**Gordon Institute
of Business Science**
University of Pretoria

The moderating role of performance management systems effectiveness in transformational leadership-innovative work behaviour relationship

21752801

A research project submitted to the Gordon Institute of Business Science, University of Pretoria, in partial fulfilment of the requirements for the degree of Master of Business Administration.

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ABSTRACT

This study examined the relationships between transformational leadership and innovative work behaviour, as well as the moderating relationships of the perceived effectiveness of performance management system in this relationships. The study used a quantitative approach and survey design with 270 knowledge workers across multiple industries to ensure heterogeneity in the data. The moderated regression analyses did not find support for the moderating role of performance management system effectiveness, but confirmed the relationship between transformation leadership and innovative work behaviours. A further comparison was conducted between the respective influence of transformational leadership and performance management systems effectiveness on employee innovative work behaviour. Using multiple linear regression analysis, the results showed that performance management systems effectiveness had a greater significance impact than transformational leadership on innovative work behaviour. The results therefore contribute to an understanding of the antecedents of innovative work behaviour, and holds practical implications. Specifically, the research suggests that organisations should focus on ensuring that their performance management systems are seen as accurate and fair as part of their strategies to encourage innovative work behaviour in the organisation.

KEYWORDS

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 authorization and consent to carry out this research.

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CONTENTS

LISTS OF FIGURES

LIST OF TABLES

CHAPTER 1: INTRODUCTION TO THE RESEARCH PROBLEM

This section will cover the introduction to the research, background information, the research problem, and the business implications of the study. The significance of understanding the resultant factors inducing innovation is thoroughly discussed from a business and theoretical perspective. The lens of transformational leadership and performance management systems frames the discussion. The theory concepts mentioned in this section will be explored in detail in the literature review in Chapter two.

1.1 Introduction

The effectiveness of performance management systems, transformational leadership, and innovative work practices are the main topics of this study. To understand the background of the study, it is essential to know that several significant technical inventions were made in our human history due to scientific improvements brought about by basic innovative capabilities (Fukuda, 2020). Innovation becomes a core workforce competency focused on innovative ideas, products, concepts or ways of working. Innovative work behaviours refer to an employee's intentional inclination to develop ideas and their ability to implement them to benefit the organisation (Janssen, 2000). While innovation within a firm has advantages, business leaders do not always understand how to implement creative work practices or produce innovative results from employees.

Managers' leadership styles can impact a firm's inclination towards creative and innovation capabilities through the direct impact of the leader's follower exchange (Jung et al., 2003). Transformational leadership is a type of leadership that encourages followers to believe in their abilities by supporting innovation and employee creativity (Afsar et al., 2014). We also know that leadership quality impact followers' motivation, performance, and creativity (Hsiao et al., 2011). Understanding leadership in the context of innovation and performance management can help with understanding how to influence desired employee behaviour or results.

Considering that the research investigates the relationship of transformational leadership and innovative work behaviours, one also has to consider other factors that play a role in this relationship. This research argues that one such variable is the effectiveness of performance management systems.

Performance management system's effectiveness refers to how well employees' attitudes and behaviours are aligned with the business's goals or interests (Folan and Browne, 2005). According to Franco-Santos and Otley (2018), an array of intended or unintended situational circumstances can impact employee performance management with unintentional results. It becomes crucial to understand the role and context in which employee performance is managed. Studying the context of a leadership style can provide a perspective on the effectiveness of performance management systems.

There are benefits to leadership behaviours that trickle down into employee behaviour. Therefore, it is proposed that if done effectively, the act of leadership could assist in implementing employee performance management systems. This study proposes to investigate these concepts through innovative work behaviour as an induced mechanism and resultant behaviour. The study questioned if a company's view on human resource policy and leadership style could be coupled to yield a more substantial effect. The research, therefore, investigates the moderating effect of performance management systems effectiveness on transformational leadership in the context of innovative work behaviour.

1.2 Background to the Study

This research is based on a fundamental question in business on how to drive innovation, as innovation behaviour is linked to growth, survival, and industry shifts, while the performance of an organisation is linked to how well the innovation potential is extracted (Audretsch, 2004). Firms that have focused their strategy on innovation have benefited from the competitive advantage by creating new methods or original products (Janssen et al., 2011). Studying the output of innovative work behaviour becomes critical to feeding into business decisions.

According to Rypestøl et al. (2022) building a firm's innovative capabilities gives a firm the ability to deal with the crisis and create novel development strategies amid economic downturns or when there are shocks to the economy. This bares relevance to the global climate and ecosystem conditions facing businesses today and in the future. Table 1 depicts the top five turbulent global events that impacted global economies in 2022. Consequently, the global environmental changes that resulted from these unpredictable events impacted small and large businesses. Thus the competency of a firm's capabilities geared towards innovation bares critical and relevant given the turbulence within the global markets. The rate of global development has led organisations to question their employee's contribution to innovation (Leong and Rasli, 2014). There is great significance placed on the advantageous nature of innovation, but the mystery solution to measuring and supporting employee innovation in the business environment does not appear as obvious. Research into innovative work behaviours can perhaps provide an answer to business leaders.

Table 1: World economic forum uncertainties that impacted global economies in 2022, (World Economic Forum, 2022)

No.	Top 5 occurrences of 2022 that impacted global markets
1.	Higher-than-expected inflation worldwide
2.	China's economic slowdown
3.	Consequential COVID- 19 outbreaks and lockdowns
4.	The Russian invasion of Ukraine
5.	Climate change events (Excessive global: floods, drought, and rains)

Investments in innovation studies and research will enable executives to make better decisions in carrying out their responsibilities and enhance their firm's chances of withstanding a global economic crisis or any other macroeconomic disruption to the global environment. Extending innovation capabilities to employees in a firm creates the ability to leverage the firm's creative process towards problem-solving (Leten et al., 2022). Therefore, identifying an innovative opportunity in business sits at the individual level of a firm's employee's ability to determine value, mobilise resources and exercise creative judgment (Holmén and Magnusson, 2007). Given that innovation offers advantageous contributions to a firm's development, the factors

contributing to innovation become vital in its examination at the individual level. What further intrigues is that innovation as an outcome can result from various business conditions or circumstances. Considering that all businesses have to utilise some form to measure individual performance at a firm, it sparks a further conversation about how effective performance management systems are in promoting innovation.

It is well known that leadership has an important role to play in driving innovation. Considering that a business cannot exist without leadership implies that the study of leadership is directly linked to the sustainability and well-being of a firm. Leadership influences performance systems, impacting employees' psychological well-being, motivation, and overall ability to perform (Hartinah et al., 2020). Thus, leadership should form a primary target in research to provide sustainable management of human resources (Jo et al., 2020). Leaders are required for the basic functioning of the business world and beyond. Leaders are crucial in setting the direction of non-profit organisations, entities, corporations and even governmental organisations. Therefore, studying leadership under different conditions can provide essential data or knowledge to understand these formal environments with greater appreciation. The research will look specifically at transformational leadership.

According to Bass (1999) transformational leadership inspires, stimulates employee intellect, and these leaders are highly considerate of employees. Therefore a leader's behaviour and leadership style can impact employee outputs. Transformational leadership is considered a more effective leadership style for business, which lapses into an impression within organisations that favours the selection of transformational leadership-styled leaders (Bass, 1999). Insight Success (2022) reported that while there are eight prominent leadership styles, transformational leadership is considered the most effective due to its ability to increase innovation, creativity and boost team morale.

Finally, performance management systems refer to practices or policies that support processes, tools, planning and evaluation of employees' performance (Busco et al., 2008). Performance management can be a formal and informal system to align employees and resources to meet the company's strategy or goals (Mckinsey, 2017). Current global performance management system costs are listed in Figure 1. The average cost among the top four performance management systems is

approximately R46200 (Capterra, n.d.). Dennis (2021) supported that performance management systems can encourage innovation as the system implements goals that can provide an incentive for developing effective approaches.
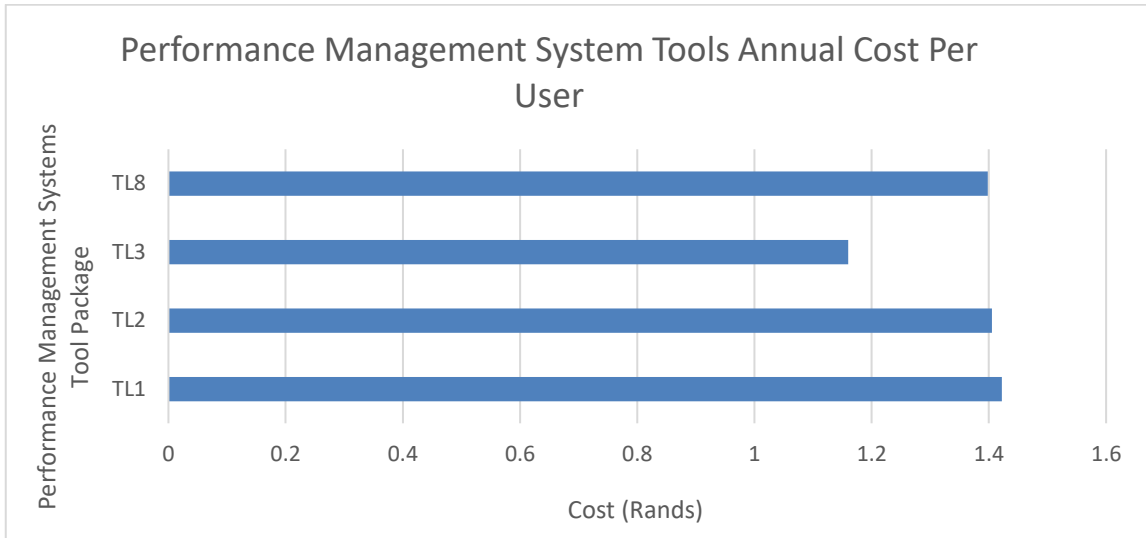
Figure 1: Top Performance Management Systems Tool Package Costs Per Annum Per User (Capterra, n.d.)

This study raises a critical budgetary question. Is it worth spending large sums on performance management systems, or if it is beneficial for the organisation to invest in transformational leaders if innovation is considered a critical component. There is also the mystery of the impact of the performance management systems effectiveness on a transformational leader's relationship with his followers. There is a "lack of compelling evidence for the effectiveness of performance management systems, which brings about the debate if performance management systems are even necessary" (Schleicher et al., 2019, p. 851). Considering the questionability of performance management system effectiveness and its increasing implementation costs, the researcher seeks to understand if investing in leadership selection over costly human resource systems to manage performance is worthwhile. With the global costs of performance management systems rising yearly, understanding the impact of performance management systems effectiveness can help executives make informed financial decisions where innovation is the desired outcome.

1.3 Research Problem

From the background of the study, it became clear that as organisations seek to drive innovation, leadership, specifically transformational leadership, has a vital role to play (Bass, 1999; O. Janssen, 2000). With this, it is already known that performance management system effectiveness influences the performance, and arguably the innovative performance of employees (Dennis, 2021).

While literature is not silent regarding creative encouragement among employees, how to encourage the implementation of innovation behaviours through both leadership and the human resources perspective remains underexplored. Performance management systems might hold essential implications in uncovering how management practices can encourage innovative and creative work behaviours in the workplace (Agarwal and Farndale, 2017). Therefore, the study of performance management systems is essential to business development and provides the context to study performance management system effectiveness within the leadership link.

A recent study by Asbari et al. (2020) determined that the transformational leadership style is still very relevant today and has become increasingly desired to promote innovation due to the evolving complexities of the organisational environment. Therefore, transformational leadership behaviour's tightly link to the development of innovation and employee creativity. Although there has been much research on transformational leadership and its definition, further research is needed to shed light on the precise mechanisms through which follower outcomes are influenced (Stock et al., 2022). According to Bass (1999), "much more still needs to be learned about how transformation leadership are affected by the context in which the leadership occurs" (p.23). It is thus proposed that the relationship between transformational leadership and innovation is explored through the transformational leadership and innovative work behaviour relationship imposed upon by performance management systems effectiveness.

This study will investigate what is more impactful, having transformational leadership style managers and or effective performance management systems to evoke innovative work behaviours. This study focuses on the context of leadership, studying transformational leadership and the outcome in terms of innovative work

behaviour while considering the effectiveness of performance management systems. Current research does not cover the moderating variable of the performance management systems effectiveness in the relationship between transformational leadership and innovative work behaviour.

1.4 Research Aim

The research aims to determine if there is a positive linear relationship between transformational leadership and innovative work behaviour. Furthermore, it examines the moderating relationship of performance management system effectiveness influences the direction or strength of the relationship.

Establishing the relationship and the moderating influence will help business leaders to determine the value of transformational leadership and performance management systems effectiveness as the enablers for innovative work behaviour. The research will also determine if the moderating variable of performance management systems effectiveness has a greater significant influence in inducing innovative work behaviour.

1.5 Theoretical Contribution of the Study

Considering the impression given by the literature, Bass (1999), who has conducted over two decades of exploration and advancement into transformational leadership, there seems to be a movement towards a perspective that transformational leadership greatly benefits business and the leader-follower relationship. Some publications contradict the tremendous positive impact of transformational leadership. However, the existing literature of Bass (1999), Tan et al. (2021) and Faraz et al. (2018) provide a substantial case for the relevancy of transformational leadership and, thus, further investigation of transformational leadership within conditional situations is warranted to test the resulting impact.

While the filed of transformational leadership is highly explored, the construct continues to remain highly fragile, with varying results based on different influences subjected to the construct. Exploring transformational leadership within the context of performance management adds value to the debates on the relationship between

transformational leadership and innovation.

1.6 Business Relevance of the Study

Effective performance management systems play a crucial role in sustaining competitive advantage through employee innovation (Gahan et al., 2021). However, due to individual leadership factors, effective performance management systems alone cannot ensure exemplary performance management implementation (Carassus et al., 2014). Organisations spend large sums on performance management systems but do not consider that individual leadership styles may hamper their effectiveness. Performance management systems and transformational leadership impact employee behaviour and the ability to achieve the organisation's goals. For this reason, The findings of the study sheds light on the role of performance management system effectiveness and transformational leadership in driving innovative work behaviour.

This research can inform business leaders on decisions regarding budget allocations, priorities, and the hiring process. The research findings could be used to determine and implement practical human resource and organisational development decisions.

CHAPTER 2: LITERATURE REVIEW

This chapter explores the literature on the three key constructs proposed for evaluation in the research: performance management systems effectiveness, innovative work behaviours and transformational leadership. The definitions of the three constructs forming this study will be discussed in this chapter. Additionally, the relationship between performance management systems effectiveness and innovative work behaviours and the relationship between transformational leadership and innovative work behaviours will be examined. A discussion will be provided on the link between transformational leadership and performance management systems, which will also consider innovative work behaviour as the desired outcome. The literature review covers what is known or has been explored from previous research. Deductions from previous literature and existing findings on the relationships between the constructs will be evaluated to develop considerations to guide the development of the research hypotheses.

2.1 Transformational Leadership

Leadership is a key component to the success or failure of an organisation; thus, how people are directed and motivated by leaders is crucial to achieving an organisational strategic goal (Al Khajeh, 2018). It is proposed that the study of leadership often results in understanding how companies might succeed. There are multiple types of leadership styles and classifications, and one of the most studied forms of leadership is transformational leadership (Avolio and Bass, 1995; Bass, 1999). Transformational leadership is centred around leadership that promotes "influence, intellectual stimulation, individual consideration and inspirational motivation" (Voon et al., 2011, p.25). Table 2 details the various definitions and development of transformational leadership as an evolving concept. According to numerous literary definitions table, it is derived that transformational leadership is based on a leader's capacity to impact an individual by motivating them to support the organisation's objectives; this is accomplished by inspiring, empowering, and believing in subordinates.

Of the several leadership styles, transformational leadership is particularly advantageous over other leadership styles due to its capacity to elicit followers'

talent, energy, engagement, and enthusiasm (Morillo-Shone, 2014). Transformational leadership can enable employees to understand themselves better, encourage employee development, and continuously promote training and flexibility (Ackoff, 1999). Transformational leadership is evolving as a concept as the year's pass, with its key impact on organisational improvement and the stimulation of improvement (Stewart, 2006). Recent research was assessed to expand on a current understanding of transformative leadership. It was found that by supporting subordinates through idea generation, risk-taking, and decision-making, transformational leadership can operate as a vehicle for organisational innovation (Mokhber et al., 2018). Transformational leaders not only promote innovative behaviours and out-of-the-box thinking within the organisation, but the leadership style also promotes innovation throughout the industry (McKeown, 2018). Through their charismatic capacity to sway follower behaviour, transformational leaders are able to strike a balance between change management and the successful implementation of innovative goods and systems (Blomme et al., 2015). There is a clear message from the literature; it is proposed that transformational leadership is a type of leadership that is directly beneficial to business profitability and overall employee growth and career development.

Table 2: Definition of Transformational Leadership

Authors	Definition of Transformational Leadership
(Avolio et al., 1991)	"The four I's that constitute transformational leadership: individual consideration, intellectual stimulation, inspirational motivation and idealised influence" (p.21).
(Bass, 1999)	Transformational leaders are leaders who "uplift the morale, motivation, and morals of their followers" (p.9) and "inspire, intellectually stimulates and is individually considerate" (p.9) of their subordinates.
(Brown & Dodd, 1999)	"Transformational leadership are a composite of charisma (described as idealised influence), intellectual stimulation, individualised attention, and inspirational motivation" (p.291).

(Judge and Bono, 2000)	Transformational leadership is a behaviour that encompasses five personality traits: "neuroticism, extraversion, openness to experiences, and agreeableness" (p.751).
(Raffo and Williams, 2018)	"Transformational leaders emphasise moral values and beliefs, focus on organisation mission and vision, make group interests a priority and motivate followers to transcend self-interests" (p.28).
(Al-Ghazali, 2020)	Transformational leaders are leaders who "believe in change and in doing so, they inspire their followers to be proactive and excel achieving beyond expectations" (p.996).

While it is well-recognised that "leadership is not one size fits all concept" (Ismail & Fathi, 2018, p. 24). The leadership styles and approaches should be appropriately selected, realising the internal and external context in mind (Ismail & Fathi, 2018). This brings around the questioning of the rationale behind selecting the study's focus on transformational leadership. Piotrowski et al. (2011), who examined various forms of leadership, found that transformational leadership "is critically important for team cohesion and team potency/efficacy and leader effectiveness" (p.52). A transformational leadership approach is not always a suitable leadership style, and it is best suited "when both the problem definition and solution involve learning and not the application of a quick fix solution" (Ibarra et al., 2010, p. 2). In light of this, one could contend that the transformational leadership style is the most effective when innovation is desired.

The relationship between transformational leadership and innovation is critical to this study. Extensively covered within Chapter 1 (research background) is the depiction of the business environment's current and future predicted state. Digitisation capabilities, the use of big data and the digitisation of business models are predicted to be significant drivers to enable business growth; thus, leaders are advised to assign employees the necessary tasks to enable them to develop innovative uses of these technologies that are predicted to play a significant role in the future of business (Ritter and Pedersen, 2020). Essen et al. (2022) found that transformational leadership simulates innovative work behaviour at both team and individual levels. Transformational leadership style thus plays a significant role in business growth and

the future. Transformational leaders are said to improve the creative output of employees, and one questions the extent to which this leadership style can impact innovative work behaviours specifically.

Although the primary purpose of leadership and leaders has remained relatively constant throughout human history, leaders' character, behaviour and characteristics are vastly different and create a considerable impact on the organisation (Lonati, 2020). Given the benefits of transformational leadership over other leadership philosophies, additional research is proposed to understand the effects of this leadership style better, making the study beneficial.

2.2 Innovative Work Behaviours

According to Edwards-Schachter (2018), there are various types of innovation, such as "technological innovation", "product innovation", "process innovation", "service innovation", "business model innovation", "disruptive innovation", "radical innovation", "design-driven innovation", "responsible innovation", and "social innovation" (p.67-73). Despite the diversity in innovation forms, there is a belief that a unique, unifying fundamental behaviour unites all innovation types; according to Edwards-Schachter (2018), this behaviour is the transformation of a person's mindset and underlying behaviour. Therefore, this study is relevant since it suggests concentrating on researching innovative work behaviours; as a result, the study is applicable to all types of innovation. Table 3 defines innovative work behaviours from several literary sources. From the definitions table, it can be acknowledged that the core of innovative work behaviours is the ability of employees or individuals to generate new ideas that serve the company and implement such ideas in application thereof.

Table 3: Definition of Innovative Work Behaviours

Authors	Definition of Innovative Work Behaviours
(Janssen, 2000)	"Innovative work behaviour is defined as the intentional creation, introduction and application of new ideas within a work role, group or organisation" (p.287).

(De Jong & Den Hartog, 2010)	"Innovative work behaviours have four dimensions: the exploration, generation, championing and implementation of ideas." (p. 23).
(Afsar & Umrani, 2020)	Innovative work behaviour is "the development of new ideas, technology and techniques, as well as the trial and application of new methods related to business procedures in specific work areas" (p.402).
(Al Essa and Durugbo, 2021)	"Innovative work behaviour is a complex behaviour of employees that generates, introduces, and applies innovative ideas" (p.1).

During trigger events such as COVID-19 and other global events, external shock and post-shock motivations create a demand for creativity and the ability to innovate to guide businesses out of such a predicament (Soluk, 2022). Generating "creative ideas and turning them into innovations is key for competitive advantage" (Acar et al., 2019, p. 96). This leads to the presumption that studying innovation adds significant value to businesses and that knowing how to encourage such an outcome is advantageous to the health and prosperity of businesses.

Learning behaviours, sharing, team reflection, and team activity strongly impact innovative work behaviours in a team setting (Widmann et al., 2016). Al-Omari et al. (2019) investigated the effect of transformational leaders on innovative work behaviours and found that through a transformational leadership style, employees feel supported, which simulates out-of-the-box thinking and commitment to better organisational performance. This implies that innovative work behaviours benefit both the team and the individual. Al-Omari et al. (2019) observations indicated that innovative work behaviours improve organisational performance raising the issue of whether this characteristic also affects individual performance. Although there is already literature showing relationships between transformational leadership and innovation, this study seeks to add further insights. The proposed study examines the role that the management of an individual's performance plays in the relationship between leadership and innovative work behaviours. More specifically, the study argues that organisational system factors drive innovative work behaviour in addition to the personal and interpersonal variables of leadership in innovation. The study

proposes the effectiveness of performance management systems in organisations as such a systems factor, which will be discussed next.

2.1 Performance Management Systems Effectiveness

Performance management can be defined as "a continuous process of identifying, measuring, and developing the performance of individuals, teams and aligning performance with the strategic goals of the organisation" (Aguinis, 2013, p. 2). Performance management systems work in an interlinking cyclical manner with various stages, such as accountability, engagement, appraisal, and reward (Molleman & Timmerman, 2003). According to Chun et al. (2018), "performance evaluations not only provide information on how well employees are doing their jobs, but also signal how the employees are recognised and treated in their workplaces" (p.13). It was gathered that performance management is a procedure in which the accomplishment of team or individual goals is evaluated (Aguinis, 2013; Chun et al., 2018; Molleman and Timmerman, 2003). Achieving performance standards that support essential corporate goals is the foundation of performance management (Haines and St-Onge, 2012).

With the understanding of performance management, it is also important to understand when to apply performance management systems. Previous studies have shown that firms with a differential strategy benefited from performance management systems over firms with low-cost strategies (Galbreath et al., 2022). Thus, it is suggested that not all work situations are suitable for employing performance management systems to evaluate employee accomplishments and that high-skilled people are more suited to these measurement methods than low-skilled workers. A differential strategy proposes something unique and distinct compared to competitors; thus, employee efficiency in innovation and creativity becomes particularly impactful (Bilal et al., 2020). In light of this, it is suggested that skilled workers should make creativity and innovation part of their core capabilities, and thus their performance management is called into question.

