

TRANSFORMATIONAL LEADERSHIP AND INNOVATION IN THE MANUFACTURING SECTOR: A MODERATION MEDIATION MECHANISM OF ORGANISATIONAL CULTURE AND KNOWLEDGE SHARING

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ABSTRACT

Objective: The objective of this study was to investigate the mediation effect of knowledge sharing on the relationship between transformational leadership and innovation. The moderating role of organisational culture was also tested on the relationship between transformational leadership and knowledge sharing.

Theoretical Framework: This investigation is based on the transformational leadership theory. Transformational leaders inspire people to share knowledge and create a work environment that is supported by a conducive organisational culture.

Method: Based on extensive literature review, a structured questionnaire was designed, and data were collected via Google forms from a total of 510 manufacturing sector employees based in three SADC region countries. Statistical analyses were done using SMART PLS 4.

Results and Discussion: The study established that while transformational leadership had a significant positive impact on innovation, knowledge sharing partially mediated the relationship between the two variables. Organisational culture had a weak but positive impact on the relationship between transformational leadership and knowledge sharing. These results support prior research findings.

Research Implications: Transformational Leadership and knowledge sharing were found to be positively associated with innovation, hence, theoretically, this study validates the antecedents of innovation in a manufacturing sector context. Practically, managers in the SADC manufacturing sector must exhibit attributes of transformational leadership whilst creating a conducive organisational culture that supports knowledge sharing.

Originality/Value: This study contributes to the literature by proposing and validating a mediation-moderation model that supports the impact of transformational leadership on innovation. The relevance and value of this research is evidenced by an improvement in the quality of exportable products from the SADC manufacturing sector through the transformative efforts of organisational leaders.

Keywords: Transformational Leadership, Innovation, Knowledge Sharing, Organisational Culture.

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LIDERANÇA TRANSFORMACIONAL E INOVAÇÃO NO SETOR DA INDÚSTRIA TRANSFORMADORA: UM MECANISMO DE MEDIAÇÃO DA MODERAÇÃO DA CULTURA ORGANIZACIONAL E DA PARTILHA DE CONHECIMENTOS

RESUMO

Objetivo: O objetivo deste estudo foi investigar o efeito mediador da partilha de conhecimento na relação entre liderança transformacional e inovação. O papel moderador da cultura organizacional também foi testado na relação entre liderança transformacional e compartilhamento de conhecimento.

Estrutura Teórica: Esta investigação é baseada na teoria da liderança transformacional. Líderes transformacionais inspiram as pessoas a compartilhar conhecimento e criar um ambiente de trabalho que seja apoiado por uma cultura organizacional propícia.

Método: Com base na extensa revisão da literatura, foi elaborado um questionário estruturado e os dados foram coletados através de formulários do Google de um total de 510 funcionários do setor de fabricação baseados em três países da região da SADC. As análises estatísticas foram realizadas utilizando o SMART PLS 4.

Resultados e Discussão: O estudo estabeleceu que, enquanto a liderança transformacional teve um impacto positivo significativo na inovação, o compartilhamento de conhecimento mediou parcialmente a relação entre as duas variáveis. A cultura organizacional teve um impacto fraco, mas positivo, na relação entre a liderança transformacional e o compartilhamento de conhecimento. Esses resultados apoiam descobertas anteriores da pesquisa.

Implicações da Pesquisa: A Liderança Transformacional e o compartilhamento de conhecimento foram considerados positivamente associados à inovação, portanto, teoricamente, este estudo valida os antecedentes da inovação em um contexto do setor de manufatura. Praticamente, os gerentes do setor de manufatura da SADC devem exibir atributos de liderança transformacional ao criar uma cultura organizacional propícia que apoie o compartilhamento de conhecimento.

Originalidade/valor: Este estudo contribui para a literatura, propondo e validando um modelo de mediação-moderação que apoia o impacto da liderança transformacional na inovação. A relevância e o valor desta investigação são evidenciados por uma melhoria na qualidade dos produtos exportáveis do setor transformador da SADC através dos esforços transformadores dos líderes organizacionais.

Palavras-chave: Liderança Transformacional, Inovação, Compartilhamento de Conhecimento, Cultura Organizacional.

LIDERAZGO TRANSFORMACIONAL E INNOVACIÓN EN EL SECTOR MANUFACTURERO: UN MECANISMO DE MEDIACIÓN DE LA MODERACIÓN DE LA CULTURA ORGANIZACIONAL Y EL INTERCAMBIO DE CONOCIMIENTOS

RESUMEN

Objetivo: El objetivo de este estudio fue investigar el efecto mediador del intercambio de conocimientos sobre la relación entre el liderazgo transformacional y la innovación. El papel moderador de la cultura organizacional también se puso a prueba en la relación entre el liderazgo transformacional y el intercambio de conocimientos.



Marco teórico: Esta investigación se basa en la teoría del liderazgo transformacional. Los líderes transformacionales inspiran a la gente a compartir conocimientos y crear un ambiente de trabajo que esté apoyado por una cultura organizacional conducente.

Método: Sobre la base de una amplia revisión de la literatura, se diseñó un cuestionario estructurado y se recopilaron datos mediante formularios de Google de un total de 510 empleados del sector manufacturero radicados en tres países de la región de la SADC. Los análisis estadísticos se realizaron con SMART PLS 4.

