencies employed by change leaders within a crisis context, do not have a significant positive impact on individual innovative behaviour within the context of crisis: The leadership competency employed, involves the change leader mitigating resistance and conflict to the change. In addition, 4 innovative work behaviour statements resulted in negative correlations with the change leadership construct in question, albeit at extremely small ($r < 0.10$) relationship strengths and at confidence intervals greater than 0.05, that is not statistically significant. These

include, employees feeling more engaged in their work assignments, employees being able to exercise autonomy in their assignments, employees having enough time at work to come up with new ideas or be innovative, and employees being encouraged to express their ideas, suggestions, concerns or opinions about work-related issues which may improve their department or the organisation. Consequently it may be inferred that the change leadership phase/construct – Defusing resistance and conflict and change execution, does not have a significant positive impact on employee innovative work behaviour, and in specific instances may have a negative impact on IWB. This is consistent with extant literature as this change competency required the change leader to reduce or eliminate resistance and conflict, whereas Lu et al. (2011), has suggested that 'creativity requires conflict'. To this end, conflict has been found to drive individual creativity, as such individuals tend to increase their levels of innovation and creativity when under conditions of conflict or pressure. Furthermore, Imran et al. (2014) supports this by denoting conflict as the driving force behind employee innovative. This has been further supported by more recent studies which indicate that conflict can improve communication, lead to healthy relationships and several other benefits which inculcate positive organisational behaviours. (Reade and Lee, 2016) while enhancing innovation (Khan et al., 2015). Constructive conflict is therefore key to the generation of improved solutions and decision making, as a result of increased access and exposure to information and argument rationale (Lu et al., 2011), but is effectively reduced or even eliminated through the change leadership competency/behaviour of defusing resistance and conflict.

- It may further be postulated that the change leader's change execution behaviours, inadvertently lead to the change leader's preoccupation with executing the actual change process, and may therefore diminish the change leaders own innovative work behaviour and their encouragement of others innovative work behaviour. Simply put, the change leader may be so busy actually implementing the change effort, that they lose sight of their own propensity to engage in IWB and reduce their encouragement and cultivation of IWB and an innovation climate. It may also be of consequence that respondents within the study are all management level, and as such would be directly accountable for disseminating any change behaviour being advocated by the change leader, and as such themselves may be too preoccupied in executing change and mitigating actions associated with defusing resistance and conflict within their departments, that it consequently has the impact of lowering their own engagement with the process of cultivating innovative work behaviours.
- ***I****nstitutionalising behaviours* as leadership competencies employed by change leaders within a crisis context, have significant positive impacts on: organisations cultivating an innovation climate, organisational leaders engaging in innovative behaviour, employees being supported and encouraged to exercise freedom in generating new ideas, organisational leaders

encouraging innovative behaviour, employees being encouraged to engage in social interactions with other colleagues, employees being supported and encouraged to exercise freedom in implementing new ideas, employees feeling comfortable with and being able to trust their organisation to support new ideas, the immediate work environment still being a 'humorous work climate', employees being encouraged to engage in constructive conflict when making decisions or developing solutions, employees being empowered to be innovative, and employees being encouraged to build networks and partner with other colleagues. This is in accordance with prevailing literature endorses organisational climate as a key factor in the development of innovative work behaviour Balkar, 2015;Ren and Zhang, 2015; Shanker and Bhanugopan, 2014, Noor and Dzulkifli, 2013;June and Kheng, 2013). In addition, a harmonious organisational climate has been found to improve employee performance, improve creativity and innovation such that employees generate ideas, and exercise independence when implementing tasks and ideas (Munir & Beh, 2019).

- Lastly, Hurmelinna-Laukkanen et al. (2016) highlighted that various types of humour are positively related to innovative work behaviour (coping humour and affiliate humour) while aggressive humour was found to have a negative association with IWB. Amjed and Tirmzi (2016), further suggested that self-enhancing humour and affiliate humour are positively related to employee creativity. A humorous work climate has therefore been found to improve individual innovation and creativity through enabling feelings of relaxation, which in turn allows an individual to think, and subsequently leads to improved idea generation (Nasurdin et al. 2014).

The aforementioned overall findings related to change leadership within the context of crisis (Goal Framing, Capacity Building, Defusing resistance and conflict and change execution, and Institutionalizing) are within the expected range of results in line with findings from the reference study which suggests that leadership is a critical contributor to influencing employee innovative work behaviour in the context of crisis, more so change leadership, given that it has a specific focus on crisis-induced changes and that leaders through exercising influence encourage individuals to adopt innovative behaviour (Jaroensutiyotin et al., 2019). In addition, the reference study findings suggest that change leadership increases employee engagement in the change implementation process and additionally encourages employees to employ innovative behaviour. (Jaroensutiyotin et al., 2019). It is of importance to note however, that the findings of this study extend those of existing literature in that it highlights that there may be a point reached within the change leadership process where managers as key implementers and executors of the actual change effort, may become so preoccupied with the execution of the change and the mitigating actions associated with diffusing resistance and conflict to the change process, that marginal returns and even small negative returns may be seen on

their engagement with and adoption of innovative work behaviours themselves. This is consistent with the fact that the organisational leaders in fulfilling their role as change leaders, in practice, are the predominant actors in operationalizing leadership competencies within Goal Framing, Capacity Building, and the Institutionalizing phases of the change leadership process while in contrast, the various levels of management below the organisational leader, typically become the predominant actors in operationalizing leadership competencies associated with Defusing resistance and conflict and change execution, as they actually execute the change and undertake mitigating actions required to manage resistance and conflict associated with executing the change, at a practical level with their respective teams or in their respective departments.

