

Investigating the Impact of Servant Leadership on Knowledge Management in the IT Sector: A mediating Role of Intellectual Capital.

Saqib Rehman ¹, Tahreem Tahir ², Rabia Asif ³, Adeel Nasir ⁴, Nabeela Arshad ⁵

Author's Affiliation:

^{1,2,3,4,5} Department of Management Sciences, Lahore College for Women University (LCWU), Lahore, Pakistan

Article History:

Submitted: November 23, 2024
Revised: March 24, 2025
Accepted: March 26, 2025
Published online: March 30, 2025

Corresponding author(s):

Saqib Rehman
Email: saqib.rehman@lcwu.edu.pk

Co-author(s) Email:

Tahreem Tahir
Email: Tahreem.tahir@lcwu.edu.pk

Rabia Asif
Email: Rabia.Asif@lcwu.edu.pk

Adeel Nasir
Email: adeel.nasir@lcwu.edu.pk

Nabeela Arshad
Email: naeela.arshad@lcwu.edu.pk

ABSTRACT

Purpose—This research aims to investigate the relationship between servant leadership and knowledge management in the organization, with a mediating role of intellectual capital, i.e., human, structural, and relational.

Study Design/methodology/approach—Data were gathered primarily via the use of a questionnaire that had been carefully crafted to elicit responses pertinent to the study's aims and hypotheses. The researchers used Google Forms to create, organize, and disseminate the survey. PLS-SEM has been applied using the software Smart PLS for the analysis and testing of hypotheses.

Findings—The findings revealed a significant positive relationship between servant leadership and knowledge management. The three components of intellectual capital were considered in the study, namely Human, Structural, and Relational intellectual capital. In the process of hypothesis testing, servant leadership was found to be significant with knowledge management; similarly, it also showed significance with all three dimensions of intellectual capital. In the next attempt at testing direct hypotheses, human, structural, and relational intellectual capital is regressed with knowledge management. Human intellectual capital remained unable to show its significance in knowledge management. In the next step, the indirect effects were estimated where structural and relational intellectual capital partially mediated the relationship between servant leadership and knowledge management. However, human intellectual capital does not mediate the relation.

Research Practical Implications—The results have significant real-world implications, underscoring the need for IT organizations to cultivate and boost the culture of servant leadership and effective knowledge management.

Originality/value—This study shapes an integrated model related to servant leadership, intellectual capital, and knowledge management, offering its directions to IT practitioners, developers, and designers. To secure the current IT practices and other intellectual evidence, the robust findings of this study encourage the upper management to adopt the practices of servant leadership and take the best initiatives for the preservation of knowledge.

Keywords: Servant leadership, Knowledge management, Intellectual capital, IT sector

JEL Classification Codes: M10, M12, M14, M15, M16

1 | INTRODUCTION

1.1 | Background and Context

Over time, people have researched various leadership styles and approaches to explore different options they can adopt in various fields. In organizations, the authoritarian nature of leaders was evident as they maximized shareholder value by generating revenue streams ([Huang et al., 2015](#)). Consequently, the old leadership style was centered on issuing commands to employees, who were then expected to carry them out. Having authority over others is a great responsibility, and sometimes, neglecting leadership responsibilities can lead to devastating outcomes for the organization ([Hubbart, 2024](#)). Such evidence was evident in the Enron scandal of 2001, where its leadership deceived creditors and investors by concealing a substantial amount of debt, ultimately leading to the company's bankruptcy ([Boddy, 2023](#)). It highlights how leaders in the past have often disregarded ethics and values, sparking discussions about the importance of morality, virtue, and ethics in leadership.

Knowledge is widely recognized as the most valuable asset of an organization. "Knowledge management" refers to sharing information between departments and other administrative levels ([Rezaei et al., 2021](#)). The primary goal in organizations is to transfer implicit, tacit knowledge into explicit, tangible formats, which is a challenging task and presents numerous management issues ([Gamble, 2020](#)). Moreover, a somewhat neglected but crucial key element associated with knowledge management is the leadership aspect ([Pellegrini et al., 2020](#)). According to [Pellegrini et al. \(2020\)](#), leadership is crucial in the processes of knowledge creation, acquisition, utilization, and integration. Therefore, having a solid relationship between leadership and knowledge management is essential.

The leadership of an organization has a direct impact on its people resources. According to the servant leadership idea ([Greenleaf, 2013](#)), human capital should be prioritized. Organizational knowledge can be used through intellectual capital, which is crucial to achieving long-term success in the marketplace ([Rehman et al., 2022](#)). Intellectual capital is an organization's intangible asset that comprises its staff's collective body of knowledge and the products derived from that knowledge. By considering this amalgamation of variables, the objective of the study is to determine how servant leadership acts as a source of managing knowledge. Further, it also explores how this process becomes smoother in the presence of intellectual capital, i.e., human, structural, and relational.

Moreover, knowledge management is defined as a set of practices aimed at enhancing an organization's value by optimizing the creation and application of its intellectual capital ([Abeysekera, 2021](#)). Hence, organizations must develop a balanced intellectual capital portfolio for effective knowledge management. The leadership style should prioritize the well-being of employees. This research aims to investigate the relationship between servant leadership and knowledge management in the organization, with a key role of intellectual capital, i.e., human, structural, and relational.

The rapid growth and current dynamics of the IT sector are significantly providing numerous opportunities to both new and existing employees. This employee mobility covers local, regional, and international organizations. To capitalize on emerging opportunities, having a flexible workforce also presents significant challenges in knowledge management and organizational leadership. The frequent turnover and

individual preferences of work hinder the consistent adoption of standards of organizational protocols, thereby leading to loss of institutional knowledge and continuity.

In current landscapes, organizations are trying their best to preserve, transfer, and utilize the critical knowledge as an asset, particularly in the absence of structured approaches to leadership. Servant leadership, with its focus on individual empowerment, trust, and long-term development, offers the potential for work for everyone. However, its integration into fast-paced, innovative, IT-driven environments is still unexplored. According to the researchers' best knowledge, literature does not have evidence on how leadership can support the best management of knowledge in Pakistan's IT sector, where employee mobility and rapid changes in technology challenge the traditional mode of working. An assessment to shorten this bridge is crucial for sustaining innovation, retaining the knowledge, and developing a resilient organizational culture in the current era of digitalization.

1.2 | Research Questions

To best address this issue, the study formulated the following research questions:

RQ1: How does the servant leadership best manage the organization's knowledge?

RQ2: How does the servant leadership boost the intellectual capital, i.e., human, structural, and relational?

RQ3: How do the human, structural, and relational intellectual capitals help the organization in the management of knowledge?

Information Technology is one of the most promising and rapidly expanding industries in today's business environment. The researchers know that Information technology has changed how they look at data now, and a significant change they have seen is how it handles information. For this reason, knowledge management has become a fundamental part of the IT industry ([Castaneda & Cuellar, 2020](#)). Data processing infrastructures and Knowledge bases are the backbone of the IT industry. Open communication between employees is essential for any company's efforts to implement new methods and technologies, maintain security, and comply with applicable regulations ([Alblooshi et al., 2021](#)). However, Pakistan's IT sector faced numerous challenges in implementing new processes and tools, as well as in handling and managing such massive databases. The IT firms in Pakistan face organizational structural problems; they need more flexibility.

This research demonstrates that if an organization applies the servant leadership style to knowledge-oriented organizations, it helps effectively manage high volumes of data and information, creating smooth communication channels that positively impact worker output and increase overall efficiency. Moreover, it also highlights that when this information is handled through the creation of intellectual capital portfolios, it ultimately corresponds with knowledge management activities, creating value and competitive advantages for the organization. In addition, it will aid in determining the significance of factors such as human resources and capital structure, as well as the value of social capital in managing information databases, enabling informed and confident decision-making. This research will examine how servant leaders develop an intellectual capital portfolio for effective knowledge management practices. Additionally, it will help close the knowledge gap by clarifying the role of intellectual capital in efficient knowledge management.

This research focuses on addressing the challenges currently faced by Pakistan's IT sector. The servant leadership model introduced helps understand the identified management and structural gaps. According to this, the center of focus for any organization is its employees, and the policies formed should be based on their well-being. The leader acts as a servant, which helps build better communication channels, thereby opening the obstructed path of knowledge flow within an organization. Moreover, when processes and tools are introduced, employee-centered flexibility is introduced. When the role of intellectual capital in an organization is identified, it will help the IT Sector generate a better sense of intellectual property rights and the legal e-commerce framework it currently lacks. It will ultimately create a better environment for IT firms to excel and make informed decisions, as information and knowledge will be readily available.