Resultados y Discusión: El estudio estableció que si bien el liderazgo transformacional tuvo un impacto positivo significativo en la innovación, el intercambio de conocimientos medió parcialmente la relación entre las dos variables. La cultura organizacional tuvo un impacto débil pero positivo en la relación entre el liderazgo transformacional y el intercambio de conocimientos. Estos resultados respaldan los hallazgos de investigaciones anteriores.

Implicaciones de la investigación: Se encontró que el Liderazgo Transformacional y el intercambio de conocimientos se asocian positivamente con la innovación, por lo que, teóricamente, este estudio valida los antecedentes de la innovación en un contexto del sector manufacturero. Prácticamente, los gerentes del sector manufacturero de la SADC deben exhibir atributos de liderazgo transformacional y al mismo tiempo crear una cultura organizacional conducente que apoye el intercambio de conocimientos.

Originalidad/Valor: Este estudio contribuye a la literatura proponiendo y validando un modelo de mediación-moderación que apoya el impacto del liderazgo transformacional en la innovación. La pertinencia y el valor de esta investigación se ponen de manifiesto en la mejora de la calidad de los productos exportables del sector manufacturero de la SADC mediante los esfuerzos transformadores de los dirigentes de las organizaciones.

Palabras clave: Liderazgo Transformacional, Innovación, Intercambio De Conocimientos, Cultura Organizacional.

1 INTRODUCTION

Globalisation has resulted in an uncertain and complex domestic and global market (Burawat, 2019). This implies that business organisations including manufacturing companies must be proactive and embrace changes to stay ahead of competition. They must revitalise their products and services to cope with the rapidly changing consumer demands (Puni et al., 2022). For businesses to survive and remain relevant in the current customer driven environment, new ideas through innovation have become paramount. This requires business leaders who can inspire the followers to be creative as they scan the environment in search of opportunities and threats. Owing to their inspirational nature, transformational leaders are important in this regard (Supermane, 2019) as they can bring in new ideas and perspectives that change organisations and provide competitive advantage and strategic differentiation (<https://www2.deloitte.com>- 27/08/2024).



Manufacturing companies are now powered by rapid digitalisation tools such as robotics, artificial intelligence and the internet of things. This implies that they are always navigating change making transformational leaders best suited to operate in such an environment (Burawat, 2019). Not only that, but transformational leaders are also flexible and possess future focused mindsets which enables them to inspire employees beyond the ordinary anticipated limits (Son et al., 2020). They also create an organisational climate that stimulates knowledge sharing (Al-Husseini et al., 2021) and encourage followers to adopt innovative methods to deal with complex work situations (Kim & Park, 2020). This study examined the mediation mechanism of knowledge sharing on the relationship between transformational leadership and innovation in the manufacturing sector in the Southern Africa Development Community (SADC) region. The SADC manufacturing sector has been identified as a key engine for the economic development of member states, hence it must be prioritised. Post 2013, the manufacturing sector growth in the SADC region has been on a downward trend up to 2020 (SADC Statistics Bulletin, 2023). Transformational leaders have the capacity to turnaround the fortunes of the manufacturing companies in this region.

Previous research confirms that the concept of transformational leadership has received significant attention (see Al-Husseini et al., 2021; Becker et al., 2022; Burawat, 2019; Kim & Park, 2020; Lei et al., 2020; Puni et al., 2022; Son et al., 2020; Zhang et al., 2018). These prior studies focused on many industries including the manufacturing environments (see Burawat, 2019; Puni et al., 2022), construction (Zhang et al., 2018), banking (Al Ahmad et al., 2019), and education (Al-Husseini et al., 2021; Supermane, 2019). However, despite this burgeoning literature, there is scant empirical evidence on the link between transformational leadership and innovation in the African manufacturing industry (Puni et al., 2022). The growth of the African continent manufacturing sector rests on the behaviour of transformational leaders who can influence the innovative thinking of employees. Other authors such as Al Ahmad et al., (2019) opined that management scholars are yet fully explore the impact of transformational leadership on employee innovation through knowledge sharing. In support of this, Lei et al., (2020) also observed that an adequate comprehension of transformational leadership and its mechanism of operation to link with mediators for generating innovation remains limited. Considering these gaps, this study explored the moderation - mediation mechanism of organisational culture and knowledge sharing on the relationship between



transformational leadership and innovation in manufacturing companies with operations in the SADC region.

This study yields significant contribution. First, this study extends the body of knowledge on transformational leadership which is still a hot topic in the field of Human Resource Management and Organisational behaviour (Lei et al., 2020). Second, this study can facilitate the development of transformational leadership styles amongst managers in the SADC manufacturing sector landscape. As transformational leaders stimulate innovativeness amongst employees (Zhang et al., 2018), SADC manufacturing industries can produce exportable products which can enhance the competitiveness of their economies. Third, this study is the first to examine the moderation – mediation mechanism of organisational culture and knowledge sharing on transformational leadership in the SADC region manufacturing industry.

The rest of the paper is organised as follows: the next chapter presents literature review and hypotheses development followed by methodology and the discussion of the results.