Based on the aforementioned discussion of the results pertaining to change leadership phases and associated leader competencies or behaviours and individual innovative work behaviour within the context of crisis, the researcher has made recommendations regarding the required leadership competencies/behaviours an organisational leader would be required to demonstrate in the context of crisis, in order to positively impact various individual innovative work behaviours and as a result improve innovative behaviour at an individual level within their organisation. The latter shall be discussed within the succeeding discussion detailing the recommendations stemming from the study.

In conclusion, with respects to the research hypothesis advanced within the study, the relationship between change leadership and individual innovative behaviour was found to be significant and positive, and as such supports the hypothesis of this study. Therefore the 'Null Hypothesis (H_0): 'Change leadership is not positively related to individual innovative behaviour in a crisis context', in not accepted and as a result the '*Alternative Hypothesis (H_1): '*Change leadership is positively related to individual innovative behaviour in a crisis context', is accepted.

Accordingly, an affirmative response is advanced as a response to the Research Question: *is change leadership positively related to individual innovative behaviour within the context of crisis?* This is due to the fact that the total effect of change leadership overall, was positively correlated and significant to individual innovative behaviour overall, therefore supporting the study Hypothesis.

7 CONCLUSION AND RECOMMENDATIONS

7.1 Introduction

Zenger et al., (2000) suggest that, 'ultimately leadership is about change', and therefore involves initiating change, mobilizing others to change and maintaining change (Smit, 2003). As a result leadership must be understood in the context of change (Higgs & Rowland 2000). Accordingly, leadership contributes to the management of change (Boin et al., 2013; Bundy et al., 2017).

It is further suggested however, that the cultivation of innovation within organisations is critical for organisational recovery and performance specifically in times of crisis as crises are regarded as uncertain events which are triggered by change, and therefore require the intervention of organisational innovation practices in order to address its specific consequences (Jaroensutiyotin et al., 2019). Change leadership therefore serves to create a sense of urgency when addressing a targeted change or triggered change event, that is, a crisis, as the change leader communicates a vision to the organisation with the aim of increasing employee engagement during change implementation (Jaroensutiyotin et al., 2019). As a result, change leadership plays a pivotal role in times of crisis, as leaders, through encouragement, exert influence on their followers to be innovative and creative, with effective leadership tending to promote employee innovation levels and behaviours to improve performance outcomes in times of crisis (Fragouli & Ibidapo, 2015).

Consequently, individual innovative work behaviour (IWB) is positively impacted by change leadership in times of crisis (Anderson, et al., 2014), which renders the cultivation of innovation within organisations as critical for organisational recovery and performance in times of crisis (Jaroensutiyotin et al., 2019).

The research therefore investigated the relationship between change leadership and individual innovative work behaviour within the context of crisis. The research question and associated hypothesis aimed to determine the correlation between change leadership and individual innovative work behaviour (IWB) within the context of crisis.

7.2 Implications for Organisational Leaders

Bowers et al., (2017), suggest that suitable leadership style (also known as a leader's behaviour) which is aliged with organisational culure, remains critical when managing crises, but notably, that leadership behaviours impact the effective handling of a crisis, as not all leadership behaviours are best suited to the effective management of crises.

Within this study, the relationhip between change leadership and individual innovative work behaviour was investigated in order to ascertain the etent to which change leadership may inffluence individual work behaviour during a ciris event.

Extant literature details this relationship within, typical conditions, as such this study was conducred in order to address a slight gap in literature as to the relationship between leadershership, in this instance change leaderhip, and its effects on individual innovative work behaviour under atypical conditions, that is, within a crisis context, the very nature of which calls for the intervention of organisational innovation practices in order to address its specific consequences and ensure organisational recovery and performance in times of crisis (Jaroensutiyotin et al., 2019).

The study therefore theorised and found that change leadership is positively related to individual innovative work behaviour, as such it has a direct positive inflluence on individual innovative work behaviour, within the context of crisis.

The findings of this study were within the expected range of results and support the suggestion that leadership is a crucial contributor to shaping individual innovative behaviour in the context of crisis, more so change leadership, given that it has a specific focus on crisis-induced changes and that leaders through exercising influence encourage individuals to adopt innovative behaviour. In addition, the reference study findings suggest that change leadership increases employee engagement in the change implementation process and additionally encourages employees to adopt innovative behaviour. (Jaroensutiyotin et al., 2019).