2 | LITERATURE REVIEW

At first, the current model is theoretically allied with the Resource-based view (RBV), stating that the firms' competitive advantages are grouped with an efficient management and utilization of resources ([Barney, 2001](#)). Thereby, the study gained its theoretical support with this theory, as the central focus of the study is also related to the management of knowledge in IT-based organizations. Therefore, following this theory, the IT sector of Pakistan may gain influential evidence for an optimal utilization of intellectual capital, management of knowledge, and gain the leading position among its competitors. Second, the model is also allied with the knowledge-based view (KBV), indicating that the transmission of knowledge is more important than the strategic resources of the firm ([Martin & Javalgi, 2019](#)). Therefore, to deal with the current dynamic, the firms have to take a few necessary measures to preserve knowledge.

2.1 | Servant Leadership and Knowledge Management

A modern approach to leadership, "servant leadership," prioritizes the leader's willingness to put the team's needs before their own ([Lv et al., 2022](#)). When compared to more conventional forms of leadership, which emphasize power dynamics and hierarchical systems, servant leadership stands out as a more effective method ([Joseph Jeyaraj & Gandolfi, 2022](#)). As a counterpoint, this view emphasizes the importance of followers developing their emotional intelligence, focus, and overall growth.

Servant leadership can benefit significantly from knowledge management practices. Servant leaders can help their people progress by employing efficient knowledge management methods ([Karatepe et al., 2020](#)). Leveraging knowledge management practices, such as knowledge-sharing platforms, communities, and collaborative tools, servant leaders facilitate the dissemination and accessibility of knowledge within the organization. It enables employees to learn from one another, exchange best practices, and collectively solve problems, aligning with the servant leadership principle of promoting the growth and well-being of employees. Servant leaders can also use knowledge management initiatives to identify individual and team learning needs, provide targeted learning and development opportunities, and nurture the talent and potential of their employees ([Tran et al., 2025](#); [Trong Tuan, 2017](#)). Leaders who represent the servant leadership ideal of serving others' needs can do so by helping their teams develop personally and professionally through knowledge management tools, including competence frameworks, learning management systems, and mentoring programs ([Qiu & Dooley, 2022](#)).

Servant leadership and knowledge management are closely intertwined concepts that mutually reinforce one another within organizations. Servant leadership, characterized by selflessness, empathy, and a focus on serving others, is pivotal in facilitating knowledge management initiatives ([Lumpkin & Achen, 2018](#)). Similarly, knowledge management serves as a vehicle for servant leadership by providing the tools and processes necessary to enhance learning and support employees in their growth and development. Servant leaders prioritize building trust among team members, creating an environment where individuals can share their knowledge, ideas, and experiences. By fostering trust and openness, servant leaders encourage knowledge sharing and collaboration, essential components of effective knowledge management ([Bou Reslan et al., 2021](#)).

In today's knowledge-based workplaces, the value of servant leadership has become more obvious. Organizations must participate in knowledge management, which involves the systematic gathering, dissemination, and utilization of information to foster innovation and maintain competitiveness ([Galgotia & Lakshmi, 2022](#)). The concept of servant leadership is dual in this context. Leaders who prioritize others' needs create a safe space where everyone feels comfortable expressing their opinions and contributing their knowledge ([Malibari & Bajaba, 2022](#); [Zada et al., 2022](#)). Knowledge sharing and breaking down informational barriers should be top priorities in big organizations. Servant leadership, in contrast to other theories of leadership, is both stable and malleable through time. To help businesses navigate the growing complexity of knowledge management, the concept of servant leadership provides a practical framework ([Gu, 2022](#); [Pellegrini et al., 2020](#)). Leaders who prioritize the needs of their followers over their own may develop effective knowledge management methods, enabling their companies to achieve long-term success ([Khatri et al., 2023](#); [Sayyadi, 2019](#)). That's why leaders must prioritize their followers' happiness and growth, emphasize the importance of lifelong education, and coordinate their efforts with the broader business setting. Hence, based on the above arguments, it can be hypothesized that:

H1: *There is a positive relationship between servant leadership and knowledge management.*

2.2 | Direct Impact of Intellectual Capital on Servant Leadership and Knowledge Management

Workers' intellectual capital consists of their skills, knowledge, and experience ([Oliveira et al., 2020](#)). A company's databases, culture, philosophy, and system are all examples of intellectual assets. Human, relational, and structural capital are its three components. Intellectual capital determines an organization's propensity to enhance its expertise and capabilities; it is frequently utilized to modify interaction activities, the organizational environment, and knowledge ([Karadag et al., 2025](#); [Martin & Javalgi, 2019](#)). Thus, it is viewed as an intangible and reliable asset that fosters change. Its intellectual capital defines methods for solving an organization's issues, and all businesses use it to acquire and perfect practices that mimic knowledge work.

Intellectual capital serves as the fundamental basis for effective knowledge management within organizations. It comprises three components that contribute to the overall knowledge ecosystem. A company's human capital includes the collective skill sets, educational levels, and other relevant attributes of its employees ([Albats et al., 2020](#)). As employees contribute their unique expertise to the company's

knowledge management initiatives, it provides a valuable supply of knowledge. Knowledge creation, dissemination, and application all rely heavily on the skills and perspectives of the organization's personnel. Knowledge management operations are supported by structural capital, which encompasses elements such as underlying technology, organizational procedures, and proprietary ideas ([Beltramino et al., 2020](#)). It contains technologies, databases, information systems, administrative policies, and procedures. Structural capital provides the necessary framework and resources for capturing, organizing, storing, and disseminating knowledge throughout the organization ([Abualoush et al., 2018](#)).

For businesses, developing connections with external parties, such as clients, vendors, and partners, is essential to achieving their goals ([Moreno-Domínguez et al., 2024](#); [Onofrei et al., 2020](#)). The information gained from these connections is invaluable. Organizations can access external expertise, best practices, and innovative ideas by engaging in strategic alliances, partnerships, and collaborations, thereby enriching their relational capital. Knowledge management practices play a crucial role in enhancing and leveraging relational capital ([Jordão et al., 2020](#)). Knowledge management involves capturing explicit and tacit knowledge from employees and transforming it into organized and accessible formats. Knowledge management recognizes the importance of relationships in acquiring external knowledge resources ([Malibari & Bajaba, 2022](#)). By actively engaging with external stakeholders, organizations can leverage their relational capital and tap into valuable knowledge from the broader business environment ([Zahoor & Gerged, 2021](#)). Collaborative partnerships, strategic alliances, and open innovation initiatives allow organizations to acquire new knowledge, expand their intellectual capital, and remain competitive in a rapidly changing landscape ([Kianto et al., 2023](#)). Hence, based on the above arguments, it can be hypothesized that:

H2a: *There is a positive relationship between servant leadership and human intellectual capital.*

H2b: *There is a positive relationship between servant leadership and structural intellectual capital.*

H2c: *There is a positive relationship between servant leadership and relational intellectual capital.*

H3a: *There is a positive relationship between human intellectual capital and knowledge management.*

H3b: *There is a positive relationship between structural intellectual capital and knowledge management.*

H3c: *There is a positive relationship between relational intellectual capital and knowledge management.*

2.3 | Mediating role of intellectual capital

Intellectual capital is enhanced and developed through sound knowledge management practices. Intellectual capital expands when knowledge management practices are put into action ([Jordão & Novas, 2017](#)). It includes platforms for knowledge sharing, communities, and continuous learning initiatives. These practices facilitate the dissemination and application of knowledge, enabling employees to develop their skills, expertise, and capabilities, thereby enhancing the organization's overall human capital. Knowledge management is an ongoing process that enables organizations to continually improve and refine their intellectual capital ([Gutierrez-Broncano et al., 2024](#); [Marr et al., 2004](#)). Organizations can strengthen their intellectual capital by capturing lessons learned, analyzing best practices, and encouraging a culture of reflection and learning. Knowledge management activities provide feedback loops for organizational learning and improvement, ensuring that intellectual capital remains relevant and up-to-date ([Serenko & Bontis, 2022](#)).