It is critical to comprehend what effective performance management systems are now that we have a better understanding of what performance management is and where it should be implemented. The efficiency of employees in performing tasks

has been linked to how well the performance management system can evaluate, measure and support the employee in undertaking the task (Kumar and Gulati, 2010). Therefore, it can be suggested that there are significant benefits to effective performance management systems, such as employee efficiency, innovation and creativity. Kumar & and Gulati (2010) also explain that the ability to accurately measure the degree of the employee's skills development or goal achievement is an outcome of the performance management systems effectiveness. After analysing 36 years' worth of performance management literature, Schleicher et al. (2018) concluded that much more work needs to be done in the field to build complete and conclusive knowledge that would guide better performance management systems in practice. The current study could add an additional viewpoint on the effects of efficient performance management systems.

There is a need for studies on the contextual elements that enhance the effectiveness of employee performance management (Haines & St-Onge, 2012) When it comes to studying performance management, it is best to assess both the appraiser and appraisee to determine the effectiveness of performance management systems (Toong, 2019). Therefore, scholars have suggested that performance management system effectiveness should be investigated in the context of transformational leadership and creative work practices (Haines and St-Onge, 2012; Toong, 2019).

As the literature demonstrates several positive outcomes of effective performance management sytesms, it is important to know what literature says about the factors that contribute to a performance management systems effectiveness. Concerns for the effectiveness of performance management systems caused researchers like Sharma et al. (2016) to study the subconstructs that impact its effectiveness. Sharma et al. (2016) found that a performance management systems effectiveness depends on the employee's perspective of the accuracy and fairness of the performance management system. The two-factor construct model of performance management systems effectiveness can be seen in Figure 2. Additional details from the research about the effects of fairness and accuracy on the effectiveness of performance management systems are included in Table 4. To ensure the success of the performance management systems, the roles of fairness and accuracy from Table 4 can be summed up as essential components. Given that the literature is clear that

employees expect accurate and fair performance management systems raises questions on what influence the transformational leadership style would have on employees perception of fairness and accuracy in their performance evaluations.
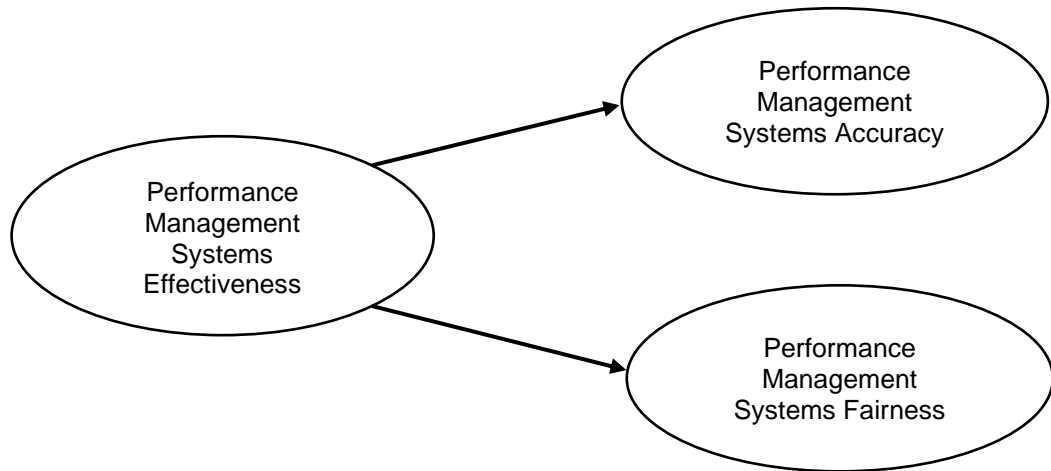
Figure 2: Two-Factor Construct of Performance Management Systems Effectiveness (Sharma et al., 2016)

Table 4: The Role of Fairness and Accuracy in Performance Management Systems Effectiveness

Authors	The Role of Fairness and Accuracy
(Landy et al., 1978)	"The frequency of evaluation, identification of goals to eliminate weaknesses, and supervisory knowledge of a subordinate's level of performance and job duties were significantly related to perceptions of fairness and accuracy of performance evaluation" (p.751).
(Fulk et al., 1985)	"It was suggested that perceptions of fairness and accuracy in performance evaluation may depend as heavily on the level of trust in the on-going superior-subordinate relationship as on characteristics of the performance appraisal process itself" (p.301).
(Chun et al., 2018)	The effect of gender might also be relevant to the perception of fairness. Social comparison evaluations used to base the employee's evaluations are more likely to be considered accurate. Where individual attention is given to the subordinate, they are likely to perceive the performance

	assessment as fair and accurate.
(Dutta et al., 2020)	A trade-off between accuracy and fairness can occur in a real-life setting. Accuracy does not necessarily decline when fairness increases and vice versa. Even though the systems are designed to limit biases, they still exist.

2.2 Linking Transformation Leadership to Innovative Work Behaviours

Alblooshi et al. (2020) studied literature on transformational leadership and innovative work behaviour, and concluded that various leadership styles positively impacted organisational innovation. Tan et al. (2021) too found a robust positive relationship between transformational leadership inducing innovative work behaviour. In the same study by Tan et al. (2021), perceived support was tested in transformational leadership and innovative work behaviours as a mediator, but this resulted in a negative relationship. This implies that research has not yet found employee support as a predictor of innovative work behaviour. This finding raises the issue of the significance transformational leadership, because transformational leaders by definition inspire and support each employee to achieve their goals at the individual level (Bakker et al., 2022).

Walk (2022) showed that leadership can have a detrimental effect on subordinates since leaders can perceive novel situations in the context of the executor of change rather than the initiator. This behaviour leads to leadership's negative attitude towards change and impacts subordinates. Perhaps, the influence of the leader's attitude towards change or initiation of change significantly impacts the support of the subordinate towards change, thus rendering transformational leadership less necessary in inducing innovative work behaviours.

In further research, Tan et al. (2021) tested the role of innovation readiness and found it to have a positive relationship with innovative work behaviours, while innovation readiness was dependent on performance management (Katsaros et al., 2020). Seeing that employee readiness levels are linked to effective performance management, it becomes worthwhile to test the role of transformational leadership

in innovative work behaviours while comparatively considering the impact of performance management on the relationship.

Demographic factors may also play a role in these relationships. Studies on the role of gender unveil an interesting finding about the relationship between transformational leadership and innovative work behaviours, as gender bias is significantly prevalent within the relationship (Reuvers et al., 2008). Male transformational leaders are said to have a more remarkable ability to include innovative work behaviours than female leaders. The moderating role of employees' length of time at the workplace has previously been explored within the transformational leadership and innovative work behaviour relationship (Slåtten and Mehmetoglu, 2015). The study results showed that the longer employees worked at an organisation, the more they developed a psychological contract with the organisation that led them to feel supported and thus develop innovative work behaviours. It is proposed that the nature of transformational leadership could promote the formation and building of a psychological contract between employee and manager. Thus, testing the relationship between transformational leadership and innovative work behaviours can provide another layer to the research. In questioning what is known about the relationship between transformational leadership and innovative work behaviours, previous studies have shown a positive relationship between transformational leadership style and innovative work behaviour (Reuvers et al., 2008; Slåtten & Mehmetoglu, 2015; Tan et al., 2021).

A comparative study by Pieterse et al. (2010) investigated the relationships between both transformational and transactional leadership in innovative work behaviour using the role of psychological empowerment as a moderator. Results showed that transformational leadership significantly predicts innovative work behaviour as compared to transactional leadership. Choi et al. (2016) as also found that transformational leadership related to innovative work behaviour. This relationship was moderated by knowledge sharing and perceived organisational support. Afsar and Masood (2018) investigated the circumstances in which transformational leadership has the highest relationship to innovative work behaviour and found that it was when employees had high levels of trust and uncertainty avoidance in their superiors. It was deduced that transformational leadership had been positively linked to innovative work behaviour in literature, while the strength of the relationship varied

with the presence of different constructs impacting the relationship. In order to establish the proposed moderating relationship, this research will first seek to replicate the relationship between transformational leadership and innovative work behaviour.

According to Andersen (2018), organisational factors influence transformational leadership's effectiveness. This raises the issue of the influence of organisational elements, which is proposed to be investigated in this study through performance management systems effectiveness. Galbreath et al. (2020) concluded that an organisation's culture would be enhanced as a result of top management teams using transformational leadership styles to help employees grasp customers' demands and, as a result, problem-solve and satisfy consumers.

Because itis well known, as can be see above, that contextual factors may influence this relationship between transformational leadership and innovative work behaviour, a replication study of this relationship is required. Moreover, this study introduces an important further contextual factor, namely the impact of performance management systems effectiveness which can reveal new interactions between these variables.

2.3 Linking Performance Management System Effectiveness to Innovative Work Behaviours

Performance management systems that focus on numeric goals, learning processes and group dynamics are linked to the firm's ability to innovate and promote learning (Molleman and Timmerman, 2003). It is proposed that an organisation's performance is an indicator that will determine the firm's shift towards innovation behaviours. A study conducted by Audenaert et al. (2019) on public organisations determined that individual innovation is linked to consistent employee performance management. Jacobsen and Andersen (2014) confirmed that environmental support could improve the performance management systems effectiveness. Performance management systems were found to mediate innovation and organisational performance. It was discovered that performance management systems positively affect organisational performance (Walker et al., 2011). While performance management systems were tested in the relationship as a mediator, it is worthwhile to test performance management systems effectiveness as a moderator to provide an additional layer to

understanding innovation and performance management.

At the rate that digital technologies are transforming and evolving, it opens up diverse opportunities that pose a challenge to innovative work practices (Appio et al., 2021). Weiss et al. (2022) argued that work behaviour linked to innovation effectiveness plays a significant role in providing organisational stability, especially for an organisation trying to achieve innovation during uncertainty or transformation. Ramamoorthy et al. (2005) "Under the reasonable assumption that innovative work behaviours are discretionary behaviours, engaging in innovative work behaviours may be the result of the intrinsic motivations of employees" (p.148). When implemented in an organisation, human resource practices such as employee development, reward, and feedback generate innovative organisational work behaviour (Bos-Nehles et al., 2017). Innovative work behaviour involves employee performance improvement by creating value, attaining advantage and ensuring sustainability, feeding into the overall innovation behaviour dimension (Al Essa and Durugbo, 2021). It is important to look further into the effectiveness of performance management and innovation behaviours since employee innovation work behaviours are influenced by an organisation's capacity to encourage particular desirable behaviours through its performance management system. The discussed literature shows that performance management systems are directly linked to innovative organisational work behaviour. The strength of this relationship will depend on the effectiveness of the performance management system. Given that it is unknown about the impact of effectiveness on the performance management system and the link to employee behaviour, in particular employee innovative work behaviour, it is worthwhile to ask what the impact of this relationship is.

2.4 Performance Management Systems Effectiveness as a Moderator in the Transformational Leadership and Innovative Work Behaviour Relationship

Literature is silent on how the effectiveness of performance management systems may affect the relationship between transformational leadership and innovative work behaviours. This study will address this gap. In this section of the literature review, the potential relationship between the three constructs of the study (transformational

leadership, innovative work behaviours and performance management effectiveness) is theorised. Leadership should not be studied in isolation from the characteristics of followers according to Sidani and Rowe (2018) . This study combines not only leadership characteristics (transformational leadership), and follower characteristics (innovative work behaviour, but also incorporates an organisational systesm element of performance management system effectiveness.

These constructs exist in a network of variables that help predict why these relationships may be hypothesised. First, it is known that transformational leadership supports job satisfaction, resulting in developing organisational commitment and motivation in employees (Eliophotou-Menom and Ioannou, 2016). It is also known that organisational commitment and motivation leads to innovative work behaviour development (Musannip et al., 2019). (Eliophotou-Menom and Ioannou, 2016). Without testing the mediating relationship of organisational commitment, it can be argued that transformational leadership results in innovative work behaviour as these leaders possess the direct and indirect ability to induce such results in employees.

Sidani and Rowe (2018) established that motivation acts as a moderator in the transformational leadership and innovative work behaviour relationship, strongly positively impacting it. Afsar and Umrani, (2020) found that work engagement significantly affects transformational leadership and influences employees' innovative work behaviour. Psychological empowerment moderates the relationship between transformational leadership and innovative work behaviour (Grošelj et al., 2020). Psychological empowerment is positively linked to human resource management activities (Kazlauskaite et al., 2011). An essential characteristic of transformative leaders is their ability to recognise performance and, through such a system, to reward subordinates (Al-Malki and Juan, 2018). Therefore, the weaving of qualities like work engagement and psychological empowerment is part of the impact of a transformational leader's profile.

The research therefore offers the hypothesis that human resource variables like performance management systems can further strengthen the relationship between transformational leadership and innovative work behaviour. A key consideration to support this hypothesis, is that transformational leaders possess the qualities to drive perceptions of the effectiveness of performance management system effectiveness

as being fair and accurate. It is then plausible that performance management system effectiveness will result in stronger innovative work behaviour, and strengthen the expected relationship between transformational leadership and innovative work behaviours.

Many further constructs have been tested as moderators in the relationship between transformational leadership and innovative work behaviour. As mentioned in the previous sections, studies explore transformational leadership linked to innovative work behaviour and performance management systems linked to innovative work behaviour. However, no study up to this point has considered the effect of both constructs of transformational leadership and performance management system effectiveness on innovative work behaviour. Considering the positive impact of the individual relationship between transformational leadership and the performance management systems have on innovative work behaviour, it is proposed that effective performance management systems positively moderate the relations between transformational leadership and innovative work behaviour.

2.5 Conclusion

The literature review defines the notions of transformational leadership, innovative work behaviours, and performance management systems effectiveness, as summarised in this Chapter within a business-related context. It was determined that severe unstable conditions affect global markets/world economies, and businesses need to remain competitive. Focusing on innovation as a core competency for an organisation allows the business to position itself to handle the changing global conditions. Innovative work practices have been shown to encourage employees to provide better customer service and improve problem-solving skills for the company, enabling the organisation to remain competitive.

The leadership of the employee has a significant influence on the workforce. Employee behaviour can also be influenced by the organisation's performance management systems. There are many methods for influencing employee behaviour. Considering the relevancy and ability of transactional leadership to influence behavioural outcomes through motivating, inspiring, and supporting employees, this form of leadership was selected for the study. The study argues that the performance

management systems effectiveness ultimately determines the relationship's strength. While transformational leadership and performance management system effectiveness influence innovative work behaviours, a combination of the two does not exist in the literature. Considering that both leadership and performance management systems can co-exist in the real world, it is also worthwhile to investigate in research the impact of the performance management systems effectiveness on the transformational leadership and innovative work behaviours relationship.

CHAPTER 3: RESEARCH HYPOTHESIS

This chapter aims to expand on the literature discussed in Chapter 2 and develop a conceptual model from the literature presented together with the research question and hypothesis. This study has two research questions. To ascertain between transformational leadership and performance management system effectiveness, which promotes innovative work behaviour more strongly. The other is to explore the relationship between transformational leadership and innovative work behaviour by testing the impact of performance management system effectiveness on the relationship.

3.1 Theoretical Model Development

According to Choi et al. (2016), transformational leadership encourages followers towards innovative work behaviour. Performance management systems result in employees adopting innovative work behaviours through the organisation's ability to influence behaviour from performance management (Bos-Nehles et al., 2017). Kumar and Gulati (2010) explained that the ability to accurately measure the degree of the employee's skills development or goal achievement is an outcome of the performance management systems effectiveness. Accuracy and fairness are key components of a performance management systems effectiveness (Sharma et al., 2016). Transformational leaders are proposed to have the qualities required to conduct fair and accurate performance management systems (Raffo and Williams, 2018). Therefore it is proposed that transformational leadership coupled with the effect of performance management system effectiveness will result in more robust innovative work behaviours. The conceptual framework depicted in Figure 3 was developed following this theory. Performance management systems effectiveness will be tested as a moderator in the existing relationship between transformational leadership and innovative work behaviour.

Two forms of control variables will be used within the conceptual model, the first type being organisation-dependent and the second type being individual-focused. The team size and managerial level of the respondents supervisor will be used on the organisational level. A study by Curral et al. (2001) showed that innovation performance from larger teams is linked to poorer performance management

systems effectiveness; thus, it is essential to capture the respondent's team size. According to Kabore et al. (2021), employees at different rankings within the company reporting structure will receive different levels of support and reward opportunities through employee performance management which is likely to impact their motivation towards desired end behaviours or results. Because of this, the study will need respondents to indicate reporting managerial level. The control variables on the respondent level are proposed as education level and routine or non-routine work status of the respondent employee. Koellinger (2008) found that higher education levels are likely to play a factor in employees' innovation behaviour; thus, respondents will indicate their educational levels. Considering this study is focused on innovation behaviours as an outcome, non-routine cognitive jobs are said to result in employees developing innovation capabilities and behaviour (Sheeba and Christopher, 2020). Thus capturing the extent to which the respondents are involved in non-routine work can provide important insight into innovative work behaviour.
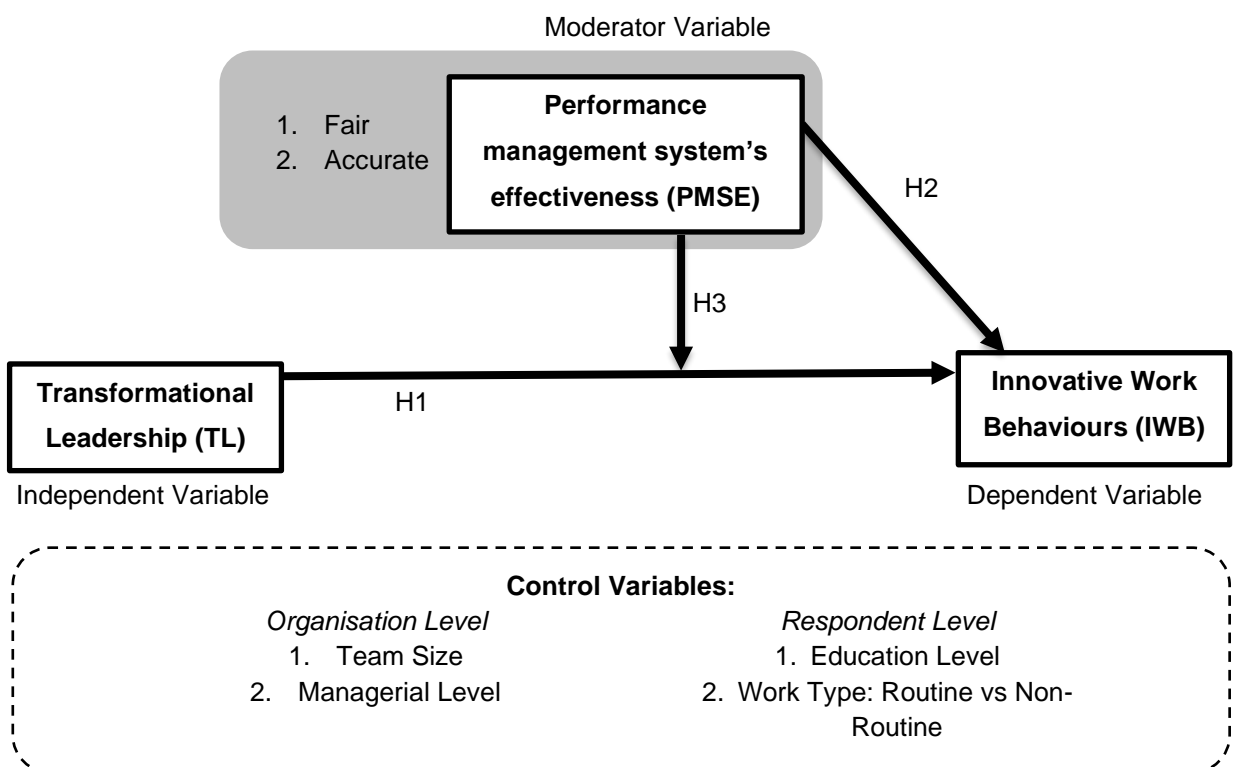
Figure 3: Conceptual Model Framework

3.2 Research Question 1

Which of the two constructs, transformational leadership or performance management systems effectiveness, promotes innovative work behaviour more strongly?

3.2.1 Research Question 1: Hypothesis 1

$H_{1\ NULL}$: Transformational leadership does not influence innovative work behaviour.

$H_{1\ ALTERNATE}$: Transformational leadership has an influence on innovative work behaviour.

3.2.2 Research Question 1: Hypothesis 2

$H_{2\ NULL}$: Performance management systems effectiveness does not influence innovative work behaviour.

$H_{2\ ALTERNATE}$: Performance management systems effectiveness influences innovative work behaviour.

3.3 Research Question 2

Does performance management system effectiveness moderate the relationship between transformational leadership and innovative work behaviour?

3.3.1 Research Question 2: Hypothesis 3

$H_{3\ NULL}$: Performance management system effectiveness does not moderate the relationship between transformational leadership and innovative work behaviour.

$H_{3\ ALTERNATE}$: Performance management system effectiveness moderates the relationship between transformational leadership and innovative work behaviour.

CHAPTER 4: RESEARCH METHODOLOGY

This chapter will describe the research methodology used for this study. The study aimed to further transcend existing research regarding transformational leadership and innovative work behaviours by examining the effectiveness of performance management systems. The study used a quantitative approach focused on data collection from key innovation-driven industries. This Chapter shall incorporate aspects of research such as methodology, population, sample size, and data collection. The motivation behind the data analysis process utilised will be discussed. The chapter concludes by examining the research's limitations, assumptions and considerations.

4.1 Research Methodology

4.1.1 Purpose of Research Design

The study focused on the impact of different variables and examined these variables via statistical tests to determine insight into the various relationships (Saunders and Lewis, 2012). The explanatory research utilised questionnaires as a form of data collection (Saunders and Lewis, 2012). Therefore, the research will encompass the essence of investigating the cause and effect of performance management system effectiveness on an existing relationship. An explanatory study was used for the research.

4.1.2 Research Philosophy

For this research, the research philosophy was determined by the approach. The study used quantitative data to make a generalisation about the structural forces that shape the behaviour of individuals (Saunders and Lewis, 2012). This study utilised a positivism approach as it allowed for phenomena to be measured using data collection through an unbiased and scientific method (Saunders and Lewis, 2012). This research philosophy allowed performance management system effectiveness to be measured against the relationship between transformational leadership and innovative work behaviour. The aim was to understand the interaction between transformational leadership and the performance management systems effectiveness in their role in affecting employee innovation work behaviours. This was

done using a quantitative approach to examine the relationship.

4.1.3 Research Approach

This research followed a deductive approach. Deductive research entails the review of theoretical propositions via selecting a research strategy to collect data to test against theory (Saunders and Lewis, 2012). Moderator tests were classified under a deductive approach to research (Saunders and Lewis, 2012). Considering that this research tested the influence of a moderator, a deductive approach was best suited for the study. The deductive model of this research consisted of one moderator (performance management systems effectiveness), one independent variable (transformational leadership), and one dependent variable (innovation work behaviours).

4.2 Survey Design

4.2.1 Methodological Choices

The study adopted a mono-method approach, with the moderator variable being performance management systems hypothesised to have an influence on the independent and dependent variables. Transformational leadership became the independent variable, and innovative work behaviours were the dependent variable. A single data collection method and corresponding data analysis procedure were developed to adhere to the mono-method approach (Saunders and Lewis, 2012). This research had a limited time frame for data collection; thus, a single collection technique will be used to ensure sufficient data was collected for the research.

4.2.2 Research Time Horizon

The research made use of a survey design. According to Bryman and Bell (2008) for quantitative data relating to two or more constructs is required, the best form of data gathering is through a questionnaire survey. Therefore, a survey was most relevant to allow for testing of the constructs of transformational leadership, innovative work behaviour, and performance management system effectiveness. The survey allowed for the yielding of quantitative data that was analysed. The researcher used cross-sectional designed research as it allowed for data that is predominantly self-completion questionnaires taken at a single point in time (Bryman and Bell, 2008).

Due to the research data collection process being time-constrained, the cross-sectional data collection method was the most applicable to the study.