The research findings further confirm those of previous literature related to change leadership and individual innovative work behaviour within the context of crisis, and extend those of previous literature through identifying specific leadership competencies or behaviours to be employed during times of crisis, in order to best influence individual innovative work behaviour (IWB) within organisations, throughout the change phases of Goal Framing, Capacity Building, Defusing resistance and conflict and change execution, and Institutionalizing. It is of importance to note however, that the findings of this study further extend those of existing literature in that it highlights that there may be a point reached within the change leadership process where managers as key implementers and executors of the actual change effort, may become preoccupied with the execution of the change and the mitigating actions associated with diffusing resistance and conflict to the change process, that marginal returns and even small negative returns may be seen on their own engagement with and adoption of innovative work behaviours. This is consistent with the fact that the organisational leaders in fulfilling their role as change leaders, in practice, are the predominant actors in operationalizing leadership competencies within Goal Framing, Capacity Building, and the Institutionalizing phases of the change leadership process while in contrast, the various levels of management below the organisational leader, typically become the predominant actors in operationalizing leadership competencies associated with Defusing resistance and conflict and change execution, as they actually execute the change and undertake

mitigating actions required to manage resistance and conflict associated with executing the change, at a practical level within their respective teams or in their respective departments.

Based on the aforementioned discussion of the findings pertaining to change leadership and associated leader competencies or behaviours and individual innovative work behaviour within the context of crisis, it is evident that this study has practical implications for organisational leaders and managers alike, as innovation at an individual employee level may be better facilitated or improved through the change leader's execution of required leadership competencies or behaviours within the context of crisis. The researcher therefore recommendations that within a crisis context, change-oriented behaviour be adopted by leaders within the Construction and Built Environment sector. In this regarding Figure 6 below demonstrates the required leadership competencies/behaviours an organisational leader would be required to demonstrate in the context of crisis, in order to positively impact various individual innovative work behaviours and as a result improve innovative behaviour at an individual level within their organisation, specifically noting the negative relationship which exists between the leader's diffusing resistance and conflict to change and individual innovative behaviour:

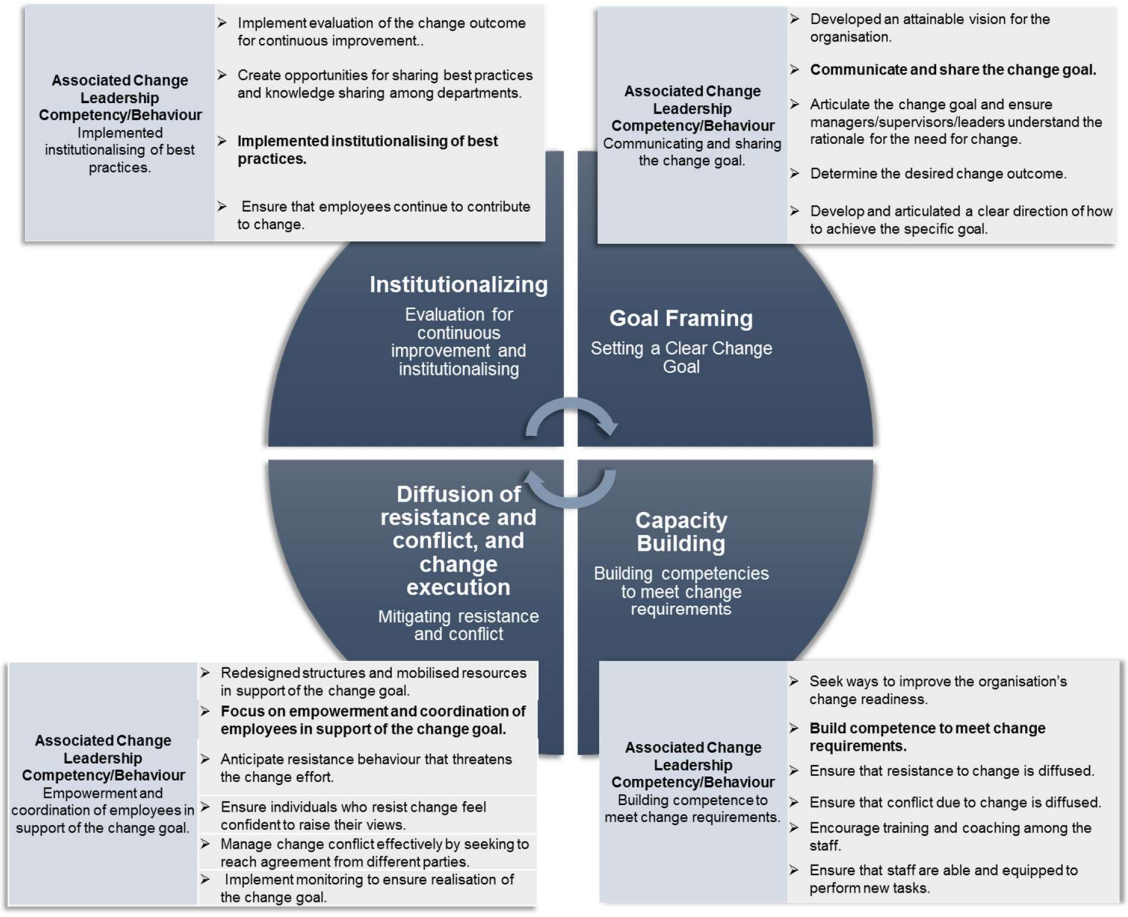

Figure 6: Change Leadership Competencies/ Behaviours which impact individual innovative work behaviour (IWB) within a crisis context

7.3 Limitations and Recommendations for Future Study

The researcher notes the following limitations applicable to the research and also highlights recommendations for future study:

The use of a professionally homogeneous sample inherently limits the generalizability of the study results and the application of trends within construction industry professions to other professions (Kelley et al., 2020). Further, the study did not control for differences in location which may impact respondent perception of crisis. (Kelley et al., 2020).