2 THEORETICAL FRAMEWORK AND HYPOTHESES DEVELOPMENT

2.1 TRANSFORMATIONAL LEADERSHIP

According to Ellen (2016) the transformational leadership theory is credited to the work of James MacGregor Burns (1978) who distinguished between transactional (those who lead through exchange) and transformational leadership (those who lead followers by inspiring them to meet ambitious goals). Transformational leadership is a process by which people are changed (Al-Husseini et al., 2021). It encompasses attempts to make changes that increase organisational effectiveness and the performance of followers by changing employee's personal values and self-concepts. There are four components of transformational leadership as discussed below:

Idealised Influence: this involves leaders expressing confidence in the organisational vision, instilling admiration, respect and emphasising accomplishments (Al-Husseini et al., 2021). Transformational leaders set an example to follow and appeal recipients to work towards set goals on an emotional level (Becker et al., 2022). This spurs subordinates towards achieving extra ordinary goals.



(Al-husseini & Elbeltagi, 2016).(Al-husseini & Elbeltagi, 2016).(Al-husseini & Elbeltagi, 2016).**Inspirational:** this refers to the extent to which leaders express long term visions that are appealing and inspiring to followers(Becker et al., 2022). A visions act as a beacon to the organisation which sets the direction for followers. If the vision is clear, followers are encouraged to work towards achieving it (Al-husseini & Elbeltagi, 2016).

Intellectual Stimulation: this encompasses transformational leaders seeking new methods of solving problems from followers, motivating them to question assumptions and encouraging them to be imaginary and creative(Al-Husseini et al., 2021). This trait of transformational leadership implies that they can innovative behaviour amongst followers.

Individualised consideration: this involves transformational leaders building interactive relationships with subordinates and paying attention to their individual needs(Becker et al., 2022). By paying attention to the innate individual needs, an emotional bond can be created between the leader and the follower. This implies that transformational leaders can create specific programs honed towards fulfilling individual expectations. This leads to the generation of organisational commitment and the creation of long-term relationships between the leader and the follower.

2.2 KNOWLEDGE SHARING

According to Navimipour and Charband, (2016), organisational competitiveness derives mostly from intangible rather than tangible resources. Knowledge, as an intangible resource, is one of the most important resources of an organisation (Son et al., 2020) as influences novel organisational outcomes such as innovation (Kamaşak & Bulutlar, 2010). There are two types of knowledge namely tacit and explicit knowledge (Al-husseini & Elbeltagi, 2016) .Tacit knowledge exists in the minds of people and consists of the know-how and skills that individuals have acquired overtime (Razmerita et al., 2016). Explicit knowledge refers to knowledge that is written down in manuals or other material to be shared with other people (Al-husseini & Elbeltagi, 2016). For the organisation to benefit from tacit and explicit knowledge, there must be interaction and collaboration amongst employees; hence knowledge sharing is a crucial variable in organisations. Knowledge sharing can be enhanced by factors such as environment and infrastructure, management support, culture and technology.



2.3 INNOVATION

Several studies provided various definitions of innovation but the underlying word to all is the phrase ‘*new idea*’ which is considered the starting point of innovation. Innovation is considered the driving force of economic growth globally. Cirera and Maloney, (2017) defined innovation as the introduction of new products, technologies, business processes and ideas in the market, as well as the invention of new ideas. Similarly, Gault, (2018) defines innovation as the implementation of a new or significantly improved product idea (either goods or services), process, marketing method, or organisational method in business practices, workplace organisation or external relations. Innovation therefore aims to improve organisational product offerings and services to achieve organisational objectives. Innovation provides the organisations with the opportunity to respond and adapt to environmental and technological change (Al-Husseini et al., 2021). Innovative organizations have the capacity to improve individual and organisational performance, solve problems and create competitive advantage. Innovation is not a one-dimensional concept rather it is a multifactor component including dimensions such as product innovation, process innovation, marketing innovation and organisational innovation (Cirera & Maloney, 2017). It can also be viewed from the trajectory that it takes such as radical innovation, incremental innovation and disruptive innovation (Kuratko et al., 2014).

2.4 ORGANIZATIONAL CULTURE

Organisational culture is considered as organisational capital and a core competency (Azeem et al., 2021). According to Cameron, (2009), organisational culture reflects the taken-for-granted values, underlying assumptions, collective memories and unwritten memories that guide people in an organisation. In the same vein, Cummings and Worley, (2009) see organisational culture as a representation of artefacts, norms, values and basic assumptions that are shared by organisation members. Organisational culture serves to unify the people together as they work towards objective accomplishment. In the context of this study, transformational leaders have a responsibility to create a conducive organisational culture that supports knowledge and innovation.



