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#### Abstract

Purposes-The Patients are considered Customers in the Healthcare sector. So, they expect high-quality services and the best employee performance. Patient's awareness of the service's excellence in healthcare is considered one of the main factors in measuring the service's quality. Therefore, this study aims to examine the link of the knowledge management process (KMP) with the performance of the employees in the health cluster of Hail. This study also focuses on the moderating role of smart technologies between the Knowledge management process and employee performance in the case of the Hail health cluster. Design/Methodology/Approach- Data was collected from the employees of Hail health cluster, Saudi Arabia. The sample size for the data analysis is 380, and data is gathered from May to August 2023 with the help of a well-structured questionnaire. Findings are extracted with the help of Smart PLS. Findings- The results of the current study illustrate that the knowledge management process has a positive relationship with employee performance. Smart technologies help to increase the KMP and further enhance the performance of employees working in the health cluster in Hail. Research limitation/implications- This study has comprehensively examined (KMP) as an independent variable influencing employee performance. Still, upcoming examinations can use other measurements of knowledge management, such as knowledge management capabilities, knowledge management practices, etc. Furthermore, this study is limited to the service sector, so future studies can use this model for the manufacturing sector to analyse the accuracy of the model. Originality/Value - This research explains the relationship between Knowledge management processes, employee performance and smart technologies in the healthcare sector. This study attracts this sector to use smart technology because the use of technologies not only increases the knowledge management process but also enhances the work abilities of employees. Based on the findings, this study has a unique contribution in the dust of studies related to knowledge management, such as no study to date conducted using a combination of these variables. This study is the best literature for policymakers, health management and researchers.

Keywords: Knowledge Management Process, Employee Performance, Smart Technologies, Saudi Arabia

# INTRODUCTION

In the current era of development, the Knowledge management (KM) uses different strategies and technologies to support management, such as databases, knowledge repositories, intranets, and collaboration platforms. Effective knowledge management play a significant role to enhance the quality if customer service, increase the innovation ability and productivity. Further, the KMP is one of the significant aspects of knowledge management for not only increasing the employee performance but overall performance of organization (Singh et al., 2020). Knowledge management processes in the healthcare sector emphasize the sharing and collaboration of knowledge among healthcare professionals to increase their performance. In other words, the internet, online discussion forums, training and knowledge-sharing sessions increase employee performance. Further, KMP has a goal to foster a culture of knowledge exchange and learning across the organization to make a good environment (Abdalla et al., 2023; Li et al., 2023; Walsh & Lannon, 2023)

The healthcare sector is very important in any country; in the case of the KMP, increasing employee performance in the healthcare sector of Saudi Arabia plays a vital role. For a couple of years, the management of Saudi Arabia has been more focused on the use of technology in the health sector. It increases the performance with good management strategies (Salvador et al., 2022). Technology is also essential for enhancing the organizational as well as employee's performance. Numerous technologies are part of health record systems, encompassing individual information and electronic treatment methods. Personal health tools,

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such as smart devices and apps, also greatly contribute to this landscape. Lastly, using technology facilitates communities where individuals can share and discuss health-related information (Hussain et al., 2019).

Furthermore, the purpose of technology in health care is to provide good facilities to the patients because the utilization of technologies helps to arrange the data of patients, enhancing healthcare delivery and enabling the analysis of this data for healthcare professionals and government agencies, including the Ministry of Health. Using technologies in medical clinics improves healthcare quality by providing accurate patient records and permitting physicians to know the patient's medical history (Kumar & Bano, 2017). The healthcare sector in the Saudi Arabia is also improving its healthcare system by adopting the technological devises and proving accessibility of medical facilities for all, employee performance and getting higher consumer satisfaction. The vision 2030 of Saudi Arabia has provided a new dimension and path way to all the sectors including health cluster of Hail for bringing innovation in production and services (Alasiri & Mohammed, 2022; Chowdhury et al., 2021). For all the achievements and a good management process is needed for implementation of Saudi vision 2030.

There are many studies that have explained the importance of KMP (Bloem & Salimi, 2023; Gonzalez & Martins, 2017; Obeso et al., 2020; Raudeliūnienė et al., 2018; Zaim et al., 2019), further (Al-Borie & Damanhouri, 2013) explain that the most vital problematic and arising issue towards several previous researches was concerned with the hospital's service from the patient's point of view, (Hensen et al., 2008) debate on the hospital's service evaluation from the point of view of health officer. (Ovretveit, 2014) studied quantity and quality of the health expert and resource (doctor, nurse, and other healthcare-related employee) but did not provide satisfactory consequences about the knowledge acquisition Further (Andaleeb, 2000; Swain & Singh, 2021) showed that patients expectation and warm interaction with a employees this study is specified to developing and developed countries.