The researcher was not an expert in designing structured questionnaires, or analysing the resultant data, as such both the input and resultant output of the study may have been impacted by this limitation.

The results cannot be fully extended to other populations as the sample includes only construction industry professionals (Kelley et al., 2020). In addition the minimum required sample size for the study of causal-comparative research methods testing a two-tailed hypothesis was identified as being approximately 51 participants (Collins, 2015), however, this number of participants was not reached (80% of the aforementioned required total number of respondents participated in this study), as such the results are not generalizable and cannot be fully extended to other populations.

As the research design is cross-sectional and therefore represents a snap-shot of the crisis at a given point in time, this presents constraints with regards to fully understanding the causality among the variables examined. Therefore it may be difficult to infer causality from the results of the current study. In this regard it may be recommended that a longitudinal study be undertaken in order to assist in better understanding the variables under examination and the causal relationship between them at different points in time (Jaroensutiyotin et al., 2019).

Data was only collected from employees who had experienced a crisis at least once. In order to improve the generalizability of findings, it is recommended that employees who have experienced more than one crisis be studied in future research (Jaroensutiyotin et al., 2019). Moreover, the study was conducted within times of crisis, which was denoted as the global COVID-19 pandemic, this may have had the effect of amplifying or reducing participants' perceptions of the two variables under study based on their individual responses to the stressor currently being experienced, that is, the COVID-19 pandemic. It is therefore recommended that future studies be undertaken outside of the time frame of the crisis event in order to control for the possible occurrence of the aforementioned factor.

Lastly, participants within the study were management employees ranging from Supervisory to Executive Management levels only, it is therefore recommended that a more diverse cross-section of employees be targeted for future studies, including management and subordinate levels.

7.4 Conclusion

Change leadership plays a pivotal role in times of crisis, as leaders, through encouragement, exert influence on their followers to be innovative and creative, with effective leadership tending to promote employee innovation levels and behaviours to improve performance outcomes in times of crisis (Fragouli & Ibidapo, 2015). Change leadership further increases employee engagement in the change implementation process and more importantly encourages employees to adopt innovative behaviour. (Jaroensutiyotin et al., 2019). The positive relationship between change leadership and individual innovative behaviour in the context of crisis, provides leaders with a guideline regarding the change-oriented behaviour that should be adopted by change leaders within the Construction and Built Environment sector to ensure that organisational leaders' competencies/behaviours during this crucial time, positively impacts individual innovative work behaviour and as a result improves innovative behaviour at an individual level within their organisation.

Because innovation has proven critical to achieving organisational effectiveness given the rapidly changing business environment (Shin, Yuan & Zhou, 2017), a failure on the organisation's part to innovate is a threat to its survival and sustainability. For this reason, organisations must continuously cultivate an innovation climate to remain competitive as an act of survival and sustainability (Shanker, Bhanugopan, Van der Heijden, & Farrell, 2017), and is a critical contributor to organisational recovery and performance in times of crisis Jaroensutiyotin etal., (2019).

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9 APPENDICES

9.1 Appendix 1: Questionnaire Section 1 – Consent and Demographic Information

EXIT

The effect of change leadership on employee innovative behaviour in the context of crisis

Study Context

The study seeks to test the relationship between change leadership and employee innovative behaviour within the specific context of crisis. To this end, a crisis is defined as a high impact, low probability event which is external to the organisation and threatens organisational viability. Further it is regarded as an uncertain event which is triggered by change, and requires the intervention of organisational innovation practices in order to address its specific consequences. The cultivation of innovation, as a result, is critical for organisational recovery and performance in times of crisis (Jaroensutiyotin, Wang, Ling, & Chen, 2019).

Research suggests that leadership contributes to the management of change (Boin, Kuipers, & Overdijk, 2013; Bundy, Pfarrer, Short, & Coombs, 2017) and individual innovative behaviour in times of crisis (Anderson, et al., 2014). Leaders, through encouragement, exert influence on their followers to be innovative and creative, and as a result effective leadership tends to promote employee innovation levels and behaviours to improve performance outcomes in times of crisis (Fragouli & Ibidapo, 2015).

50%

Declaration and Test for Eligibility

* 1. I agree to participate in the research study. I am participating voluntarily and understand the purpose of the study. I understand that I have the option to withdraw from the study at any time, without consequence or penalty.

◯ Yes

- ◯ No

* 2. I am currently employed and actively discharging duties within the construction and built-environment sectors.

- ◯ Yes
- ◯ No

* 3. Is your organisation currently or has your organisation experienced crisis in the past? (Crisis is defined as a high impact, low probability event which is external to the organisation and threatens organisational viability).