4.3 Research Methodology

4.3.1 Population

Population or universe in research methodology is the characteristics of a specific group (Saunders & Lewis, 2012). In contrast, the target population refers to the actual or hypothetical set of people the research targets (Greener, 2008). Respondents aged 18 and over were used for data collection. High-skilled knowledge workers with a significant focus on research and development form the core subjects of an innovation-based study (Low and Isserman, 2015). This informed the choice of the target population for the study. The target population for this research was limited to employees who are knowledge workers. Knowledge workers are employees who are involved in "non-repetitive and results-oriented work, using both traditional scientific methods and the need for continuous learning, intuition, new mindsets and imagination" (Horwitz et al., 2003, p. 23). Such employees who think for a living were accountants, engineers, doctors, lawyers, and scientists (Horwitz et al., 2003). Due to the knowledge worker's tasks being non-routine or novel and requiring new learnings or applications, they formed the best group to explore in an innovation impact study. In order to determine if a respondent complied with the definition of a knowledge worker during data collection, respondents were asked two questions. The first is if they considered their work non-repetitive or results orientated (refer to Appendix A). The second question is if the application of knowledge or continuous learning is required for their job (refer to Appendix A). In this way, data was collected from the correct target population.

The industries that are at the forefront of innovation and constant change were the target of this study. Such industries include finance, marketing, medical, manufacturing, engineering and technology. The survey will collect data on these industries' leadership, performance management, and innovation. According to Aiken and Hage (1971), organisation size was found not to have a significant impact as a variable associated with the rate of innovation. Al-Ajlouni (2021) found that gender, age and organisation size didn't contribute to the study of innovation. Thus the study included participants from varying organisation sizes, genders, and ages.

A contracting study by Reuvers et al. (2008) indicated that gender biases significantly influence the ability of transformational leaders to influence innovation. It should also be noted that, as mentioned in the literature review, according to Chun et al. (2018), gender plays a key role in the perception of fairness and thus influences the effectiveness of the performance management system. While different genders are allowed to participate in the study, the demographics shall record the gender participation of the study and crosstabulations are reported regarding gender.

4.3.2 Unit of analysis

The unit of analysis is linked to the research intention, and individual reflections should be considered where phenomena are to be studied (Kothari, 2004). The effect or impact of leadership styles can be considered from the individual perspective to allow for emergent patterns (Avolio and Bass, 1995). Therefore in this research, the impact of transformational leadership was measured, and thus the individual perspective must be considered. According to Kumar (2018), the unit of analysis is based on what was being studied, and the focus can be on measuring/studying managerial skills, managers, supervisors, employees or a corporate sector. In this case, the research focused on employees' outcomes and resulting behaviour. Therefore employees were studied in this research. This study analysed the individual responses regarding the constructs of transformational leadership, innovative work behaviour and performance management effectiveness.

4.3.3 Sampling Method and Size

When the entire population is unknown or cannot be determined, non-probability sampling is better suited (Pandey and Pandey, 2015). Therefore, non-probability samples was selected through non-random methods and were considered a more appropriate sampling method (Mishra and Alok, 2017). This form of sampling was ideal due to the time constraints for data collection. Deliberate sampling is a non-probability sampling method that involves the purposeful selection of data units from the populations, allowing key data selection (Greener, 2008). For this reason, deliberate sampling was utilised to ensure that relevant data was collected. Convenience sampling is classified as non-probability sampling, which describes the case when a population is selected to be included in a study based on the ease of access (Greener, 2008). Due to the time constraint of this study, convenience

sampling was preferred by the researcher. Snowballing is a non-probability sampling method and occurs when the first sample member identifies or refers to subsequent sample members (Saunders and Lewis, 2012). This form of sampling allowed for furthering the data reach by allowing for a more significant sample size. Due to the target sample size, this form of sampling was helpful in this study. The sampling method selected for this study was a combination of non-probability sampling methods such as deliberate, convenience and snowballing. Sample members who conform to the research target group were deliberately selected based on ease of access to the researcher. Respondents were asked to recommend other potential respondents. The sample number should be sufficient to draw conclusions that accurately apply to the entire data (Kothari, 2004). Increasing the sample size reduces sampling errors, and a minimum subgroup sample size should be 100 respondents (Zikmund et al., 2010). This research aimed for between 200 to 250 survey respondents. Data collection ran for a period of two days before reaching 270 respondents. The research then closed data collection.

4.3.4 Measurement Instrument

Questionnaire surveys are typically used when describing groups of interest (Zikmund et al., 2010). In this study, the groups of interest are the employees. Now that the form of instrument is classified as a questionnaire survey the form and structure of the survey must be discussed. Taking from the advice of Zikmund et al. (2010), the questionnaire was structured to limit the number of responses and display the questions in a straightforward undisguised manner. In conjunction with Zikmund et al. (2010), the recommendations of Lietz (2010) were also followed, and thus the following factors were used to develop the survey questionnaire:

Table 5: Survey Questionnaire Compliance Factors (Lietz, 2010)

Factor	Description
1	The language used should be clear.
2	The respondent's current attitudes and recent behaviours must be reflected in the questions and, subsequently, the answers.
3	The Likert scale must range from five to eight options, and the disagree options should have a lower numeric value than the agree with options.

The research questionnaire consisted of five sections. Section one was the introduction to the purpose of the study, the terms of the research, and the consent agreement to participate in the study. Section two was used to collect demographic data on the respondent, such as age, work experience, gender and control variable data. Section three collected data on the respondent's view of the leadership style of their direct manager. Section four was used to collect data on employee performance management systems within their organisation. Section five was the final section and was used to collect data on employee behaviours against innovation work behaviours.

The questionnaire question details regarding the variables can be seen in Table 6. The Cronbach alphas indicated in Table 6 indicate that the scale range is within highly reliable values (Nunnally and Bernstein, 2010). Data was collected using a Likert scale (7 Points), allowing the data to be collected as ordinal ranked data from the perspective of the individual questions and interval data from the overall Likert scale. As detailed in Table 6 below, the instrument sets were taken from Sharma et al. (2016) and Tan et al. (2021). The instrument sets were selected as they are from recently published, highly regarded journals to ensure the relevancy of the research.

Table 6: Questionnaire detail

Variables	Source	Items	Measurement Details	For Survey Questions, Refer To Appendices:
Transformational Leadership	Tan et al. (2021)	20	Measured on a seven-point scale ranging from never (one) to always (seven). Cronbach alpha = 0.97.	Appendix C
Performance management systems effectiveness	Sharma et al. (2016)	12	Measured on a seven-point scale ranging from strongly disagree (one) to strongly agree (seven). Cronbach alpha = 0.84.	Appendix D
Innovative Work Behaviours	Tan et al. (2021)	9	Measured on a seven-point scale ranging from never (one) to always (seven). Cronbach alpha = 0.93.	Appendix E

4.3.4.1 Transformational Leadership Scale

Tan et al. (2021) instrument scale to measure transformational leadership was used. The instrument scale by Tan et al. (2021) was based on the work of Avolio and Bass (1995). The transformational leadership instrument was measured by 20 items (Tan et al., 2021). The question set by Tan et al. (2021) was selected as it can measure transformational leadership and had a high Cronbach alpha value of 0.93.

4.3.4.2 Performance Management Systems Effectiveness Scale

Performance management systems effectiveness was measured using 12 questions by Sharma et al. (2016). Sharma et al. (2016) used two subconstructs in their questions to measure performance management system effectiveness; the two subsets to the variable are performance management systems accuracy and fairness. Sharma et al. (2016) found that the performance management systems effectiveness depends on employee perception of the performance review's fairness and accuracy. The Cronbach alpha for the instrument by Sharma et al. (2016) was used to measure the performance management systems effectiveness as it had a high Cronbach alpha value of 0.84.

4.3.4.3 Innovative Work Behaviour Scale

Tan et al. (2021) instrument scale to measure innovative work behaviours. The instrument scale by Tan et al. (2021) was based on Janssen (2000). The innovative work behaviour instrument was measured by nine items (Tan et al., 2021). The questions from Tan et al. (2021) were selected as they had a high Cronbach alpha value of 0.93.

4.3.5 Pilot Study

The researcher conducted a pilot study in which trial questionnaire test runs were developed and tested post receiving ethical clearance. Any learnings on the visual, functionality and approach to the questionnaires received from the insights during the trial test run were applied to improve the questionnaire. Once ethical clearance was received, the researcher started to collect data.

4.3.6 Data Collection

Questionnaires were posted on websites, and respondents could visit the URL to participate in the survey. Using a digital platform for data collection reduced expenses and errors since data was automatically recorded, according to Zikmund et al. (2010). Consent forms were issued to the individuals prior to the questions being released to respondents. Respondents must understand the researcher's needs and agree to participate in the study (Zikmund et al., 2010). With this in mind, a disclaimer and informational section were displayed before responses were requested/recorded. The study was limited to obtaining data from consenting respondents over the age of 18. Refer to Appendix B for the ethical consideration questions used in the survey that shows that for respondents to partake in the study, they had to consent to the study and be over 18 years old. Only anonymous data was requested via the survey questionnaire and was securely stored by the researcher.

After explaining the specifics of the data collection, it is time to understand the data collection method. Self-administered questions were posted on the web via Google forms application for this study to collect data. The researcher utilised its network in the relevant target industries to gather data. In addition, the researcher conducted LinkedIn searches targeting ideal candidates via industry searches. Messages were sent to the identified candidates, allowing them the opportunity to partake in the study. The researcher also utilised social media platforms to solicit research participants. One thousand potential participants were approached to obtain data, and 270 responses to the survey questionnaire were received. The next chapter will discuss the response rate (Chapter 5).

4.4 Analysis of Data

4.4.1 Quality of Data

A normal distribution test was critical for statistical procedures such as t-test, linear regression analysis, discriminant analysis and analysis of variance (ANOVA) (Mohd Razali and Bee Wah, 2011). Therefore the data was checked to confirm if it was a normal distribution data set. Skewness and Kurtosis are key methods to test for normality and the presence of outliers (Cain et al., 2017). Skewness and Kurtosis

was tested for to check for normal distributed data. The interpretation of acceptable Skewness and Kurtosis values are within the range of -1 to 1 (Kim & White, 2003).

Data sets can be susceptible to individual outliers impacting the research outcome. Linear regression analysis is extremely sensitive to outliers (Bryman and Bell, 2008). In order to protect the integrity of the hypothesis, it is important to handle the data outliers in a manner that will not impact the outcome. Winsorizing was proposed for the handling of data outliers. This process could be used without impacting the results by adjusting the range within 5% and less of the data points (Frey, 2018).

4.4.2 Descriptive Statistics

Descriptive statistics provide an understanding of the demographic information captured during the survey. This information provides insights into the behaviour of the variables measured. Below describes the tests proposed to be conducted to capture the descriptive statistics.

4.4.3 Population Demographics

Gender/sex, age, race/ethnicity, nationality and industry will be recorded from the survey data collection. The proposed survey questions on demographics is included in Table 7.

Table 7: General Demographics Categories and Questions Used During Data Collection

	General Demographics	Survey Question	Survey Options
1	Gender/Sex	What gender do you identify with?	a) Male b) Female c) Other d) Do not wish to disclose
2	Age	What age group do you fall within?	a) 18-24 b) 25-35 c) 36-45 d) 46 and over
3	Race/Ethnicity	What race/ethnicity do you identify with?	a) Black b) White

			c)	Indian/Asian
			d)	Coloured
			e)	Other (Please fill in)
4	Nationality	Are you a South African Citizen?	a)	Yes
			b)	No
5	Industry	What industry do you consider yourself working in?	a)	Finance
			b)	Marketing
			c)	Medical
			d)	Manufacturing,
			e)	Consulting
			f)	Engineering
			g)	Technology
			h)	Other (Please fill in)

4.4.4 Control Variables

Calculations for mean, frequency, standard deviation and demographic variables was calculated to provide a summary describing the basic properties of the variable (Zikmund et al., 2010). The control variables used and related survey questions are indicated in Table 8. Team size, precisely how many people report to their manager, was used as a control variable. The educational level was also used as a control variable for the insights it can provide on the demographic. The managerial level was used to determine the effect on organisations for a view of the internal hierarchical levels. The classification of the respondent's work type in terms of routine vs non-routine was captured in this research. This is critical to determining innovation impact by separating the groups between routine and non-routine-focused workers.

Table 8: Control Variables Categories and Questions Used During Data Collection

Control Variables Demographics		Survey Question	Survey Options	
1	Team size	How many people report to your direct manager?	a)	1 to 2
			b)	3 to 5
			c)	5 to 10
			d)	More than 10
2	Educational level	What is your highest educational qualification?	a)	Matric / Grade 12
			b)	Diploma

			c)	Bachelors degree
			d)	Honours degree
			e)	Masters' degree and higher
3	Managerial levels	What best describes your manager's position in the organisation?	a) b) c)	My manager is the CEO/MD My manager is at executive level/group head level My manager is middle management
4	Work type	Which of the following best describes your work?	a) b) c) d) e) f) g)	Highly Routine work Routine work Somewhat routine Neutral Somewhat non-routine work Non-routine work Highly non-routine work

4.5 Reliability and Validity of Data

Although the Cronbach alpha values are within an expectable ranges (Nunnally and Bernstein, 2010), the validity of these instruments was tested to confirm the internal consistency of the scales (Bryman and Bell, 2008). Cronbach alpha scores will be calculated per the individual variables questions utilised in the survey. Fairness and accuracy from part of the underlying latent observed form the variable of performance management systems effectiveness. These underlying constructs form part of the survey questions as prescribed by the instrument. The Likert scale types are suitable for studies in social and behavioural sciences (Olaniyi, 2019). Although the scales for the questionnaires are preexisting and are all based on a 7-point Likert scale, these measurement instruments were developed under their various research conditions. Therefore they must be validated using confirmatory factor analysis (CFA) to allow for the correlation of the underlying latent constructs and the variables to be analysed (Finney, 2007). CFA analysis was performed for the data set.

A hypothesis will be determined based on the variables underlying the variables, particularly the performance management systems effectiveness variable. Covariance will then be checked between the items in the reliability test. The next critical step was to evaluate the model fit. This reflected how well the model fits the observed data as the next step to CFA. There are several methods to conduct a

model fit analysis, as shown in Table 9. These methods are recommended as they are used as a global fit index and thus used for this study (Alavi et al., 2020; Hair et al., 2010).

Table 9: Types of Model fit Analysis (Alavi et al., 2020; Hair et al., 2010)

Method to conduct a model fit analysis	Threshold
Chi-square	Close to zero as conceivable (Alavi et al., 2020)
Goodness of fit index (GFI)	> 0.90
Root mean square error of approximation (RMSEA)	< 0.07 or less for goodness of fit (Steiger, 2007)
Standardised root mean square residual (SRMR)	< 0.08
Adjusted goodness of fit index (AGFI)	> 0.90
Normal fit index (NFI)	> 0.90
Comparative fit index (CFI)	> 0.90

As part of the CFA analysis, internal consistency was checked for convergent validity (composite reliability and average variance extracted) and discriminant validity (square roof of average variance extracted). The average variance extracted (AVE) is the amount of shared variance among latent variable indicators, and the Composite Reliability (CR) assesses how much a group of latent variable indicators share in measuring a variable (Hair et al., 2010). To pass CR, the variables needed a score of greater than 0.6 (Fornell & Larcker, 1981). The Average Variance Extracted (AVE) method was used to test for variable validity. Hair et al., 2010 stated that acceptable variable validity levels are at 0.5 and above for the AVE. The AVE method was used to be able to determine the variable validity and reflects the overall variance in the indicators (Hair et al., 2010).

4.6 Correlations and Multiple Regression Analysis

4.6.1 Multivariate Linear Regression

The relationship between three and more variables is examined to determine the correlation using the multivariate linear regression analysis. This analysis is applied

when testing for a relationship that could be spurious, intervening, or moderating the relationship (Bryman and Bell, 2008). Thus, multivariate linear regression analysis is applicable to the moderator testing study. To ensure that the sample set received is statistically significant, Pearson's r test for correlation can be conducted. The test for correlation will be conducted to show the strength of the relationships between variables (Bryman and Bell, 2008). For the applicability of multiple regression analysis, the conditions to allow for the testing need to be satisfied. The data is tested for continuity, the absence of multi-collinearity, the presence of a linear relationship, data normality, homoscedasticity, and independence of observation (Aguinis & Gottfredson, 2010).

4.6.2 Moderator Multiple Regression Analysis

Moderator multiple regression analysis was selected as the analysis tool as the method can test the predictor variable on the outcome variable, in which the conditions of the moderator variables are applied. The interaction of the variables is observed in this analysis. This allowed the impact of performance management systems effectiveness to be tested on the relationship between transformational leadership and innovative work behaviour using moderator multiple regression analysis.

From the conceptual representation depicted in Figure 4, the impact of W (performance management systems effectiveness) is tested on the relationship between X (transformational leadership) and Y (innovative work behaviour) (Hayes and Rockwood, 2020). Regression coefficients, estimation error and the regression intercept were calculated as part of moderator testing (Mason and Perreault, 1991). The test for moderation is set up according to the principles of Hayes and Rockwood (2020) moderator multiple regression analysis. The moderation framework for this model is represented as indicated in Figure 4. W represents the performance management systems effectiveness, X represents transformational leadership, and Y represents innovative work behaviours.
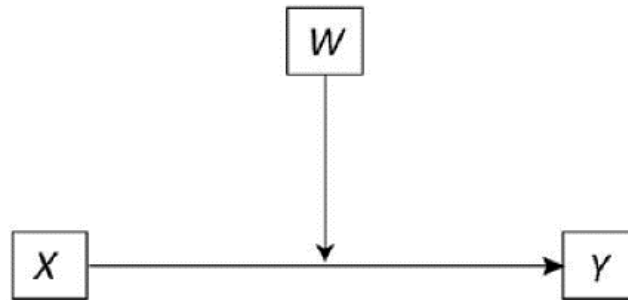
Figure 4: Conceptual Representation of Moderation Framework Adapted Hayes and Rockwood (2020)

4.7 Quality assurance

The quality of a study is impacted if access to data is restricted (Pandey and Pandey, 2015). The researcher started promptly to conduct data to ensure a high respondent rate. The researcher also utilised its organisation as a source of data collection. As the research field revolves around innovative work behaviours, the researcher framed the study with respondents within the correct industries/roles requiring innovation. The researcher has limited the applicable industries to innovation-focused industries to ensure that the data collected will best reflect the intended study phenomena.

The researcher tested to check that the conditions for multiple linear regression are applicable, the results of which are displayed in Table 28 in Chapter 5. The researcher proved the following: that data collected from the survey was continuous with dependent and independent variables; the variables set did not contain multi-collinearity through the validity and reliability testing; the variables had a linear relationship; the data set was within an acceptable normality range with the absence of outliers; satisfaction of homoscedasticity conditions; and independence of observations.

4.8 Limitations

Employees from the same organisation as the researcher will be included in the study. These risks create social desirability bias, causing the respondents to develop a particular view or impression when conducting the survey (Zikmund et al., 2010). Response bias can occur when the respondents do not reflect beliefs, emotions, or attitudes accurately. The language of the questionnaire will be in English; interpretation could be subjective to individuals who do not use English as their first language. Respondents living and working in South Africa will be the most significant contributors to the study. This will limit the applicability in the international context. The study will focus on transformational leadership and not provide insights or analysis of other leadership styles.

The researcher focused on using material and instrument scales that had been used, proposed and developed within the past five years. Thus the research does not have a longitudinal view over time but rather a more current and relevant perspective. Focusing on material within a specific time frame causes creative limitations to the study (Salkind, 2012). There is a limitation on the study's accuracy due to the bias and social dynamics within a leader-follower relationship (Güntner et al., 2020). Respondents may not answer the questionnaires to represent honest, accurate reflections but rather from a biased perspective.

CHAPTER 5: RESULTS

The results of the research process are discussed in this chapter. First, Cronbach's alpha and variable analysis tests for the instrument's internal consistency and reliability will be described. Following that, the obtained sample is described using the demographics grouping variables. The differences between the demographic grouping variables and the research variables of transformational leadership, innovative work behaviours and performance management systems effectiveness are analysed to see whether they could affect the study's findings. Lastly, the statistical analysis findings are shown for each of the hypotheses proposed. In Chapter 6, the results of this chapter will be discussed and analysed.

5.1 Data Responses

The response rates for the survey data collection periods are detailed in Table 10. The survey ran for one week before exceeding the research target of 200 to 250 responses. In total, 270 responses were received for the research, with a response rate of 27%.

Table 10: Response Rate for Data Collection

Survey Data Collection Days	Total Survey Reach	Number Of Responses	Response Rate
Day 1	400	116	29%
Day 2	200	89	45%
Day 3	100	45	45%
Day 4	100	9	9%
Day 5	100	6	6%
Day 6	50	3	6%
Day 7	50	2	4%
Total	1000	270	27%

5.2 Data Preparation

5.2.1 Missing data

Since the researcher had intended for the instrument that delivered the questionnaire to accept fully completed responses, there were no missing data in the survey results. Only responses from participants who had given their consent to participate in the study and were above the age of 18 were allowed to be recorded by the survey instrument. As a result, there were 270 valid and complete survey replies, as seen in Figure 5.
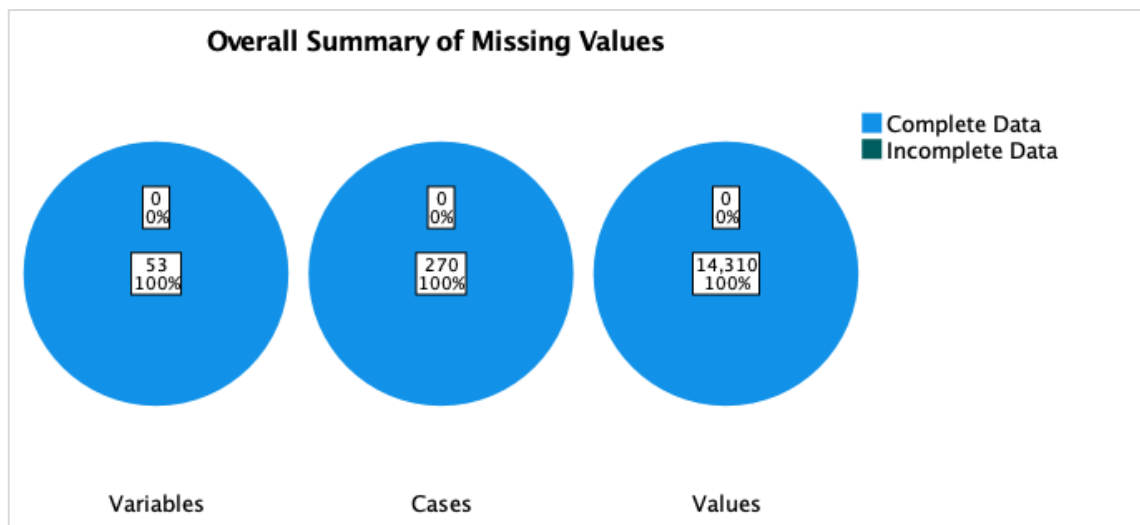

Figure 5: Missing Data Summary

5.2.2 Cleaning and Establishing Usable Data

In preparation for data analysis, the researcher performed the following steps to prepare and ready the data for analysis, as seen in Table 11. Data had now been prepared for further analysis.

Table 11: Steps Used to Clean and Establish Usable Data

Steps	Description
Step 1	Identifiers and meta-data that were not necessary for the investigation were removed.
Step 2	Likert scale results were translated into numbers 1 to 7 according to the principle by Lietz (2010), where disagree options have a lower

	numeric value than the agree with options. Data questions were coded using acronyms to manage the analysis process.
Step 3	Variable types such as nominal, ordinal and scale were checked for accuracy.
Step 4	The data was then ready to be imported into SPSS for analysis.

5.3 Descriptive Statistics

5.3.1 Demographics

At the start of the survey, five demographics were used to profile the respondents: age, race/ethnicity, nationality demographics and industry. The raw data from the descriptive statistics on the demographics can be found in Appendix F. The results of the demographics are presented below.

