The Impact of Knowledge Management Process and Approach on Innovation Performance: A Case Study of Telekom Malaysia

Ap-Azli Bunawan and Nur Ardilla Fathin Ahmad Sham

School of Information Science, College of Computing, Informatics and Mathematics, Universiti Teknologi MARA (UiTM), Puncak Perdana Campus, Selangor, Malaysia.

DOI : https://dx.doi.org/10.47772/IJRISS.2024.805173

Received: 01 May 2024; Revised: 21 May 2024; Accepted: 25 May 2024; Published: 24 June 2024

ABSTRACT

The paper aims to examine the effect of knowledge management processes (knowledge acquisition, knowledge sharing and knowledge utilization) and knowledge management approaches (codification strategy and personalization strategy) on innovation performance in Telekom Malaysia. Quantitative research has been used as a research approach for the study. Data was collected through an online questionnaire. Out of 172 questionnaires distributed, 172 were returned with a 100 percent response rate. A Partial Least Square approach of Structural Equation Model (PLS-SEM) was used to examine the research hypothesis, and a path coefficients analysis was conducted, in addition to descriptive statistics that provide a background about the respondents. The analysis showed that there is a significant and positive impact of knowledge management processes (knowledge sharing & knowledge utilization) on innovation performance in Telekom Malaysia, as well as a significant and positive effect of personalization strategy approaches on innovation performance, whereas the knowledge process (knowledge acquisition) and (codification strategy) does not. This study contributed new insights to our present understanding of the impact of knowledge management processes and approaches on innovation performance in the telecommunications industries. With the help of these contributions, Telekom Malaysia can implement the proper knowledge management and practises in order to make better decisions in many ways of innovation performance. Although there are several sorts of innovation, all of them contribute to the generation of new knowledge within the organization

Keywords: knowledge management, knowledge acquisition, knowledge sharing, knowledge utilization, knowledge codification, tacit knowledge, explicit knowledge, codification strategy, personalization strategy, innovation, innovation performance

INTRODUCTION

In the middle of the tenth decade of the 20th century, an increasing number of scholars and organisation leaders began to recognise the significance of knowledge to organizations. Environment conditions that are unpredictable, rapidly changing, and difficult to forecast encourage organisations to focus on their competitiveness, which is crucial to their success, market position, and survival. Success, appeal, and market position of an organisation are highly dependent on its selected strategy and implementation, which are inextricable from the processes of information data system and knowledge expansion. Nowadays, knowledge is power and in the right hands, it can be a weapon. Accoding to Bazimya (2023), knowledge is power, and it is through stakeholder knowledge that a project can be implemented successfully without any hiccups. The fact that knowledge does not expire means that it can be applied in a variety of situations. Knowledge has always been a valuable asset for individuals and thus for organisations. (Nonaka and Takeuchi, 1995). Knowledge management is a process that reflects strategies for the acquisition and creation of knowledge, either externally or internally, sharing the preserved knowledge within an organisation and the application of knowledge. (Nonaka, I., & Toyama, R, 2003; Alavi, M., & Leidner, D., 2001).

Unexpected and imprecise events, as well as surprising obstacles, are increasingly confronting organisations. Adapting to the shifting business environment, organisations must modify their enterprises and behaviours, transforming challenges into opportunities for development and expansion. Due to the global pandemic Covid-

19 has disrupted markets and services ecosystems, impacting the services sector and the way service business operate. Telekom Malaysia Berhad (TM) was established in 1984 and is the largest telecommunications organisation in Malaysia. Telekom Malaysia is a telecommunications business that provides broadband, data, and fixed-line communication services and solutions. Due to the pandemic, the telecommunication industry also suffered and has had to adapt and begin working in new ways (virtual work environment). For example, the back-office operations (administration) of some essential service providers had to undergo rapid transformations in order to originate a virtual work environment while keeping their businesses running. Telekom staffs, are currently facing a massive process of transformation and scrutiny of their functioning model. Telekom staffs, are being forced to adapt to changing conditions into a new virtual work environment and also to forced transformation for past two years. Services providers were totally unprepared, exacerbating the challenges of operating a services business and its employees. (Carvale and Hatak, 2020). One of the most useful solutions that can be adopted in order to survive and to be successful in a society dominated by knowledge, is to implement a knowledge management process.

Previous research studies (Baro, 2008; Andreeva and Kianto, 2012; Shannak et al., 2012; Obeidat and Abdallah, 2014) demonstrated that the significance of knowledge as a part of organizational assets is growing, as it has a positive impact on gaining a competitive advantage and enhancing innovation, which leads to an organizational excellence. The impact of KM processes and approaches on innovation has been studied by several researchers separately. However, there are a number of reasons why this study is significant and unique. Therefore, the aim of this study is to find out the impact of knowledge management on innovation performance in organizations Telekom Malaysia.