Knowledge management is built upon intellectual capital, which provides inputs and resources in the form of human, structural, and relational capital. Simultaneously, knowledge management practices enhance intellectual capital by fostering the creation, sharing, and utilization of knowledge (Hamza et al., 2023). This mutual reinforcement creates a positive feedback loop, strengthening the overall knowledge ecosystem within the organization and enabling it to adapt, innovate, and thrive in a dynamic business environment (Khatri et al., 2023). Hence, based on the above arguments, it can be hypothesized that:

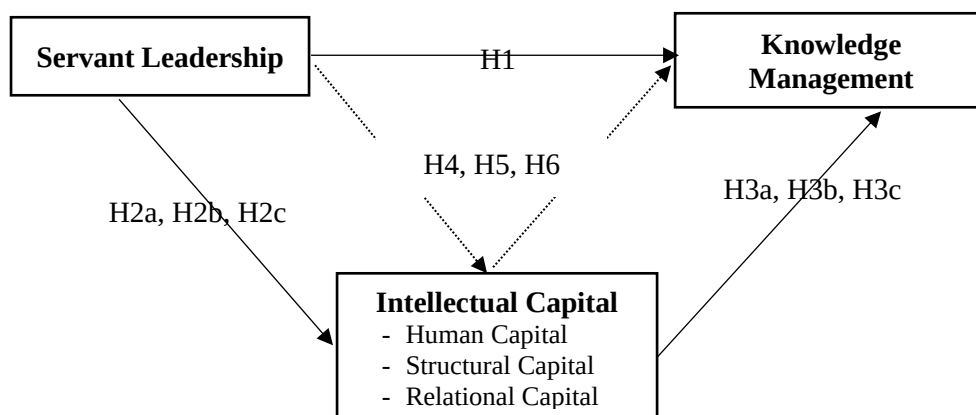
H4: *The relationship between servant leadership and knowledge management is mediated by human intellectual capital.*

H5: *The relationship between servant leadership and knowledge management is mediated by structural intellectual capital.*

H6: *The relationship between servant leadership and knowledge management is mediated by relational intellectual capital.*

Figure 1

Conceptual Framework



Source: Authors' own creation

3 | METHODOLOGY & DESIGN

3.1 | Research Design

The current research is descriptive and quantitative in nature. The research employed a cross-sectional technique to comprehensively reflect the current status by collecting data over a single period. Philosophical grounds of the study are aligned with positivism, where factual knowledge is tested through quantitative instruments.

3.2 | Participants and Procedure

This study relies on the input of working professionals and business professionals for its underlying structure. This research focused on individuals working in Lahore's IT sector, which provides services to other companies (i.e., local and international). In the current era of rapid change, businesses that place a premium

on information confront a wide range of challenges and opportunities. The perspectives of workers at all levels and in all departments inside these companies are invaluable. Carefully crafted online polls not only protected respondents' anonymity but also promoted open communication and teamwork.

Recognizing the critical nature of the data collection, the researcher planned its implementation with great care to ensure the quality, consistency, and completeness of the findings. Data were gathered primarily via a questionnaire that had been carefully crafted to elicit responses pertinent to the study's aims and hypotheses. The research team has given it some thought and has settled on using Google Forms to create, organize, and disseminate the survey. The researcher added a detailed introduction line at the start of the questionnaire to increase participation and clarity. The introduction stressed the study's adherence to confidentiality rules, the scientific and philosophical motivations behind the research, and the respondents' invaluable contribution to expanding the body of knowledge on the subject. The researcher employed several methods of outreach to disseminate information about the online survey and encourage as many people as possible to participate in the study. The general public heavily uses Facebook, Messenger, and WhatsApp groups. By providing the Google questionnaire link to prospective participants directly after obtaining informed consent, the researcher was able to increase their adherence to ethical standards. Furthermore, the numerical data were input into Smart PLS 4 Software for statistical analysis, where analysis was performed in two sections using confirmatory factor analysis and structural analysis, following the Structural Equation Modeling Technique.

3.3 | Survey Development and Measures

The survey was well-designed overall, with a 5-point Likert scale serving as the primary data collection tool. The aforementioned scale, well-known for its ability to accurately capture respondents' perspectives, provided a systematic way to rate their level of agreement or disagreement with a set of items. One end of the scale represented "strongly disagree," while the other end represented "strongly agree". Other choices are offered under this prescribed range.

The survey consisted of four distinct parts, each of which was important. In the first stage, the researchers gathered background information about the participants to establish the context for the remainder of the study. In the following sections, the research employs focused questions to collect data on the study's primary factors.

The variables, each underpinned by empirical research and scholarly literature, were defined as follows:

- **Servant Leadership:** This critical variable was assessed using a comprehensive 9-item scale from the pioneering work of [Ekinici \(2015\)](#). The sample item is "The Company thinks about their employees before themselves."
- **Knowledge Management:** To capture the nuances of this variable, a 15-item scale, adapted from the study of ([Biasutti & Heba, 2012](#)), was used. The sample item is "I categorize the new information in an organized way."
- **Intellectual Capital:** Representing a cornerstone of the research, this variable was evaluated using a detailed 31-item scale that was adapted for the study of ([Seleim & Khalil, 2011](#)). The sample item of intellectual capital, i.e., for human intellectual capital, "Our employees are creative and bright"; for structural intellectual capital, "Our company documents the knowledge in manuals and database" and for rational intellectual capital, "Our employees share information

and learn from one another.” Intellectual capital is taken as the mediator and not considered as a moderator, as it provides a precise indirect route (proven from findings) to boost the relation between servant leadership and knowledge management ([Shahwan & Fathalla, 2020](#)).

A total of 325 participants were approached, and 275 responded to the survey, which best contributed to the study. Smart PLS software is used to analyze the data, as this tool has a great ability to effectively handle a primary set of data and determine a precise relationship between latent variables. Smart PLS works on the principles of SEM (Structural Equation Modeling) and is self-sufficient in generating 5000 resamples or bootstraps ([Streukens & Leroi-Werelds, 2016](#)). Moreover, two techniques were applied to compute the sample size. At first, the sample size of the study was determined through the item response theory, where, following the 5:1 criterion, 55 items of the entire questionnaire were multiplied by 5 ($55 \times 5 = 275$) ([S.E. Embretson and S. Reise, 2004](#)). Next, the sample size was determined using the G*Power software version 3.1.9.2. With 99% power, the Multiple Correlation (R) is 0.30 at the 0.05 significance level. This computation suggested the figure of 242 respondents.

To best compile the data, the study incorporated respondents with less than one to seven years of experience in the IT sector. Data collection was conducted between December 2023 and March 2024. The collinearity test revealed that VIF values of all the latent variables were below the threshold of 3, indicating no significant multicollinearity among the variables and suggesting that common method bias does not affect the results.

4 | RESULTS AND ANALYSIS

4.1 | Demographics of the Participants

Table 1 shows that the male participation in the study is 50.1% ($n = 178$), while females were slightly lower than males and accounted for 47.9% ($n = 170$). Following the age group, the majority of the respondents are young people, 49.9% ($n=177$), and are between 20 and 25 years old. Next, 4.2% ($n=15$) were below 20 years; 27.6% ($n=98$) fell in the age group of 26 to 30; 10.7% ($n=38$) had a belongingness between 31 to 35 years; 2.8% ($n=10$) were from 36 to 40 and 41 to 45 each, 0.6% ($n=2$) were from the age group of 46 to 50 and 1.4% ($n=5$) belongs to the age group of more than 50. According to experience, 27.6% ($n=98$) have experience of less than a year, 23.7% ($n=84$) have an experience of 1 to 2 years, 15.5% ($n=55$) fall under the category of 2 to 3 years of experience, 14.1% ($n=50$) of respondents belong to the category 3 to 4 years of experience, 5.1% ($n=18$) respondents have an experience of 4 to 5 years, the demographics profile of the respondents shows that 4.2% ($n=15$), 2.3% ($n=8$), 7.6% ($n=27$) respondents have an experience of 5 to 6 years, 6 to 7 years and more than 7 years respectively.