5.3.1.1 Gender/Sex Demographics

There were three categories in which respondents could answer. Respondents could select between options of male, female or prefer not to say. Male respondents outnumbered females by 3.7%. Since the difference in counts was so small, there was roughly equal representation. Less than 1% of respondents choose not to disclose their gender. The results are depicted in Figure 6.
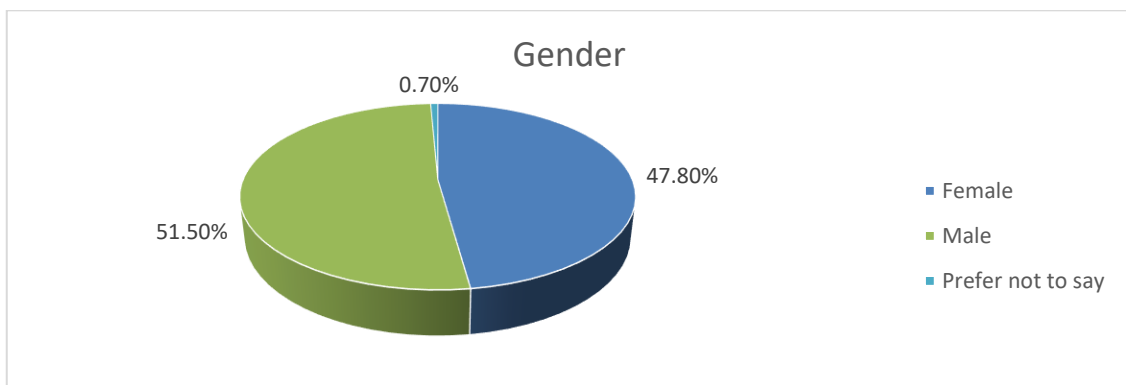

Figure 6: Respondent's Gender/Sex

5.3.1.2 Age Demographics

For ethical considerations, only consenting respondents over the age of 18 were allowed to respond to the study. 46.7% of respondents were between the ages of 25

to 35, forming the largest group of respondents. The second largest group was between the age of 36 to 45, making up 28.1% of data collection. The remaining age groups and response rates are shown in Figure 7.
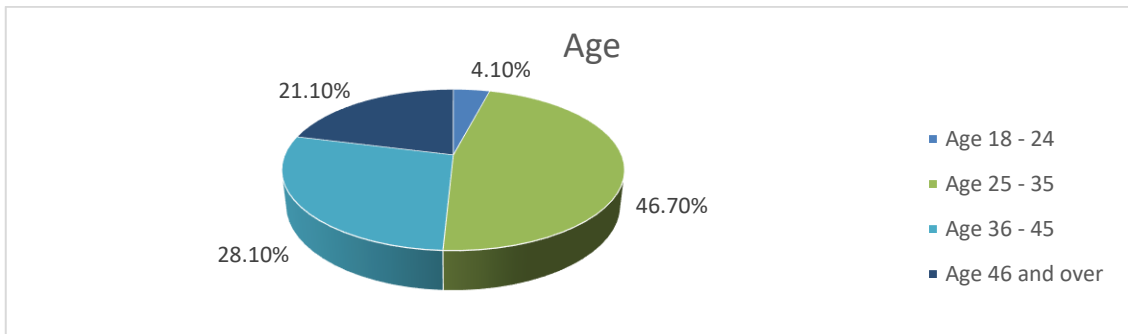

Figure 7: Respondent's Age

5.3.1.3 Race/Ethnicity Demographics

Of the 270 respondents, the largest group identified as Indian/Asian, making up 133 responses, equating to 49.3%. The second largest response group identified as white, with 26.7% of responses. The third largest response group identified as black making up 15.6% of the responses. Figure 8 shows the outcomes of capturing ethnicity for the study.
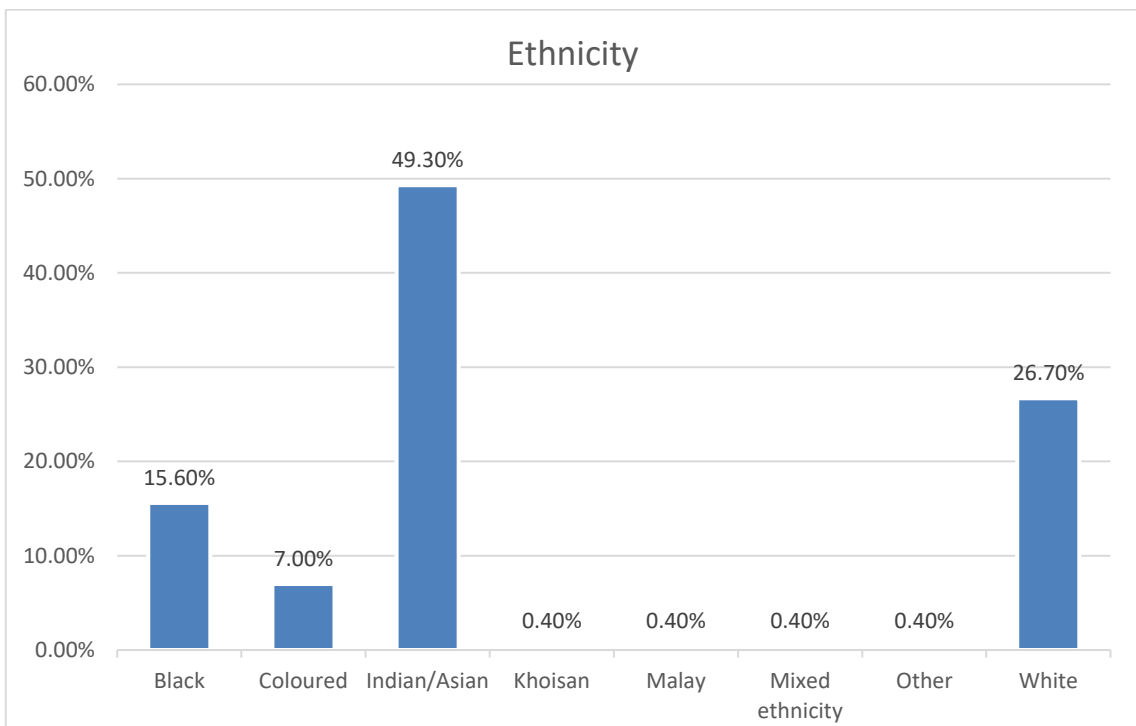
Figure 8: Respondent's Ethnicity

5.3.1.4 Nationality Demographics

Respondents were asked to select between two options; either they indicate that they are South African citizens or not. 97.4% of respondents indicated they were South African citizens, forming the majority, as depicted in Figure 9.
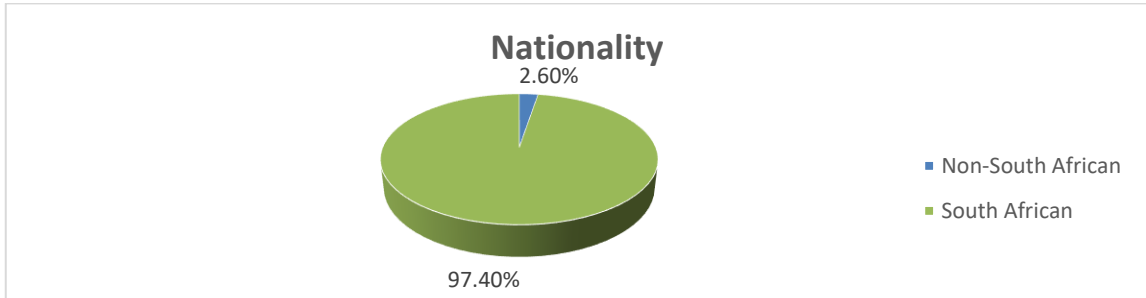

Figure 9: Respondent's Nationality

5.3.1.5 Industry Demographics

The largest respondents groups to the study were finance (16.7%), engineering (15.9%), technology (13%) and consulting (11.1%), as shown in Figure 10. The top respondent industries are relevant to an innovation study.
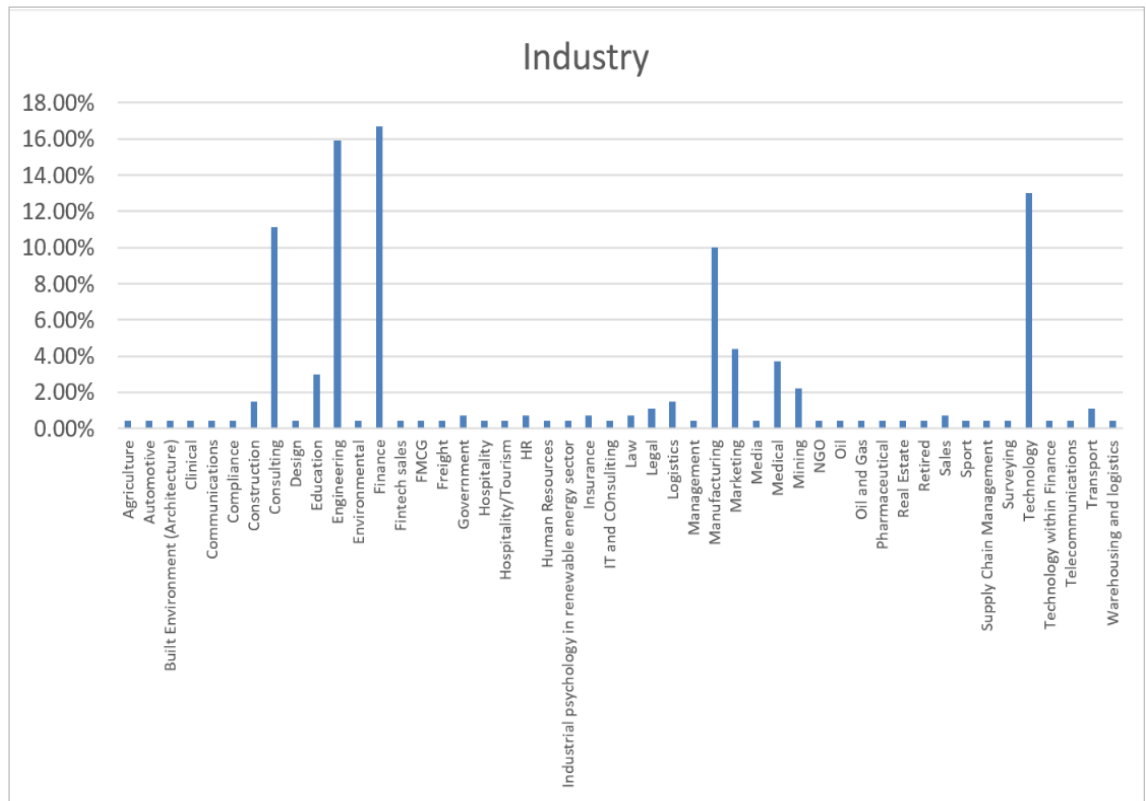
Figure 10: Respondent's Employment Industries

5.3.2 Control Variables Demographics

The research captured four control variable demographics: team size, educational level, managerial level and work type. The raw data from the descriptive statistics on the control variable's demographics can be found in Appendix F. The results of these demographics can be seen below.

5.3.2.1 Team Size

Respondents had four options to select from to indicate their team size. The results of the respondents are quite balanced and diverse. Team size of more than ten people was the largest category recorded, with 30.70%. The second largest category of respondents fell into the group of team sizes of between three to five people. 25.9% of respondents were in teams of between five to ten, and 15.6% of respondents were in teams sized between one to two people. Results can be seen graphically in Figure 11.
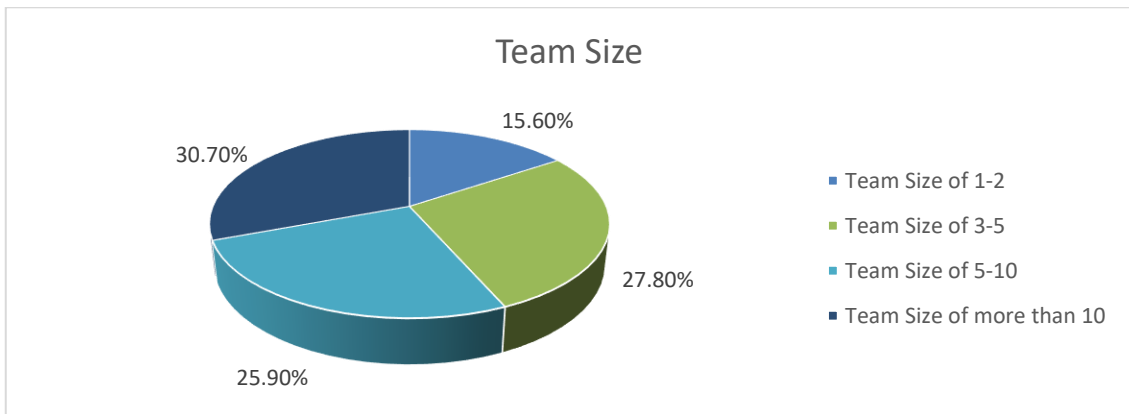

Figure 11: Respondent's Team Size

5.3.2.2 Educational Level

Respondents had five options to select to indicate their educational level: matric, diploma, bachelor's degree, honours degree, and master's degree and higher. The bulk of respondents had an honours degree (26.3%), followed closely by a master's degree or higher qualification (25.9%). The majority of the respondents received a formal education. Results can be seen in Figure 12.
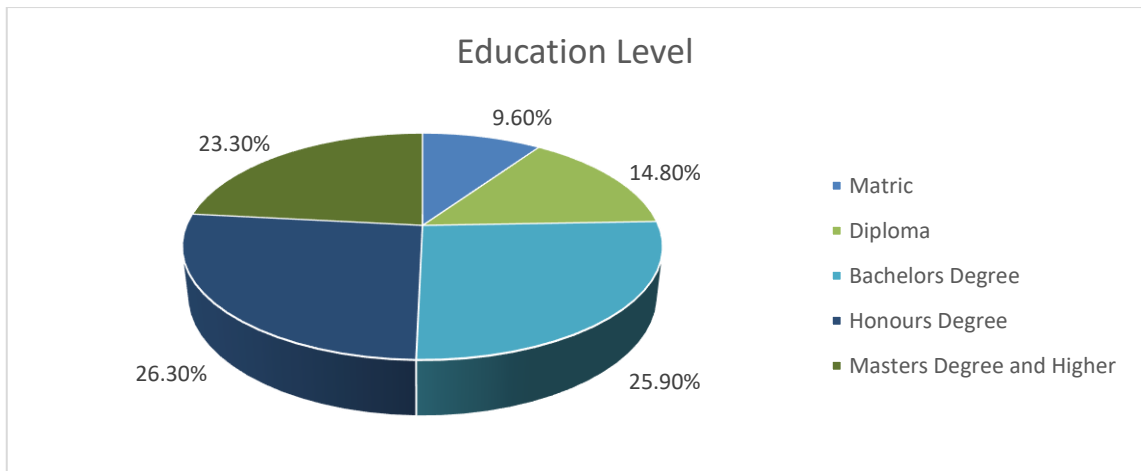
Figure 12: Respondent's Education Levels

5.3.2.3 Managerial Level

Respondents were asked to indicate the level at which their manager was within the organisation. There were three options: middle management, executive level and chief executive officer/managing director. The majority of respondents reported to executive level leadership with 40% of responses. The remainder of the responses was close to a balance between the responses between the chief executive officer/managing director and middle management. The results can be seen in Figure 13.
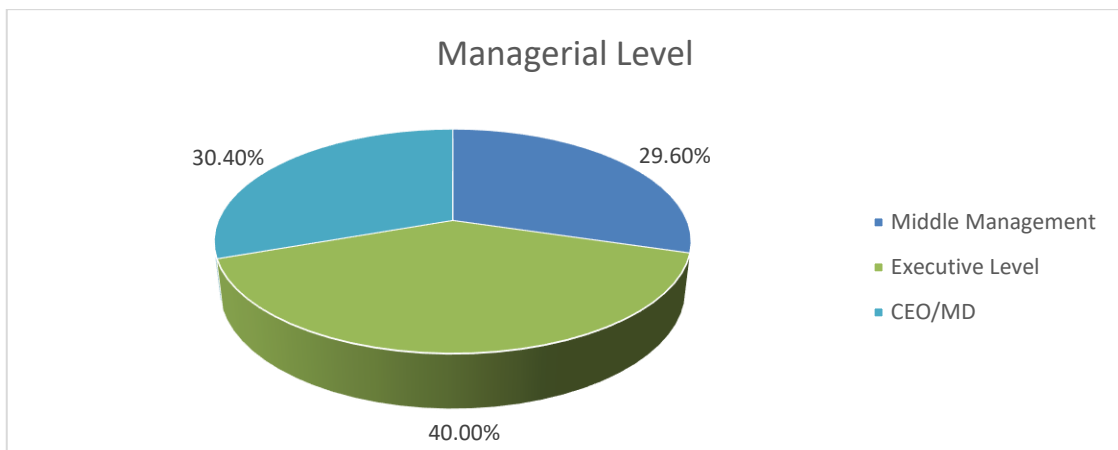

Figure 13: Respondent's Managerial Levels

5.3.2.4 Work Type

A condition for applicability to complete the survey was that respondents had to identify themselves as knowledge workers. Respondents did so by confirming that they considered their work non-repetitive or results orientated, and they had to use the application of knowledge, or continuous learning was required for their work. Respondents were asked an additional question to identify the extent to which their work was considered non-routine, which was captured within the work type control variables. The Work type was recorded on a 7-point Likert Scale, with options varying from strongly routine work to strongly non-routine work type. Figure 14 details the responses received. It can be noted that 56.7% of respondents saw themselves within the non-routine spectrum of the scale, 23.7% of respondents identified with the routine spectrum, and 19.6% were neutral.
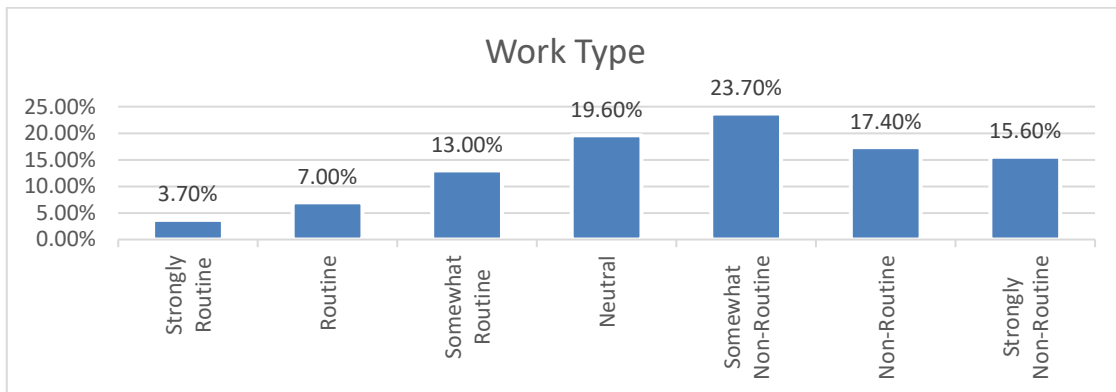

Figure 14: Respondent's Work Type

5.3.3 Crosstabulations

Crosstabulations regarding gender and age were conducted better to provide insight into the nature of the respondents, as seen below.

5.3.3.1 Gender and Work Type

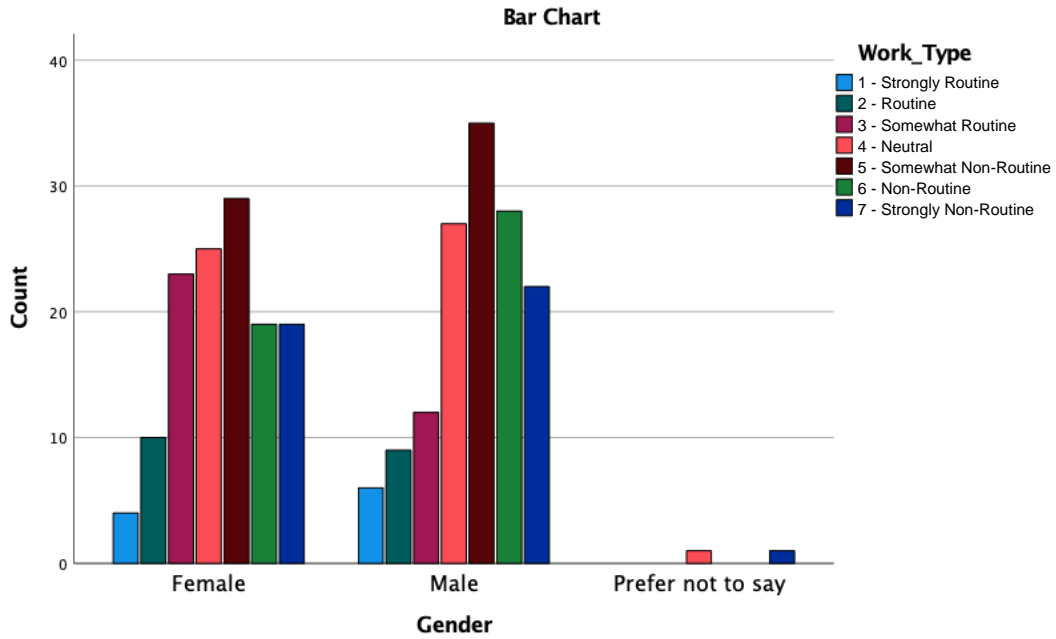As seen in Figure 15, more men than women regarded their work as somewhat non-routine or non-routine.