Alonazi (2020) explained the employees performance in Hail healthcare cluster during covid by using emotional intelligence and used statistical analysis but did not explains anything about the administration about the knowledge management which is very essential for the employee performance. Adobor et al. (2019) investigate the knowledge management for the performance of public agencies. Still, this study is not socially desirable and has consistency bias because this study relies on self-report only. Imran et al. (2021) expose the relationship between knowledge management and organizational performance through a systematic review, but this review consists of only 106 articles. Therefore, the literature in this domain is significantly deficient, as it fails to provide an empirical indication of how knowledge management changes organizational performance. Fadaie (2023) explained the knowledge management is healthcare and collected the data of 211 employees; this study used the statistical software LISREL 8.8 to conduct structural equation modelling (SEM). But this study could not developed link with technology. Further (Alboliteeh et al., 2023)conducted a study on stability performance of Hail healthcare by taking KM as independent variable, data of 210 hospital managers were estimated in multi regression by using SPSS. The results of this study cannot be generalizable because of the exclusion of healthcare managers from private firms and there is non-identification of the participants' professions. Further study conducted by (Al Reshidi et al., 2023) explained the employee performance in Hail healthcare cluster mainly used nurses and limited to leadership behaviour, work environment but did not explained the technological aspects for increasing the performance of workers. So, on the bases of previous literature, current study developed some research questions such as

RQ1: What is the link between KMP and employee's performance in healthcare?

RQ2: What is relationship between the dimensions of KMP with employee's performance?

RQ3: What is the role of smart technologies as moderator between KMP, its dimensions with employee's performance?

Aforesaid, questions leads to the objectives of that study and the objectives of the study are, to find the link between KMP and employee's performance, to inspect the relationship between Knowledge acquisitions, Knowledge dissemination, Knowledge application, Knowledge sharing, Knowledge utilization Knowledge storage and Knowledge creation with employee performance in the healthcare sector of Hail, To investigate the moderating role of smart technologies between KMP as well as its dimension and employee's performance in the case of Hail health cluster. Moreover, this study lays down essential theoretical and practical foundations that can benefit various organizations and researchers, including those in the private sector, ultimately contributing to enhanced administrative knowledge.

# **REVIEW OF PREVIOUS LITERATURE**

# KM (Knowledge Management Process)

Organizations often overlook the significance of knowledge as a valuable asset, resulting in missed opportunities for creating and utilizing value. Companies can enhance their project performance by implementing effective knowledge management (KM) (Ayatollahi & Zeraatkar, 2020; Intezari & Gressel, 2017). Therefore, organizations need to leverage fully and regularly utilize KM by investing in its development, exploration, and utilization of resources (Aviv et al., 2021; Kassaneh et al., 2021).

Moreover, Knowledge management is a system that assists the management of an organization's knowledge and is often technologically based, enabling the creation and utilization of knowledge. While not all forms of KM rely on technology, many use it as a core enabler. The KM process includes acquiring, storing, creating, sharing, and applying knowledge to enhance organizational capacity and effectiveness(Migdadi, 2022). KM enables organizations to address project implementation challenges, engage in strategic planning, and make informed decisions. The primary function of KM is to leverage resources and knowledge assets, including technology and infrastructure, to improve project performance for companies (Webb, 2017; Hislo et al., 2018)

### **Employee Performance**

Employee performance refers to the actions and behaviours of employees while performing their assigned tasks or duties (Darvishmotevali & Ali, 2020; Kalogiannidis, 2020; Meyers et al., 2020). It is the output or outcome produced by employees within an organization (Folorunso et al., 2014) and is measured against the organization's standards, requirements, and expectations. Employee performance is influenced by their abilities, efforts, and perceptions of their tasks (Hee et al., 2016). It is vital in improving the organisation's productivity by improving task efficiency and effectiveness. When employees exhibit excellent performance, it results in high-quality work and increased productivity (Buil et al., 2019; Hee et al., 2019; Verghese, 2017).

### Smart Technology

Smart technologies encompass substantial devices or processes that complement the advanced features of digital transformation. According to (Yoo 2010), smart technologies are "digital artefacts", and They possess several remarkable features, including communicability, memorability, programmability, associability, and sensibility within physical devices. These attributes empower organizations to stay abreast of market dynamics and consumer preferences. The adoption of smart technologies has reached a significant level. People are increasingly utilizing advanced artificial intelligence structures in the form of digital assistants, and these digital assistants have substantially enhanced customer satisfaction (Munoz and Miller 2019).

High technological use levels can enable administrations to increase their effectiveness and productivity, reduce operational costs, enhance customer experience, and stay competitive (Wang et al., 2018). Hence, it is significant for any sector to continuously assess and develop its technological readiness to keep up with the ever-changing technological landscape (Saad et al., 2021).