- ◯ Yes
- ◯ No

Respondent Background

This section of the questionnaire focuses on a number of introductory questions which relate to you as a respondent and your organisation. Kindly answer the questions by selecting the most appropriate response as it relates to you.

4. Which age group are you in?

- ◯ 18-20
- ◯ 21-25
- ◯ 26-30
- ◯ 31-39
- ◯ 40-49
- ◯ 50-59
- ◯ 60+

5. What is your gender?

- ◯ Male
- ◯ Female
- ◯ Prefer not to disclose

6. What is your highest level of qualification?

- ◯ None
- ◯ Primary School
- ◯ Secondary School
- ◯ Matric
- ◯ Certificate/N-courses
- ◯ Higher Certificate
- ◯ National Diploma
- ◯ National Higher Diploma
- ◯ BTec Degree
- ◯ Bachelors Degree
- ◯ Honours Degree
- ◯ Masters Degree
- ◯ Doctors degree

7. What is the size of the organisation you work in?

- ◯ Micro (< 10 employees)
- ◯ Small (10 - 50 employees)

- ◯ Medium (51 - 250 employees)
- ◯ Large (> 250 employees)

* 8. Which of the following best describes the nature of the organisation you work in?

- ◯ Contractor/ Construction Firm
- ◯ Consultancy Firm
- ◯ Engineering Firm
- ◯ Other

Other (please specify)

* 9. Which of the following best describes the geographical footprint of the organisation you work in?

- ◯ Operates in South Africa only
- ◯ Operates in South Africa and Internationally
- ◯ Operates Internationally (outside of South Africa)
- ◯ Other

Other (please specify)

10. How many years have you worked in the company in question?

- ◯ <1 year
- ◯ 1 - 3 years
- ◯ >3 but less than or equal to 5 years
- ◯ >5 years but less than or equal to 10 years

- ◯ >10 years but less than or equal to 15 years
- ◯ >15 years

* 11. Which of the following best describes your role within the organisation you work in?

- ◯ Supervisor
- ◯ First Line/ Junior Manager
- ◯ Middle Manager
- ◯ Senior Manager
- ◯ Executive Manager
- ◯ General Manager
- ◯ Other

Other (please specify)

* 12. How many years of work experience do you have in the above role?

- ◯ <1 year
- ◯ 1 - 3 years
- ◯ >3 years but less than or equal to 5 years
- ◯ >5 but less than or equal to 10 years
- ◯ >10 years but less than or equal to 15 years
- ◯ >15 years

Prev Next

9.2 Appendix 2: Questionnaire Section 2 – Change Leadership within the Context of Crisis

EXIT

The effect of change leadership on employee innovative behaviour in the context of crisis

Change Leadership in the context of crisis as experienced by the organisation

The prevailing literature has over time advanced several definitions of leadership, however the common theme among them have has been the mobilizing and directing of others towards goal setting and goal achievement. Kotter (1999) further suggested that leadership is a process that is associated with change as leadership is defined as the setting of a strategic direction, and development of strategy in order to move forward in that very direction, in other words, the creation and achievement of a vision. Further, leaders challenge the status quo which inherently renders leadership as change focused (Cairns, 2000). Similarly Elliott (1992) suggests that in the absence of change, leadership had in fact not occurred. In support hereof, Yukl (2002) further suggests that the fundamental role of a leader is to lead change, and that all else is secondary hereto. It can therefore be concluded that, 'ultimately leadership is about change' (Zenger, Ulrich & Smallwood, 2000), and involves initiating change, mobilizing others to change, maintaining change (Smit 2003). As a result leadership must be understood in the context of change (Higgs & Rowland 2000).

A crisis is defined as a high impact, low probability event which is external to the organisation and threatens organisational viability. Further it is regarded as an uncertain event which is triggered by change, and requires the intervention of organisational innovation practices in order to address its specific consequences (Jaroensutiyotin, Wang, Ling, & Chen, 2019). With reference to the crisis/crises experienced by your organisation, kindly provide your response to the following questions:

Change Leadership (Kin, Kareem, Nordin, & Bing, 2014) and (Jaroensutiyotin, Wang, Ling, & Chen, 2019)

Change Phase - Goal Framing
Leader Behaviour/Competency - Setting a clear change goal

13. In a crisis context our organisational leader developed an attainable vision for the organisation.

- ◯ Strongly disagree
- ◯ Disagree
- ◯ Neither agree nor disagree
- ◯ Agree
- ◯ Strongly agree

14. In a crisis context our organisational leader communicated and shared the change goal.

- ◯ Strongly disagree
- ◯ Disagree
- ◯ Neither agree nor disagree
- ◯ Agree
- ◯ Strongly agree

15. As a manager/supervisor/leader, I understood the rationale for the need for change as articulated by our organisational leader in a crisis context.

- ◯ Strongly disagree
- ◯ Disagree

- ◯ Neither agree nor disagree
- ◯ Agree
- ◯ Strongly agree

16. In a crisis context our organisational leader determined the desired change outcome.

- ◯ Strongly disagree
- ◯ Disagree
- ◯ Neither agree nor disagree
- ◯ Agree
- ◯ Strongly agree

17. In a crisis context our organisational leader developed and articulated a clear direction of how to achieve a specific goal.