2.5 TRANSFORMATIONAL LEADERSHIP AND INNOVATION

Innovation is widely acknowledged as the main driver of organisational growth. This is because it results in new products, services and marketing methods which are critical for organisational effectiveness. Cognisant of the pivotal role of innovation, many organisations have been exploring ways to improve innovation (Lei et al., 2020). In this regard, transformational leadership has proven to be effective in stimulating innovation in business organisations (Becker et al., 2022). Transformational leaders encourage employees to challenge assumptions and think creatively (Zhang et al., 2018) . Furthermore, through transformational leadership attributes such as idealised influence, intellectual stimulation individual consideration and general charisma, employees can be spurred to perform beyond the ordinary expectations (Becker et al., 2022). This enhances employees' innovativeness (Lei et al., 2020) as they can experiment with their ideas without the fear of retribution. Previous research supports the positive relation between transformational leaders and innovation (see Al-Husseini et al., 2021; Chen et al., 2014; Lei et al., 2020; Supermane, 2019; Zhang et al., 2018). It can thus be proposed that:

H1: Transformational Leadership positively influences innovation

2.6 TRANSFORMATIONAL LEADERSHIP AND KNOWLEDGE SHARING

Transformational Leaders are crucial in creating an environment that supports knowledge sharing. Transformational leaders inspire confidence in their followers and when organisational members feel that their leaders have confidence in them and appreciate their efforts, they will be more willing to give their opinions and share knowledge (Al-husseini & Elbeltagi, 2016). Authors such as Kim and Park,(2020) argued that by supporting, stimulating, challenging and inspiring employees transformational leaders establish an organisational climate that encourage knowledge sharing. Furthermore, transformational leaders stimulate employees to engage in organisational learning (Khan & Khan, 2019) by allowing them to experiment, communicate effectively and create innovative knowledge (E. J. Kim & Park, 2020). This improves the knowledge sharing climate in an organisation. Past research provide evidence for the positive link between transformational leadership and knowledge sharing (see Al-Husseini et al., 2021;



Anselmann & Mulder, 2020; Khan & Khan, 2019; Kim & Park, 2020). It can thus be proposed that:

H2: Transformational leadership positively influences knowledge sharing

2.7 KNOWLEDGE SHARING AND INNOVATION

Knowledge sharing has been identified as an enabler of innovation (see Arsawan et al., 2022; Kim & Shim, 2018) mainly because the exchange of beneficial intangible assets during interaction can result in the generation of novel practices. In support of this, authors such as Allameh, (2018) opined that knowledge sharing can have contributions to the reduction of production costs, faster completion of development projects and the ability to innovate. This is possible because of the exchange of critical information during interaction. Furthermore, according to Wang & Hu, (2020) knowledge sharing creates opportunities to generate solutions and efficiencies that provide value to the success of innovation. This is so because during social interaction there is an exchange of research and development knowledge, experiences and skills which are all necessary to trigger innovation. Knowledge sharing is especially important at the group level where people discuss challenges regarding an area of mutual interest and devise novel practices as solutions to the identified problems (Allameh, 2018) . It also believed that sharing knowledge based on mutuality, trust, and respect yields long term benefits such as higher innovation performance. Not only does Knowledge sharing has a direct impact on innovation, but it has also been found to be a mediator of innovation (Kim & Shim, 2018). In the context of this study, knowledge sharing can be conduit through which transformational leaders achieve their organisational innovation objectives. As transformational leaders stimulate employees to engage in organisational learning (Kim & Park, 2020) , the sharing of knowledge during learning can result in improved innovation performance. Past research confirms the positive link between knowledge sharing and innovation (Allameh, 2018; Arsawan et al., 2022; Khan & Khan, 2019; Kim & Shim, 2018). It can therefore be proposed that:

H3: Knowledge sharing positively influences innovation.

H4: Knowledge sharing mediates the relationship between transformational leadership and innovation



2.8 THE MODERATING ROLE OF ORGANISATIONAL CULTURE

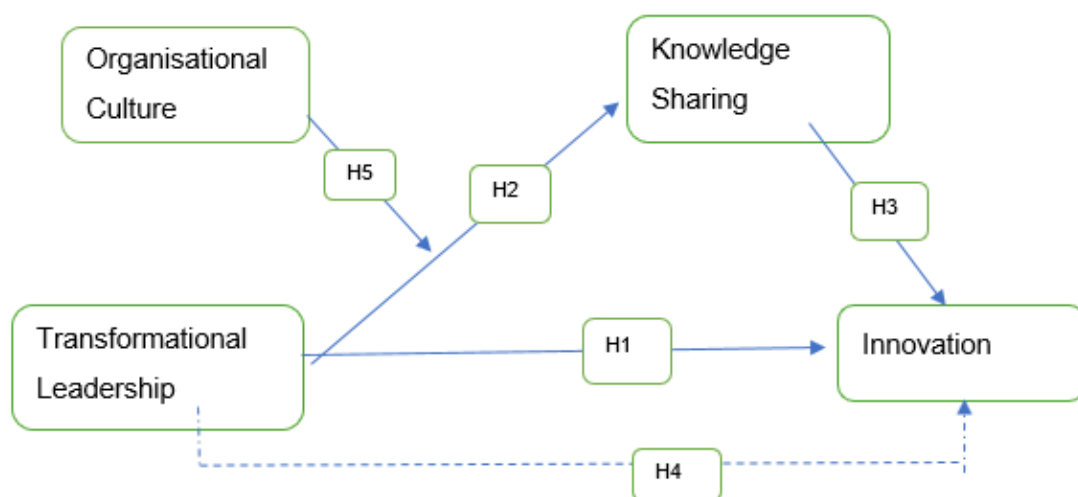
In the context of this study it is hypothesised that organisational culture positively moderates the relationship between transformational leadership and knowledge sharing. For example, a culture of organisational learning can facilitate transformational leaders to inspire their followers to acquire knowledge (Kim & Park, 2020). As the followers accumulate knowledge, it can be shared to improve business operations. Furthermore, an organisational culture where employees feel trusted, motivated and valued (Zhang et al., 2018) can have a direct positive impact on their knowledge sharing behaviours. In such an organisational culture, transformational leaders can use their attributes such as individualised consideration and intellectual stimulation (Al-Husseini et al., 2021) to inspire followers to share knowledge. With this in mind, the following hypotheses can be made:

H5: Organisational culture positively moderates the relationship between transformational leadership and knowledge sharing.