Table 1*Demographic Characteristics of the Participants*

Respondent's Profile		%
Gender	Male	50.1
	Female	47.9
	Prefer Not to Say	2.0
Age Group	Under 20	4.2
	20 to 25	49.9
	26 to 30	27.6
	31 to 35	10.7
	36 to 40	2.8
	41 to 45	2.8
	46 to 50	0.6
	More than 50	1.4
	Less than 1 Year	27.6
Experience (Years)	1-2	23.7
	2-3	15.5
	3-4	14.1
	4-5	5.1
	5-6	4.2
	6-7	2.3
	More than 7 Years	7.6

4.2 | Reliability and Validity**4.2.1. Outer Loadings****Table 2***Items' Loading*

Items	Factor Loadings
SL1	0.726
SL2	0.718
SL3	0.725
SL4	0.723
SL5	0.709
SL7	0.649
KM4	0.686
KM5	0.708
KM7	0.656
KM8	0.722
KM11	0.747
KM12	0.710
KM13	0.744
KM14	0.727
KM15	0.708
HIC1	0.661
HIC2	0.738
HIC3	0.753
HIC4	0.730

HIC5	0.758
HIC6	0.711
HIC7	0.627
HIC8	0.757
HIC9	0.736
HIC10	0.671
HIC11	0.670
HIC13	0.784
HIC14	0.674
RIC1	0.646
RIC2	0.790
RIC3	0.701
RIC4	0.691
RIC5	0.675
RIC6	0.753
RIC7	0.732
RIC8	0.754
RIC9	0.669
RIC10	0.667
SIC1	0.777
SIC2	0.784
SIC3	0.680
SIC4	0.686
SIC5	0.678
SIC6	0.770
SIC7	0.826
SIC8	0.736

Before proceeding with the data analysis and hypothetical testing, the factor loading of each item was determined (reported in Table 2). The general range of all the item loading was between 0.627 and 0.826. Following lower factor loading items were deleted by keeping in mind that maximum deletion cannot exceed 20% of the items: SL6, SL8, SL9, KM1, KM2, KM3, KM6, KM10, and HIC12 ([Kamis et al., 2020](#); [Putu Gede, 2024](#)). After that, the rest of the items remained part of the study and were fully incorporated into the subsequent analysis.

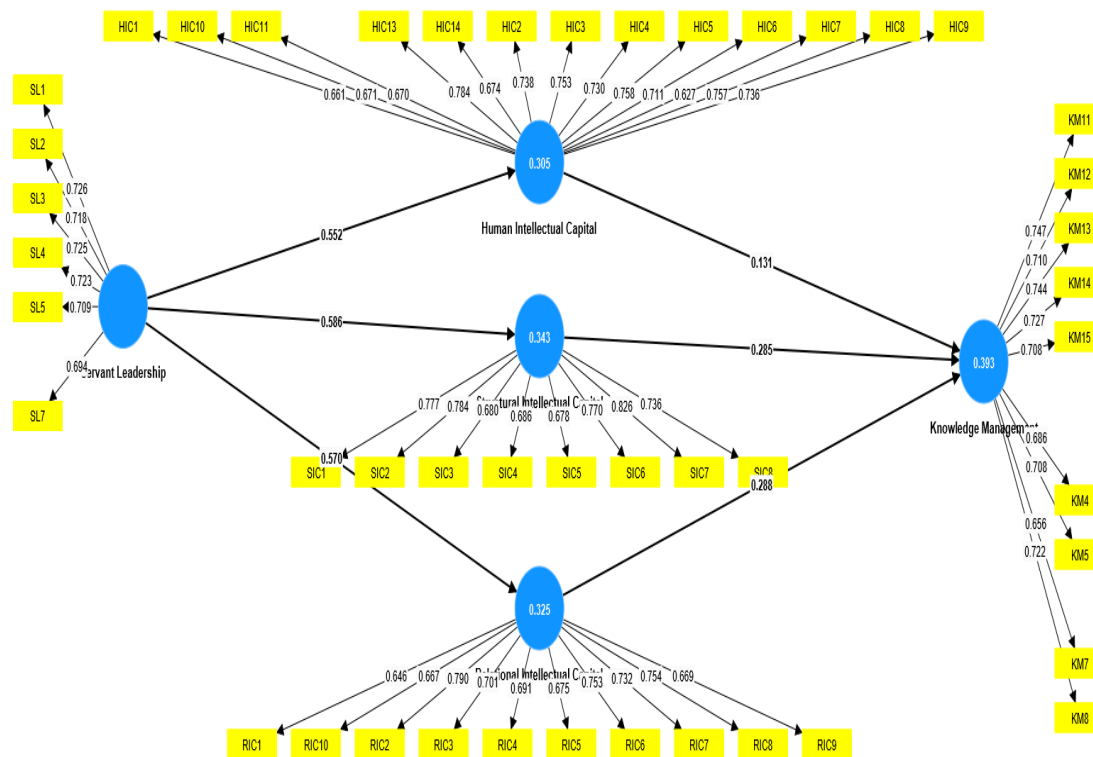
The loading of each item, along with its respective latent construct, is displayed in Figure 2, e.g., the measurement model. The factor loading of the first independent variable, i.e., servant leadership, ranges from 0.649 to 0.725. Second, the factor loadings of the dependent variable, i.e., knowledge management, range from 0.686 to 0.744. The factor loadings of both fall within the acceptance criteria and meet the suggested ranges.

Next, the third variable, intellectual capital, contained three dimensions: human, structural, and relational. Here, the range for loadings of human intellectual capital began with 0.627 to 0.757; structural intellectual capital started with 0.678 to 0.826, and relational intellectual capital has a maximum value of 0.790 while its minimum value is 0.667. The described range of all the latent variables was forwarded to the subsequent analysis, i.e., normality, reliability, and hypothesis testing. Moreover, to address multicollinearity, the study

computed the VIF (Variance Inflation Factor) values against each item (reported in Table 8 and displayed in the Appendix). The VIF also allowed the latent variables to move to the next stage of analysis.

Figure 2

Measurement Model



Source: Authors' own creation through Software (Smart PLS-4.0)

4.3 | Internal Consistency

Table 3

Construct Reliability and Validity

Constructs	α	CR	AVE
Servant Leadership	0.810	0.863	0.512
Intellectual Capital (Human Capital)	0.920	0.931	0.510
Intellectual Capital (Structural Capital)	0.884	0.908	0.553
Intellectual Capital (Relational Capital)	0.890	0.910	0.503
Knowledge Management	0.879	0.903	0.508

Note: α = Cronbach's alpha; CR = Composite Reliability; AVE = Average Variance Extracted

To determine the reliability of the instrument used for the study, an internal consistency of all the latent variables was determined with the help of Cronbach's alpha (α) and composite reliability CR (reported in Table 3). Following the output figures for Cronbach's alpha, we found that all the latent constructs fully adopted the recommended criterion, i.e., greater than 0.7 (Bagozzi et al., 1981; Fornell & Larcker, 1981) and depicted a

range of 0.81 to 0.89. Second, the internal consistency has also been checked through composite reliability. Like Cronbach's alpha, its acceptance criterion is also greater than 0.7, as suggested in the research work of ([Arnold & Reynolds, 2003](#)). Thereby, all the values of composite reliability fully met the criterion of acceptance and found a suitable instrument of measurement.

4.4 | Convergent Validity

To assess the validity of all the participating latent variables, the Average Variance Extracted (AVE) was computed (reported in Table 3). The AVE values of all the latent variables, i.e., servant leadership, knowledge management, and intellectual capital, including human, structural, and relational, ranged between 0.510 and 0.553. Following the research evidence of [Hair \(2017\)](#), all the values have fully attained the acceptance criterion of higher than 0.5, indicating that the instrument used in the research analysis is valid. Thereby, constructs are converged while representing their underlying constructs.

4.5 | Discriminant Validity

Discriminant validity is employed to distinguish the measures of each construct from one another ([Urbach & Ahlemann, 2010](#)) (reported in Table 4). [Fornell and Larcker \(1981\)](#) described that the assessment of discriminant validity can be conducted by analyzing the potential overlap of constructs and utilizing the cross-loading approach ([Chin, 1999](#)). It can be executed by contrasting the outer loadings of indicators with their corresponding underlying constructions. As per [Fornell and Larcker \(1981\)](#), the reliability of a variable should exceed 0.70. Further, the diagonal values are higher than their underlying construct.