Figure 15: Respondent's Gender and Work Type Results

5.3.3.2 Gender and Industry

The largest group of female respondents were in the finance industry, while the largest group of male respondents were from engineering, as shown in Figure 16.
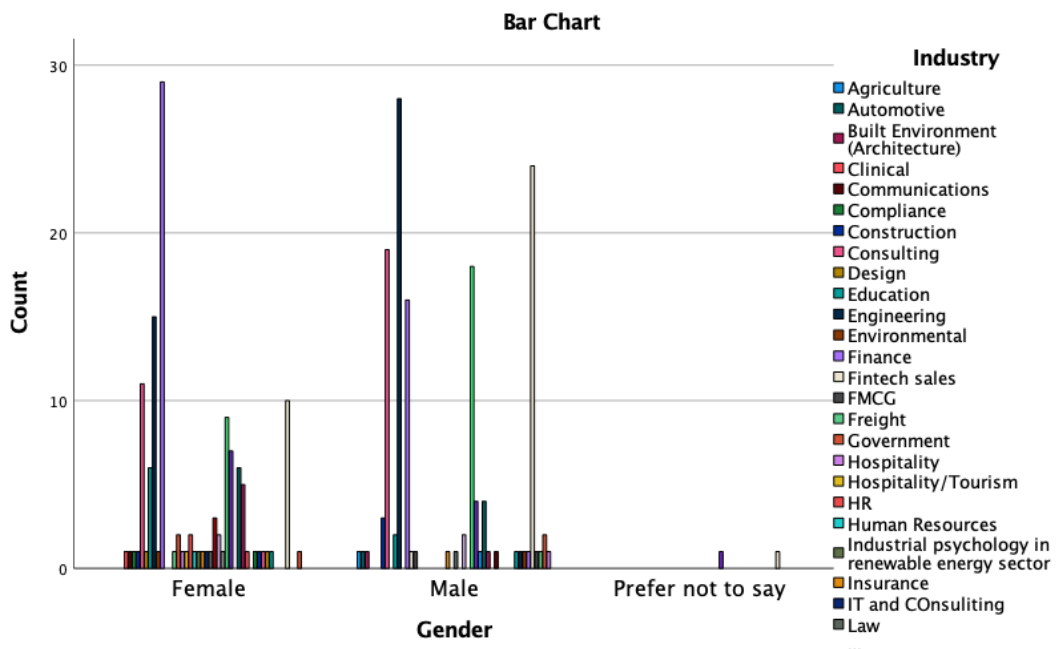

Figure 16: Respondent's Gender and Industry Results

5.3.3.3 Gender and Educational Level

A more significant number of female respondents had an honours degree and higher as compared to their male counterparts, as shown in Figure 17.
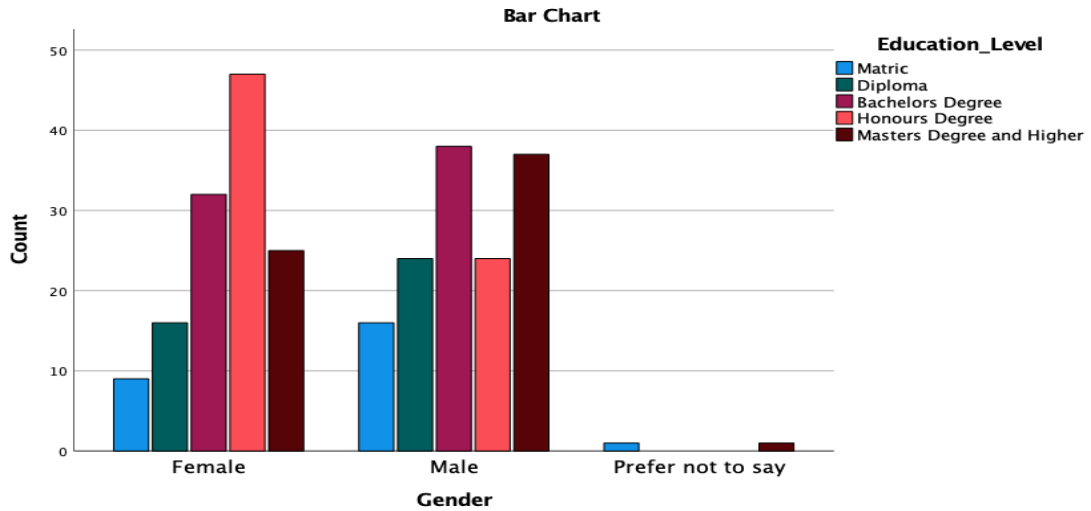

Figure 17: Respondent's Gender and Educational Level

5.3.3.4 Gender and Managerial Level

A larger amount of men reported to chief executive officers/ managing directors than women. The middle management reports were at identical levels between males and females, as shown in Figure 18.
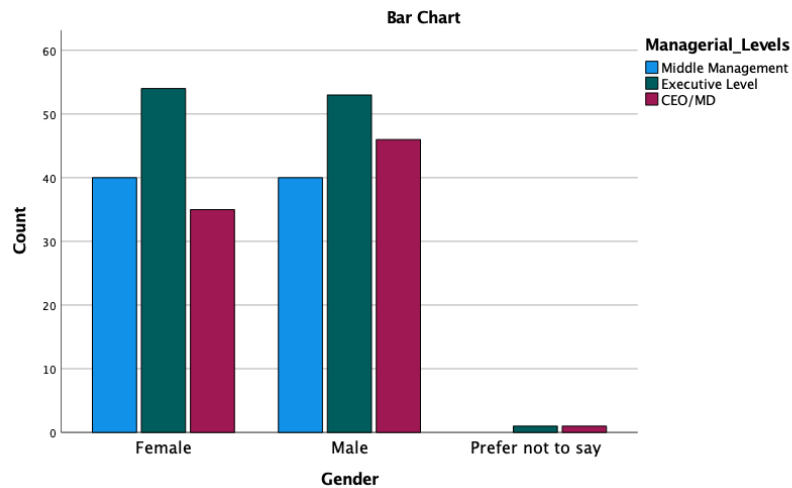

Figure 18: Respondent's Gender and Managerial Levels

5.3.3.5 Age and Educational Level

As seen in Figure 19, the majority of respondents were within the 25 to 35 age group, which can be described as highly educated.
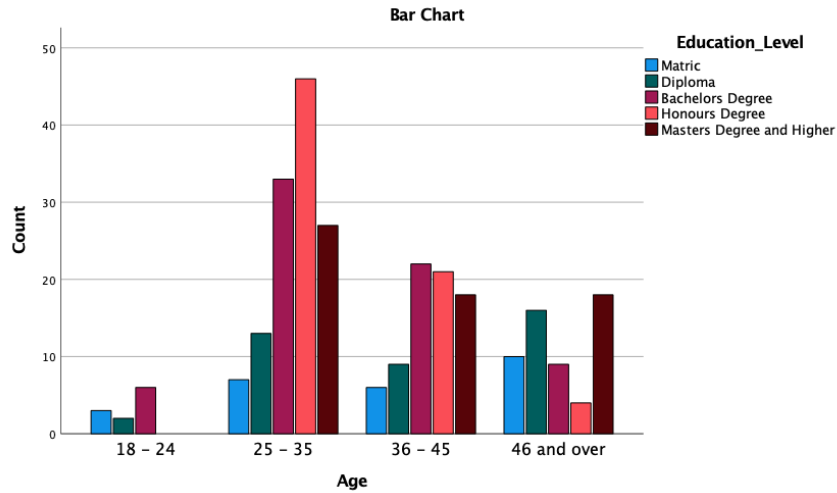

Figure 19: Respondent's Age and Educational Level

5.3.3.6 Age and Managerial Levels

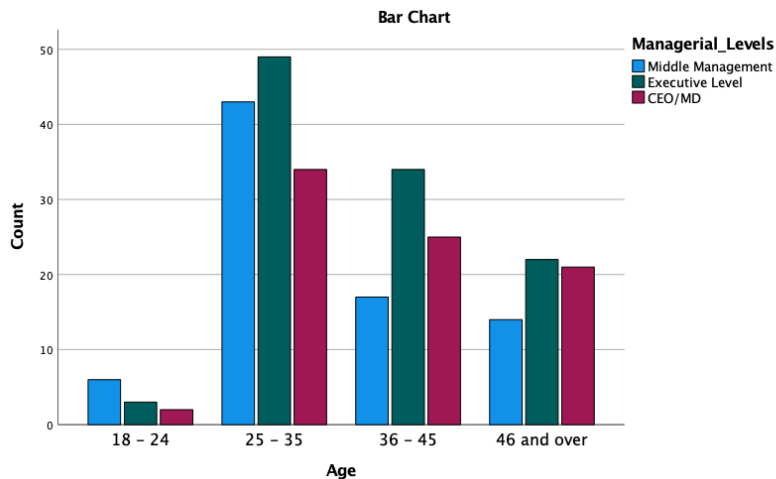Respondents were well mixed between the ages and the managerial levels they reported to, as seen in Figure 20.

Figure 20: Respondent's Age and Managerial Levels

5.3.3.7 Age and Work Type

From the age of 25 and up, most respondents identified towards non-routine work within the age category groups as seen in Figure 21.
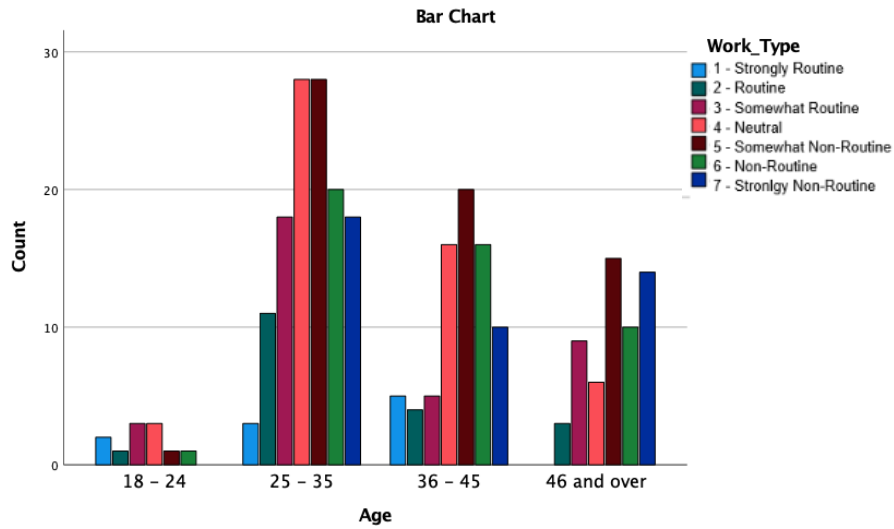

Figure 21: Respondent's Age and Industry

5.3.3.8 Age and Industry

The largest response group were from the engineering industry between the ages of 25 to 35. The second largest responses were within the finance industry within the same age group, as seen in Figure 22.
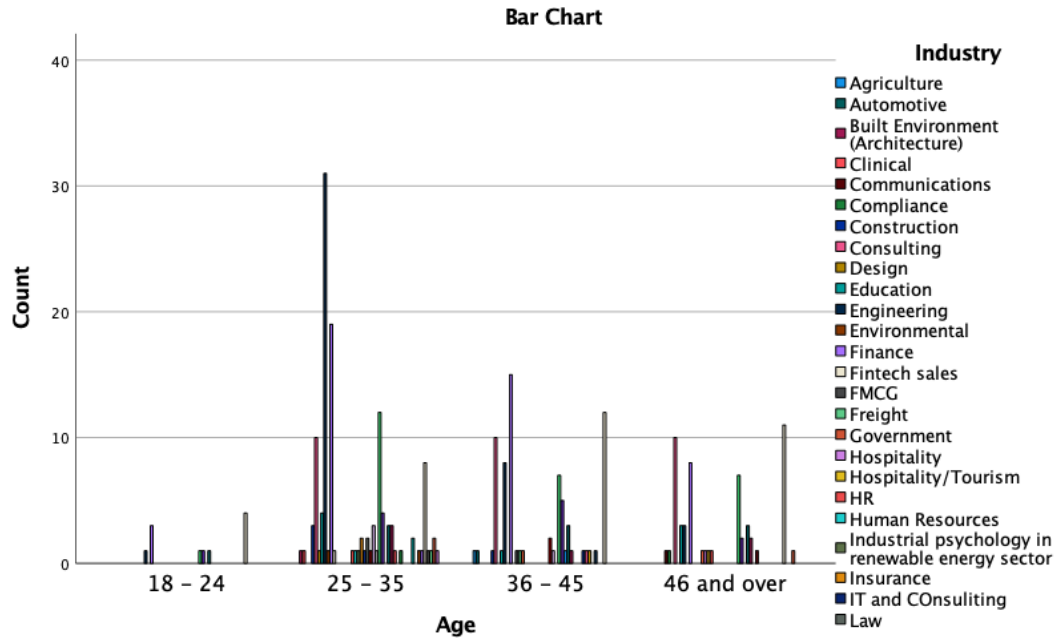
Figure 22: Respondent's Age and Work Type

5.4 Statistical Analysis

5.4.1 Normality

The results for the Skewness and Kurtosis tests are projected in Table 12. The acceptable range of Skewness and Kurtosis is -1 to 1 for normality conditions (Kim & White, 2003). TL and PMSE are considered within normality. However, It can be noted that TL is boarding very close to the normality limit even though there are no outliners, as seen in Table 12 and from the box and whiskers diagram in Appendix G. The box and whiskers diagram for PMSE is shown in Appendix G, indicates that the diagram was absent of outliers. IWB was out of the normality conditions and is considered skewed, and there are outliers present, as seen in the box and whiskers diagram per Appendix G. IWB also failed the test for skewness and kurtosis with values of -1.204 and 2.618, respectively, which are outside the normality limits. The researcher performed Winsorising on IWB and TL to bring them within normality. Considering that IWB contained outliers, the outliers were checked if they satisfied the conditions for Winsorisation, which is that outliers must be within 5% of the total sample size. The outliers of IWB were 1.11% of the sample and thus satisfied the conditions to allow Winsorisation. The results post-Winsorisation are in Table 13. It can be observed that TL and IWB both comfortably pass the test for the conditions

of Skewness and Kurtosis (IWB: Skewness 0.557; Kurtosis -0.133 and TL: Skewness -0.723; Kurtosis -0.317); this can also be seen graphically from the box and whisker diagrams as shown in Appendix H.

Table 12: Normality Test Results

Variable	Mean	Median	Std. Deviation	Min	Max	Range	Skewness	Kurtosis
TL	5.102	5.4	1.33442	1	7	6	-0.845	0.061
PMSE	4.5772	4.75	1.41108	1	7	6	-0.467	-0.387
IWB	5.4741	5.6667	0.98627	1.11	7	5.89	-1.204	2.618

Table 13: Post-Winsorising Results for Normality

Variable	Mean	Median	Std. Deviation	Min	Max	Range	Skewness	Kurtosis
TL	5.1209	5.4	1.29007	1.6	7	5.4	-0.723	-0.317
IWB	5.5061	5.6667	0.887	3.22	7	3.78	-0.557	-0.133

5.4.2 Internal Consistency

5.4.2.1 Cronbach Alpha's

The internal consistency or dependability between a number of objects, measurements, or ratings is measured by Cronbach's alpha (Zikmund et al., 2010). Cronbach's alpha has a value between zero and one, with higher values indicating that the items measure the same dimension (Olaniyi, 2019). Salkind (2012) provides the following criteria for interpreting the Cronbach alpha as a gauge of the research study's internal consistency, which can be found in Appendix I.

The Cronbach alpha reliability test was conducted for all 20 questions per transformational leadership instrument defined by (Tan et al., 2021) and yielded a reliability coefficient of 0.970. The Cronbach alpha reliability test was conducted for all 12 questions per the performance management systems effectiveness instrument

defined by Sharma et al. (2016) and yielded a reliability coefficient of 0.950. The Cronbach alpha reliability test was conducted for all nine questions per the innovation work behaviours instrument defined by Tan et al. (2021) and yielded a reliability coefficient of 0.921. All three variables' reliability coefficients are within the highly acceptable classification.

Table 14: Cronbach Alpha Reliability Coefficients per Variables

Variables	Number of Items	Cronbach Alpha Reliability Coefficients	Interpretation
TL	20	0.970	High
PMSE	12	0.950	High
IWB	9	0.921	High

5.4.2.2 Confirmatory Factor Analysis

To examine the validity and reliability of the constructs, as well as the overall measurement model, a confirmatory factor analysis (CFA), was performed. The measurement model's discriminant and convergent validity were evaluated to evaluate its validity fully. The degree to which variables intended to evaluate a particular construct is unrelated is measured by discriminant validity (Hair et al., 2010). A test's convergent validity determines if the instrument used to test for a construct is related (Hair et al., 2010).

As seen in Table 15, all instrument items have significance (p <0.001). The loading factor values can be seen from the Std.al column in Table 15, the majority of which is above 0.7, indicating its acceptability. Item IWB7 was the only item to receive a score of 0.694, just below the 0.7 ideal latent factor value; however, according to Osteen (2010) latest factors above 0.68 are considered acceptable. Item IWB7 also proved to be statistically significant, adding to the justification for not reducing the dimension of the IWB7 factor. A graphic representation of the latent factors for each variable can be seen in Appendix J, and it can be seen that the loading factors were good on the respective instruments. Appendix K contains the analysis model specifications used to run the CFA model, while the results of the CFA can be seen

in Table 15.

Table 15: Loading Factors per Instrument Item

Factors	Estimate	Std.Err	z-value	P(>|z|)	Std.lv	Std.al	R^2
TL1	1.422	0.085	16.647	<0.001	1.422	0.829	0.687
TL2	1.405	0.083	16.974	<0.001	1.405	0.839	0.705
TL3	1.16	0.079	14.75	<0.001	1.16	0.765	0.585
TL8	1.398	0.081	17.169	<0.001	1.398	0.845	0.715
TL9	1.433	0.082	17.413	<0.001	1.433	0.853	0.728
TL10	1.279	0.086	14.894	<0.001	1.279	0.769	0.592
TL11	1.495	0.09	16.531	<0.001	1.495	0.825	0.681
TL12	1.491	0.095	15.736	<0.001	1.491	0.799	0.639
TL13	1.467	0.087	16.801	<0.001	1.467	0.834	0.696
TL14	1.399	0.09	15.552	<0.001	1.399	0.792	0.628
TL15	1.394	0.084	16.547	<0.001	1.394	0.826	0.682
TL16	1.305	0.089	14.663	<0.001	1.305	0.761	0.579
TL18	1.392	0.087	15.921	<0.001	1.392	0.805	0.648
TL19	1.298	0.09	14.419	<0.001	1.298	0.752	0.566
TL20	1.281	0.085	15.12	<0.001	1.281	0.778	0.605
PMSE1	1.179	0.087	13.537	<0.001	1.179	0.722	0.521
PMSE2	1.136	0.084	13.527	<0.001	1.136	0.721	0.52
PMSE3	1.326	0.091	14.53	<0.001	1.326	0.759	0.576
PMSE4	1.414	0.083	17.013	<0.001	1.414	0.843	0.711
PMSE5	1.517	0.087	17.541	<0.001	1.517	0.86	0.739
PMSE7	1.591	0.087	18.35	<0.001	1.591	0.883	0.78
PMSE8	1.511	0.084	18.002	<0.001	1.511	0.873	0.763
PMSE9	1.499	0.086	17.382	<0.001	1.499	0.855	0.731
PMSE10	1.39	0.091	15.29	<0.001	1.39	0.787	0.62
IWB1	0.78	0.049	15.981	<0.001	0.935	0.828	0.686
IWB2	0.832	0.054	15.462	<0.001	0.998	0.81	0.657
IWB3	0.848	0.053	16.084	<0.001	1.016	0.831	0.69
IWB4	0.881	0.054	16.396	<0.001	1.057	0.842	0.708
IWB5	0.817	0.054	15.233	<0.001	0.98	0.8	0.64
IWB6	0.767	0.053	14.519	<0.001	0.919	0.773	0.598

IWB7	0.755	0.06	12.559	<0.001	0.905	0.694	0.482
IWB8	0.777	0.055	14.038	<0.001	0.932	0.755	0.57

5.4.2.3 Convergent Validity (CR & AVE)

The average variance extracted is the amount of shared variance among latent construct indicators, and the Composite Reliability (CR) assesses how much a group of latent construct indicators share in measuring a construct (Hair et al., 2010). All three constructs have a composite reliability of greater than 0.6 (refer to Table 16); therefore, they exhibit internal consistency (Fornell & Larcker, 1981).

Table 16: Composite Reliability Results

Analysis	IWB	PMSE	TL
CR	0.965	0.948	0.931

The Average Variance Extracted (AVE) method was used to test for construct validity; the results are shown below. Hair et al. (2010) state that acceptable construct validity levels are at 0.5 and above for the AVE. The AVE method to check construct validity reflects the overall amount of variance in the indicators (Hair et al., 2010). Results show that innovative work behaviour, performance management systems effectiveness and transformational leadership had 0.650, 0.668 and 0.626, respectively, as seen in Table 17. All constructs yielded acceptable values, thus passing the validity test. It is clear from the Composite Reliability and AVE results that every construct satisfies the convergent validity requirements in full (Fornell & Larcker, 1981).

Table 17: Average Variance Extracted Results

Analysis	IWB	PMSE	TL
AVE	0.650	0.668	0.626

5.4.2.4 Discriminant Validity (Square Root of AVE)

The CFA method was used to test for discriminant validity; the results are shown below. The discriminant validity tests for multicollinearity. In order words, it checks if the research instruments do not differ from each other (Hair et al., 2010). According to Hair et al. (2010), acceptable discriminant validity shall not exceed 0.9 as they are said to have significant overlap among the constructs. The AVE test results yield values of 0.806, 0.817 and 0.791 for TL, PMSE and IWB, respectively, as seen in Table 18. The test results were below 0.9 and thus considered acceptable, and the model passed the test for discriminant validity.

Table 18: Discriminant Validity Test Results

Constructs	TL	PMSE	IWB
TL	0.806		
PMSE	0.719	0.817	
IWB	0.498	0.523	0.791

5.4.3 Reliability

5.4.3.1 Model Fit Analysis

The model fit results are indicated in Table 19 below. It can be noted that all seven tests for model fit were within acceptable results.

Table 19: Model Fit Analysis

Test for fit	Result	Threshold	Result
Chi-square	0.004	Close to zero as conceivable	Pass
Goodness of fit index (GFI)	0.942	> 0.90	Pass
Root mean square error of approximation (RMSEA)	0.064	< 0.07	Pass
Standardised root mean square residual (SRMR)	0.046	< 0.08	Pass

Adjusted goodness of fit index (AGFI)	0.928	> 0.90	Pass
Normal fit index (NFI)	0.927	> 0.90	Pass
Comparative fit index (CFI)	0.934	> 0.90	Pass

5.5 Hypothesis testing

5.5.1 Research Question 1 - Hypothesis 1

As per Chapter 3, the first hypothesis is described below:

$H_{1\ NULL}$: Transformational leadership does not influence innovative work behaviour.

$H_{1\ ALTERNATE}$: Transformational leadership has an influence on innovative work behaviour.

The variables used for the linear regression are TL and IWB, with TL as the independent variable and IWB as the dependent variable. Managerial level, team size, work type and education level were used as the control variables in the linear regression. From the model summary, the degree to which the model and dependent variable are correlated can be determined. The multiple correlation coefficient of 0.511, which denotes a moderately strong and positive degree of correlation between TL and IWB, is provided in the Model Summary Table 20, along with the R and R^2 values. The independent variable can explain the dependent variable's (IWB) total variance to a degree of 0.247, according to the R^2 values (TL). In this case, the value of 24.7% is moderately high and indicates that the model explains 24.7% of the variance in the dependent variable. The Durbin-Watson value is 1.937, indicating no auto-correlation as the value is within the 1.5 to 2.5 limits.

Table 20: Model Summary TL and IWB

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate	Durbin-Watson
TL and IWB	0.511	0.261	0.247	0.76974	1.937

The Analysis of Variance (ANOVA) results in Table 21 below show that the *p*-value for the regression is <0.001, which is less than *p*=0.05; therefore, the model is statistically significant and fits the data. The *F*-ratio measures how well the general regression model fits the data. The table demonstrates the statistical significance of the model explaining the association between IWB and TL, $F(5,264) = 18.640$, *p* <0.05.

Table 21: ANOVA TL and IWB

Model		Sum of Squares	df	Mean Square	*F*	Sig. (*p*)
TL and IWB	Regression	55.221	5	11.044	18.640	<0.001
	Residual	156.419	264	.592		
	Total	211.640	269			

The regression model demonstrates the clear proportionality between IWB and TL. IWB will rise by 0.431 for every unit increase in TL. Table 22 shows that there are weighted contributions of TL and control variables team size and educational level are statistically significant with a *p*-value of <0.001. The constant beta in the regression model is 3.038. It can be noted that the Managerial level and work type did not have statistically significant relationships (*p*>0.05).

Therefore, the regression model is as follows:
IWB = 3.038 + 0.431*TL + 0.139*(Team Size) + 0.117*(Education Level)

Table 22: Regression Coefficients of TL and IWB

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig. (*p*)
		B	Std. Error	Beta		
TL and IWB	Constant	3.038*	0.277		10.963	<0.001
	TL	0.296	0.037	0.431*	7.955	<.001
	Team Size	0.116	0.044	0.139*	2.606	0.010
	Work Type	0.027	0.030	0.049	0.878	0.381
	Education Level	0.083	0.039	0.117*	2.127	0.034
	Managerial Levels	0.116	0.062	0.101	1.880	0.061

The data can be seen as normally distributed from the histogram, satisfying the regression assumptions as indicated in Figure 23.

Histogram

Dependent Variable: IWB_w

Mean = 8.99E−16
Std. Dev. = 0.991
N = 270

Figure 23: Histogram TL and IWB

Given that all of the data points are consistently close to the norm, it is clear from the P-P plot, as shown in Figure 24, that there was no deviation from normality and that the assumption of homoscedasticity is satisfied.

Normal P-P Plot of Regression Standardized Residual
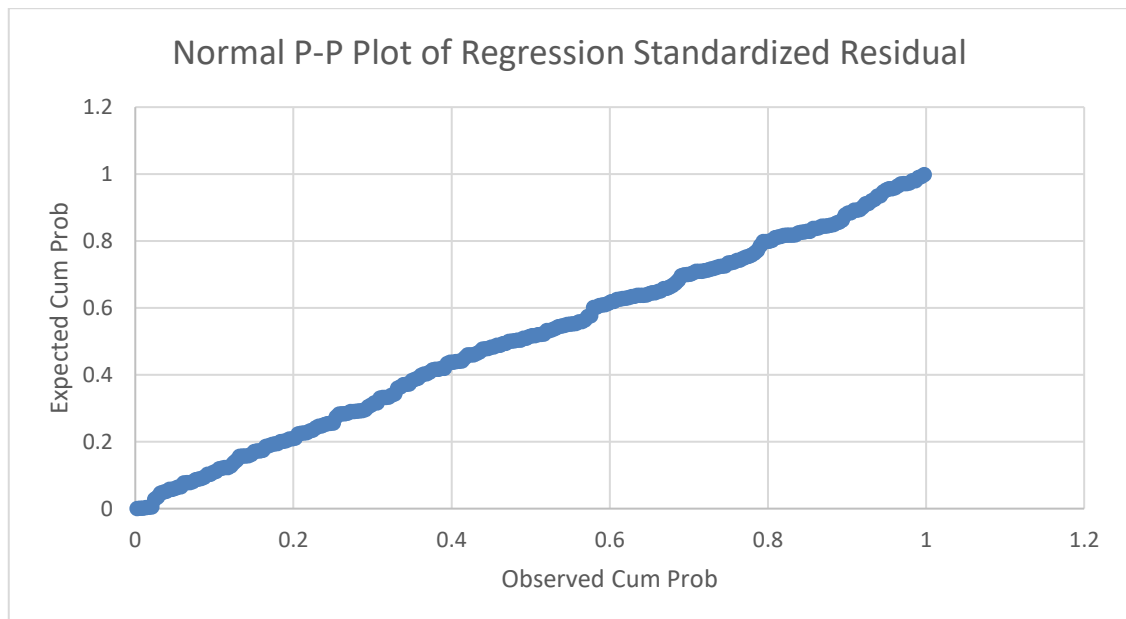
Figure 24: P-P Plot TL and IWB

5.5.2 Research Question 1: Hypothesis 2

As per Chapter 3, the second hypothesis is described below:

$H_{2\,NULL}$: Performance management system effectiveness does not influence innovative work behaviour.