STATEMENT OF PROBLEM

2.1 Skills-based transfer difficulties

Managing knowledge is important to a company, similar to managing other assets. Among many aspects of knowledge management, knowledge transfer is the crucial one. (Penmasta et al., 2022). Experts are hard to find, and the skills takes longer times to acquired or transfer. Trust is one of the critical factors that have a strong influence on individuals to share knowledge. (Penmasta et al., 2022). Even though TM employees had different study backgrounds, without enough time, the knowledge either became leveraged or lost with the expert. Usually, workers acquire new skills through training, but by codifying as a learning process can save the cost of providing training. When employees have expertise in a particular field, they codify their knowledge, so that everyone can reuse the knowledge without attending training. The knowledge shall go through the reliability evaluation process so that it becomes a reliable source. Besides , training is unworthy for short-term employees. Hence, this results in poor quality products or services.

Another obstacle that will negatively affect knowledge transfer is the absence of rewards or recognition inside an organisation. Without incentives or recognition, employees are not motivated to share their expertise with new team members, according to (Davidavičienė et al., 2020). Another significant knowledge transfer barrier is individuals' belief that if they transfer their expertise, they would lose their authority or influence inside the organization. Losing ownership, a position of privilege and superiority are essential factors that may influence knowledge transfer in the organization. Individuals who believe “knowledge is power” may not be willing to give out their knowledge (Asrar-ul-Haq & Anwar, 2016)

2.2 No implementation of knowledge management (No knowledge repositories)

Knowledge management is emphasised as a critical and fundamental component of organisational survival and competitive success. Hence, knowledge management is critical since it improves an organization's decision-making ability. Transformational leaders have the power to inspire members to contribute to effective knowledge management performance by having a shared vision and subsequently spur motivation (Espita & Guhao, 2022). On top of that, by ensuring that all employees have access to the organization's collective experience, a more intelligent workforce is developed that is capable of making timely, educated decisions that benefit the organization. Unfortunately, Telekom Malaysia does not practise knowledge management in their organization. There is less proper documentation/sop for every technical experience or issue that occurs at the

management level. Only the person in charge might have the knowledge required, making the management a long-term position each time an issue arises. Any potential advantages from reusing previous experience are squandered. When search functionality is insufficient, outdated, or irrelevant, a knowledge management problem arises. Changing and restructuring in the organisation is done when management sees the performance of a division is declining or no improvement. These changes are made to increase the efficiency of a process by making changes to work processes, methods, and also the employees responsible for the task. It will also involve a change in responsibilities and duties for the employees involved with the restructure. These changes will affect the factor of employee readiness in the face of any new changes. When it involves the restructuring of units and the need for new knowledge due to being assigned a new task, many employees do not cooperate in restructuring the organisation. Although with this restructuring, it can help employees to diversify their knowledge and skills, but many prefer to stay in the same division and task. Acquiring new knowledge is difficult for them when there are no KM resources available.

The codification strategy has shown a positive impact on employee readiness to change (Rahi and Alghizzawi, 2021). Based on their analysis, shows that codification strategy has the largest impact in determining employee readiness to change. When there is support from management by providing a KM platform where the process of codifying knowledge as a centre, employees feel more confident to face the challenges of change. The right knowledge management tool can typically address this problem. Despite, according to Vafaeinejad (2023) which cited Nazari et al., (2022) stated that business intelligence is an artificial intelligence system, and as a knowledge management tool, creates and uses what is very vital for today's organizations. Therefore, it is crucial to invest in an efficient, well-designed knowledge management platform that may assist the organization in overcoming these obstacles.

RESEARCH OBJECTIVE

RO1: To examine the current activity of innovation performance of knowledge management at Telekom Malaysia.

RO2: To analyze the related variables of innovation performance of knowledge management activity at Telekom Malaysia

RO3: To propose a framework of innovation performance that relates to Knowledge Management activity at Telekom Malaysia.

LITERATURE REVIEW

Knowledge management is a process that reflects strategies for the acquisition and creation of knowledge , either externally or internally, sharing the preserved knowledge within an organisation and the application of knowledge. (Nonaka, I., & Toyama, R, 2003; Alavi, M., & Leidner, D., 2001). Knowledge management can also defined as processes required for generating, capturing, codifiying and transfering the knowledge within an organization, so that the organization can gain competitive advantages (Beccera-Fernandez, 2004). Knowledge acquisition, knowledge sharing or transfer, and knowledge use or application are the three main activities of knowledge management (Tiwana, 1999; Ling et al., 2009; Lin et al., 2012). According to Ling et al. (2009), organisations must ensure that they acquire, share, and utilize the maximum possible knowledge in all areas of work, as well as integrate their expertise in their operations, in order to enhance innovation. Palacios et al. (2008, p. 292) defined KM is defined from two perspectives: principles and practises:

Knowledge management is a management tool characterized by a set of principles along with a series of practices and techniques through which the principles are introduced, the aim of which is to create, convert, disseminate and utilize knowledge.