Table 4

Fornell and Larcker Criterion

Constructs	HIC	KM	RIC	SL	SIC
HIC	0.714				
KM	0.526	0.713			
RIC	0.739	0.573	0.709		
SL	0.552	0.665	0.57	0.716	
SIC	0.643	0.559	0.662	0.586	0.744

Table 5

Heterotrait and Monotrait Ratio (HTMT)

Constructs	HIC	KM	RIC	SL	SIC
HIC					
KM	0.574				
RIC	0.815	0.635			
SL	0.626	0.789	0.659		
SIC	0.703	0.624	0.737	0.684	

To conduct a precise assessment for discriminant validity, a Heterotrait-Monotrait Ratio (HTMT) ratio was computed ([Henseler, 2015](#)) (reported in Table 5). From the suggested criterion of less than 0.85 ([Kline, 2011](#)) and less than 0.90 ([Gold, 2001](#)), the study may face the issues of discriminant validity. From the current

computation of Heterotrait-Monotrait Ratio (HTMT), output figures fully met the criterion of acceptance; constructs are secured and free from the problem of discriminant validity.

4.6 | Model fitness

For a precise computation of analysis, this study conducted the model fitness in multiple ways. Firstly, it is confirmed through the calculation of the Harman test, and its significance is found. The output figure revealed that CMV (Common Method Variance) is 33.620%. It fell at the suggested criterion of acceptance, i.e., greater than 0.5% and less than 50% ([Tehseen et al., 2017](#)). The next model's fitness is also tested by the computation of SRMR (Standardized Root Mean Square Residual); from the analysis, we found a figure of 0.057, indicating that the predicted correlations are matched with the observed correlations, falling at the threshold of less than 0.08 ([Hu & Bentler, 1999](#)). All the stated and proposed hypothetical relationships were tested. At first, an exogenous variable, servant leadership, was tested in relation to knowledge management. Next, the test of servant leadership took place with intellectual capital, i.e., human, structural, and relational. Lastly, intellectual capital, along with its dimensions, was tested with the endogenous variable of knowledge management.

4.7 | Path Coefficients and Structural Model

In Figure 3, the study displayed the path coefficients and structural model. Therefore, hypotheses were tested and the strength of their relationships was analyzed through beta estimates (β), t-statistics, and probability values. Upon findings, decisions for acceptance or non-acceptance were made. For hypothesis testing, a bootstrapped technique was applied ([Hair Jr, 2021](#)).

4.7.1. Direct Paths

In the first attempt at hypothesis testing, the direct routes are determined at a 95% confidence interval (reported in Table 6). At first, servant leadership was tested with knowledge management ($\beta = 0.403$; $p = 0.000$), which ensured its significance; thus, H1 is accepted by the study. Second, servant leadership is simultaneously regressed with three dimensions of intellectual capital, i.e., human, structural, and relational; thereby their relationships appear in hypothetical statements symbolized with H2a, H2b, and H2c. All were found significant with output of ($\beta = 0.552$; $p = 0.000$); ($\beta = 0.586$; $p = 0.000$) and ($\beta = 0.570$; $p = 0.000$), respectively. After finding their significance, the study accepted H2a, H2b, and H2c.

Lastly, human intellectual capital, structural intellectual capital, and relational intellectual capital are regressed against knowledge management and presented as H3a, H3b, and H3c, respectively. The resulted figures appeared with outcomes of ($\beta = 0.131$; $p = 0.100$); ($\beta = 0.285$; $p = 0.000$) and ($\beta = 0.288$; $p = 0.000$), respectively. Findings revealed that structural intellectual capital and relational intellectual capital are significant in knowledge management. However, human intellectual capital remained unable to show its significance in knowledge management. Thus, the study accepts H3b and H3c, and a decision is made to reject H3a.

Table 6*Direct Path Coefficients and Hypothesis Testing*

	Hypotheses	β_Estimates	t-statistics	p values	Decision
H1	SL $\rightarrow$ KM	0.403	9.396	0.000	Accepted
H2a	SL $\rightarrow$ HIC	0.552	11.995	0.000	Accepted
H2b	SL $\rightarrow$ SIC	0.586	11.083	0.000	Accepted
H2c	SL $\rightarrow$ RIC	0.570	13.208	0.000	Accepted
H3a	HIC $\rightarrow$ KM	0.131	1.645	0.100	Not Accepted
H3b	SIC $\rightarrow$ KM	0.285	3.172	0.002	Accepted
H3c	RIC $\rightarrow$ KM	0.288	3.104	0.000	Accepted

Note: SL-Servant Leadership; HC-Human Capital; SC-Structural Capital; RC-Relational Capital; KM-Knowledge Management

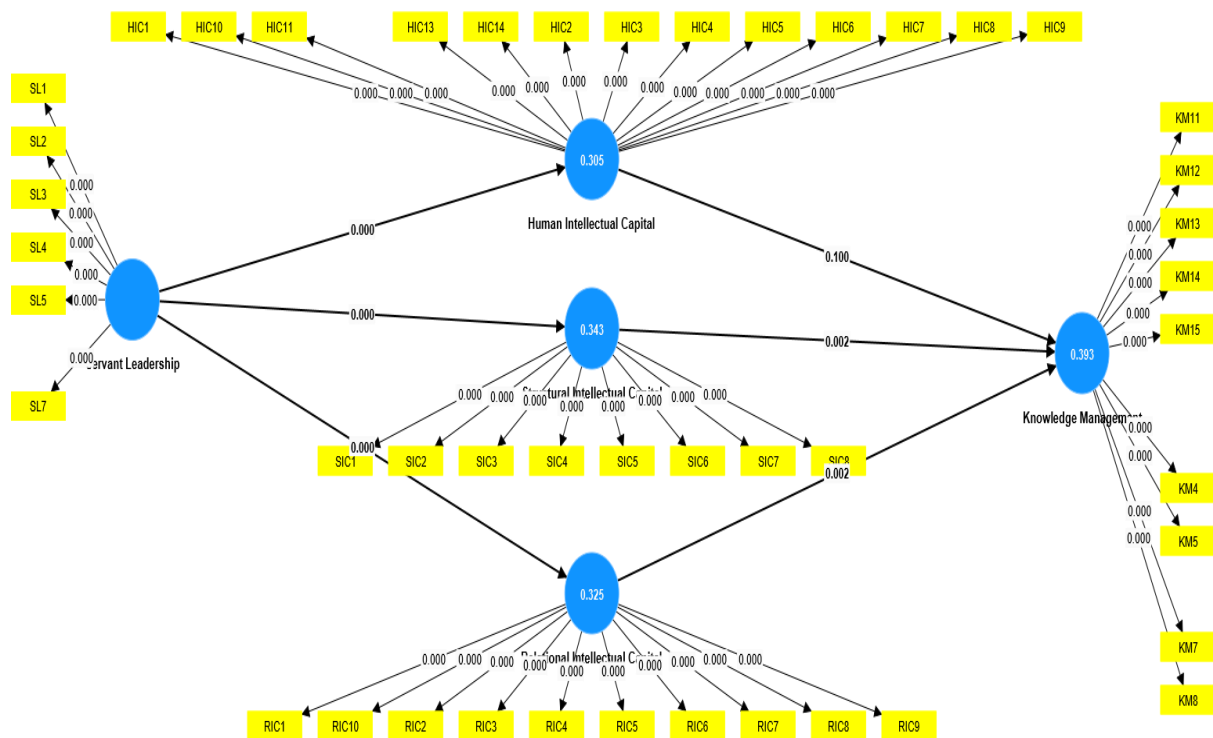
Table 7*Indirect Path Coefficients and Hypotheses Testing*

	Hypotheses	β_Estimates	t-statistics	p values	Decision
H4	SL $\rightarrow$ HIC $\rightarrow$ KM	0.072	1.521	0.128	Not Accepted
H5	SL $\rightarrow$ SIC $\rightarrow$ KM	0.167	3.193	0.001	Accepted
H6	SL $\rightarrow$ RIC $\rightarrow$ KM	0.164	2.897	0.004	Accepted

Note: SL-Servant Leadership; HC-Human Capital; SC-Structural Capital; RC-Relational Capital; KM-Knowledge Management

After testing the direct routes, an assessment of indirect routes takes place where human intellectual capital, structural intellectual capital, and relational intellectual capital partially mediate the relationship between servant leadership and knowledge management (95% confidence interval, reported in Table 7). Simultaneously, indirect paths presented H4, H5, and H6, respectively. The resulted figures appeared with outcomes of ($\beta = 0.072$; $p = 0.128$); ($\beta = 0.167$; $p = 0.000$) and ($\beta = 0.164$; $p = 0.000$), respectively. From the findings, mediation is proven in structural and relational intellectual capital. Thus, H5 and H6 are accepted by the study. However, this partial mediation is lacking in the case of human intellectual capital. Therefore, H4 is not accepted by the study.