$H_{2\,ALTERNATE}$: Performance management system effectiveness influences innovative work behaviour.

The variables used for the linear regression are PMSE and IWB, with PMSE as the independent variable and IWB as the dependent variable. Managerial level, team size, work type and education level were used as the control variables in the linear regression. From the model summary, the degree to which the model and dependent variable are correlated can be determined. The multiple correlation coefficient of 0.557, which denotes a moderately strong and positive degree of correlation between PMSE and IWB, is provided in the Model Summary Table 23, along with the R and R^2 values. The independent variable can explain the dependent variable's (IWB) total variance to a degree of 0.310, according to the R^2 values (PMSE). In this case, the value of 31% is moderately high and indicates that the model explains 31% of the variance in the dependent variable. The Durbin-Watson value is 1.833, indicating no auto-correlation as the value is within the 1.5 to 2.5 limits.

Table 23: Model Summary PMSE and IWB

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate	Durbin-Watson
PMSE and IWB	0.557	0.310	0.297	0.74383	1.833

The Analysis of Variance (ANOVA) results in Table 24 show that the *p*-value for the regression is <0.001, which is less than *p*=0.05; therefore, the model is statistically significant and fits the data. The *F*-ratio measures how well the general regression model fits the data. The table demonstrates the statistical significance of the model explaining the association between IWB and PMSE, $F(5,264) = 23.703$, p <0.05.

Table 24: ANOVA PMSE and IWB

Model		Sum of Squares	df	Mean Square	*F*	Sig. (*p*)
PMSE and IWB	Regression	65.573	5	13.115	23.703	<0.001
	Residual	146.067	264	0.553		
	Total	211.640	269			

The regression model demonstrates the clear proportionality between IWB and PMSE. IWB will rise by 0.482 for every unit increase in PMSE. Table 25, it can be seen that there are weighted contributions of PMSE and control variables team size and educational level are statistically significant with a *p*-value of <0.001. The constant beta in the regression model is 3.060. It can be noted that the Managerial level and educational level did not have statistically significant relationships (*p*>0.05).

Therefore, the regression model is as follows:

IWB = 3.060 + 0.482*PMSE + 0.133*(Team Size) + 0.125*(Work Type)

Table 25: Regression Coefficients of PMSE and IWB

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig. (*p*)
		B	Std. Error	Beta		
PMSE and IWB	Constant	3.060*	0.257		11.914	<.001
	Team Size	0.111	0.043	0.133*	2.592	0.010
	Work Type	0.068	0.029	0.125*	2.354	0.019
	Education Level	0.071	0.037	0.100	1.887	0.060
	Managerial Levels	0.100	0.060	0.087	1.676	0.095
	PMSE	0.303	0.033	0.482*	9.300	<.001

The data can be seen as normally distributed from the histogram, satisfying the regression assumptions as indicated in Figure 25.
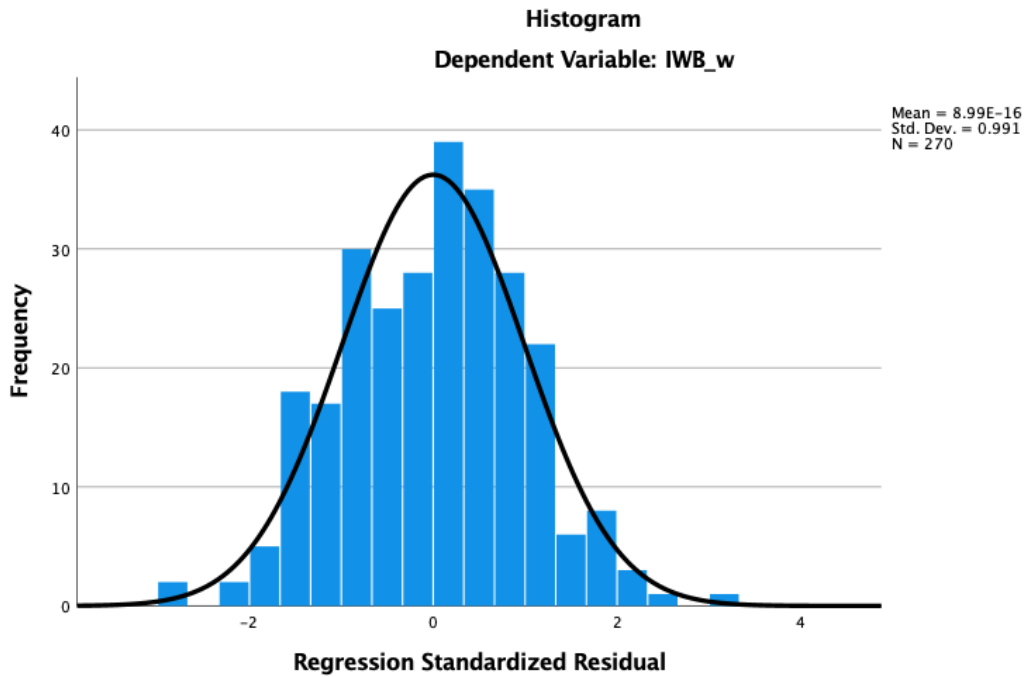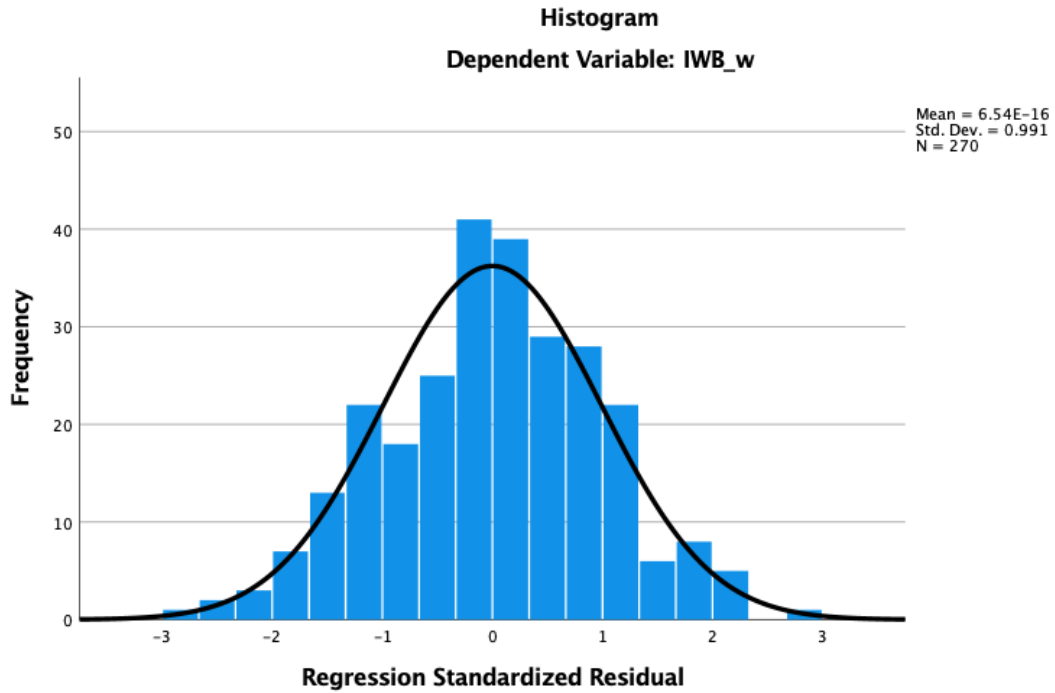
Figure 25: Histogram PMSE and IWB

Given that all of the data points are consistently close to the norm, it is clear from the P-P plot, as shown in Figure 26, that there was no deviation from normality and that the assumption of homoscedasticity is satisfied.
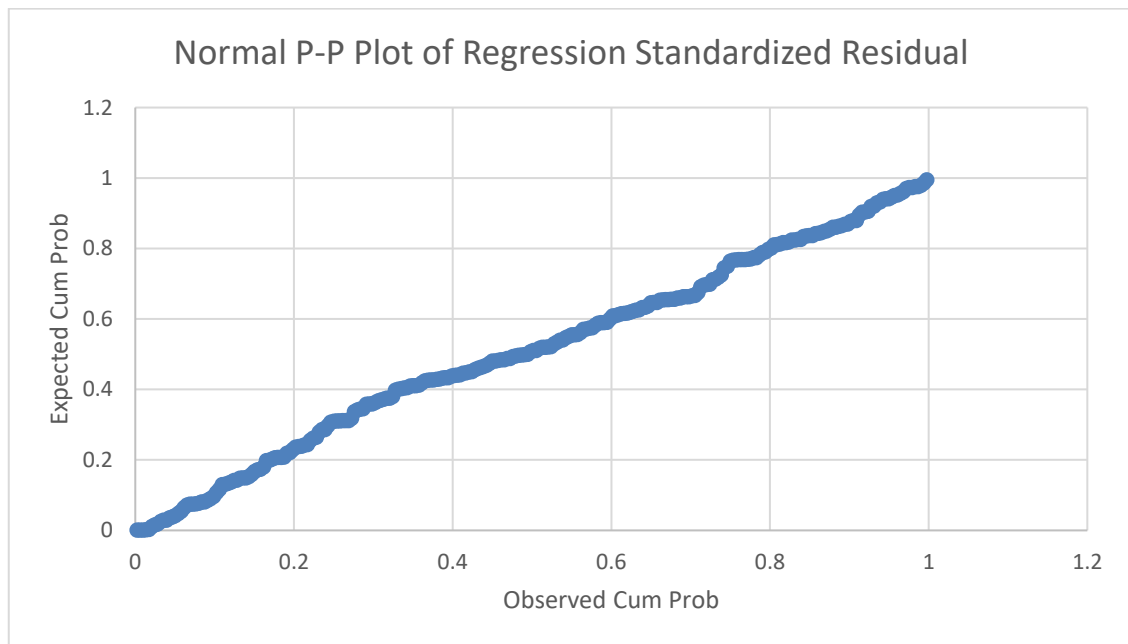

Figure 26: P-P Plot PMSE and IWB

5.5.3 Research Question 2: Hypothesis 3

$H_{3\ NULL}$: Performance management system effectiveness does not moderate the relationship between transformational leadership and innovative work behaviour.

$H_{3\ ALTERNATE}$: Performance management system effectiveness moderates the relationship between transformational leadership and innovative work behaviour.

Moderator testing was required to test PMSE within the relationship between TL and IWB. TL was the independent input (X), PMSE was the moderator input (W), and IWB was the dependent input (Y) for the model analysis (Hayes & Rockwood, 2020). According to the model summary in Table 26, the R^2 values, which indicates the proportion of the dependent variable's variation explained by the model, is between 26.68%. The interaction term (TLxPMSE) is not statistically significant, as seen in Table 27 ($p>0.05$).

Table 26: Model Summary Moderator Analysis

R	R-sq	MSE	*F*	df1	df2	Sig (*p*)
0.5166	0.2668	0.5833	32.2726	3.000	266.000	<0.001

Table 27: Moderator Model Coefficients

Variable	Coefficient	se	t	Sig (*p*)	Lower level of the confidence interval	Upper level of the confidence interval
Constant	5.4920	0.0572	95.9795	<0.001	5.3794	5.6047
TL	0.1475	0.0528	2.7905	0.0056	0.0434	0.2515
PMSE	0.2196	0.0471	4.6636	<0.001	0.1269	0.3123
TL*PMSE	0.0109	0.0258	0.4215	0.6737	-0.0400	0.0617

5.5.4 Results of Regression Analysis Assumptions

The researcher verified that the underlying conditions for linear regression are satisfied, as indicated in Table 28. The model passed all linear regression tests.

Table 28: Verification of Regression Assumptions Between the Relationships of Transformational Leadership, Performance Management Systems Effectiveness and Innovative Work Behaviour

Data Tests	IWB & TL	IWB & PMSE
Continuous Variables (Dependent and Independent)	Likert scales were used to obtain the data, thus indicating continuous variable data (Chakrabartty & Nath Chakrabartty, 2019).	Likert scales were used to obtain the data, thus indicating continuous variable data (Chakrabartty & Nath Chakrabartty, 2019).
Absence of multi-collinearity	Validity and reliability tests indicated no multicollinearity between the variables.	Validity and reliability tests indicated no multicollinearity between the variables.
Linear relationship	The two variables have a linear relationship as IWB and TL have a statistically significant positive correlation of 0.431.	The two variables have a linear relationship as IWB and PMSE have a statistically significant positive correlation of 0.482.
Normality	Outliers were removed using Winsorising. The data sets for IWB, TL and PMSE thus satisfied the conditions for normality as seen in the Skewness, Kurtosis (values between -1 to 1) and box and whisker diagrams (Kim & White, 2003).	Outliers were removed using Winsorising. The data sets for IWB, TL and PMSE thus satisfied the conditions for normality as seen in the Skewness, Kurtosis (values between -1 to 1) and box and whisker diagrams (Kim & White, 2003).
Homoscedasticity	The residuals of the regression line are approximately normally	The residuals of the regression line are approximately normally

	distributed, as seen in the P-P plot of regression, which shows that data points are all consistent with normality; thus, homoscedasticity is satisfied.	distributed, as seen in the P-P plot of regression, which shows that data points are all consistent with normality; thus, homoscedasticity is satisfied.
Independence of observations,	The Durbin-Watson value is 1.937, which indicates that there is no auto-correlation. An acceptable range is 1.50 - 2.50 (Subramaniam et al., 2014).	The Durbin-Watson value is 1.833, which indicates that there is no auto-correlation. An acceptable range is 1.50 - 2.50 (Subramaniam et al., 2014).

5.6 Conclusion

The first statistical analysis performed on the data set was to test for the presence of outliers. Innovative work behaviour variables presented the presence of outliers, and the transformational leadership variable test for skewness fell close to the boundary of acceptability, as indicated by Frey, (2018). Since multiple linear regression tests are highly sensitive to outliers and skewness, winsorisation was performed on these two variables to adjust the data to acceptable levels (Bryman & Bell, 2008). Checking internal consistency was the next analysis step, checked through Cronbach Alphas, confirmatory factor analysis, convergent validity and discriminated validity.

The Cronbach alpha values of the variables used in the study received high-reliability coefficients per variable of over 0.92. CFA statistical analysis tests were performed on the data. The data did not require dimension reduction as all loading factors for the variables instrument tests were both statistically significant and within acceptable ranges over 0.68 (Osteen, 2010). All components of the variable measurement instruments could be used. Convergent validity is the following test to check the data through composite reliability and the average variance extracted tests. All three varibles had composite reliability of greater than 0.6 and thus exhibited internal consistency (Fornell & Larcker, 1981). The average variance extracted from test results yields values for the variables above the 0.5 requirements for acceptable construct validity levels (Hair et al., 2010). The final test was the test for discriminate

validity. The test results for discriminant validity in the form of the square root of the average test were below 0.9 and thus considered acceptable. The model passed the test for discriminant validity (Hair et al., 2010). The next step was to check for reliability. The data passed all seven tests for reliability (Chi-square, GFI, RMSEA, SRMR, AGFI, NFI and CFI). From the statistical analysis tests, it can be determined that the data passed the check for normality, outliers, internal consistency and reliability. The conditions in which the study was undertaken indicate that it was appropriate to conduct a multiple linear regression analysis due to the fact that the conditional requirements for linear regression are satisfied, as shown in Table 28.

Hypothesis 1: Multiple linear regression was used at a 95% confidence level to predict innovative work behaviours (dependent variable) from transactional leadership (independent variable). With degrees of freedom of $F(5, 264) = 18.640$, p <0.05, and the variance explained R^2 =0.247; transactional leadership significantly predicted innovative work behaviour. As a result, the study concludes that transactional leadership affects innovative work behaviour and rejects the null hypothesis 1.

Hypothesis 2: Multiple linear regression was used at a 95% confidence level to predict innovative work behaviours (dependent variable) from performance management systems effectiveness (independent variable). With degrees of freedom of $F(5, 264) = 23.703$, p <0.05, and the variance explained R^2 =0.310, performance management systems effectiveness significantly predicted innovative work behaviours. As a result, the study concludes that performance management systems effectiveness affects innovative work behaviours and rejects the null hypothesis 2.

Hypothesis 3: Performance management systems effectiveness did not moderate the association between IWB and TL, even though the relationship between TL and IWB is statistically significant when the moderating variable is considered.

CHAPTER 6: DISCUSSION OF RESULTS

This Chapter discusses the findings from Chapter 5 in detail. The debate is conducted in light of the evaluation and literature review that are described in Chapter 2. Data was collected through the study on leadership behaviour, performance management systems and the resulting behaviour of employees in the context of innovative work behaviours. The study's primary goal was to find the relationships that influence innovative work behaviours. They were put to the test to determine whether transformation leadership and performance management systems effectiveness impacted innovative work behaviour. Understanding these connections will make it possible to inform the organisation's human resources department about management selection procedures, employee evaluation methods, and systems to encourage people to innovate and perform at higher levels for the company.

6.1 Summary of Results

A summary of the results of data collection, preparation, analysis and hypothesis testing can be seen below in Table 29.

Table 29: Summary of Results

Section	Sub-Section	Result Summary
Data Responses	Data Collection	270 usable valid responses were received.
Data Preparation	Data cleaning	Four steps were performed on the data to clean, code, and remove metadata.
Descriptive statistics	Demographics	I. Industry - The top three response industries for the survey were finance, engineering and technology. II. Nationality - 97.4% of respondents were South African III. Race/Ethnicity - Nearly half of all responses identified as Indian/Asian. IV. Age - Most responses came from the age group between 25 to 35 years old. V. Gender - The survey received a balanced

		response between males and females.
	Control Variables	I. Team size - Most respondents were from teams sized five people and upward. II. Educational level - The majority of respondents were highly educated with upward of an honour's degree. III. Managerial level - The majority of respondents reported to executive management and upwards. IV. Work type - The majority of respondents considered their work non-routine.
Statistical Analysis	Normality and Outliers	IWB contained outliers, and TL boarded non-normal distribution. TL and IWB were retreated for non-normality and outliers via winsorizing. Data then passed the normality checks, and the box and whiskers diagram were within acceptable ranges.
	Internal consistency	I. Cronbach alphas - The variables were within highly acceptable ranges. II. CFA - Sub variable factor loadings were significant and acceptable. No factor reduction needed to occur on the testing instrument. III. Convergent Validity - The variables passed the composite reliability (CR) tests passed with over 0.9 per variable and the average variance extracted (AVE) for the variables passed with over 0.5. IV. Discriminant Validity - The variables passed the square root of average variance extracted (AVE) test since they were below the 0.9 threshold.
	Reliability	The model passed all seven model fit analysis tests.
Hypothesis Testing	H1	Alternative hypothesis accepted: Transformational leadership does influence innovative work behaviour.
	H2	Alternative hypothesis accepted: Performance management system effectiveness does influence innovative work behaviour.
	H3	Null hypothesis accepted: Performance management system effectiveness does not moderate the relationship between transformational leadership and innovative work behaviour.

6.2 Data Collection

The data sample comprised 270 valid respondents, which is considered sufficient to prepare and extract conclusions from the data set (Zikmund et al., 2010). The data received a response rate of 27%. Other studies that looked into innovation had a similar response set between 130 to 250 respondents (Javed et al., 2019; Pieterse et al., 2010). This study exceeded previous innovation study's response data points.

6.3 Transformational Leadership and Innovative Work Behaviour (Hypothesis 1)

Hypotheses 1 and 2 were connected to research question 1. The discussion of hypothesis 1 will be followed by a discussion of the findings of hypothesis 2; then, this will be followed by a discussion of research question 1. Hypothesis 1 was linked to research question 1 and was proposed as indicated below. Transformational leadership was tested towards its influence on innovative work behaviour.

This relationship was of interest due to the role of leadership to persuade, motivate, inspire, and ensure that the company's strategic goals are realized (Al Khajeh, 2018). Bass (1999) states that transformational leadership is the most impactful leadership towards employee stimulation and that exploration into the context of transformational leadership needs to occur to understand transformational leadership fully. Studying leadership frequently yields insights into potential business success. A firm's innovative capacities enable them to handle the crisis and establish development plans during global economic crises (Rypestøl et al., 2022). Due to the changing global environment, innovation has become a central theme for business success.

Transformational leadership lends to a leader's ability to influence someone by encouraging them to support the organisation's objectives; this is accomplished by inspiring, empowering, and believing in subordinates, according to several literary definitions per Table 2 in Chapter 1. Empowering and believing in employees is linked to the transformational leader's openness to experiences and agreeableness (Judge & Bono, 2000). According to Raffo & Williams (2018), transformational leaders can motivate followers to transcend their self-interests and develop

consideration for the collective. Thus, employees can do what is suitable for the company and society as a collective. It is argued that transformational leadership traits become the driving force for innovation and the betterment of the status quo. In light of this, one could contend that the transformational leadership style is the most effective when innovation is desired. Asbari et al. (2020) found that transformational leadership is extremely relevant to promote innovation. Therefore, there is a strong connection between the growth of innovation behaviour and employee creativity due to transformational leadership.

The findings of this study indicated a moderately strong statistically significant correlation between transformational leadership and innovative work behaviours (r = 0.511 for p <0.05). The adjusted square value for transformational leadership in the model with innovative work behaviours is 0.247. This implies that 24.7% of the model variance in the dependent variable (innovative work behaviours) could be explained. This is considered moderately high for a social sciences study (Zikmund et al., 2010). This implies that the study can be similarly replicated. The 95% confidence level regression predicted that transactional leadership significantly predicts innovative behaviour (β Constant= 3.038, β TL= 0.431 at p <0.05). Control variables were tested in the study, and it was found that team size (β Team Size= 0.139) and education level (β Educational Level= 0.117) contributed to the study (p < 0.05). Control variables of Work type and managerial levels did not contribute to the study (p >0.05). It can be noted that among the significant control variables, respondent educational level contributed to the relationship of transformational leadership with slightly greater importance over team size.

In an effort to comprehend the control variable's findings in the study, academic literature was consulted. Koellinger (2008) argues that highly educated individuals are likely to have an inclination towards innovation and creativity in problem-solving due to the formalised learning path of these individuals. Considering that most respondents can be considered highly educated, holding upwards of an honours degree, it is understandable that educational level plays a significant role in the transformational leadership and innovative work behaviour relationship from the results. It is arguable that the traits of transformational leaders being able to stimulate a subordinates intellect coupled with a highly educated workforce strengthens the link between transformational leadership and innovative work behaviours (Brown &

Dodd, 1999). Team size is found to have an impact on innovation due to the team's ability to develop innovative behaviours; the condition to make this possible was through an organisational climate for excellence and problem-solving (Eisenbeiss et al., 2008). It can be argued that considering what is known about highly educated employees through the work of Koellinger (2008) a suitable climate is created for excellence and problem-solving; thus, the result of the research can be understood.

Now that we have explained the control variables that added significance to the study, we turn to the control variables that resulted in no significance in the transformational leadership and innovative work behaviour relationship. There was a contradiction in the research as most respondents had managers within upper management levels, and transformational leadership is said to have more impact in this leadership context due to the upper manager's ability to inspire teams (Kabore et al., 2021). From this, it can be determined that management levels do not matter in the context of transformational leadership's ability to inspire subordinates towards innovation. It can be argued that the transformational leader's ability to support, inspire and provide influence is considered an equal behavioural trait across the management levels. Thus, having a manager from middle management or upper management would not matter due to the traits of the leader being the same across the spectrum of management levels.