According to Sexton, J. C. (2012) knowledge creation results from the transfer and leveraging of knowledge within the organisation. Thus, organisations are very concerned with the generation and management of knowledge in order to improve their organisational performance. Individuals' tacit knowledge is at the centre of the knowledge creation process, and it is mobilised "through dynamic 'entangling' of diverse modes of

knowledge conversion" in an upward spiral process, according to Nonaka, 1994. Futhermore, the concept of knowledge by 'coming to know' is built on the concepts of learning, knowing, and becoming. The knowing that is inherent in learning is viewed as an evolving, dynamic, dialectic, and continual process of experiencing, learning, and sense making. Throughout this process, the individual transforms and 'becomes' as a result of new understandings, meanings, and viewpoints that emerge. (Starken, K. , 2013 & Jakubik, M, 2011). In order to capture the process of knowledge creation, Zhang, W. and Zhang, W. (2018) suggest that knowledge sharing among organisations can stimulate knowledge generation and boost their competitiveness. According to Heffner, M. and Sharif, N. (2008), the most competitive organisations are those who can learn to integrate learning processes, including knowledge creation, into day-to-day operations and management. However, collecting activities allow individuals to externalise and communicate their knowledge, as well as access the organisational knowledge base and internalise the explicit information provided by other organisation members. The utilisation of information technology, particularly the internet and KM tools for knowledge sharing and transfer, can provide value to the organisation (Vorakulpipat, C. and , 2008). In addition to creating and embedding digital resources, knowledge repositories enable knowledge articulation and contribution to an organization's knowledge base. Search engines for knowledge repositories help users find digital resources and use previously made explicit organisational knowledge. As a result, the better organisations will execute individual knowledge creation, the more effectively individuals manage representations of organisational information and the easier this process is. (Kaschig, A., Maier, R., & Sandow, A., 2016).

4.1 Knowlegde Management Strategy (Approach)

Powell and Ambrosini (2012) proposed a KM approach known as the pluralistic approach to KM, which resulted in knowledge searchers using KM systems for more general knowledge and subsequently requesting specialised knowledge from peers. Based on an organization's emphasis on the type of knowledge (explicit and tacit), knowledge management strategies can be categorised as codification or personalization strategies (Burn et al., 2012). Codification strategy is a "people-to-documents" strategy that requires securing explicit knowledge in the form of a database so that others can readily access and use it (Hansen, Nohria, & Tierney, 1999). The codification strategy relies on technology, systems, and procedures to describe and codify an organization's knowledge and experiences, thereby transforming tacit organisational knowledge into explicit form. This strategy aims to establish a knowledge repository or databases within the organization to which all members will have easy access to search for and acquire the knowledge they need for their work without needing to contact the person who created it. (Ngoc Thang & Anh Tuan, 2020). Personalization strategy is a "person-to-person" knowledge management method based on providing personalised services. This strategy emphasises conversations between persons rather than database-stored knowledge (Greiner, Bohmann, & Krcmar, 2007). Furthermore, the personalization approach codifies social networks rather than contacting someone within a social network, since he/she would consult the personalization tool and contact the ideal individual for the necessary knowledge. A personalization strategy, on the other hand, emphasises interaction and direct knowledge sharing between individuals within an organisation. In this method, information is transmitted through face-to-face interactions. This strategy is based on the formation of social networks within teams and is made possible by mentoring or apprenticeship programmes. When a company adopts a personalization strategy, informal channels rather than formal channels will be employed for knowledge transfer, as a personalization strategy that emphasises connecting individuals receives greater attention. According to Hansen et al. (1999), the choice of the most appropriate KM strategy should be driven by the company's competitive strategy. Organization oriented towards a product innovation strategy or providing highly customized services for unique problems should focus on a personalization strategy, while companies repeatedly dealing with similar problems should concentrate on codification strategies to exploit efficient reuse of stored information (Hansen et al., 1999).

4.2 Innovation Performance

According to Huizingh, (2011) talent and the ability to change or adapt are generated through innovation performance. Meanwhile, Sofiyabadi et al. (2022) describe one of the main factors in organisational performance that leads to organisational learning, modernization, improvement, learning from failures, and

adaptation to a changing competitive environment as innovation performance. Innovative performance is a combination of administrative and technical measures that lead to increased growth and profitability. The missing link between strategic intention and strategic performance is innovative performance. In fact, innovative performance is a combination of organizational achievements that stem from the improvement of activities and includes various aspects of innovation in the process, product, structure, and so on. (A.A. Al-Ali *et al.*,2017)

RESEARCH METHODOLOGY

The methods used in the current study is explained in this section. This study employs a quantitative approach. The quantitative methodology seeks to obtain accurate and reliable measurements that allow a statistical analysis. (Queirós, A., Faria, D., & Almeida, F., 2017) Data was collected through an online questionnaire. An online questionnaire will distributed to TM workers from various departments and levels to collect data. This questionnaire was distributed using Convenience Sampling, often known as non-probability sampling. This strategy collects data from members of a population who are readily available to participate in the study. This sampling method was chosen because of the time and cost constraint. TM has more than 10,000 employees who serve in several departments. Data was gathered from the division Group Network Technology, specifically the Network Perak department. This department is responsible for managing all project development, maintaining network operation, and supporting business related to project development and network operation. This department consists of 310 employees, including permanent employees, contract employees, leasing employees, and also those who are in work training (Protege). A Partial Least Square approach of Structural Equation Model (PLS-SEM) was used to examine the research hypothesis, and a path coefficients analysis was conducted, in addition to descriptive statistics that provide a background about the respondents.