# KMP (Knowledge management process) and EP (Employee's performance)

KM is an important aspect of administrative activities. It brings continuous innovation to the organization, which comprehends knowledge as the basic potential for instructive competence in that organisation's activity (Jokanović et al., 2020). Knowledge management generates competitive, strong points and benefits (Jokanović et al., 2020). Further, the Knowledge management process is the most influential driver for entrepreneurship and organisational success (Zaim et al., 2019). Effective KMP positively impacts employee performance in several ways, such as by providing the staff with access to appropriate knowledge acquisition and Knowledge application, Knowledge management process used to improve their ability to perform their jobs more

effectively and efficiently (Ouakouak et al., 2021; Sahibzada et al., 2022). Knowledge management processes create an environment where workers share their creative ideas and are expected to be engaged and motivated. Based on the above discussion, a subsequent hypothesis is developed.

H1: KMP is positively and significantly linked to employee performance in the Hail Health Cluster.

## KA (Knowledge Acquisition) and EP (Employee's Performance)

KA denotes gathering innovative knowledge and information from various sources, such as training programs, research, and external experts. Acquiring new knowledge and skills can positively impact employee performance (Al-Maroof et al., 2021). By acquiring new knowledge, employees can improve their ability to achieve job tasks commendably and professionally (Awan et al., 2021). For employee performance, knowledge acquisition improves employee confidence and job satisfaction (Chaubey et al., 2022) when employees feel they have the necessary knowledge and skills to perform their jobs well (Migdadi, 2022).

Knowledge acquisition is crucial to an employee's performance in the healthcare industry. Acquiring new knowledge allows healthcare professionals to enhance their clinical skills. This knowledge equips them to provide accurate diagnoses, deliver appropriate treatments, and make informed decisions, ultimately to get patient satisfaction (Alam, 2021). Further, Good communication skills are essential for delivering high-quality care and fostering the best treatment of patients (Angus, 2020). Based on the above discussion, the following hypothesis is developed

H1a: Knowledge acquisition has a positive and significant link with employee's performance

### KD (Knowledge Dissemination) and EP (Employee's Performance)

Knowledge dissemination refers to sharing knowledge and information throughout an organization to improve performance (De Luca & Cano Rubio, 2019). Effective knowledge dissemination can positively impact employee performance in several ways, such as by sharing knowledge and information; employees can learn from each other and leverage each other's expertise (Soares et al., 2021). KD lead to higher job satisfaction, better employee activities, and an encouraging work atmosphere (Chukwuemeke & Igbinedion, 2021; Dahiyat et al., 2023; Pietruszka-Ortyl et al., 2021).

Knowledge dissemination enables healthcare organizations to establish standardized workplace practices and guidelines (Pentland et al., 2011). By sharing best practices, protocols, and evidence-based guidelines, organizations ensure that employees follow consistent and quality-driven approaches to patient care. To promote efficiency, reduce errors, and improve patient outcomes(Abdalla et al., 2023). Dissemination of knowledge encourages innovation and research within healthcare organizations. By sharing research findings, innovative practices, and encouraging knowledge exchange, organizations stimulate employees' creativity and help generate new ideas(Wang et al., 2023). Furthermore, This activity leads to the development of novel treatments, procedures, and approaches to healthcare delivery. Based on the above discussion, the following hypothesis can be developed.

H1b: Knowledge dissemination has a positive and significant relationship with employee performance

### KAP (Knowledge application) and EP (Employee's performance)

KAP denotes using knowledge and information to resolve complications, make decisions, and perform job tasks efficiently (Yang et al., 2021). Effective knowledge application can positively impact employee performance (Banuari et al., 2021). Knowledge application leads to improved productivity, higher quality work, and better outcomes for the organization. Employees who apply knowledge about a customer's needs and preferences can provide better service and increase consumer gratification (Cavaliere et al., 2021; Tien et al., 2021). The knowledge application makes attraction between owners and workers, leading to increased engagement and perfection in their work (Andleeb et al., 2020). Based on the above discussion, the following hypothesis is developed

H1h: Knowledge application has a positive and significant link with employee's performance

## KSH (Knowledge sharing) and EP (Employee's performance)

Knowledge sharing involves exchanging information, experiences, and insights among workers, which helps increase awareness and improves task performance (Wang & Noe, 2010; Ha, 2020). Knowledge sharing provides healthcare professionals access to more information and perspectives. To help in making more informed and evidence-based decisions. By sharing their expertise, healthcare workers contribute to collective decision-making, resulting in better treatment plans, improved care coordination, and enhanced patient outcomes(Alonazi, 2021; Haldane et al., 2021; Islam et al., 2020). Effective decision-making driven by knowledge sharing has positively impacted employee performance. Further, Knowledge sharing leads to innovation and process improvement in healthcare (Alonazi, 2021; Islam et al., 2020). Employees sharing new ideas, research findings, or experiences can stimulate innovation in patient care, administrative processes, and technology implementation.