The work type control variable also did not have significance in the relationship between transformational leadership and innovative work behaviour. The majority of respondents considered their work type on the spectrum of non-routine; once again, there was a contraction in the literature and the study results. Transformational leadership was found to significantly contribute to the relationship between non-routinised work and employee creativity and innovation (Liu et al., 2021). However, the context of Liu et al. (2021) was limited to Chinese employees, and the context evokes the question of the impact of Hofstede's cultural differences related to power distance and collectivism of the research results. The studies results of Liu et al. (2021) cannot be expected to be replicated in this study due to the context of this study receiving the majority of responses from South African citizens. Thus it can be accepted that work type and the degree of non-routine work of employees do not impact the relationship between transformational leadership and innovative work behaviours within South Africa.

There is overwhelming evidence in the literature supporting transformational leadership linked to innovative work behaviours (Essen et al., 2022; Reuvers et al., 2008; Slåtten & Mehmetoglu, 2015; Tan et al., 2021). The outcome of this study is aligned with the literature and found the relationship between transformational leadership and innovative work behaviours to be positively significant, thus rejecting the null hypothesis and accepting the alternative hypothesis.

6.4 Performance Management Systems Effectiveness and Innovative Work Behaviour (Hypothesis 2)

Hypothesis 2 was linked to research question 1 and was proposed as indicated below. Performance management systems effectiveness was tested towards its influence on innovative work behaviour. This relationship is of interest as it can provide an understanding of how performance management can influence desired employee behaviour or results. According to Franco-Santos & Otley (2018), an array of intended or unintended situational circumstances can impact employee performance management with unintentional results; thus, it is crucial to study various situations within the context of performance management. For employee innovation, it was found that effective performance management systems are essential for maintaining competitive advantage (Gahan et al., 2021). The performance management systems effectiveness is ruled by the employee's perception of fairness and accuracy (Sharma et al., 2016). If employees consider their performance evaluation fair and accurate, they will be motivated to complete their job with dedication and application of good problem-solving, thus increasing their innovative work behaviours (Kumar & Gulati, 2010; Landy et al., 1978; Molleman & Timmerman, 2003). Employee innovative behaviour and creativity were found to be linked to consistent employee performance management (Audenaert et al., 2019). Performance management systems were found to be significant in the relationship with employee innovation behaviour (Walker et al., 2011). Therefore, there is a strong connection between the growth of innovation behaviour and employee creativity due to effective performance management systems and practises.

The findings of this study indicated a moderately strong statistically significant correlation between performance systems management effectiveness and innovative work behaviours (r = 0.557 for p <0.05). The adjusted square value for performance systems management effectiveness in the model with innovative work behaviours is 0.310. This implies that 31% of the model variance in the dependent variable (innovative work behaviours) could be explained. This is considered moderately high for a social sciences study (Zikmund et al., 2010). This implies that the study can be similarly replicated. The 95% confidence level regression predicted that performance systems management effectiveness significantly predicts innovative behaviour (β Constant= 3.060, β PMSE= 0.482 at p <0.05). Control variables were tested in the study, and it was found that team size (β Team Size= 0.133) and work type (β Work Type = 0.125) contributed to the study (p < 0.05). Control variables of educational level and managerial levels did not contribute to the study (p >0.05). It can be noted that among the significant control variables, respondent team size contributed to the relationship of transformational leadership with slightly greater importance over work type.

Now that we understand the results of the comprehensive study, we must consider the impact of the control variable's findings in the study. The literature on team size was contradictory to the results of the study. A study by Curral et al. (2001) argued that performance from larger teams is linked to poorer implementation and management of team processes and team performance management; thus, larger teams have significantly less innovative output capabilities. Peltokorpi and Hasu (2014) looked into how to increase team innovation capabilities as team size increases and found that it is possible to increase innovation team behaviour through team participative safety. The study's results regarding performance management systems effectiveness leading to innovation can thus be plausible in the right context.

Work type was found to significantly impact the relationship between performance management systems and innovative work behaviours. This result is aligned with the literature, as non-routine cognitive jobs are said to result in employees developing innovation capabilities and the skills required for innovative behaviour (Sheeba and Christopher, 2020). In the same study, Sheeba and Christopher (2020) determined that employee learning and development played a role in the non-routine work type's ability to develop employee innovative work behaviours. Considering that the

respondents are considered highly educated as the bulk of them possess, at a minimum, an honours degree, it can be argued that in this context, the non-routine work accelerated employee innovation work behaviours, as the respondent sample contained highly educated, developed and trained individuals.

Now that we have looked at the significant control variables, consideration needs to be provided for the control variables that did not significantly contribute to the study, as it will provide insight into the understanding of the constructs. Educational level and managerial levels did not contribute significantly to the study. According to Manning (2002), performance management systems work as a motivator differently for lower-level employees than they do for higher-level employees. Higher-ranking employees have support and reward opportunities as compared to lower-level employees (Kabore et al., 2021). The respondent employees were higher-ranking and thus considered the performance management systems effectiveness to be fair and accurate (Dutta et al., 2020; Sharma et al., 2016). Considering that most of the study's responses came from higher organisational-level respondents reporting to executive levels, it is plausible that managerial levels would not provide significance. Educational level did not contribute to the relationship between the performance management systems effectiveness and innovative work behaviours, unlike the work of Koellinger (2008), who argues that higher education is likely to play a factor in innovation. Perhaps in this context, the impact of performance management systems rendered education level non-significant.

The evidence in the literature supports the performance management systems effectiveness linked to innovative work behaviours (Audenaert et al., 2019; Kumar & Gulati, 2010; Molleman & Timmerman, 2003; Walker et al., 2011). The outcome of this study is aligned with the literature and found the relationship between performance management systems effectiveness and innovative work behaviours to be positively significant, thus rejecting the null hypothesis and accepting the alternative hypothesis.

6.5 Transformational Leadership Versus Performance Management Systems Effectiveness (Hypotheses 1 and 2)

Research question 1 was linked to the outcomes of hypotheses 1 and 2. The research question examined a comparative assessment of the performance management systems effectiveness and transformational leadership to induce innovative work behaviour from employees. Hypothesis 1 looked at the individual relationship between transformational leadership and innovative work behaviour and yielded a positive (β TL= 0.431) and significant relationship (p< 0.05). Hypothesis 2 looked at the individual relationship between the performance management systems effectiveness and innovative work behaviour and yielded a positive (β PMSE= 0.482) and significant relationship (p< 0.05). From these two hypotheses, it is revealed that while both variables indicated a moderately strong positive relationship, performance management systems effectiveness had a stronger relationship to innovative work behaviours. For every transformational leader, there will be an inclination of 0.431 towards innovation, while for every performance management system effectively introduced to employees, there will be an inclination of 0.482 towards innovation.

6.6 Performance Management Systems Effectiveness as a Moderator (Hypothesis 3)

Research question 2 was linked to the outcomes of hypothesis 3. In the discussion of hypothesis 3 below, the findings of research question 2 will also be discussed. Performance management systems effectiveness was tested as a moderator in the relationship between transformational leadership and innovative work behaviour. This relationship was of interest as it had not been tested before in previous research and forms the new insight bought upon by this study. The research proposed that considering transformational leadership and performance management systems, effectiveness both had a positively significant relationship with innovative work behaviours, the moderating interaction of performance management systems could be significant (Audenaert et al., 2019; Essen et al., 2022; Molleman & Timmerman, 2003; Reuvers et al., 2008).

Performance management systems effectiveness occurs when the respondent perceives fairness and accuracy in the performance review (Sharma et al., 2016). Further to this justification for testing the relationship was that transformational leaders possessed the personality traits to ensure that the performance management systems occurred effectively (Agarwal & Farndale, 2017; Bass, 1999). However, the study found that the performance management systems effectiveness does not moderate the relationship between transformational leadership and innovative work behaviours.

At the 95% confidence level, the interaction of transformational leadership and performance management systems effectiveness yielded a p-value of 0.674, which is considered an insignificant relationship ($p>0.05$). The adjusted R square value for the interaction variable (transformational leadership and performance management systems effectiveness) in the model with innovative work behaviours is 0.2668. This implies that 26.68% of the model variance in the dependent variable (innovative work behaviours) could be explained. This is considered moderately high for a social sciences study (Zikmund et al., 2010). This implies that the study can be similarly replicated.

It was determined that the variables of transformational leadership and performance management systems effectiveness do not each upon each other at all, considering that no statistical significance was found in the interaction of the variables (Zikmund et al., 2010). Therefore, the null hypothesis can be accepted as performance management systems effectiveness does not moderate the relationship between transformational leadership and innovative work behaviours, which directly answers research question 2.

6.7 Conclusion

Chapter 6 presented a summary of the results and a discussion of the finding in relation to the literature. Considering the results of the hypothesis testing, H1 and H2 were considered significant, and H3 was not significant. Figure 27 depicts the updated research model.
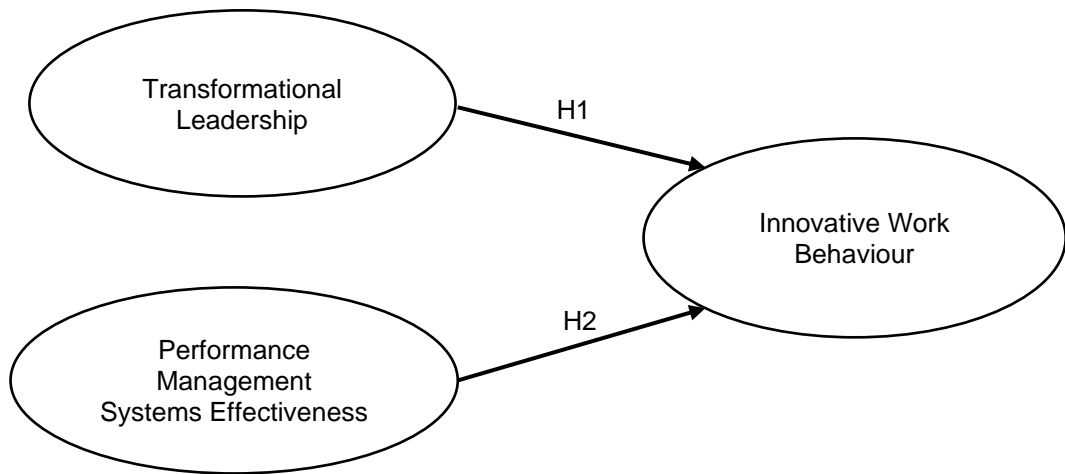
Figure 27: Updated Research Model

CHAPTER: 7 CONCLUSIONS AND RECOMMENDATIONS

A summary of the key findings will be provided in this Chapter, along with discussions on the main conclusions that could be drawn from the study. It also discusses the limitations of the study and how the study has contributed to academics. The business implication of the study for managers and organisations will be discussed. Finally, it offers suggestions for further study in the areas of innovation, performance management, and leadership.

7.1 Principle Conclusions

The researcher tested two constructs, transformational leadership style and performance management systems effectiveness, to provide an understanding of the impact on innovative work behaviours. The researcher asked two research questions to provide a new insight that had never been tested before. The first research question involved a comparative assessment of the difference caused by transformational leadership and performance management systems effectiveness towards employee outputs of innovative work behaviours. The research found that transformational leadership did lead towards employee innovative work behaviours. The researcher found that this result is aligned with previous findings that looked at the relationship between transformational leadership and innovative work behaviours and found it significantly positively impactful (Essen et al., 2022; Reuvers et al., 2008; Slåtten & Mehmetoglu, 2015; Tan et al., 2021).

Still considering the first research question, previous research was reviewed, and it was found that studies had been performed on the relationship between performance management systems and innovation. There is an indication in the literature that performance management systems effectiveness would lead to employee outputs of innovative work behaviours (Audenaert et al., 2019; Kumar & Gulati, 2010; Molleman & Timmerman, 2003; Walker et al., 2011). This study's findings aligned with the previous research and found a positive relationship between performance management systems effectiveness and employee innovation work behaviours.

The study's comparative analysis component helped it determine which of the two factors is more critical in addressing the first research question. At the same time, the research found that both transformational leadership style and performance management systems effectiveness positively lead to employee innovative work behaviour. However, one variable is more significant than the other. The study results indicated that performance management systems effectiveness is more impactful in including employee innovation work behaviour over transformational leadership.

The second research question focused towards informing the relationship between transformational leadership style and innovative work behaviours considering the moderating impact of performance management systems. The researcher suggested that the performance management systems effectiveness might moderate the relationship due to the transformational leader possessing certain leadership personality traits and abilities. According to Sharma et al. (2016), performance management systems effectiveness occurs when the respondent perceives fairness and accuracy in the performance review (Sharma et al., 2016). Transformational leadership involves a leader's ability to believe, motivate, inspire, coach, promote openness to experiences to followers and transcend self-interests (Al-Ghazali, 2020; Judge & Bono, 2000; Raffo & Williams, 2018).

The research proposed that leaders as transformational leaders would be able to practise fairness and accuracy in performance management (Agarwal & Farndale, 2017; Bass, 1999). Thus performance management systems effectiveness could impact the relationship between transformational leadership and innovative work behaviours. During the studies investigation, the research found that the presence of the performance management systems effectiveness did not affect the relationship. The interaction between transformational leadership and the performance management systems effectiveness is not found to be significant. Thus performance management systems effectiveness does not moderate the relationship between transformational leadership style and innovative work behaviours.

7.2 Theoretical Contribution

Through the direct effect of the leader-follower interaction, leadership styles can influence a firm's propensity towards creative and innovative capabilities (Jung et al., 2003). Building an organisation's innovative capacities enables a firm to handle crises and establish novel development ideas during turbulent economic times (Rypestøl et al., 2022). Organizations benefit from innovation in terms of performance, and people gain improved social and psychological advantages (Janssen, 2000). The positive aspects of innovation are highly valued, but the levers to extract the outcomes of innovative work behaviour are unfamiliar.

The study's primary objective is to shed light on innovation dependencies, considering transformational leadership style and performance management systems effectiveness. First, the importance of these variables will be explained for their theoretical relevancy and contribution, and then a collective consideration will be discussed. While the western environment has been the primary focus of innovation research, this study can shed light on the African market, particularly the South African market. Since innovation studies have historically concentrated on a first-world setting, it is crucial to recognise that studying this subject in an African population can offer fresh perspectives.

While transformational leadership has been a well-researched variable, understanding leadership in the context of innovation and performance management can help understand how to influence desired employee behaviour or results. According to Bass (1999), there is still a great deal to learn about how the context in which transformational leadership happens affects the outcome and impact of transformational leadership. The area of transformational leadership is a well-researched space; however, it was recommended by Stock et al. (2022) that the delineated mechanisms that affect follower outcomes should be precisely reviewed. Such mechanisms are innovation and performance management systems, as examined by this study. Performance management systems effectiveness has been a topic upon which various arguments have been presented for and against the benefit of a formal review process. As suggested by Haines & St-Onge (2012), there is a need to study the contextual elements and conditions to determine the full extent to which performance management systems are impactful and effective.

Now that the individual importance of studying performance management systems effectiveness, transformational leadership style and innovation has been explained, it is important to consider the collective contribution of this study. This study aims to fill a gap in the existing literature. There is existing academic evidence to indicate the links in the relationship between the performance management systems effectiveness and transformational leadership style separately towards innovative work behaviours. However, this relationship has not been compared or tested as an interactive relationship. Thus, moderator testing of performance management systems effectiveness in the relationship between transformational leadership and innovative behaviour has provided new insight into the variables. Testing the impact of performance management systems effectiveness and transformational leadership in the same study provided a comparative assessment that offers new insights into the relationships.

7.3 Implications for Management and Organisations

The study's findings have implications for business management, particularly for organisational leaders trying to encourage more creative and innovative work behaviours within their workforce to improve business performance. Through the direct effect of the leader's follower interaction, managers' leadership styles can influence a firm's inclination towards creative and innovative capabilities (Jung et al., 2003). Its also known that leader's effectiveness affects the drive, efficiency, and creativity of those around them (Hsiao et al., 2011). The efficacy of performance management systems is measured by how closely employees' attitudes and behaviours correspond with the objectives or interests of the company (Folan and Browne, 2005).

Specifically, this study can provide business leaders insight into hiring and human resource practices. The study looked at two systems from a business perspective and can provide comparative feedback to businesses. Transactional leadership leaders were viewed as the external component of the business that could be bought in via the recruitment processes, were as performance management systems effectiveness is an internal company variable that is in direct control of the organisation. While both these systems (internal through performance management

and external through hiring transformational managers) were found to positively contribute on their own towards the outcome of employee innovation behaviour. Performance management system effectiveness is found to have more impactfulness over transformational leadership, including innovative work behaviours. This is evidence that while transformational leadership has recently gained popularity in business, if organisations can place significance on getting their performance management systems to work effectively, it is more likely to alter employee behaviour towards desired innovation outcomes.

This finding is quite significant as there has been a lot of debate in the literature around the impact of performance management systems (Schleicher et al., 2019). Performance management system effectiveness is found to be impactful in this study. In addition to this insight, the research found that team size and the type of work (degree of non-routineness) done by employees play a play in performance management systems leading to innovative work behaviour.

7.4 Limitations of The Research

While the study received satisfactory respondents, they were spread around various industries and cannot concretely predict its results for any particular industry as the results are concentrated around a generalisation and should be treated as such. The disadvantage of snowball sampling is that data collection became concentrated within certain ethnicities. Indians/Asians and whites provided 76% of the data collected. While these respondents identified their nationality as South African, these ethnicities are considered a minority.

The study limited the response intake to knowledge-worker individuals. Therefore, the outcomes of this study cannot be applied to manual labour employees or non-knowledge workers. A Likert scale was used to collect the data, which gave the study a subjective element. During data analysis, there was the presence of outliers in the data. While Winsorization allowed for the data to be adjusted and still used for future analysis, this altered the naturally collected data set.

7.5 Suggestions for The Future Research

Industry-specific research could be conducted for the top industry respondents of interest: engineering, finance, and consulting. This could confirm the extent to which this study can be generalised across industries. Considering the impact of motivation in the performance management system process, it would be interesting to comparatively test the finding in the context of governmental employees versus private organisations.

From the literature, it was exposed that transformational leaders possess qualities to ensure performance management systems can occur accurately and fairly; thus, it would be interesting to test the performance management systems effectiveness within the transformational leadership and innovator work behaviour relationship as a mediator. This could provide a further understanding of the variables and thus provide insights for human resource practises. Organisations could also examine the sources of accuracy and fairness perceptions of the system in order to ensure that employees perceive it as such, as this will drive employee innovative work behaviours.

7.6 Concluding statement

The research's findings gave the organisation information about the variables that affect employee innovation. The research study also emphasised the value of performance management as a strategic instrument to support employee innovation and creativity to develop organisational competitiveness. Organisations should aim to improve their performance management systems to ensure their effectiveness during employee review processes, as this process has the potential to provide the organisation with superior employee performance. Employees will likely exhibit innovative behaviour and creative problem-solving through performance management systems effectiveness. Organisations should focus on getting their internal systems correct, such as performance management, instead of recruiting attractive leaders exhibiting transformational leadership traits.

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APPENDICES

Appendix A - Data Relevancy Questionnaire Considerations

Do you consider your work non-repetitive or results orientated?

◯ Yes

◯ No (If they select no, they will not be able to continue with the survey)

Is there an application of knowledge or continuous learning required for your work?

◯ Yes

◯ No (If they select no, they will not be able to continue with the survey)

Appendix B - Ethical Survey Questionnaire Considerations

Ethical Survey Questionnaire Considerations

Are you over the age of 18?

◯ Yes

◯ No (If they select no, they will not be able to continue with the survey)

Do you consent to this survey?

◯ Yes

◯ No (If they select no, they will not be able to continue with the survey)

Appendix C - Transformational Leadership Questionnaire

Table: Transformational Leadership Questionnaire

Transformational leadership Questionnaire	
Sourced from Tan et al. (2021). Measured on a seven-point scale ranging from strongly disagree (one) to strongly agree (seven).	
1	My manager helps me develop my strengths
2	My manager acts in ways that builds my respect
3	My manager expresses confidence that goals will be achieved
4	My manager articulates a compelling vision of the future
5	My manager talks enthusiastically about what needs to be accomplished
6	My manager talks optimistically about the future
7	My manager emphasises the importance of having a collective sense of mission
8	My manager gets me to look at problems from many different angles
9	My manager seeks differing perspectives when solving problems
10	My manager specifies the importance of having a strong sense of purpose
11	My manager instils pride in me for being associated with him/her
12	My manager spends time teaching and coaching
13	My manager suggests new ways of looking at how to complete assignments
14	My manager talks about my most important values and beliefs
15	My manager re-examines critical assumptions to question whether they are appropriate
16	My manager considers the moral and ethical consequences of decisions
17	My manager displays a sense of power and confidence
18	My manager goes beyond self-interest for the good of the group
19	My manager considers me as having different needs, abilities, and aspirations from others
20	My manager treats me as an individual rather than just a member of a group

Appendix D - Performance Management Systems Effectiveness Questionnaire

Table: Performance management systems effectiveness Questionnaire

Performance Management Systems Effectiveness Questionnaire	
Sourced from Sharma et al. (2016). Measured on a seven-point scale ranging from strongly disagree (one) to strongly agree (seven).	
1	The performance plan based on PMS gives a clear idea of what is expected of me to meet organisational goals
2	The performance plan helps me focus my efforts through identification of goals (and/or behaviours/skills) relevant to meet organisational goals
3	My manager and I update my goals as business goals change
4	The ongoing feedback during the performance cycle gives an accurate evaluation of how I am performing against planned performance
5	During the year my areas for improvement are clearly pointed out to me
6	I get the coaching I need during the year to achieve my goals (and/or improve my behaviours/skills) to achieve planned performance
7	Annual feedback during performance review is an accurate representation of the ongoing feedback during the performance cycle
8	My goals (behaviours/ skills) are accurately rated as part of the review process
9	My annual performance review is very objective in assessment of my annual performance against planned performance
10	Performance review results in an accurate performance rating
11	My PMS outcomes (compensation, reward and/or recognition) are linked to my performance rating
12	My annual performance review is direct transformational leadership related to my performance management systems outcomes (compensation, reward and/or recognition)

Appendix E - Innovative work behaviour Questionnaire

Table: Innovative work behaviour Questionnaire

Innovative work behaviour Questionnaire	
Sourced from Tan et al. (2021). Measured on a seven-point scale ranging from never (one) to always (seven).	
1	I generate new ideas for improvement
2	I introduce innovative ideas in a systematic way
3	I transform innovative ideas into applications
4	I evaluate thoroughly the application of innovative ideas
5	I mobilise support for innovative ideas
6	I generate original solutions to problems
7	I make important organisational members enthusiastic for innovative ideas
8	I search out new working methods, techniques or instruments
9	I acquire approval for innovative ideas

Appendix F - Population Statistics

Statistics

		Gender	Age	Ethnicity	Team_Size	Nationality	Work_Type	Industry	Education_Level
N	Valid	270	270	270	270	270	270	270	270
	Mean	1.53	2.66	3.99	2.72	1.97	4.67	21.92	3.39
	Std. Error of Mean	.031	.052	.155	.065	.010	.099	.806	.077
	Median	2.00	2.00	3.00	3.00	2.00	5.00	13.00	3.00
	Mode	2	2	3	4	2	5	13	4
	Std. Deviation	.515	.854	2.553	1.064	.159	1.624	13.244	1.259
	Variance	.265	.730	6.517	1.132	.025	2.638	175.399	1.584
	Skewness	.046	.311	.739	-.201	-6.000	-.342	.518	-.349
	Std. Error of Skewness	.148	.148	.148	.148	.148	.148	.148	.148
	Kurtosis	-1.609	-.953	-1.018	-1.224	34.251	-.604	-1.172	-.866
	Std. Error of Kurtosis	.295	.295	.295	.295	.295	.295	.295	.295
	Range	2	3	7	3	1	6	47	4
	Minimum	1	1	1	1	1	1	1	1
	Maximum	3	4	8	4	2	7	48	5
	Sum	413	719	1077	734	533	1261	5918	915

Statistics

		Managerial_Levels
N	Valid	270
	Missing	0
Mean		2.01
Std. Error of Mean		.047
Median		2.00
Mode		2
Std. Deviation		.776
Variance		.602
Skewness		-.013
Std. Error of Skewness		.148
Kurtosis		-1.336
Std. Error of Kurtosis		.295
Range		2
Minimum		1
Maximum		3
Sum		542