5.1 Research Model

The framework for this study was built using two independent variables and one dependent variable. The independent variables used are KM process (Knowledge Acquistion,Knowledge Sharing, Knowledge Utilization) and KM Approaches (Codification Strategy & Personalization Stratergy) . Meanwhile the dependent variable is Innovation Performance. Figure 1 shows the proposed theoretical framework that the research adopted from a previous study, Obeidat, Al-Suradi, Masa'deh, and Tarhini (2016).

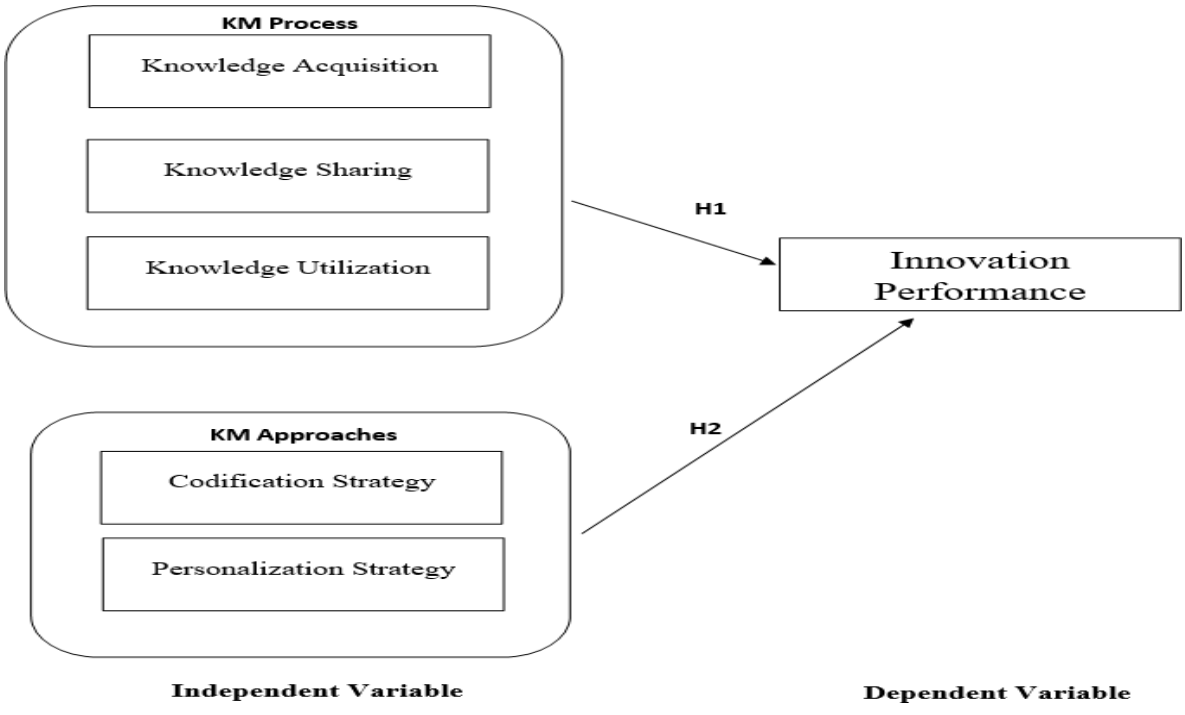

Figure 1: Proposed Theoretical Framework

5.2 Research Hypothesis

To evaluate the research model of the effect of KM processes and approaches on innovation, the following hypotheses are tested in this study:

H1. There is a significant impact of Knowledge Management processes including acquisition, sharing, utilization on innovation performance.

H2. There is a significant impact of Knowledge Management approaches including codification strategy & personalization strategy on innovation performance.

DATA ANALYSIS & RESULTS

This section follows the widely accepted reporting style of PLS analysis as suggested by previous studies (Chin, 2010). First, to examine the relationship between two independent variables (KM processes and approaches) and one dependent variable (innovation performance), where these variables were measured on a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5); the validity and reliability of the measurement model is assessed. After assessing the quality of the measurement model, then the structural model is validated.

6.1 Descriptive Statistic of Respondents

The questionnaire was sent to a group of staff at Telekom Malaysia. This study was conducted with the participation of staff from Network Perak departments. Although 172 questionnaires were circulated among Telekom Malaysia staff, all 172 respondents filled out the questionnaires. As indicated in Table 1, the demographic profile of the respondents for this study showed that they are typically males, aged 32 – 40, hold a bachelor's degree, from department IT/Technical and about 29.1 percent of them have experience more than 15 years.