Knowledge sharing contributes to the development of a learning organizational culture in healthcare. When organizations prioritize knowledge sharing, they create an environment where employees feel encouraged and supported to exchange knowledge, seek feedback, and learn from each other. A strong knowledge-sharing culture enhances employee performance by promoting collaboration, innovation, and continuous improvement (Ahmed et al., 2020; Ardichvili et al., 2003). Based on the above discussion, the following hypothesis can be developed.

H1d: Knowledge sharing has a positive and significant link with employee's performance

### KU (Knowledge utilization) and EP (Employee's Performance)

Knowledge utilization is a critical component of the knowledge management process that focuses on applying and leveraging knowledge effectively to achieve organizational goals (Ye & Zhao, 2023). It involves using knowledge assets, information, and insights to drive decision-making, problem-solving, innovation, and performance improvement within an organization (Sahibzada et al., 2023).

Knowledge utilization supports efficient workflow and time management in healthcare (Zaim et al., 2019). When employees can access and apply relevant knowledge quickly, it reduces the time spent searching for information or reinventing the wheel. This allows healthcare staff to focus more on patient care, streamline processes, and optimize their time and resources(Estabrooks et al., 2003).

Knowledge utilization promotes collaboration and interdisciplinary communication among healthcare professionals(Estabrooks et al., 2008) because when knowledge is effectively shared and applied, it fosters a culture of teamwork, encourages the exchange of ideas and experiences, and enhances interdisciplinary collaboration. This collaboration, facilitated by knowledge utilization, can lead to more comprehensive and coordinated patient care. Knowledge utilization is crucial in quality improvement initiatives within healthcare centres(Yemaneh & Birie, 2017). By utilizing knowledge, employees can identify areas for improvement, implement evidence-based practices, and monitor outcomes(McHugh & Barlow, 2010). Based on the above discussion, the following hypothesis can be developed.

H1i: Knowledge utilization has a positive and significant link with employee's performance

# KS (Knowledge Store) and EP (Employee's Performance)

The knowledge store plays a crucial role in the knowledge management process as it serves as a central repository for storing and organizing knowledge assets. It provides a platform for employees to contribute their knowledge and experiences through documents, reports, presentations, and other formats(Sahibzada et al., 2023).

The knowledge store plays a significant role in enhancing employee performance in the healthcare industry. A knowledge store provides healthcare employees easy access to updated information, including clinical guidelines, best practices, research findings, and industry standards (Paul & Singh, 2023). This enables them to stay informed about the latest advancements in healthcare, evidence-based treatments, and emerging trends. By accessing reliable and current information, healthcare professionals can make more informed decisions and

provide higher-quality care (Du et al., 2016). It is a fact that when employees have access to standardized information, it promotes uniformity in clinical practices, reduces errors, and improves patient safety (Stewart, 2016). Based on the above discussion, the following hypothesis can be developed.

H1f: Knowledge store has a positive and significant link with employee's performance

## KC (Knowledge creation) and EP (Employee's performance)

Knowledge creation produces fresh information, gains insights, fosters novel ideas, or enhances understanding. It encompasses converting data and pre-existing knowledge into original knowledge forms that can potentially address challenges in decision-making, drive innovation, and further comprehension across diverse domains (Sa et al., 2020).

Knowledge creation in the health sector significantly impacts employee performance and patient care quality. Knowledge creation in the form of medical research, clinical trials, and systematic reviews contributes to evidence-based practice. Moreover, Healthcare professionals actively create knowledge and stay updated with the latest research findings and evidence-based guidelines (Juvonen et al., 2022; Nonaka & Von Krogh, 2009; Sa et al., 2020). Applying this knowledge in their practice improves their decision-making, enhances treatment outcomes, and ultimately enhances employee performance (Sa et al., 2020). Healthcare professionals engaged in knowledge creation can contribute to educational initiatives, such as training programs, workshops, or teaching in academic settings. Further, knowledge creation is also connected to sharing knowledge because by sharing their knowledge with colleagues, students, and the wider healthcare community, they enhance their understanding and contribute to the development of future healthcare professionals (Haldane et al., 2021).