Frequency Tables

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	129	47.8	47.8	47.8
	Male	139	51.5	51.5	99.3
	Prefer not to say	2	.7	.7	100.0
	Total	270	100.0	100.0	

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18 - 24	11	4.1	4.1	4.1
	25 - 35	126	46.7	46.7	50.7
	36 - 45	76	28.1	28.1	78.9
	46 and over	57	21.1	21.1	100.0
	Total	270	100.0	100.0	

Team_Size

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 to 2	42	15.6	15.6	15.6
	3 to 5	75	27.8	27.8	43.3
	5 to 10	70	25.9	25.9	69.3
	More than 10	83	30.7	30.7	100.0
	Total	270	100.0	100.0	

Ethnicity

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Black	42	15.6	15.6	15.6
	Coloured	19	7.0	7.0	22.6
	Indian/Asian	133	49.3	49.3	71.9
	Khoisan	1	.4	.4	72.2
	Malay	1	.4	.4	72.6
	Mixed ethnicity	1	.4	.4	73.0
	Other	1	.4	.4	73.3
	White	72	26.7	26.7	100.0
	Total	270	100.0	100.0	

Nationality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	7	2.6	2.6	2.6
	Yes	263	97.4	97.4	100.0
	Total	270	100.0	100.0	

Work_Type

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	(1) Routine	10	3.7	3.7	3.7
	(2)	19	7.0	7.0	10.7
	(3)	35	13.0	13.0	23.7
	(4) Neutral	53	19.6	19.6	43.3
	(5)	64	23.7	23.7	67.0
	(6)	47	17.4	17.4	84.4
	(7) Non-Routine	42	15.6	15.6	100.0
	Total	270	100.0	100.0	

Industry

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agriculture	1	.4	.4	.4
	Automotive	1	.4	.4	.7
	Built Environment (Architecture)	1	.4	.4	1.1
	Clinical	1	.4	.4	1.5
	Communications	1	.4	.4	1.9
	Compliance	1	.4	.4	2.2
	Construction	4	1.5	1.5	3.7
	Consulting	30	11.1	11.1	14.8
	Design	1	.4	.4	15.2
	Education	8	3.0	3.0	18.1
	Engineering	43	15.9	15.9	34.1
	Environmental	1	.4	.4	34.4
	Finance	45	16.7	16.7	51.1
	Fintech sales	1	.4	.4	51.5
	FMCG	1	.4	.4	51.9
	Freight	1	.4	.4	52.2
	Government	2	.7	.7	53.0
	Hospitality	1	.4	.4	53.3
	Hospitality/Tourism	1	.4	.4	53.7
	HR	2	.7	.7	54.4
	Human Resources	1	.4	.4	54.8
	Industrial psychology in renewable energy sector	1	.4	.4	55.2
	Insurance	2	.7	.7	55.9
	IT and COnsuliting	1	.4	.4	56.3
	Law	2	.7	.7	57.0
	Legal	3	1.1	1.1	58.1
	Logistics	4	1.5	1.5	59.6

Management	1	.4	.4	60.0
Manufacturing	27	10.0	10.0	70.0
Marketing	12	4.4	4.4	74.4
Media	1	.4	.4	74.8
Medical	10	3.7	3.7	78.5
Mining	6	2.2	2.2	80.7
NGO	1	.4	.4	81.1
Oil	1	.4	.4	81.5
Oil and Gas	1	.4	.4	81.9
Pharmaceutical	1	.4	.4	82.2
Real Estate	1	.4	.4	82.6
Retired	1	.4	.4	83.0
Sales	2	.7	.7	83.7
Sport	1	.4	.4	84.1
Supply Chain Management	1	.4	.4	84.4
Surveying	1	.4	.4	84.8
Technology	35	13.0	13.0	97.8
Technology within Finance	1	.4	.4	98.1
Telecommunications	1	.4	.4	98.5
Transport	3	1.1	1.1	99.6
Warehousing and logistics	1	.4	.4	100.0
Total	270	100.0	100.0	

Education_Level

|		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Matric	26	9.6	9.6	9.6
	Diploma	40	14.8	14.8	24.4
	Bachelors Degree	70	25.9	25.9	50.4
	Honours Degree	71	26.3	26.3	76.7
	Masters Degree and Higher	63	23.3	23.3	100.0
	Total	270	100.0	100.0	

Managerial_Levels

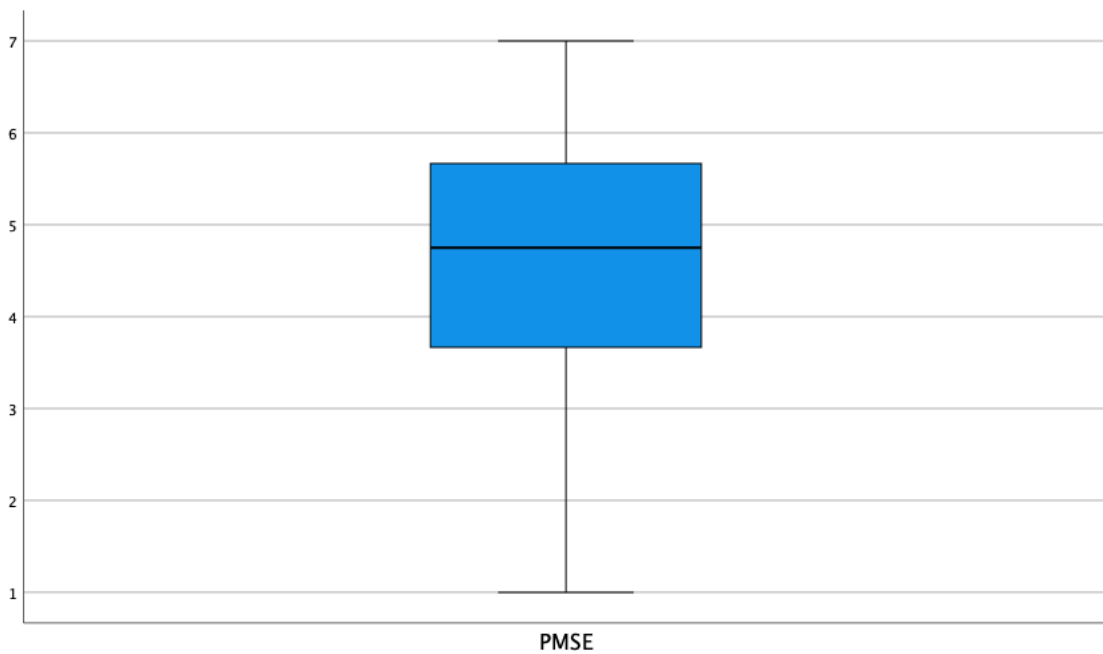|		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Middle Management	80	29.6	29.6	29.6
	Executive Level	108	40.0	40.0	69.6
	CEO/MD	82	30.4	30.4	100.0
	Total	270	100.0	100.0	

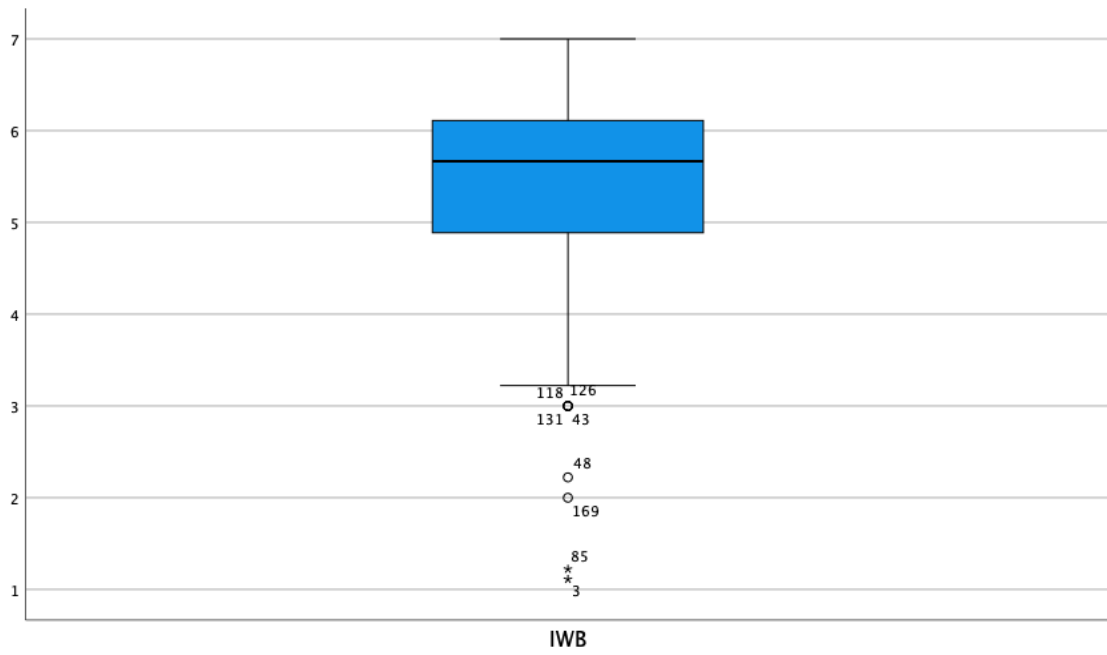# Appendix G - Box and Whisker Diagrams Pre-Winsorization

Transformational leadership Box and Whisker Plot
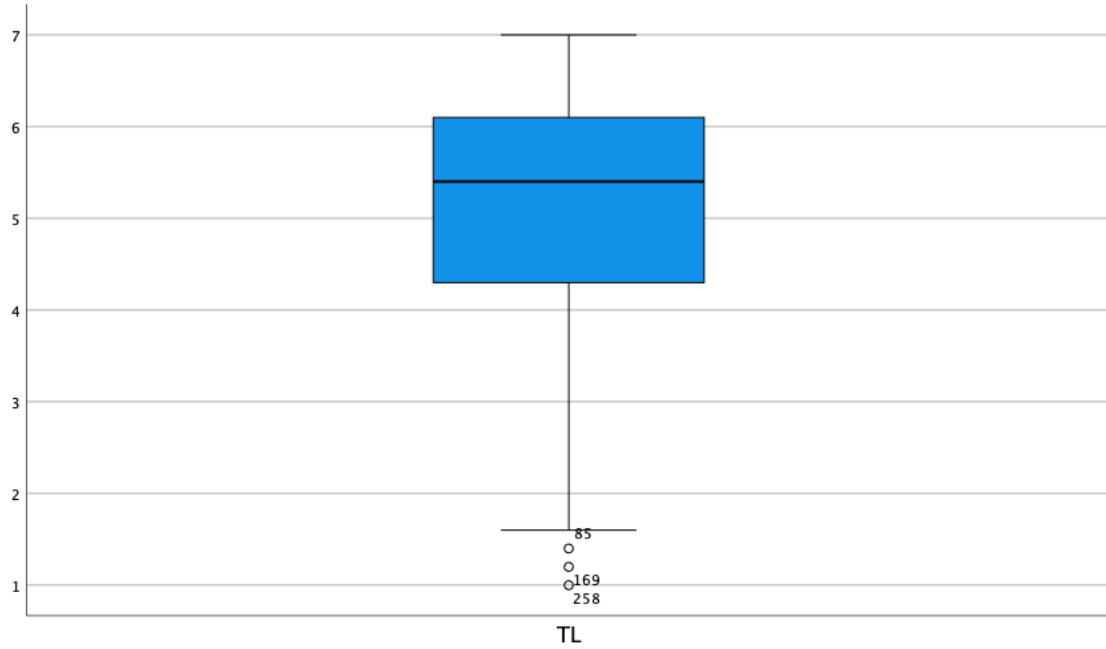
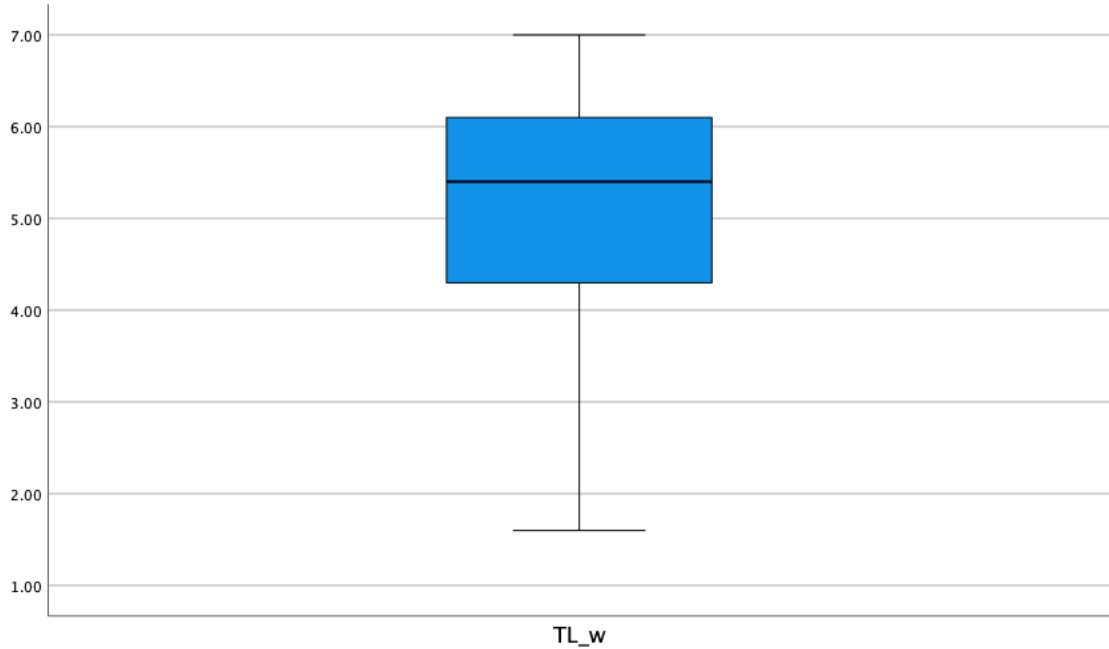Performance system's management effectiveness Box and Whisker Plot
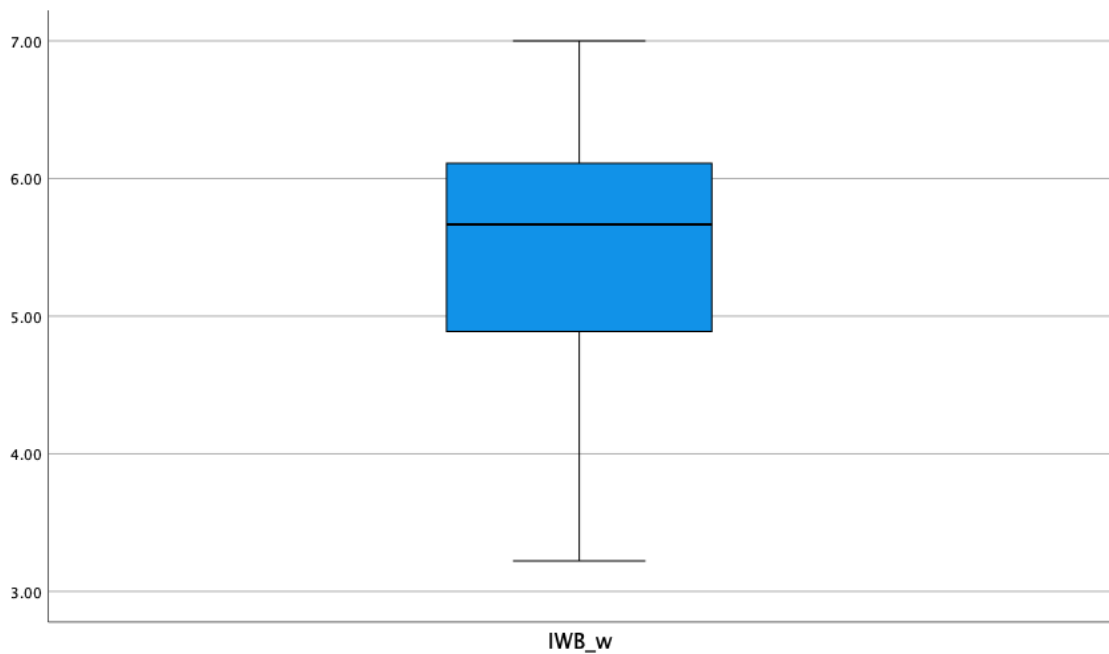
Innovative work behaviours Box and Whisker Plot

Appendix H - Box and Whisker Diagrams Post Winsorization

Transformational leadership Box and Whisker Plot

Innovative work behaviours Box and Whisker Plot

Appendix I - Cronbach Alpha Reliability Coefficients Scale

Table: Cronbach Alpha Reliability Coefficients Scale (Salkind, 2012)

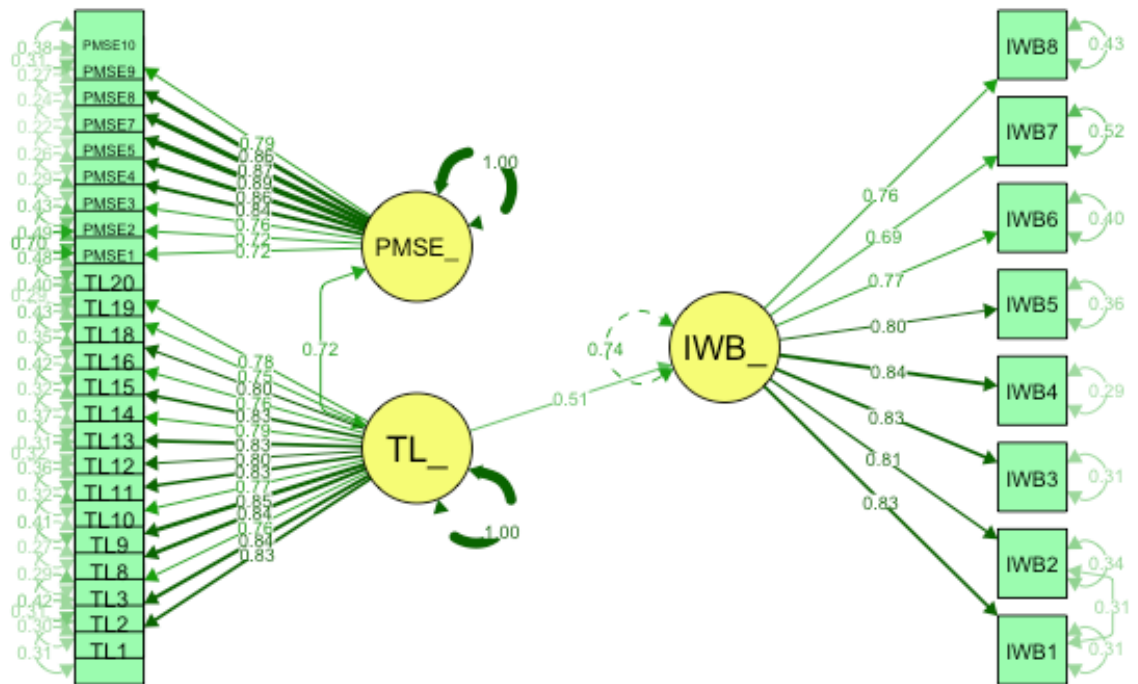| Cronbach Alpha reliability coefficients or correlation coefficients	Interpretation
1 =	Perfect reliability
0.9 ≤	High
0.8 ≤	Very good
0.7 ≤	Usable
0 ≤	No reliability

Appendix J - Latent Factor Path Diagram

Figure 28: Latent Factor Path Diagram

Appendix K - CFA Model Specification Measurement Model

```
## lavaan 0.6-12 ended normally after 33 iterations
##
##    Estimator                                         ML
##    Optimization method                           NLMINB
##    Number of model parameters                       105
##
##    Number of observations                           270
##
## Model Test User Model:
##
##    Test statistic                               953.675
##    Degrees of freedom                               455
##    P-value (Chi-square)                           0.000
##
## Model Test Baseline Model:
##
##    Test statistic                              8325.892
##    Degrees of freedom                               496
##    P-value                                        0.000
##
## User Model versus Baseline Model:
##
##    Comparative Fit Index (CFI)                    0.936
##    Tucker-Lewis Index (TLI)                       0.931
##
## Loglikelihood and Information Criteria:
##
##    Loglikelihood user model (H0)             -12480.510
##    Loglikelihood unrestricted model (H1)     -12003.672
##
##    Akaike (AIC)                               25171.020
##    Bayesian (BIC)                             25548.855
##    Sample-size adjusted Bayesian (BIC)        25215.934
##
## Root Mean Square Error of Approximation:
##
##    RMSEA                                          0.064
##    90 Percent confidence interval - lower         0.058
##    90 Percent confidence interval - upper         0.069
##    P-value RMSEA <= 0.05                          0.000
##
## Standardized Root Mean Square Residual:
##
##    SRMR                                           0.046
## Parameter Estimates:
##    Standard errors                             Standard
##    Information                                 Expected
##    Information saturated (h1) model          Structured
```

```
Factor Loadings:
                Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.al
l
   TL_Factor =~
      TL1        1.422    0.085    16.647   0.000     1.422   0.829
      TL2        1.405    0.083    16.974   0.000     1.405   0.839
      TL3        1.160    0.079    14.750   0.000     1.160   0.765
      TL8        1.398    0.081    17.169   0.000     1.398   0.845
      TL9        1.433    0.082    17.413   0.000     1.433   0.853
      TL10       1.279    0.086    14.894   0.000     1.279   0.769
      TL11       1.495    0.090    16.531   0.000     1.495   0.825
      TL12       1.491    0.095    15.736   0.000     1.491   0.799
      TL13       1.467    0.087    16.801   0.000     1.467   0.834
      TL14       1.399    0.090    15.552   0.000     1.399   0.792
      TL15       1.394    0.084    16.547   0.000     1.394   0.826
      TL16       1.305    0.089    14.663   0.000     1.305   0.761
      TL18       1.392    0.087    15.921   0.000     1.392   0.805
      TL19       1.298    0.090    14.419   0.000     1.298   0.752
      TL20       1.281    0.085    15.120   0.000     1.281   0.778
   PMSE_Factor =~
      PMSE1      1.179    0.087    13.537   0.000     1.179   0.722
      PMSE2      1.136    0.084    13.527   0.000     1.136   0.721
      PMSE3      1.326    0.091    14.530   0.000     1.326   0.759
      PMSE4      1.414    0.083    17.013   0.000     1.414   0.843
      PMSE5      1.517    0.087    17.541   0.000     1.517   0.860
      PMSE7      1.591    0.087    18.350   0.000     1.591   0.883
      PMSE8      1.511    0.084    18.002   0.000     1.511   0.873
      PMSE9      1.499    0.086    17.382   0.000     1.499   0.855
      PMSE10     1.390    0.091    15.290   0.000     1.390   0.787
   IWB_Factor =~
      IWB1       0.780    0.049    15.981   0.000     0.935   0.828
      IWB2       0.832    0.054    15.462   0.000     0.998   0.810
      IWB3       0.848    0.053    16.084   0.000     1.016   0.831
      IWB4       0.881    0.054    16.396   0.000     1.057   0.842
      IWB5       0.817    0.054    15.233   0.000     0.980   0.800
      IWB6       0.767    0.053    14.519   0.000     0.919   0.773
      IWB7       0.755    0.060    12.559   0.000     0.905   0.694
      IWB8       0.777    0.055    14.038   0.000     0.932   0.755
```

R-Square:

	Estimate
TL1	0.687
TL2	0.705
TL3	0.585
TL8	0.715
TL9	0.728
TL10	0.592
TL11	0.681
TL12	0.639
TL13	0.696
TL14	0.628
TL15	0.682
TL16	0.579
TL18	0.648
TL19	0.566
TL20	0.605
PMSE1	0.521
PMSE2	0.520
PMSE3	0.576
PMSE4	0.711
PMSE5	0.739
PMSE7	0.780
PMSE8	0.763
PMSE9	0.731
PMSE10	0.620
IWB1	0.686
IWB2	0.657
IWB3	0.690
IWB4	0.708
IWB5	0.640
IWB6	0.598
IWB7	0.482
IWB8	0.570
IWB_Factor	0.304