In line with the discussion above, this study presents the research model below:

Figure 1

Research Model





3 RESEARCH METHODS

3.1 RESEARCH CONTEXT

The data for this investigation were collected from employees of manufacturing companies based in three SADC region countries. With a combined 100 years of manufacturing experience and over 40 million customers, these organisations were the best-case study for this investigation. The organisations are part of the food and beverages manufacturing industry. Given the increasing competition emanating from both the domestic and global markets, transformative efforts have become increasingly necessary in the SADC manufacturing sector in general and the case study in particular. To fight off cutthroat competition, increased innovation is required in such areas as the product portfolio mix, marketing channels and distribution systems. It has therefore become increasingly necessary for leaders managing organisations in the SADC region to be innovative. A leadership style that is proven to trigger innovation in organisations is transformational leadership (Lei et al., 2020).

3.2 POPULATION AND SAMPLING

With a working population of approximately 4000 employees, a sample size of at least 364 is considered sufficient (Israel, 1992). Hence, 600 participants were randomly selected without any coercion as participants could opt out of the study at any time. Furthermore, participants were assured of confidentiality A structured questionnaire was developed and uploaded onto the Google Forms platform. An online link generated from Google Forms was sent to the email addresses of the participants which were obtained from the HR director of the organisation. Of the approximately 600 potential participants, 510 responses were collected, yielding a response rate of 85 %. The participants demographics are summarised in Table 1 below.

Table 1

Participants Demographics

		Percentage	Percentage
Gender			
Male		48%	
Female			52%



Education Level			
O Level		10%	
Advanced Level		12%	
First Degree		60%	
Post Graduate Degree		18%	
Organisation Tenure	< 10 Years	15%	
	10 -15 years	50%	
	>15 years	35%	

4 MEASURES

With slight modifications, each research variable was examined using previously validated measurement items in the literature. The questionnaire items were piloted with individuals from the research population. A five-point Likert scale was used to measure the constructs ranging from 1 “strongly disagree” to 5 “strongly agree.”

Transformational leadership. Transformational leadership was measured with the scale proposed Altunoğlu et al., (2019). A sample item from the scale was: ‘My leader communicates a clear and positive vision of the future’.

Organizational culture: To measure organizational culture a scale developed by Azeem et al., (2021) was used. A sample item included on the questionnaire was: ‘We have informal norms and rules which are followed by everyone’.

Knowledge-sharing behaviour. Knowledge-sharing behaviour was measured with items adapted from a measure by Bock et al., (2005), which assesses employees’ willingness to share explicit and tacit knowledge with their colleagues. A sample item was: “In future I will share my work reports and official documents with other members more frequently.”

Innovation: To measure the level of innovation, a five-item organisational innovation scale developed by Dobni, (2008) was applied. A sample item from this scale was: ‘This organisation has a good record of rolling out innovations.’

5 RELIABILITY AND VALIDITY

The data was assessed for validity and reliability as discussed below:

Indicator reliability: If a reflective indicator loading is higher than 0.5, this implies that the item is a good measurement of a latent construct (Hulland,1999). Accordingly, all the indicator loadings exceeded 0.5 (see Table 2).



Internal consistency reliability: To assess internal consistency reliability, this study used Composite Reliability (CR) and Cronbach's alpha. According to Gefen, Straub, and Boudreau (2000), a CR value of at least 0.7 indicates adequate internal consistency reliability. Hair *et al.* (2017) suggested that Cronbach alpha (α) values greater than 0.60 are widely considered desirable in research to indicate internal consistency reliability. Cronbach alpha and Composite Reliability threshold values were satisfied.

Convergent reliability: Convergent reliability is the extent to which a measure correlates positively with alternative measures of the same construct (Hair *et al.*, 2017). Average Variance Extracted is used to assess convergent reliability and it should be higher than 0.5. Table 2 below confirms that AVE values are acceptable.