H1c: Knowledge creation has a positive and significant link with employee's performance

### ST (Smart technology) as Moderator

Smart technology increases internal and external collaboration in the organization and is crucial for novelty in the production procedure (Yoo et al., 2010; Kallimikos et al., 2013). The ST is the best gauge of the digital revolution in the productive, which upsurges the overall organizational novel production progression. The technological revolution enlarges organizational performance extensively by providing innovative strategies and techniques in production procedures (Chege et al. 2020). Current research has created subsequent hypotheses based on the discussion above

Knowledge management requires various technologies and tools to acquire, store, disseminate, and apply knowledge within an organization (Hock-Doepgen et al., 2021). Technology can streamline and automate many knowledge management processes, leading to a more efficient and effective process. However, knowledge management applications' success depends on employees' technology readiness. Technologically ready employees are more likely to use technology effectively to access and apply knowledge (Ouakouak et al., 2021; Sahibzada et al., 2022). Conversely, workers who are not technologically ready may struggle to use technology tools and may not fully benefit from knowledge management practices (Chen et al., 2021; Jafari-Sadeghi et al., 2021). Consequently, employees' technology readiness can strengthen or weaken the link between KMP and EP (Chen et al., 2021; Jafari-Sadeghi et al., 2021). Organizations that invest in developing employees' technology readiness can increase the likelihood of successful knowledge management practices and ultimately improve employee performance (Mahendrati & Mangundjaya, 2020).

Further, Technology plays a crucial role in improving knowledge accessibility. It enables the creation of digital platforms, databases, and knowledge management systems that facilitate easy and quick access to information (Deng et al., 2023). Organizations can ensure that knowledge resources are readily available by providing employees with the necessary technological tools, such as computers, internet access, and relevant software (Clarke III et al., 2001). Further, more technology is crucial in facilitating knowledge creation within organizations. It provides the tools and platforms for collaboration, communication, and information sharing, enabling employees to generate new knowledge and ideas (Plessies, 2007; Cross et al., 2003).

Technologies such as collaborative workspaces, project management software, and virtual communication tools enhance the exchange and co-creation of knowledge among employees (Kazemian & Grant 2022). The level of technology inclination among employees influences their ability to utilize technology for knowledge sharing effectively. Employees with high technology readiness possess the necessary digital skills, confidence, and familiarity with technology tools. The technology leverages communication platforms, social networks, and knowledge management systems to share knowledge, collaborate with colleagues, and contribute to collective learning (Blut & Wang 2020: Chang & Chen 2021). Based on the above discussion, the following hypotheses are developed

H3: ST moderate the relationship between KMP and EP

H3a: ST moderate the relationship between KA and EP H3b: ST moderate the relationship between KD and EP. H3c: ST moderate the relationship between KAP and EP H3d: ST moderate the relationship between KS and EP H3e: ST moderate the relationship between KU and EP H3f: ST moderate the relationship between KC and EP

On the basis of the above discussion, a subsequent conceptual framework is established.



Figure 1: Conceptual framework

Source: Developed by author

## METHODOLOGY AND DATA COLLECTION

### Sampling and Method of Data Collection

Data for the current study is collected by a convenient sampling method. The aim of convenience sampling is the accuracy of results (Kianto et al., 2018). The target population for the data was hospitals from Hail, Saudi Arabia. This is a north-western city and capital of Hail Region, Saudi Arabia, with a population of 605,930 (est-2018). This study collected data from famous public and private from Hail City. Big public hospitals include Hail General Hospital, King Khalid Hospital, King Salman Specialist Hospital, Maternity and Children Hospital, Ashraf Hospital. For the data collection, a questionnaire was developed with questions relevant to the study's objectives. After developing the questionnaire, it was presented to three experts with good knowledge in this area of research; they confirmed the validity of the questionnaire after deep discussion and verification.

Further, a permission letter was developed to get permission for data collection from the administration of each healthcare centre. It was ensured that data was collected for educational purposes, and no name of the hospital or employee would be mentioned. Further, 550 questionnaires were distributed via electronic mail and personal visits from May to August 2023. After the distribution, in return, we received 380 valid questionnaires. So, the response rate was 69 per cent.

Variables	Classification	Frequency	Percentage
	Male	280	73.6
Gender	Female	100	26.3
	More than 30	42	10.9
A	23 to 30	110	28.4
Age in years	31-40	137	35.4
	Above 40	91	23.9
	> 1	48	12.4
	2 to 6	81	21.3
Job Experience in years	6 to 10	71	18.3
5 1 5	11 to 16	100	26.3
	16 <	80	20.7

Table 1: Profile of participants (N = 380)

### Measurement

### Knowledge Management Process (KMP)

Measurement items for the KMP are adopted from (Kun, 2022; Shannak et al., 2017). This questionnaire consists of three components of the KMP, knowledge acquisition, dissemination, application, storage, share creation and utilization.

### **Employee's Performance**

Employee performance can be defined as the productivity, efficiency, and effectiveness level with which an employee completes their assigned tasks and responsibilities within a given period. In this study, the items for the employee's performance are adopted from a study developed (Siddiqi & Tangem, 2018)

### ST (Smart technologies)

The ST is a very important variable in this study. The acts as a moderator, and it is measured six times by (Nasiri et al., 2020)

All variables are measured on five Likert scale where 1 strongly disagrees and 5 strongly agreed

### Data analysis

The current study used SmartPls and applied SEM test to analyse data. First of all, a measurement model was conducted for extracting the values of Cronbach alpha values (CA), composite reliability (CR) average variance

extracted (AVE) and Heterotrait-Monotrait (HTMT) ratio. Furthermore, the theoretical model was investigated by analyzing the discriminant validity (DV) and correlation. Moreover, common method bias was used, such as "variance inflation factor (VIF), coefficient of determination (R2), effect size (F2), predictive relevance (Q2), and standardized root mean square residual (SRMR)."