Category	Frequency	%	Valid Percent	Cumulative Percent
Gender				
Male	105	61.0	61.0	61.0
Female	67	39.0	39.0	100.0
Total	172	100.0	100.0	
Age				
20 - 25	3	1.7	1.7	1.7
26 - 31	46	26.7	26.7	28.5
32 - 40	88	51.2	51.2	79.7
> 40	35	20.3	20.3	100.0
Total	172	100.0	100.0	
Qualification				
Sijil / Certificated	5	2.9	2.9	2.9

Diploma	60	34.9	34.9	37.8
Ijazah Sarjana Muda / Bachelor Degree	86	50.0	50.0	87.8
Ijazah Sarjana / Master	21	12.2	12.2	100.0
Doktor Falsafah / PhD	0	0	0	
Total	172	100.0	100.0	
Fields of Work				
Administration	21	12.2	12.2	12.2
IT/Technical	100	58.1	58.1	70.3
Management	23	13.4	13.4	83.7
Sales / Marketing	13	7.6	7.6	91.3
Others	15	8.7	8.7	100.0
Total	172	100.0	100.0	
Years of service / Experience				
Less than 5 years	26	15.1	15.1	15.1
5 to less than 10 years	48	27.9	27.9	43.0
10 to less than 15 years	48	27.9	27.9	70.9
More than 15 years	50	29.1	29.1	100.0
Total	172	100.0	100.0	

Table 1 : Description of the respondents demographic information

6.2 Measurement Model Assessment

The research model for this study is tested using partial least squares (PLS). Smart PLS 3.0 (Ringle et al., 2004) is used to assess the measurement and structural model for this study. This statistical program assesses the psychometric properties of the measurement model and estimates the parameters of the structural model. As discussed in previous section, the validity and reliability of the measurement model for this study is evaluated using the following analyses: internal consistency reliability, indicator reliability, convergent validity and discriminant validity. The following subsections present the findings for each of the analysis used to evaluate the validity of the measurement model for this study.

6.2.1 Internal Consistency Reliability

A measurement model has satisfactory internal consistency reliability when the composite reliability (CR) of each construct exceeds the threshold value of 0.7. Table 2 shows that the CR of each construct for this study ranges from 0.880 to 0.908 and this is above the recommended threshold value of 0.7. Thus, the results indicate that the items used to represent the constructs have satisfactory internal consistency reliability

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Codification Strategy (CS)	0.821	0.832	0.880	0.648
Innovation Performance (IP)	0.831	0.837	0.881	0.598
Knowledge Acquisition (KA)	0.872	0.882	0.908	0.665
Knowledge Sharing(KS)	0.873	0.879	0.904	0.610
Knowledge Utilization (KU)	0.849	0.854	0.892	0.625
Personalization Strategy (PS)	0.795	0.807	0.866	0.618

Table 2 : Cr Construct Table

6.2.2 Indicator Reliability

Indicator reliability of the measurement model is measured by examining the items loadings. A measurement model is said to have satisfactory indicator reliability when each item's loading is at least 0.7 and is significant at least at the level of 0.05. Based on the analysis, all items in the measurement model exhibited loadings exceeding 0.700; ranging from a lower bound of 0.701 to an upper bound of 0.880. All items are significant at the level of 0.001. Table 3 shows the loading for each item. Based on the results, all items used for this study have demonstrated satisfactory indicator reliability.

	Codification Strategy (CS)	Innovation Performance (IP)	Knowledge Acquisition (KA)	Knowledge Sharing (KS)	Knowledge Utilization (KU)	Personalization Strategy (PS)
CS1	0.826					
CS2	0.787					
CS3	0.843					
CS4	0.762					
IP1		0.796				
IP2		0.701				
IP3		0.824				
IP4		0.790				
IP5		0.751				
KA2			0.749			
KA3			0.841			
KA4			0.865			
KA5			0.880			

KA6			0.730			
KS1				0.795		
KS3				0.757		
KS4				0.782		
KS5				0.814		
KS6				0.751		
KS7				0.788		
KU1					0.803	
KU2					0.790	
KU3					0.716	
KU4					0.864	
KU5					0.773	
PS1						0.786
PS2						0.820
PS3						0.722
PS4						0.813

Table 3 : Indicator Realibity

6.2.3 CONVERGENT VALIDITY

In this study, the measurement model's convergent validity is assessed by examining its average variance extracted (AVE) value. Convergent validity is adequate when constructs have an average variance extracted (AVE) value of at least 0.5 or more. Table 4 shows that all constructs have AVE ranging from 0.598 to 0.665, which exceeded the recommended threshold value of 0.5. This result shows that the study's measurement model has demonstrated an adequate convergent validity.