- ◯ Strongly disagree
- ◯ Disagree
- ◯ Neither agree nor disagree
- ◯ Agree
- ◯ Strongly agree

Change Phase - Capacity building
Leader Behaviour/Competency - Building competence to meet change requirements

18. In a crisis context our organisational leader sought ways to improve the organisation's change readiness.

- ◯ Strongly disagree

- ◯ Disagree
- ◯ Neither agree nor disagree
- ◯ Agree
- ◯ Strongly agree

19. In a crisis context our organisational leader set out to build competence to meet change requirements.

- ◯ Strongly disagree
- ◯ Disagree
- ◯ Neither agree nor disagree
- ◯ Agree
- ◯ Strongly agree

20. In a crisis context our organisational leader sought to ensure that resistance to change is diffused.

- ◯ Strongly disagree
- ◯ Disagree
- ◯ Neither agree nor disagree
- ◯ Agree
- ◯ Strongly agree

21. In a crisis context our organisational leader sought to ensure that conflict due to change is diffused.

- ◯ Strongly disagree
- ◯ Disagree

- ◯ Neither agree nor disagree
- ◯ Agree
- ◯ Strongly agree

22. In a crisis context our organisational leader encouraged training and coaching among the staff.

- ◯ Strongly disagree
- ◯ Disagree
- ◯ Neither agree nor disagree
- ◯ Agree
- ◯ Strongly agree

23. In a crisis context our organisational leader ensured that staff are able and equipped to perform new tasks.

- ◯ Strongly disagree
- ◯ Disagree
- ◯ Neither agree nor disagree
- ◯ Agree
- ◯ Strongly agree

Change Phase - Defusing resistance and conflict and Change execution
Leader Behaviour/Competency - Mitigating resistance and conflict

24. In a crisis context our organisational leader redesigned structures and mobilised resources in support of the change goal.

- ◯ Strongly disagree
- ◯ Disagree
- ◯ Neither agree nor disagree
- ◯ Agree
- ◯ Strongly agree

25. In a crisis context our organisational leader focused on empowerment and coordination of staff in support of the change goal.

- ◯ Strongly disagree
- ◯ Disagree
- ◯ Neither agree nor disagree
- ◯ Agree
- ◯ Strongly agree

26. In a crisis context our organisational leader anticipated resistance behaviour that threatens the change effort.

- ◯ Strongly disagree
- ◯ Disagree
- ◯ Neither agree nor disagree
- ◯ Agree
- ◯ Strongly agree

27. In a crisis context our organisational leader made individuals who resist change feel confident to raise their

Individuals who resist change feel confident to raise their views.

- ◯ Strongly disagree
- ◯ Disagree
- ◯ Neither agree nor disagree
- ◯ Agree
- ◯ Strongly agree

28. In a crisis context our organisational leader managed change conflict effectively by seeking to reach agreement from different parties.

- ◯ Strongly disagree
- ◯ Disagree
- ◯ Neither agree nor disagree
- ◯ Agree
- ◯ Strongly agree

29. In a crisis context our organisational leader implemented monitoring to ensure realisation of the change goal.

- ◯ Strongly disagree
- ◯ Disagree
- ◯ Neither agree nor disagree
- ◯ Agree
- ◯ Strongly agree

Change Phase - Institutionalising
Leader Behaviour/Competency - Evaluation for

continuous improvement and institutionalising

30. In or after the crisis context our organisational leader implemented evaluation of the change outcome for continuous improvement.

- ◯ Strongly disagree
- ◯ Disagree
- ◯ Neither agree nor disagree
- ◯ Agree
- ◯ Strongly agree

31. In or after the crisis context our organisational leader created opportunities for sharing best practices and knowledge sharing among departments.

- ◯ Strongly disagree
- ◯ Disagree
- ◯ Neither agree nor disagree
- ◯ Agree
- ◯ Strongly agree

32. In or after the crisis context our organisational leader implemented institutionalising of best practices.

- ◯ Strongly disagree
- ◯ Disagree
- ◯ Neither agree nor disagree
- ◯ Agree
- ◯ Strongly agree

33. In or after the crisis context our organisational leader ensured that employees continue to contribute to change.

- ◯ Strongly disagree
- ◯ Disagree
- ◯ Neither agree nor disagree
- ◯ Agree
- ◯ Strongly agree

Prev Next

9.3 Appendix 3: Questionnaire Section 3 – Employee Innovative Work Behaviour within the Context of Crisis

EXIT

The effect of change leadership on employee innovative behaviour in the context of crisis

Employee Innovative Work Behaviour in the context of crisis as experienced by the organisation

The importance of innovative work behaviour (IWB) within the context of the organization is well substantiated within the extant literature. Innovative work behaviour involves the intentional introduction and implementation of novel ideas in order to propose new solutions to existing problems, such that an improvement is achieved in products/services, and new opportunities are proactively explored (De Jong & Den Hartog, 2010; Dong & Hawryszkiewycz, 2019). Moreover, innovation has been widely accepted as a critical contributor in organizational success with one of the most fundamental ways for organizations to become innovative being through capitalizing on employee' innovative work behaviour (IWB) which in turn ensures continuous effectiveness and success. IWB suggest that employees can contribute to their organization's success by utilizing their innovative capabilities in order to generate novel ideas, and by implementing these ideas for the improvement of organizational products/services and or procedures (Hom & Xiao, 2011; Yuan & Woodman, 2010).