### FINDINGS

### Measurement Model

Cronbach alpha explains the reliability of the measurement items adopted in the current research. The comprehensive analysis of all variables indicates that this study falls within the acceptable construct validity range, as Hair et al. (2011) recommended, with coefficients ranging from 0.7 to 0.9. The Composite Reliability (CR) values, as presented in Table 2, signify the inner reliability. Following the guidelines by Khan et al. (2017), the CR value must meet or exceed the threshold level of 0.7.

Furthermore, the Average Variance Extracted (AVE) within the data measurements elucidates how much a variable relates to other variables. As Fornell and Larcker (1981) outlined, the convergent validity threshold should be a minimum of 0.50. In table 2, all the Alpha, AVE and Cr values met the threshold level, indicating that the measurement model results fit well.

Latent	Items	Factor Loadings	Alpha	AVE	CR
Knowledge acquisition	KA 1	0.885	0.958	0.751	0.964
(KA)	KA 2	0.902			
	KA 3	0.803			
	KA 4	0.791			
	KA 5	0.753			
	KA 6	0.868			
Knowledge dissemination	KD 1	0.912	0.941	0.681	0.813
(KD)	KD 2	0.823			
	KD 3	0.821			
	KD 4	0.761			
Knowledge application	KAP 1	0.799	0.616	0.731	0.813
(КАР)	KAP 2	0.761			
	KAP 3	0.881			
	KAP 4	0.891			
Knowledge Sharing	KSH 1	0.888	0.810	0.831	0.638
(KSH)	KSH 2	0.721			
	KSH 3	0.632			
Knowledge Utilization	KU 1	0.771	0.821	0.764	0.698
(KU)	KU 2	0.642			
	KU 3	0.681			
Knowledge store	KS 1	0.761	0.832	0.821	0.762
(KS)	KS 2	0.841			
	KS 3	0.763			
	KS 4	0.635			
Knowledge creation	KC 1	0.622	0.801	0.831	0.792
(KC)	KC 2	0.723			

#### Table 2: Measurement model

Role of Knowledge Management Process in Fostering Employee Performance: Assessing the Moderating Effect of Smart Technologies

	KC 3	0.732			
	KC 4	0.761			
Smart Technologies	ST 1	0.634	0.791	0.315	0.782
(ST)	ST 2	0.681			
	ST 3	0.791			
	ST 4	0.813			
	ST 5	0.746			
	ST 6	0.694			
Employee performance	EP 1	0.791	0.812	0.619	0.819
(EP)	EP 2	0.862			
	EP 3	0.842			
	EP 4	0.812			
	EP 5	0.836			
	EP 6	0.813			
	EP 7	0.842			

Table 3: Discriminant validity (Fornell and Larcker criterion)

	KMP	EP	ST
KMP	0.786		
EP	0.561	0.789	
ST	0.623	0.634	0.812

Note: KMP (knowledge management process, ST (smart technology), EP (employee performance)

In table number 3, discriminant validity is checked, which is recommended by following the Fornell Larcker criterion. The finding from this result indicates that the model is valid based on current values and the entire variables are truly distinct from each other.

The VIF,  $R^2$ ,  $F^2$ ,  $Q^2$  and SRMR are indicated in table 4. The outcomes of the current study reveal that the coefficient of determination ( $R^2$ ) for ST is 0.124, and for EP, it is 0.158. These  $R^2$  values signify that the research framework is a favourable fit and possesses predictive capabilities. Additionally, the magnitude of the effect is elucidated by the  $F^2$  statistic. Specifically, a value of 0.02 denotes a small influence, 0.15 signifies a moderate influence, and 0.35 indicates a strong influence, as outlined by Henseler et al. (2016). In this context, ST is associated with a small effect (0.025), while EP demonstrates a medium influence with a value of 0.312. Furthermore, the inclusion of  $Q^2$  in the model explains predictive power out-of-sample. The  $Q^2$  should be greater than 0. So, the values are 0.241 for ST and 0.261 for 0.261. Ultimately, the Standardized Root Mean Square Residual (SRMR) is indicative of the model's goodness of fit, with the stipulation that the SRMR should be below the threshold of 0.08, as recommended by Cho et al. (2020) and Henseler et al. (2016). Moreover, this investigation reveals that the SRMR value for our model stands at 0.071, comfortably falling beneath the prescribed threshold, affirming the model's statistical significance and strong fit.