Table 2

Measurement Items, Factor Scores, Mean, Standard Deviation, Alpha, AVE and CR

		Measurement Items	Factor Score	Mean	SD	Alpha	AVE	CR
	Transformational Leadership					0.72	0.51	0.72
L1		My leader communicates clear and positive vision for the future	0.65	3.77	1.29			
L2		My manager treats staff as individuals, supports and encourages their development	0.72	4.14	1.18			
L3		My manager gives encouragement and recognition to staff	0.71	3.10	1.38			
L4		My manager fosters trust, involvement and cooperation amongst team members	0.65	3.85	1.13			
L5		My manager encourages thinking about problems in new ways and questions assumptions	0.70	3.70	1.19			
	Organisational Culture					0.84	0.69	0.85



		We have informal norms and rules which are followed by everyone	0.76	4.06	1.10			
		We constantly improve our methods of work to gain advantage over rivals	0.87	3.83	1.21			
		In a group everyone puts maximum effort to achieve a common goal	0.88	4.06	1.04			
		Information is available to everyone in this organisation						
		Complex problems are easily solved in this organisation	0.81	3.85	1.23			
	Knowledge sharing					0.86	0.71	0.89
		I will share my work reports and other official documents with everyone	0.82	4.06	1.09			
		I will always provide my manuals, methodologies and models to other members	0.87	3.92	1.06			
		I intend to share my knowhow from work with other members	0.88	3.93	1.04			
		I will try to share my expertise from training with other organisational members	0.89	4.05	1.10			
		My knowledge sharing with other organisational members is valuable to me	0.80	3.97	1.11			
	Innovation					0.81	0.56	0.83
		This organisation has a wide resource base as it relates to innovation	0.67	3.64	1.21			
		This organisation has a good record	0.82	2.95	1.37			



		of rolling out innovations						
		In this organisation ideas flow smoothly through to commercialisation	0.84	3.46	1.19			
		Managers in this organisation help to break barriers to innovation	0.78	3.28	1.18			
		This organisation has metrics to measure innovation	0.61	3.42	1.07			

5.1 DISCRIMINANT VALIDITY

According to Hair et al (2016), discriminant validity can be assessed using the Fornell-Larcker criterion. This technique compares the square root of the AVE values with the correlations of the latent variable with other constructs. The square root of the AVE of each construct should be higher than the correlation with any other construct (Hair *et al.*, 2016) as is the case in Table 3 below.

Table 3

Discriminant Validity

	Innovation	Knowledge _Sharing	Organisational _ Culture	Transformational _ Leadership
Innovation	0.747			
Knowledge _Sharing	0.470	0.842		
Organisational_ Culture	0.679	0.525	0.829	
Transformational_ Leadership	0.626	0.472	0.552	0.686

6 RESULTS

6.1 CONFIRMATORY FACTOR ANALYSIS

The suitability of data for factor analysis was assessed using the Kaiser-Meyer Olkin and Bartlett's Test of Sphericity. The KMO value of 0.75, was above the minimum recommended value of 0.5 (see Hair et al., 2006). In addition, Bartlett's Sphericity was significant at $p = .000$, rendering the sample adequate for factor analysis.

In assessing the model, the researchers used the following model fit indices: CMIN, IFI, CFI, and the RMSEA. After running the confirmatory factor analysis for the model, the results indicated that the model was good because it produced results that were within acceptable limits (see Hair et al., 2010). The model fit indices obtained from the confirmatory factor analysis are CMIN=2.00; $p = .000$; IFI = .94; CFI = .94; RMSEA = .068.

6.2 PARTIAL LEAST SQUARES STRUCTURAL EQUATION MODELLING

SMART PLS 4 was used to test the hypotheses and the results are shown in Figure 2 below. As shown in Table 4, all model fit values were within the acceptable range.