Figure 3
Structural Model



Source: Authors' own creation through Software (Smart PLS-4.0)

4.8 | Coefficient of Determination R^2 and f^2 Effect Size

The coefficient of determination R^2 determines the changing pattern of movement in the dependent variable under the effect of changes that occur in the independent variables. Thus, the study computed R^2 for all the latent variables. R^2 for human intellectual capital (0.305), for knowledge management (0.393), structural intellectual capital (0.343), and relational intellectual capital (0.325). The output figures assured that the independent variable had shown a predictive power over the dependent variable. The f^2 effect size depicts the change in the model computed through the absence of a latent variable. Therefore, the study computed the f^2 effect size for all the latent variables. The f^2 effect for human intellectual capital (0.438), structural intellectual capital (0.522), and relational intellectual capital (0.482). Resultantly, all the latent constructs were found with stronger exogenous variables.

4.9 | Evaluation of Predictive Relevance Q^2

In most cases, the predictive relevance of the study is determined through Q^2 . The predictive value above zero indicates that the designed model is free from an error of predictive relevance. From computation, it is found that the Q^2 for human intellectual capital (0.293), for knowledge management (0.369), structural intellectual capital (0.329), and relational intellectual capital (0.316) are as follows. The resulting figures depicted a higher predictive relevance of all the endogenous variables than of their exogenous variable.

5 | DISCUSSION

Theoretically, the study is more closely aligned with the Resource-based view (RBV) and knowledge-based view (KBV). In the RBV theory, ([Barney, 2001](#)) stated that firms attain competitive and sustainable advantages through effective management and optimal resource utilization. Whereas, KBV emphasized that the knowledge propagation and transmission are equally important as the measures taken for future sustainability, survival, growth, and expansion. Therefore, considering this important dimension, the current study used both theories and highlighted the importance of preserving and managing knowledge.

The findings show that servant leadership has a positive impact on knowledge management. Similarly, servant leadership is regressed with three dimensions of human intellectual capital, structural intellectual capital, and relational intellectual capital, and found its significance. Resultantly, H2a, H2b, and H2c are accepted by the study.

Meanwhile, this paper examines the role of intellectual capital, i.e., human, structural, and relational, in enhancing the practice of knowledge management. Therefore, human intellectual capital, structural intellectual capital, and relational intellectual capital are regressed with knowledge management. Structural and relational intellectual capital seem to be significant. Thus, the study accepted H3b and H3c. However, insignificance is seen in the case of human intellectual capital, so H3a does not follow the criterion of acceptance and was rejected by the study.

Earlier studies, [Beltramino et al. \(2019\)](#) and [Ganguly et al. \(2019\)](#), showed that human intellectual capital does not have a significant relation with knowledge management. People use their own approaches, techniques, styles, and strategies rather than adopt the previous ones. However, servant leadership boosts the human intellectual capital and provides a great cushion to develop their own techniques and means of working ([Zoghbi-Manrique-de-Lara & Ruiz-Palomino, 2019](#)). Hence, in our study, due to the various structural differences in Pakistan's IT sector organizations, the segment of knowledge management is not affected by human intellectual capital. Moreover, structural and relational intellectual capital mediate the relationship between servant leadership and knowledge management. The mediating role of human intellectual capital is not supported by the findings; therefore, like H5 and H6, this study has not given an acceptance to H4.

The findings are comparable to those of existing studies, indicating that servant leadership enhances the intellectual capital of an individual or organization. For instance, [Joseph Jeyaraj and Gandolfi \(2022\)](#) and [Lv et al. \(2022\)](#) stated that servant leadership diverges from traditional hierarchical systems, promoting the activation of followers, caring for them, and trusting them. This philosophy of leadership fosters a psychologically safe environment at any organizational level, resulting in openness, cooperation, and a willingness to share knowledge. Additionally, this study successfully answered its formulated research questions. From direct and indirect testing of hypotheses, the study provided a clear answer to its research questions.

The most recent research indicates that servant leaders help their teams generate and distribute knowledge through mentorship, developmental feedback, and active listening ([Tran et al., 2025](#)). These are consistent with knowledge management strategies that rely on staff participation, continuous training, and the application of technology to collect and organize data. Additionally, when servant leadership is considered, teams appear

to be more interested in sharing ideas, learning from one another, and collaborating to solve problems ([Bou Reslan et al., 2021](#)). These are the teams that foster long-term success in modern, knowledge-based organizations where continuous innovation and flexibility are the norm.

The study focuses on the indirect route between servant leadership and knowledge management, through intellectual capital. It contributes to the research conducted by [Albats et al. \(2020\)](#) and [Oliveira et al. \(2020\)](#) on the importance of empowered human capital and well-developed people in the direct influence on the effectiveness of the knowledge generation, transfer, and utilization process within a firm or an organization. Servant leadership enhances human capital by providing learning opportunities to employees and nurturing a growth mindset. This study confirms the findings of [Zahoor and Gerged \(2021\)](#) and [Kianto et al. \(2023\)](#) that good relations between the organization and its clients, partners, and other stakeholders contribute to the development of the company's knowledge base and effective knowledge management. Servant leaders enhance the relational capital (and facilitate a more effective knowledge acquisition) by building trust in the teams and outside partners through their relational approach and ethical orientation ([Moreno-Dominguez et al., 2024](#)).

From findings regarding the connection between intellectual capital, servant leadership, and knowledge management, it is suggested that the growth of intellectual capital leads to the effectiveness of servant leadership, which in turn influences knowledge management and knowledge management itself. Servant leadership fosters long-term organizational success by creating intellectual assets that enhance knowledge management systems, thereby encouraging organizational innovativeness and learning.

This research adds a theoretical depth to the expanding canon on servant leadership and knowledge management by focusing on the mediating function of intellectual capital. This study contributes to the growing body of research supporting the beneficial relationship between servant leaders and knowledgeable management while also illuminating the underlying processes that make this connection possible. Moreover, it adds depth by providing insight into how human capital, structural capital, and relational capital within an organization can facilitate seamless knowledge management. Servant leadership helps foster an environment of trust, power, and support, opening up communication channels between all personnel and creating a smooth path for knowledge creation and sharing at all levels within an organization.

This research has identified that when the servant leadership style is applied to knowledge-oriented organizations, it helps in effectively managing the high volumes of data and information, thereby creating smooth communication channels ([Asna Ashari et al., 2023](#)). Moreover, it also highlights that when this information is handled through the creation of intellectual capital portfolios, it ultimately corresponds with knowledge management activities, creating value and competitive advantages for the organization. Furthermore, it helps identify the impact of human, structural, and relational capital in effectively managing knowledge bases, thus allowing decision-makers to make precise and timely decisions. The results have significant real-world implications, underscoring the importance of IT organizations cultivating a culture of servant leadership.

5.1 | Research Limitations and Future Research Agenda

Organizations should invest in cultivating and supporting servant leaders who prioritize staff development, foster open communication and information exchange, and promote teamwork. A cross-

sectional study in the information technology sector is a limitation of the study. In the future, a longitudinal study can be used for the IT sector. Secondly, the population size of 275 in the IT sector is small; future studies could benefit from larger sample sizes. Therefore, future research could be expanded to include industries and cities, such as the services sector. Thirdly, the time allotted to the research was also a limitation. Future research can be conducted in a larger time frame. Future research could investigate the various ways in which servant leadership can enhance change capacity, company culture, and knowledge sharing. Finally, this research presented and worked with the conceptual model with no control variables, and was largely unable to control for the surrounding effect. Therefore, it calls the future researchers, scholars, and practitioners to conduct the same or deploy a model incorporating the control variables, i.e., firms' age, size, number of employees, and service regions.

6 | CONCLUSION

This study contributes to the growing body of research supporting the beneficial relationship between servant leaders and knowledgeable management while also illuminating the underlying processes that make this connection possible. The results have significant real-world implications, underscoring the need for IT organizations to cultivate a culture of servant leadership. This research investigated the relationship between servant leadership and knowledge management. The three components of intellectual capital were considered in the study, namely Human Capital, Structural Capital, and Relational Capital. All the hypotheses came in showing the significance, except for human intellectual capital with knowledge management. The rest of the relations, i.e, servant leadership with knowledge management, intellectual capital (human, structural, and relational), and two dimensions of intellectual capital, e.g., structural and relational, were accepted. This research has given theoretical evidence to IT development firms to best manage their knowledge under the current dynamics and rapid propagation of technology. In this way, servant leadership and intellectual capital can play their crucial part to achieve an earlier basis.