A crisis is defined as a high impact, low probability event which is external to the organisation and threatens organisational viability. Further it is regarded as an uncertain event which is triggered by change, and requires the intervention of organisational innovation practices in order to address its specific consequences (Jaroensutiyotin, Wang, Ling, & Chen, 2019). With reference to the crisis/crises experienced by your organisation, kindly provide your response to the following questions:

100%

Employee Innovation (Munir & Beh, 2019) and (Muchiri, McMurray, Nkhoma, & Pham, 2020)

Idea Generation

34. In a crisis context I am supported and encouraged to exercise freedom in generating new ideas.

- ◯ Never
- ◯ Rarely
- ◯ Sometimes
- ◯ Often
- ◯ Always

35. In a crisis context I am supported and encouraged to trying new things.

- ◯ Never
- ◯ Rarely
- ◯ Sometimes
- ◯ Often
- ◯ Always

36. In a crisis context I am exposed to more challenging assignments.

- ◯ Never
- ◯ Rarely
- ◯ Sometimes
- ◯ Often

- ◯ Always

37. In a crisis context I feel more engaged in my work assignments.

- ◯ Never
- ◯ Rarely
- ◯ Sometimes
- ◯ Often
- ◯ Always

38. In a crisis context I am able to exercise autonomy in my assignments.

- ◯ Never
- ◯ Rarely
- ◯ Sometimes
- ◯ Often
- ◯ Always

39. In a crisis context I am empowered to be innovative.

- ◯ Never
- ◯ Rarely
- ◯ Sometimes
- ◯ Often
- ◯ Always

40. In a crisis context I have enough time at work to come

up with new ideas or be innovative.

- ◯ Never
- ◯ Rarely
- ◯ Sometimes
- ◯ Often
- ◯ Always

41. In a crisis context I feel that I am comfortable with and can trust my organisation to support new ideas.

- ◯ Never
- ◯ Rarely
- ◯ Sometimes
- ◯ Often
- ◯ Always

42. In a crisis context my immediate work environment can still be described as a ‘humorous work climate’.

- ◯ Never
- ◯ Rarely
- ◯ Sometimes
- ◯ Often
- ◯ Always

Idea Promotion

43. In a crisis context I am encouraged to engage in social interactions with other colleagues.

- ◯ Never
- ◯ Rarely
- ◯ Sometimes
- ◯ Often
- ◯ Always

44. In a crisis context I am encouraged to build networks and partner with other colleagues.

- ◯ Never
- ◯ Rarely
- ◯ Sometimes
- ◯ Often
- ◯ Always

45. In a crisis context I am encouraged to express my ideas, suggestions, concerns or opinions about work-related issues which may improve my department or the organisation.

- ◯ Never
- ◯ Rarely
- ◯ Sometimes
- ◯ Often
- ◯ Always

46. In a crisis context our organisational leaders demonstrate connectedness.

- ◯ Never
- ◯ Rarely
- ◯ Sometimes
- ◯ Often
- ◯ Always

47. In a crisis context our organisational leaders encourage innovative behaviour.

- ◯ Never
- ◯ Rarely
- ◯ Sometimes
- ◯ Often
- ◯ Always

48. In a crisis context our organisational leaders engage in innovative behaviour.

- ◯ Never
- ◯ Rarely
- ◯ Sometimes
- ◯ Often
- ◯ Always

49. In a crisis context our organisational leaders support employees' innovative thinking.

- ◯ Never
- ◯ Rarely
- ◯ Sometimes
- ◯ Often
- ◯ Always

50. In a crisis context I am encouraged to debate, challenge and exchange ideas verbally with others.

- ◯ Never
- ◯ Rarely
- ◯ Sometimes
- ◯ Often
- ◯ Always

51. In a crisis context I am encouraged to engage in constructive conflict when making decisions or developing solutions.

- ◯ Never
- ◯ Rarely
- ◯ Sometimes
- ◯ Often
- ◯ Always

52. In a crisis context my organisation does not approve of employee risk-taking when making decisions or developing

solutions.

- ◯ Never
- ◯ Rarely
- ◯ Sometimes
- ◯ Often
- ◯ Always

Idea Implementation

53. In a crisis context our organisation cultivates an innovation climate.

- ◯ Never
- ◯ Rarely
- ◯ Sometimes
- ◯ Often
- ◯ Always

54. In a crisis context I am supported and encouraged to exercise freedom in implementing new ideas.

- ◯ Never
- ◯ Rarely
- ◯ Sometimes
- ◯ Often
- ◯ Always

55. In a crisis context our organisational leader supports employees' implementation of new or innovative ideas.

- ◯ Never
- ◯ Rarely
- ◯ Sometimes
- ◯ Often
- ◯ Always

End of Survey. Thank you.