Figure 2

PLS Graphic Output

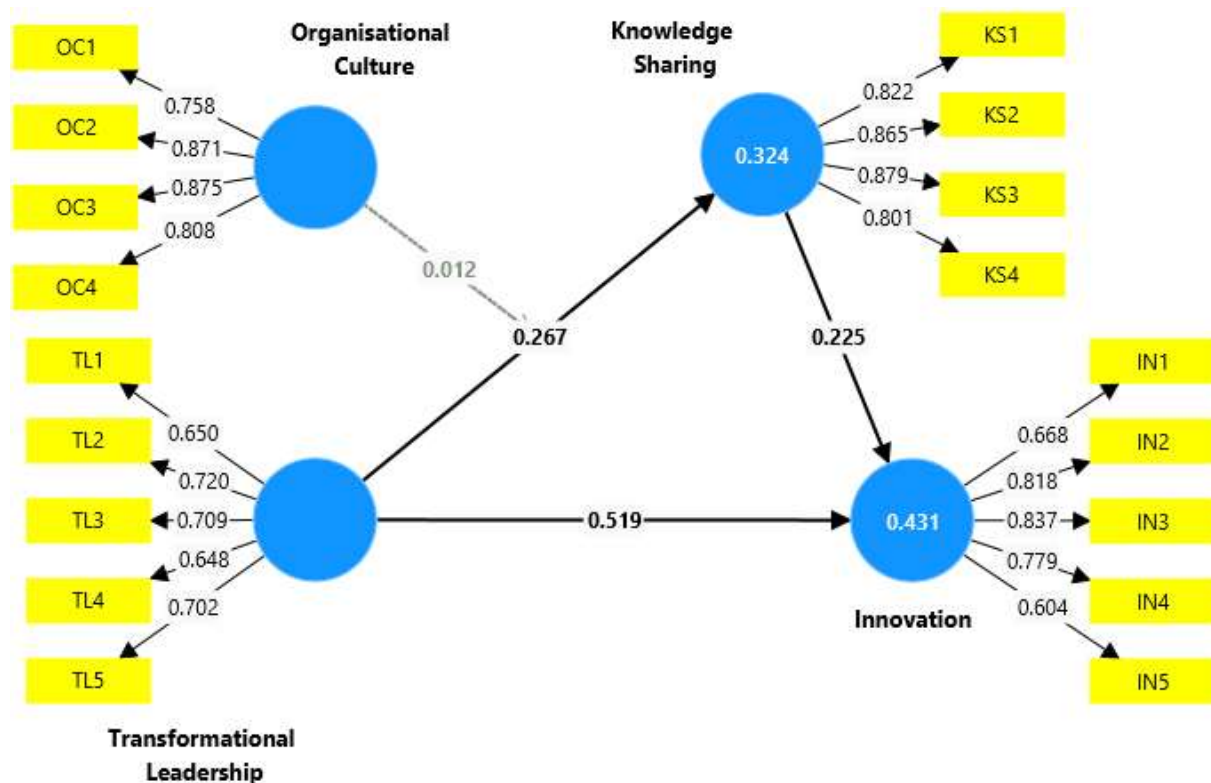


Table 4

Model Fit Indices

Model Fit Index	Scores	Acceptable Threshold
CMIN/Df	2.57	$1 < \text{CMIN/Df} < 5$
RMSEA	0.059	< 0.08



Incremental Fit Index (IFI)	0.95	< 1
Comparative Fit Index (CFI)	0.93	>0.9

6.3 DIRECT EFFECTS

Table 4 below shows that transformational leadership significantly impacted innovation and knowledge sharing ($\beta = 0.52$, $p \text{ value} = 0.00$; $\beta = 0.27$, $p \text{ value} = 0.00$). Hence $H1$ and $H2$ were accepted. Furthermore, knowledge sharing had a significant impact on innovation ($\beta = 0.23$, $p \text{ value} = 0.00$). Hence $H3$ was accepted.

Table 5

Path Coefficients

Hypothesis	Path	Path Coefficient	P-value	Decision
$H1$	Transformational leadership>>>>Innovation	0.52	0.00	Accepted
$H2$	Transformational Leadership >>> Knowledge Sharing	0.27	0.00	Accepted
$H3$	Knowledge Sharing >>>>Innovation	0.42	0.00	Accepted

6.4 MEDIATION EFFECTS OF KNOWLEDGE SHARING AND MODERATING EFFECT OF ORGANIZATIONAL CULTURE

The mediation analysis results showed that knowledge sharing partially mediated the relationship between transformational leadership and innovation ($\beta = 0.06$; $p \text{ value} = 0.03$); hence, $H4$ was accepted. The results also revealed that organisational culture positively moderated the relationship between transformation leadership and knowledge sharing ($\beta=0.012$, $p=0.04$).

7 DISCUSSION

This study proposed and analysed two models. On one hand it tested how knowledge sharing mediates the relationship between transformational leadership and innovation and on another hand, it investigated how organisational culture moderates the relationship between transformational leadership and knowledge sharing. This study



reports on five (5) hypotheses. First, Transformational leadership was found to have a positive and significant effect on innovation ($\beta = 0.52$; $p = 0.00$). This finding is consistent with prior research (see Khan & Khan, 2019; Lei et al., 2020). The charismatic characteristic of transformational leaders (Khan & Khan, 2019) inspires followers to excel beyond the ordinary expectations. Followers can become out of the box thinkers (Becker et al., 2022). In this way, there is a likelihood of new ideas and methods of operations being explored. In support authors such as (Jain et al., 2019). argued that transformational leaders are capable of stimulating followers to seek innovative ways and improve their self-determination. As this study was done in a manufacturing environment, the inspirational nature of transformational leaders can enhance experimentation and risk taking amongst employees which are all antecedents of innovativeness in organisations. Furthermore, as transformational leaders are change agents (Al-Husseini et al., 2021) they can influence people to question their old methods of thinking (Becker et al., 2022) and lead people towards new trajectories. This enhances the likelihood of innovativeness.

Consistent with the findings of Son et al., (2020) and Kim and Park, (2020) transformational leadership was found to have a positive significant impact on knowledge sharing ($\beta = 0.27$, $p = 0.00$). This is because transformational leaders stimulate a climate of organisational learning. Transformational leaders are capable of supporting and challenging employees to reach their full potential. This can be achieved through acquiring and sharing knowledge within the context of the organisation. Owing the individualised consideration nature of transformational leaders (Becker et al., 2022), followers can develop confidence and a sense of belonging to the organisation and can be more willing to share their opinions with others. This improves the flow of information and ideas throughout the organisation thus improving knowledge sharing.

As hypothesised, knowledge sharing had a positive impact on innovation ($\beta = 0.23$, $p = 0.00$). This finding resonates with prior studies .(see Allameh, 2018; Arsawan et al., 2022; Koko & Makumbe, 2020; Wang & Hu, 2020). As people exchange knowledge, ideas are questioned and improved resulting novel practices being implemented. As Wang and Hu, (2020).argued knowledge sharing creates opportunities to generate solutions and efficiencies that can result in innovation. In support of this, Kim and Shim, (2018) underscored the importance of interaction and stated that innovation results from the exchange of knowledge and experiences between parties. It can therefore be reasoned that knowledge sharing is a key driver of innovation (Arsawan et al., 2022). Although, the



mediation effect of knowledge sharing was weak ($\beta = 0,06$, $p=0.03$), and for the reasons given above, it is still an important concept that supports transformational leaders in promoting innovativeness in organisations. Furthermore, as hypothesised, organisational culture positively moderates the relationship between transformational leadership and knowledge sharing ($\beta = 0.012$, $p=0.04$).