Acknowledgment: The authors would like to express their sincere thanks to the editor and the anonymous reviewers for their helpful comments and suggestions.

Author Contributions: Conceptualization, S.R., and T.T.; methodology, S.R., and T.T.; software, R.A.; validation, A.N., and N.A.; investigation, S.R.; data curation, T.T.; writing original draft preparation, S.R.; writing—review and editing, S.R., and T.T. All authors have read and agreed to the published version of the manuscript.

Declaration of Conflicting Interest: The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Licenses and Copyright: This is an open-access article, free of all copyright, and fulfills the DOAJ definition of open access. This work is licensed under a "[Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/)". This permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Funding: The author(s) received no financial support for the research, authorship, and/or publication of this article.

Data Availability Statement: Data that supports the findings of this study are available on request from the corresponding author.

Plagiarism Statement: This article was scanned by the plagiarism program. No plagiarism was detected.

Disclaimer/Publisher's Note: The statements, opinions, and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of the publisher "AGASR" and/or the editor(s). The Publisher AGASR and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions, or products referred to in the content.

REFERENCE

- Abeysekera, I. (2021). Intellectual capital and knowledge management research towards value creation. From the past to the future. *Journal of Risk and Financial Management*, 14(6), 238.
- Abualoush, S., Masa'deh, R. e., Bataineh, K., & Alrowwad, A. a. (2018). The role of knowledge management process and intellectual capital as intermediary variables between knowledge management infrastructure and organization performance. *Interdisciplinary journal of information, knowledge, and management*, 13, 279-309.
- Albats, E., Bogers, M., & Podmetina, D. (2020). Companies' human capital for university partnerships: A micro-foundational perspective. *Technological Forecasting and Social Change*, 157, 120085.
- Alblooshi, M., Shamsuzzaman, M., & Haridy, S. (2021). The relationship between leadership styles and organisational innovation: A systematic literature review and narrative synthesis. *European Journal of Innovation Management*, 24(2), 338-370.
- Arnold, M. J., & Reynolds, K. E. (2003). Hedonic shopping motivations. *Journal of Retailing*, 79(2), 77-95. [https://doi.org/10.1016/s0022-4359\(03\)00007-1](https://doi.org/10.1016/s0022-4359(03)00007-1)
- Asna Ashari, P., Blind, K., & Koch, C. (2023). Knowledge and technology transfer via publications, patents, standards: Exploring the hydrogen technological innovation system. *Technological Forecasting and Social Change*, 187. <https://doi.org/10.1016/j.techfore.2022.122201>
- Bagozzi, R. P., Fornell, C., & Larcker, D. F. (1981). Canonical correlation analysis as a special case of a structural relations model. *Multivariate Behavioral Research*, 16(4), 437-454.
- Barney, J. B. (2001). Resource-based theories of competitive advantage: A ten-year retrospective on the resource-based view. *Journal of management*, 27(6), 643-650.
- Beltramino, N. S., Garcia-Perez-de-Lema, D., & Valdez-Juarez, L. E. (2019). The structural capital, the innovation and performance of industrial SMEs. *Journal of Intellectual Capital*
- Beltramino, N. S., García-Perez-de-Lema, D., & Valdez-Juárez, L. E. (2020). The structural capital, the innovation and the performance of the industrial SMEs. *Journal of Intellectual Capital*, 21(6), 913-945.
- Biasutti, M., & Heba, E.-D. (2012). Using Wiki in teacher education: Impact on knowledge management processes and student satisfaction. *Computers & Education*, 59(3), 861-872.
- Boddy, C. R. (2023). Enron scandal. In *Encyclopedia of business and professional ethics* (pp. 648-651). Springer.
- Bou Reslan, F. Y., Garanti, Z., & Emeagwali, O. L. (2021). The effect of servant leadership on innovative work behavior and employee knowledge sharing in the Latvian ICT sector. *Baltic Journal of Management*, 16(5), 729-744.
- Castaneda, D. I., & Cuellar, S. (2020). Knowledge sharing and innovation: A systematic review. *Knowledge and process management*, 27(3), 159-173.
- Chin, W. W., & Newsted, P. R. (1999). Structural equation modeling analysis with small samples using partial least squares. In R. H. Hoyle (Ed.), *Statistical Strategies for Small Sample Research* 307-341. (Thousand Oaks, CA: SAGE Publications, Inc.)

- Ekinci, A. (2015). Development of the school principals' servant leadership behaviors scale and evaluation of servant leadership behaviors according to teachers' views. *Education and Science*, 40(179).
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of marketing research*, 18(1), 39-50.
- Galgotia, D., & Lakshmi, N. (2022). Implementation of knowledge management in higher education: A comparative study of private and government universities in India and abroad. *Frontiers in Psychology*, 13, 944153.
- Gamble, J. R. (2020). Tacit vs explicit knowledge as antecedents for organizational change. *Journal of Organizational Change Management*, 33(6), 1123-1141.
- Ganguly, A., Talukdar, A., & Chatterjee, D. (2019). Evaluating the role of social capital, tacit knowledge sharing, knowledge quality and reciprocity in determining innovation capability of an organization. *Journal of knowledge management*, 23(6), 1105-1135.
- Gold, A. H., Malhotra, A., & Segars, A. H. . (2001). Knowledge management: an organizational capabilities perspective. *Journal of Management Information Systems*. 18(1), 185-214.
- Greenleaf, R. K. (2013). *Servant leadership: A journey into the nature of legitimate power and greatness*. Paulist press.
- Gu, S. (2022). Servant leadership and knowledge management; what leads to frugal innovation? *Asian Journal of Economics, Business and Accounting*, 22(23), 436-454.
- Gutierrez-Broncano, S., Linuesa-Langreo, J., Ruiz-Palomino, P., & Yáñez-Araque, B. (2024). General manager servant leadership and firm adaptive capacity: The heterogeneous effect of social capital in family versus non-family firms. *International Journal of Hospitality Management*, 118, 103690.
- Hair, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., & Thiele, K. O. . (2017). Mirror, mirror on the wall: a comparative evaluation of composite-based structural equation modeling methods. *Journal of the academy of marketing science*, 45, 616-632.
- Hair Jr, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2021). *Partial least squares structural equation modeling (PLS-SEM) using R: A workbook*. Springer Nature.
- Hamza, M. A., Rehman, S., Sarwar, A., & Choudhary, K. N. (2023). Is knowledge a tenement? The mediating role of team member exchange over the relationship of big five personality traits and knowledge-hiding behavior. *VINE Journal of Information and Knowledge Management Systems*, 53(1), 166-186.
- Henseler, J., Ringle, C. M., and Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance based structural equation modeling. . *J. Acad. Mark. Sci*, 43(1), 115-135. <https://doi.org/10.1007/s11747-014-0403-8>
- Hu, L. t., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural equation modeling: a multidisciplinary journal*, 6(1), 1-55.
- Huang, X., Xu, E., Chiu, W., Lam, C., & Farh, J.-L. (2015). When authoritarian leaders outperform transformational leaders: Firm performance in a harsh economic environment. *Academy of Management Discoveries*, 1(2), 180-200.
- Hubbart, J. A. (2024). Understanding and mitigating leadership fear-based behaviors on employee and organizational success. *Administrative Sciences*, 14(9), 225.
- Jordão, R. V. D., Novas, J., & Gupta, V. (2020). The role of knowledge-based networks in the intellectual capital and organizational performance of small and medium-sized enterprises. *Kybernetes*, 49(1), 116-140.
- Jordão, R. V. D., & Novas, J. C. (2017). Knowledge management and intellectual capital in networks of small-and medium-sized enterprises. *Journal of Intellectual Capital*, 18(3), 667-692.
- Joseph Jeyaraj, J., & Gandolfi, F. (2022). The servant leader as a critical pedagogue: drawing lessons from critical pedagogy. *International Journal of Leadership in Education*, 25(1), 88-105.
- Kamis, A., Saibon, R. A., Yunus, F., Rahim, M. B., Herrera, L. M., & Montenegro, P. (2020). The SmartPLS analyzes approach in validity and reliability of graduate marketability instrument. *Social Psychology of Education*, 57(8), 987-1001.
- Karadag, H., Sahin, F., & Bulut, C. (2025). When does intellectual capital enhance innovation capability? A three-way interaction test. *International Journal of Entrepreneurial Behavior & Research*, 31(2/3), 563-586.
- Karatepe, O. M., Aboramadan, M., & Dahleez, K. A. (2020). Does climate for creativity mediate the impact of servant leadership on management innovation and innovative behavior in the hotel industry? *International Journal of Contemporary Hospitality Management*, 32(8), 2497-2517.
- Khatrri, P., Dutta, S., Kumari, P., Duggal, H. K., Thomas, A., Cristillo, I., & Nobis, S. (2023). Modeling intellectual capital-based intrapreneurial ability of working professionals through