Prev Done

9.4 Appendix 4: Participant Consent

EXIT

The effect of change leadership on employee innovative behaviour in the context of crisis

Study Context

The study seeks to test the relationship between change leadership and employee innovative behaviour within the specific context of crisis. To this end, a crisis is defined as a high impact, low probability event which is external to the organisation and threatens organisational viability. Further it is regarded as an uncertain event which is triggered by change, and requires the intervention of organisational innovation practices in order to address its specific consequences. The cultivation of innovation, as a result, is critical for organisational recovery and performance in times of crisis (Jaroensutiyotin, Wang, Ling, & Chen, 2019).

Research suggests that leadership contributes to the management of change (Boin, Kuipers, & Overdijk, 2013; Bundy, Pfarrer, Short, & Coombs, 2017) and individual innovative behaviour in times of crisis (Anderson, et al., 2014). Leaders, through encouragement, exert influence on their followers to be innovative and creative, and as a result effective leadership tends to promote employee innovation levels and behaviours to improve performance outcomes in times of crisis (Fragouli & Ibidapo, 2015).

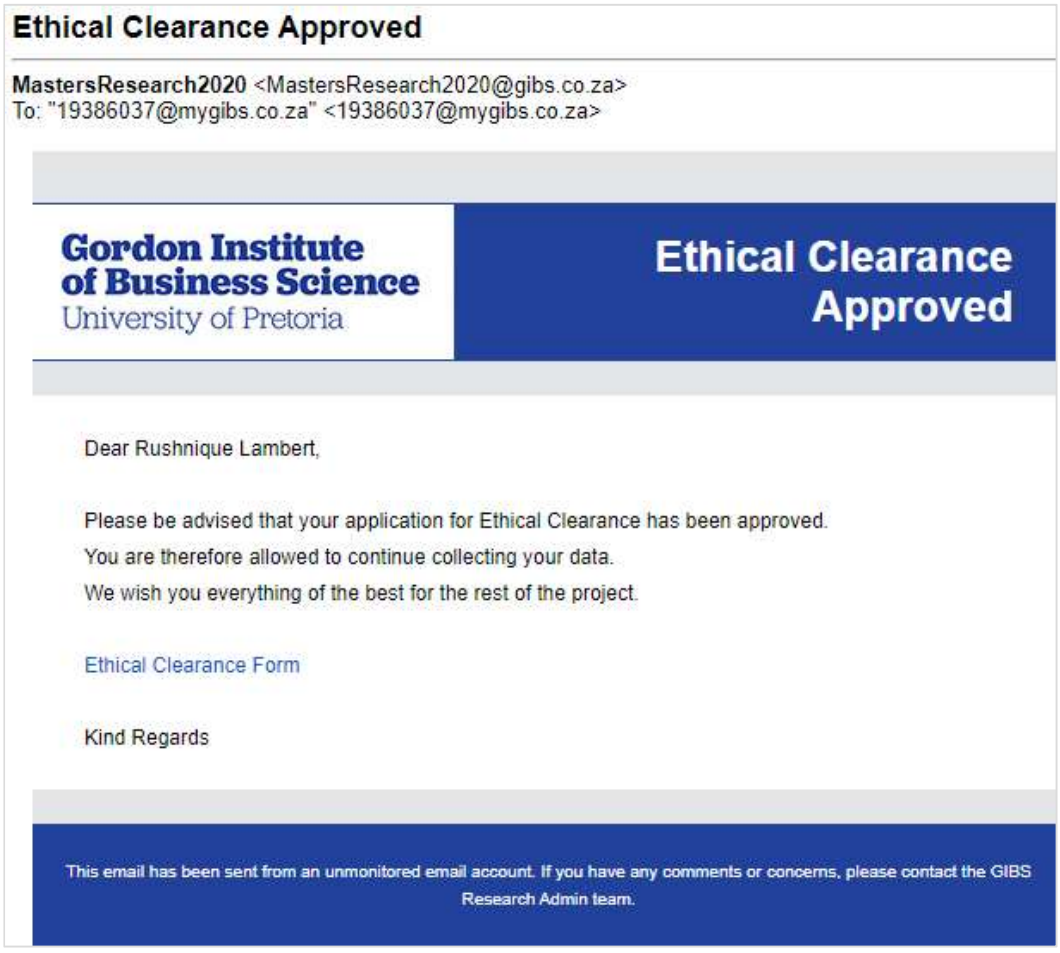
50%

Declaration and Test for Eligibility

* 1. I agree to participate in the research study. I am participating voluntarily and understand the purpose of the study. I understand that I have the option to withdraw from the study at any time, without consequence or penalty.

◯ Yes

9.5 Appendix 5: Ethical Clearance



Ethical Clearance Approved

MastersResearch2020 <MastersResearch2020@gibs.co.za>
To: "19386037@mygibs.co.za" <19386037@mygibs.co.za>

Gordon Institute of Business Science
University of Pretoria

Ethical Clearance Approved

Dear Rushnique Lambert,

Please be advised that your application for Ethical Clearance has been approved.
You are therefore allowed to continue collecting your data.
We wish you everything of the best for the rest of the project.

Ethical Clearance Form

Kind Regards

This email has been sent from an unmonitored email account. If you have any comments or concerns, please contact the GIBS Research Admin team.