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Codification Strategy (CS)	0.821	0.832	0.880	0.648
Innovation Performance (IP)	0.831	0.837	0.881	0.598
Knowledge Acquisition (KA)	0.872	0.882	0.908	0.665
Knowledge	0.873	0.879	0.904	0.610

Sharing(KS)				
Knowledge Utilization (KU)	0.849	0.854	0.892	0.625
Personalization Strategy (PS)	0.795	0.807	0.866	0.618

Table 4 : AVE Value

6.2.4 Discriminant Validity

In this study, the measurement model's discriminant validity is assessed by using three measures: 1) Fornell and Larcker's (1981) criterion, 2) cross loading and 3) the Heterotrait-monotrait (HTMT) ratio of correlation. A measurement model has discriminant validity when 1) the square root of the AVE exceeds the correlations between the measure and all other measures, 2) the indicators' loadings are higher against their respective construct compared to other constructs and 3) using the HTMT as a criterion involves comparing it to a predefined threshold. If the value of the HTMT is higher than this threshold, one can conclude that there is a lack of discriminant validity. A 0.85 criterion is recommended by Kline (2011). In addition, Gold et al. (2001) argued with it and suggested a value of 0.90.

Thus, to determine the first assessment of measurement model's discriminant validity, the AVE value of each construct is generated using the Smart PLS algorithm function. Then the square roots of AVE are calculated manually. Based on the results, all square roots of AVE exceeded the off-diagonal elements in their corresponding row and column. The bolded elements in table 5 represent the square roots of the AVE and non-bolded values represent the intercorrelation value between constructs. Based on Table 5, all off-diagonal elements are lower than square roots of AVE (bolded on the diagonal). Hence, the result confirmed that the Fornell and Larker's criterion is met.

	Codification Strategy (CS)	**Innovation Performance (IP)**	**Knowledge Acquisition (KA)**	**Knowledge Sharing (KS)**	**Knowledge Utilization (KU)**	**Personalization Strategy (PS)**
Codification Strategy (CS)	**0.805**					
Innovation Performance (IP)	0.654	**0.773**				
Knowledge Acquisition (KA)	0.548	0.533	**0.815**			
Knowledge Sharing (KS)	0.655	0.666	0.755	**0.781**		
Knowledge Utilization (KU)	0.698	0.606	0.588	0.621	**0.790**	
Personalization Strategy (PS)	0.712	0.69	0.568	0.669	0.575	**0.786**

* Square root of the AVE on the diagonal (bold)

Table 5 : Inter-correlation Matrix

The second assessment of discriminant validity is to examine the indicators' loadings with respect to all construct correlations. The output of cross loadings is produced by the SmartPLS algorithm function. Table 6 shows the output of cross loading between constructs and indicators. Table 6 also shows that all measurement

items loaded higher against their respective intended latent variable compared to other variables. The table also demonstrated that the loading of each block is higher than any other block in the same rows and columns. The loading clearly separates each latent variable as theorized in the conceptual model. Thus, the cross-loading output confirmed that the second assessments of the measurement model's discriminant validity are satisfied. This study therefore concludes that the measurement model has established its discriminant validity.

	Codification Strategy (CS)	**Innovation Performance (IP)**	**Knowledge Acquisition (KA)**	**Knowledge Sharing (KS)**	**Knowledge Utilization (KU)**	**Personalization Strategy (PS)**
CS1	0.826	0.598	0.456	0.517	0.646	0.642
CS2	0.787	0.58	0.435	0.593	0.53	0.498
CS3	0.843	0.482	0.424	0.499	0.606	0.563
CS4	0.762	0.4	0.453	0.487	0.436	0.597
IP1	0.602	0.796	0.488	0.607	0.435	0.579
IP2	0.444	0.701	0.332	0.442	0.358	0.491
IP3	0.522	0.824	0.439	0.507	0.457	0.558
IP4	0.447	0.790	0.385	0.453	0.579	0.428
IP5	0.495	0.751	0.399	0.543	0.51	0.596
KA2	0.416	0.462	0.749	0.579	0.576	0.389
KA3	0.377	0.407	0.841	0.629	0.412	0.422
KA4	0.593	0.496	0.865	0.684	0.518	0.587
KA5	0.435	0.435	0.880	0.571	0.464	0.421
KA6	0.381	0.345	0.730	0.613	0.4	0.49
KS1	0.619	0.52	0.616	0.795	0.506	0.573
KS3	0.398	0.407	0.574	0.757	0.343	0.402
KS4	0.509	0.508	0.657	0.782	0.561	0.412
KS5	0.539	0.567	0.727	0.814	0.512	0.513
KS6	0.374	0.47	0.472	0.751	0.379	0.54
KS7	0.586	0.607	0.494	0.788	0.564	0.653
KU1	0.582	0.499	0.449	0.563	0.803	0.407
KU2	0.562	0.442	0.467	0.491	0.790	0.412

KU3	0.615	0.44	0.424	0.447	0.716	0.537
KU4	0.47	0.533	0.471	0.441	0.864	0.419
KU5	0.551	0.472	0.517	0.519	0.773	0.512
PS1	0.594	0.448	0.42	0.562	0.422	0.786
PS2	0.63	0.642	0.514	0.594	0.539	0.820
PS3	0.486	0.493	0.39	0.423	0.408	0.722
PS4	0.523	0.554	0.445	0.514	0.419	0.813

Table 6 : The Cross Loading Output Using Smart PLS

Table 7 below showed the output from HTMT analysis. The output can easily be calculated using the formula as in Henseler (2015). From the HTMT results, the values in Table 7 that indicate discriminant validity are satisfied. As a result, the value threshold is less than 0.90, as suggested by Gold et al. (2001).