- servant leadership and self-efficacy. *Journal of Intellectual Capital*, 24(6), 1485-1505.
- Kianto, A., Cabrilo, S., & Hussinki, H. (2023). Futurizing intellectual capital theory to uncover pertinent and unexplored horizons. In *The future of knowledge management: Reflections from the 10th anniversary of the International Association of Knowledge Management (IAKM)* (pp. 67-90). Springer.
- Kline, R. (2011). *Principles and Practice of Structural Equation Modeling*, 3rd Edn. Guilford Press.
- Lumpkin, A., & Achen, R. M. (2018). Explicating the synergies of self-determination theory, ethical leadership, servant leadership, and emotional intelligence. *Journal of leadership studies*, 12(1), 6-20.
- Lv, W. Q., Shen, L. C., Tsai, C.-H. K., Su, C.-H. J., Kim, H. J., & Chen, M.-H. (2022). Servant leadership elevates supervisor-subordinate guanxi: An investigation of psychological safety and organizational identification. *International Journal of Hospitality Management*, 101, 103114.
- Malibari, M. A., & Bajaba, S. (2022). Entrepreneurial leadership and employees' innovative behavior: A sequential mediation analysis of innovation climate and employees' intellectual agility. *Journal of Innovation & Knowledge*, 7(4), 100255.
- Marr, B., Schiuma, G., & Neely, A. (2004). Intellectual capital—defining key performance indicators for organizational knowledge assets. *Business Process Management Journal*, 10(5), 551-569.
- Martin, S. L., & Javalgi, R. G. (2019). Explaining performance determinants: A knowledge based view of international new ventures. *Journal of Business Research*, 101, 615-626. <https://doi.org/10.1016/j.jbusres.2019.02.041>
- Moreno-Domínguez, M.-J., Escobar-Rodríguez, T., Pelayo-Díaz, Y.-M., & Tovar-García, I. (2024). Organizational culture and leadership style in Spanish Hospitals: Effects on knowledge management and efficiency. *Heliyon*, 10(20).
- Moreno-Dominguez, M. J., Escobar-Rodriguez, T., Pelayo-Diaz, Y. M., & Tovar-Garcia, I. (2024). Organizational culture and leadership style in Spanish Hospitals: Effects on knowledge management and efficiency. *Heliyon*, 10(20), e39216. <https://doi.org/10.1016/j.heliyon.2024.e39216>
- Oliveira, M., Curado, C., Balle, A. R., & Kianto, A. (2020). Knowledge sharing, intellectual capital and organizational results in SMES: are they related? *Journal of Intellectual Capital*, 21(6), 893-911.
- Onofrei, G., Nguyen, H. M., Zhang, M., & Fynes, B. (2020). Building supply chain relational capital: The impact of supplier and customer leveraging on innovation performance. *Business Strategy and the Environment*, 29(8), 3422-3434.
- Pellegrini, M. M., Ciampi, F., Marzi, G., & Orlando, B. (2020). The relationship between knowledge management and leadership: mapping the field and providing future research avenues. *Journal of knowledge management*, 24(6), 1445-1492.
- Putu Gede, S. (2024). PLS-SEM for Multivariate Analysis: A Practical Guide to Educational Research using SmartPLS. *EduLine: Journal of Education and Learning Innovation*, 4(3), 353-365. <https://doi.org/10.35877/454RI.eduline2861>
- Qiu, S., & Dooley, L. (2022). How servant leadership affects organizational citizenship behavior: the mediating roles of perceived procedural justice and trust. *Leadership & Organization Development Journal*, 43(3), 350-369.
- Rehman, S. U., Bresciani, S., Ashfaq, K., & Alam, G. M. (2022). Intellectual capital, knowledge management and competitive advantage: a resource orchestration perspective. *Journal of knowledge management*, 26(7), 1705-1731.
- Rezaei, F., Khalilzadeh, M., & Soleimani, P. (2021). Factors affecting knowledge management and its effect on organizational performance: Mediating the role of human capital. *Advances in Human-Computer Interaction*, 2021(1), 8857572.
- S.E. Embretson and S. Reise, L. E. A., Mahwah. (2004). Item Response Theory for Psychologists. *Qualilty of Life Research*, 13(1), 715-716.
- Sayyadi, M. (2019). How effective leadership of knowledge management impacts organizational performance. *Business Information Review*, 36(1), 30-38.
- Seleim, A. A. S., & Khalil, O. E. M. (2011). Understanding the knowledge management-intellectual capital relationship: a two-way analysis. *Journal of Intellectual Capital*, 12(4), 586-614. <https://doi.org/10.1108/14691931111181742>
- Serenko, A., & Bontis, N. (2022). Global ranking of knowledge management and intellectual capital academic journals: a 2021 update. *Journal of knowledge management*, 26(1), 126-145.
- Shahwan, T. M., & Fathalla, M. M. (2020). The mediating role of intellectual capital in corporate governance and the corporate performance relationship. *International Journal of Ethics and Systems*, 36(4), 531-561.
- Streukens, S., & Leroi-Werelds, S. (2016). Bootstrapping and PLS-SEM: A step-by-step guide to get more

- out of your bootstrap results. *European management journal*, 34(6), 618-632.
- Tehseen, S., Ramayah, T., & Sajilan, S. (2017). Testing and controlling for common method variance: A review of available methods. *Journal of management sciences*, 4(2), 142-168.
- Tran, Y. T., Chau, T. H. P., & Pham, Q. T. (2025). Transformational leadership and Firm Performance: The Mediating Roles of Innovation Capacity and Management Accounting Systems Usage. *Sustainable Futures*, 100988.
- Trong Tuan, L. (2017). Knowledge sharing in public organizations: The roles of servant leadership and organizational citizenship behavior. *International Journal of Public Administration*, 40(4), 361-373.
- Urbach, N., & Ahlemann, F. (2010). Structural equation modeling in information systems research using partial least squares. *Journal of Information Technology Theory Application*, 11(2), 2.
- Zada, S., Khan, J., Saeed, I., Jun, Z. Y., Vega-Muñoz, A., & Contreras-Barraza, N. (2022). Servant leadership behavior at workplace and knowledge hoarding: a moderation mediation examination. *Frontiers in Psychology*, 13, 888761.
- Zahoor, N., & Gerged, A. M. (2021). Relational capital, environmental knowledge integration, and environmental performance of small and medium enterprises in emerging markets. *Business Strategy and the Environment*, 30(8), 3789-3803.
- Zoghbi-Manrique-de-Lara, P., & Ruiz-Palomino, P. (2019). How servant leadership creates and accumulates social capital personally owned in hotel firms. *International Journal of Contemporary Hospitality Management*, 31(8), 3192-3211.

Appendix

Table (VIII): VIF Statistics for items

Items	VIF Statistics
SL1	1.496
SL2	1.542
SL3	1.555
SL4	1.506
SL5	1.527
SL7	1.406
KM4	1.631
KM5	1.663
KM7	1.575
KM8	1.851
KM11	1.792
KM12	1.691
KM13	1.900
KM14	1.866
KM15	1.777
HIC1	1.735
HIC2	2.142
HIC3	2.266
HIC4	2.214
HIC5	2.258
HIC6	1.911
HIC7	1.759
HIC8	2.294
HIC9	2.101
HIC10	2.096

HIC11	1.842
HIC13	2.802
HIC14	2.096
RIC1	1.647
RIC2	2.381
RIC3	1.835
RIC4	1.811
RIC5	1.727
RIC6	2.033
RIC7	1.947
RIC8	2.069
RIC9	1.744
RIC10	1.862
SIC1	2.005
SIC2	2.211
SIC3	1.635
SIC4	1.641
SIC5	1.702
SIC6	1.958
SIC7	2.358
SIC8	1.739