Table 4	Saturated	model	results
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Construct	R <sup>2</sup>	Adjusted R <sup>2</sup>	VIF	$Q^2$	$F^2$	SRMR
ST	0.124	0.158	1.376	0.241	0.025	0.071
EP	0.564	0.437	1.261	0.261	0.312	0.071

### Structural Model

Table 5 of the study explains the structural model. This table consists of the results of the Knowledge management process (KMP) with its dimensions, employee performance (EP) and smart technologies (ST). Hypotheses during the analysis are accepted based on "p" values. Values of "p" of all the variables meet the

threshold level of the probability values which is 0.05. So, the H1 hypothesis is accepted where  $\beta = 0.213$  and p = 0.000. Whereas the beta values of its dimensions, such as knowledge acquisition, dissemination, application, store, share creation and utilization, are  $\beta = 0.332$  and p = 0.002,  $\beta = 0.251$  and p = 0.000,  $\beta = 0.141$  and p = 0.000,  $\beta = 0.235$  and p = 0.006,  $\beta = 0.134$  and p = 0.008,  $\beta = 0.130$  and p = 0.004 and  $\beta = 0.151$  and p = 0.000. Further, the H2 hypothesis is also accepted  $\beta = 0.196$  and p = 0.004. Thus, results support that all hypotheses are accepted with dimensions; therefore, the model is a good fit.

Hypotheses	Relationship	Beta	Standard error	t-value	p-value	Verdict
H1	KMP -> EP	0.213	0.082	3.761	0.000	Supported
H1a	KA -> EP	0.332	0.075	2.617	0.002	Supported
H1b	KD -> EP	0.251	0.039	2.191	0.000	Supported
H1c	KAP -> EP	0.141	0.012	3.101	0.000	Supported
H1d	KS -> EP	0.235	0.015	3.194	0.006	Supported
H1e	KSH -> EP	0.134	0.016	3.161	0.008	Supported
H1f	KC -> EP	0.130	0.057	2.651	0.004	Supported
H1g	KU -> EP	0.151	0.031	2.101	0.000	Supported
H2	ST -> EP	0.196	0.066	2.969	0.004	Supported
Н3	KMP -> ST -> EP	0.161	0.023	2.717	0.006	Supported
H3a	KA -> ST -> EP	0.141	0.050	2.826	0.000	Supported
H3b	KD -> ST -> EP	0.171	0.030	5.732	0.000	Supported
НЗс	KAP -> ST -> EP	0.231	0.019	4.312	0.004	Supported
H3d	KS-> ST -> EP	0.234	0.026	3.561	0.006	Supported
НЗе	KSH-> ST -> EP	0.810	0.031	2.461	0.007	Supported
H3f	KC -> ST -> EP	0.317	0.038	2.150	0.009	Supported
H3g	KU -> ST -> EP	0.358	0.231	2.164	0.005	Supported

Note: KMP (knowledge management process, ST (smart technology), EP (employee performance), KA (knowledge acquisition), KD (knowledge dissemination), KAP (knowledge application), KS (knowledge store), KSH (knowledge share), KC (knowledge creation) and KU (knowledge utilization)

Role of Knowledge Management Process in Fostering Employee Performance: Assessing the Moderating Effect of Smart Technologies



Figure 2: Smart technology moderates the relationship between knowledge Management process and employee's performance



Figure 3: Relationship between knowledge Management process and employee's performance moderated by smart technologies

# DISCUSSION

This study has empirical, practical, and theoretical importance for increasing employee work performance in the healthcare sector with the help of the knowledge management process. Current study tries to find out the relationship between very important aspects of knowledge management, such as the knowledge management process with its 7 dimensions: KMP (knowledge management process, ST (smart technology), EP (employee performance), KA (knowledge acquisition), KD (knowledge dissemination), KAP (knowledge application), KS (knowledge store), KSH (knowledge share), KC (knowledge creation) and KU (knowledge utilization). Current research also applied a moderator to make the strong relationship between KMP and EP, which is Smart technologies in the healthcare sector. Based on previous literature, some hypotheses are developed and analyzed with the help of Smart Pls tools.

Based on the analysis, the H1 hypothesis is accepted, which explains the KMP has a significant relation with EP in health care centres in Hail health clusters. KMP are designed to create, capture, store, and share knowledge within an organization, and when implemented effectively, they can have several benefits that positively impact employee performance. Further, the results explain that the dimensions of the KMP help

make the employees of any healthcare sector more active in using creative minds. Such as Knowledge creation involves continuous learning and exploration. Employees who actively participate in knowledge-creation activities, such as attending conferences, conducting research, or collaborating on projects, expand their knowledge base and acquire new skills (Sa et al., 2020). This continuous learning enhances their expertise and capabilities, improving job performance(Cao et al., 2021; Pinheiro et al., 2020).