	Codification Strategy (CS)	**Innovation Performance (IP)**	**Knowledge Acquisition (KA)**	**Knowledge Sharing (KS)**	**Knowledge Utilization (KU)**	**Personalization Stratetgy (PS)**
Codification Strategy (CS)						
Innovation Performance (IP)	0.767					
Knowledge Acquisition (KA)	0.647	0.604				
Knowledge Sharing (KS)	0.763	0.747	0.863			
Knowledge Utilization (KU)	0.831	0.719	0.719	0.726		
Personalization Strategy (PS)	0.881	0.831	0.675	0.765	0.698	

Table 7 : The Heterotrait-monotrait ratio (HTMT) – Matrix

Overall, the reliability and validity tests conducted on the measurement model are satisfactory. All reliability and validity tests are confirmed, and this is an indicator that the measurement model for this study is valid and fit to be used to estimate parameters in the structural model.

6.3 Structural Model

The following subsections discuss the tests used to assess the validity of the structural model for this study.

The validity of the structural model is assessed using the coefficient of determination (R2) and path coefficients.

6.3.1 Coefficient of Determination (R2)

The R2 value indicates the amount of variance in dependent variables that is explained by the independent variables. Thus, a larger R2 value increases the predictive ability of the structural model. In this study, SmartPLS algorithm function is used to obtain the R2 values, while the SmartPLS bootstrapping function is used to generate the t-statistics values. For this study, the bootstrapping generated 500 samples from 172 cases. The result of the structural model is presented in Figure 2.

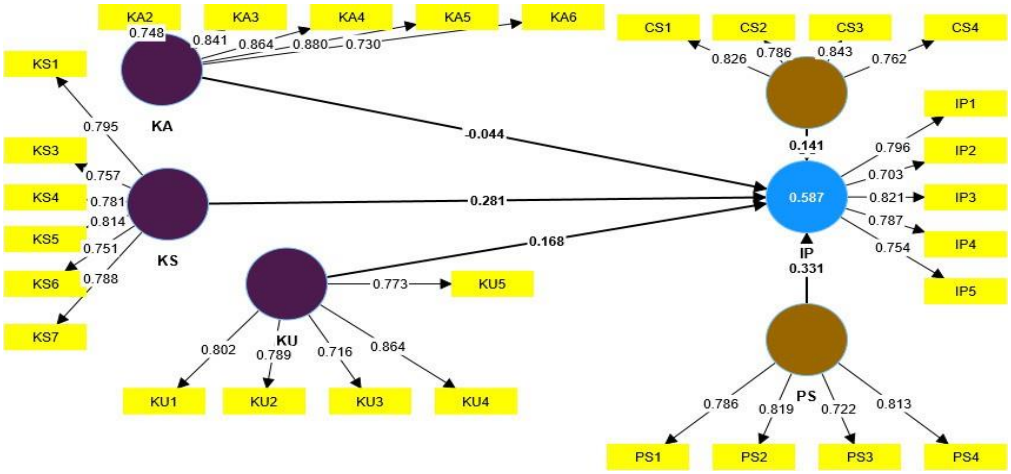

Figure 2 : Results of Structural Model

Referring to Figure 2, knowledge management process (Knowledge Acquisition, Knowledge Sharing, Knowledge Utilization) and knowledge management approaches (Codification Strategy, Personalization Strategy) are able to explain 58.7 % of the variance in innovation performance.

6.3.2 Path Coefficients

Within the structural model, each path connecting five latent variables represented a hypothesis. Based on the analysis conducted on the structural model, it allows the researcher to confirm or disconfirm each hypothesis as well as understand the strength of the relationship between dependent and independent variables. Using the Smart PLS algorithm output, the relationships between independent and dependent variables were examined. However, in Smart PLS in order to test the significant level, t-statistics for all paths are generated using the Smart PLS bootstrapping function. Based on the t-statistics output, the significant level of each relationship is determined. Table 8 lists down the path coefficients, observed t-statistics, and significance level for all hypothesised path. Using the results from the path assessment, the acceptance or rejection of the proposed hypotheses is determined. The testing of the proposed hypotheses is discussed in the next section.