Although the impact is weak, this result indicates that organisational culture can strengthen the relationship between transformational leadership and knowledge sharing. An organisational culture that emphasises a learning orientation fosters knowledge sharing. Owing to the individualised consideration of transformational leaders (Becker et al., 2022), trust can develop between followers and the leadership. As argued by Witherspoon et al., (2013) a culture of trust amongst organisational members can help to alleviate the negative effect of perceived costs of knowledge sharing. Furthermore, as transformational leaders can stimulate a culture of team working (Jain et al., 2019), this also improves trust, a necessary condition for knowledge sharing.

8 THEORETICAL IMPLICATIONS

This study is theoretically significant in several ways. Although the concept of transformational leadership has been extensively studied in literature, research work concerning mediation mechanisms linking transformational leadership with different organisational outcomes remain underexplored (Lei et al, 2020). Hence, this study gives a unique perspective as it investigated the moderation and mediation mechanisms of different variables on transformational leadership. Incorporating organisational culture as a moderator and knowledge sharing as a mediator enriches transformational leadership literature. Furthermore, the findings of this study confirmed that the predictors of innovation are not arbitrary but rather are based on validated theoretical attributes such as transformational leadership and knowledge sharing. This study, therefore, extends previous research knowledge in the field of transformational leadership and innovation.

9 PRACTICAL SIGNIFICANCE

The overall picture is that the SADC's regional Gross Domestic Product growth declined by 4.6 per cent in 2020, from a growth of 2.1 per cent in 2019



(www.sadc.int/pillars/industrialisation-04/09/2024). This is far below the expected minimum growth rate of 7% per year. Related to this, the manufacturing sector grew by 1,6% in 2022 compared to a growth rate of 5.8% in 2021. These statistics imply that the need for a sustained growth trajectory in the SADC industrial sector has become paramount than ever. This is more so important in the manufacturing sector which has been identified as an engine for economic development in the SADC region. Faced with such a scenario, this argues that transformational leaders have become a necessity in the SADC region as they are capable of spearheading change (Burawat, 2019).

Study findings imply that manufacturing companies should pay attention to the antecedents of innovation which were validated in this research. Transformational Leadership and knowledge sharing were found to be positively associated with innovation. This implies that managers in the manufacturing sector in the SADC region must gravitate towards being transformational leaders. Traits such as individualised consideration, intellectual stimulation and idealised influence are critical in stimulating innovation climates (Zhang et al., 2018). Innovation is especially important in the manufacturing sector as it can lead to the production of new exportable products. A rise in exports is critical for the generation of foreign currency in countries such as Zimbabwe which is facing severe foreign currency shortages. With increasing globalisation, competition is coming from right around the globe from countries such as China, Turkey, UK and the US. Owing to this SADC manufacturing companies are under pressure to change. Research has shown that transformational leaders are the change agents (Burawat, 2019) who can steer organisations in dynamic environments. As Puni et al., (2022) opined, businesses which stick to the old ways of doing business can become extinct if they don't change, transformational leaders have the capacity to take organisations in the right direction.

As knowledge sharing was confirmed to have a positive association with innovation, it is critical for manufacturing companies put in place strategies for knowledge sharing. This can include creating meeting rooms for brainstorming, setting aside idea times during working hours, creating communities of practice for research and hosting knowledge sharing symposiums. All these strategies can facilitate the exchange of ideas at the workplace. Past research has identified technology an enabler of knowledge sharing (Panahi et al., 2013). This implies that manufacturing companies must embrace technology. Technology works in two ways. On one hand, it is a source of critical



information. For example, the internet is a source of information for organisations that are eager to learn about new methods of operation and trending products in the market. Hence, internet sources are important for improving product offerings. On the other hand, technology is an enabler of communication as people share ideas. Digital tools such as the email, video conferencing and messaging platforms like WeChat and WhatsApp are all important for knowledge sharing. Managers must embrace them. Managers must also create organisational cultures that supportive of transformative efforts. The developmental culture with its attributes such as communication, risk taking and experimentation (Hartnell et al., 2011) is important in enhancing knowledge sharing and innovation.

10 CONCLUSIONS

Although the concept of transformational leadership is receiving attention from scholars and practitioners, the mediation and moderation mechanisms of different variables have not been sufficiently examined across contexts. This research suggests that knowledge sharing partially mediates the relationship between transformational leadership and innovation. Organisational culture was also found to positively moderate the relationship between transformational leadership and knowledge sharing. Transformational leaders can create strong organisational cultures that foster knowledge sharing which is a critical ingredient in innovation.

10.1 LIMITATIONS

This study addresses an important concept in business management and has improved our understanding of transformational leadership. The study was done in the SADC setting, so this may affect the generalisability of findings to other parts of the world. The sample size of 600 managers might represent a small fraction, however, scholars need to test our conceptual model in a large sample quantitative study to assess its validity. Despite these limitations, this study has provided practical empirical evidence that demonstrates the relationship among variables investigated in this study.



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