Furthermore, knowledge sharing also contributes to performance by increasing job satisfaction and innovation when workers share knowledge (Hoa et al., 2020). Workers share their acquired knowledge with others within the organization to accomplish various tasks, enabling less experienced workers to benefit from their expertise. For the employee's performance the knowledge acquisition improves employee confidence and job satisfaction (Chaubey et al., 2022) because when employees feel that they have the necessary knowledge and skills to perform their jobs well, they are more likely to be engaged and motivated in their work (Migdadi, 2022).

The current study also accepted the hypothesis about the moderation of smart technologies in the healthcare cluster to make a strong relationship between KMP and EP. Leveraging technology can streamline and automate numerous knowledge management procedures, resulting in a more efficient and productive framework. Nevertheless, the efficacy of implementing knowledge management also hinges on the technology readiness of the workforce. Employees with a high level of technological readiness are likelier to utilize technology to access and apply knowledge adeptly (Ouakouak et al., 2021; Sahibzada et al., 2022). Conversely, employees lacking smart technology may encounter difficulties in harnessing technological tools and may not fully capitalize on the advantages offered by knowledge management methodologies (Chen et al., 2021; Jafari-Sadeghi et al., 2021). Moreover, If employees have easy access to relevant and up-to-date knowledge, they can make better-informed decisions, solve problems more effectively, and perform their tasks more efficiently (Kim et al., 2020).

# THEORETICAL IMPLEMENTATION

There are many theoretical aspects of the current study. These aspects make the foundation of the current study more strong and make it unique. First, current research has developed a relationship between KMP, EP and ST, the combination of these variables has never been used before to expose the performance of workers in any industry. Secondly, seven dimensions of the KMP are used to see the effect on employee performance. Third, this study has focused on the health cluster of the Hail in Saudi Arabia.

Further, current research selected smart technologies as moderators in the current model. Previous studies have always ignored the use and importance of Smart technologies. So, the findings from this study will be very beneficial to the Saudi government, health management and policy markers to increase the performance of the health sector by increasing workers' performance.

# PRACTICAL IMPLEMENTATION

The KMP provides evaluation and continuous Improvement in any sector. This study try to urge the Healthcare centres for regularly evaluating the effectiveness of knowledge management initiatives and processes. This may involve measuring the impact of knowledge utilization on patient outcomes, conducting audits, and collecting feedback from healthcare professionals to identify areas for improvement and refine knowledge management strategies. Further, knowledge management involves actively capturing knowledge from various sources within the healthcare centre, including medical research, clinical expertise, patient data, and best practices. It may involve documentation, data collection, and knowledge elicitation techniques.

Current analysis of study explains that the technologies in healthcare improve the quality of healthcare delivery, increase patient safety, decrease medical errors, and strengthen the interaction between patients and healthcare employees. This study explains that the use of smart technologies in healthcare can be very beneficial. For example, utilizing technology within medical clinics enhances the quality of healthcare delivery by ensuring the availability of precise patient records, enabling physicians to gain deeper insights into the patient's medical background. Possessing a comprehensive patient history equips doctors with the tools to provide more precise treatment for conditions and reduce the risk of over-prescribing medications, a potential hazard to patients. The absence of technologies in healthcare can damage medical records.

Therefore, the results of current study indicates that healthcare providers would have to rely solely on patients' memory, which may result in inaccuracies due to forgetfulness, intricate drug names, and the impact of various ailments on patients' recollections. The study provides the pathway to the management and health ministry for using the concept of KMP and facilitation the stakeholders with smart technologies. This strategy also contribute to enhance the performance of employee not only doctors but also workers in the healthcare center.

### LIMITATION AND FUTURE DIRECTION

This study resembles a masterpiece within the context of management. Nevertheless, it is worth acknowledging that certain constraints related to time and geographical scope have existed. Paradoxically, these limitations provide valuable guidance for future research endeavours. Primarily, this study concentrated on a specific time frame within Saudi Arabia, potentially yielding distinct results if conducted at different times or within alternative organizations or economies. The uniqueness of cultures within diverse organizations or countries could significantly influence the research and its resultant findings (Le, 2021). Second, the study's sample size is limited, and future research can enhance this model by employing a larger sample size. Third, this study selected a healthcare cluster of just the Hail region. Still, I would suggest that future studies consider extending the scope of research to encompass both the public service and industrial sectors within the same model to observe empirical results.

Additionally, this study has provided a comprehensive examination of Knowledge Management Practices (KMP) as an independent variable influencing employee performance. Still, upcoming examinations can use other measurements of knowledge management, such as knowledge management capabilities, knowledge management practices, etc. or can use the knowledge management process as the moderator or dependent latent. Despite these limitations, this study still has substantial effects that can increase the employee's performance and make it more supportable.

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