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values	Hypothesis
Codification Strategy -> Innovation Performance	0.141	0.135	0.08	1.769	0.077	Not Supported
Knowledge Acquisition -> Innovation	-0.044	-0.044	0.083	0.525	0.600	Not Supported

Performance						
Knowledge Sharing -> Innovation Performance	0.281	0.287	0.084	3.352	0.001	Supported
Knowledge Utilization -> Innovation Performance	0.168	0.171	0.072	2.34	0.019	Supported
Personalization Strategy -> Innovation Performance	0.331	0.333	0.071	4.665	0.000	Supported

Table 8 : Path Coefficients

6.3.3 Hypotheses Testing

To validate the proposed hypotheses and the structural model, the path coefficient between five latent variables is assessed. Based on previous studies, the path coefficient value needs to be at least 0.1 to account for a certain impact within the model (Hair et al., 2011; Wetzels et al., 2009). Assessment of the path coefficient (refer Table 8) shows that two of proposed hypotheses are supported. From the analysis, supported hypotheses are significant at least at the level of 0.05, have expected sign directions (i.e., positive) and consist of a path coefficient value (**β**) ranging from 0.000 to 0.600.

	Hypothesis statement	**Items / Variables**	**Result**
H1	There is a significant impact of Knowledge Management processes including acquisition, sharing and utilization on innovation performance.	Knowledge Acquisition Knowledge Sharing Knowledge Utilization	Not Supported Supported Supported
H2	There is a significant impact of knowledge Management approaches including codification & personalization strategy on innovation performance.	Codification Strategy Personalization Strategy	Not Supported Supported

Table 9 : Hypothesis Table

Based on the analysis, it shows that ; knowledge management process (knowledge sharing) ($t=3.352$, $p<0.05$), knowledge management process (knowledge utilization) ($t=2.34$, $p<0.05$) and knowledge management approaches which is personalization Strategy ($t=4.665$, $p<0.05$) is influenced directly by Innovation Performance while Knowledge Acquisition ($t=0.525$, $p<0.600$), and Codification Strategy ($t=1.769$, $p<0.077$), is not influenced directly by Innovation Performance . As a result, hypothesis H1 and H2 are supported.

ISSN No. 2454-6186 | DOI: 10.47772/IJRISS |Volume VIII Issue V May 2024

DISCUSSION & CONCLUSION

Based on the research findings, most of the impact of Knowledge Management processes (knowledge sharing & knowledge utilization) and Knowledge Management approaches (personalization strategy) is found to be influenced positively by innovation performance in Telekom Malaysia. For RO1, five variables have been identified have a relation to Telekom Malaysia's current activity of innovation performance. This study shows that RO1 was successfully achieved. Based on analysis result, knowledge acquisition have been identified to have no positive influence on innovation performance ($t = 0.525$, $p > 0.600$). The findings of this study are also aligned with previous studies by Yli-Renko et al. (2001) where there is no significant influence between knowledge acquisition and innovation performance. However, this finding was contradict with Ngoc et al. (2020) & Obeidat et al. (2016), knowledge aquisition has a positive and significant effect on innovation performance. While knowledge acquisition can be an important factor in promoting innovation, it is not the only factor and may not always have a significant impact on innovation performance. As a result, knowledge acquisition is not supported by this study findings, which show that acquiring knowledge from different sources: customers, partners and employees has no positive influence on the innovation performance in organization.

Also, in this study show knowledge management process (knowledge sharing & knowledge utilization) have been identified to have positive influence on innovation performance ($t = 3.352$, $p < 0.001$ & $t = 2.31$, $p < 0.019$). The findings of this study are also aligned with previous studies . In the study by Obeidat et al., (2016), Sofiyabadi et al., (2022) & Plessis (2007) found positive relationships between knowledge management processes (knowledge sharing and knowlegde utilization) on innovation performance. Mas-Machuca and Costa (2012) supported these results by showing that encouraging knowledge sharing between employees and incorporating knowledge management into strategies will lead to gaining competitive advantage, customer focus and innovation. Knowledge utilization is concerned with putting current knowledge to use. Respondents indicated a desire to fully utilise available knowledge in order to improve their telecommunication services and skills. Therefore, these arguments confirm the significance of knowledge management processes (knowledge sharing and knowledge utilization) to a varying degree and highlight the need for research reported here. Furthermore, in this study show knowledge management approaches (personalization strategy) have been identified to have positive influence on innovation performance ($t = 4.665$, $p < 0.000$). The findings of this study are also aligned with previous studies. In the study by Obeidat et al., (2016), Mangiarotti et al., (2014) & Storey et al, (2010) found positive relationships between knowledge management approaches (personalization strategy) on innovation performance. According to Storey and Kahn (2010), a personalized approach promotes innovativeness in service organisations and extends them to assess innovation performance in economic terms. Besides, these findings, supported by Taminiau et al. (2009), show that direct knowledge sharing via the personalization approach can result in more creative ideas and innovation. Therefore, these arguments confirm the significance of knowledge management approaches (personalization strategy) to a varying degree and highlight the need for research reported here. In contrast, in this study show knowledge management approaches (codification strategy) have been identified to have no positive influence on innovation performance ($t = 1.769$, $p > 0.077$). The findings of this study are also aligned with previous studies by Swan and Newell (2000). It has been proven that the codification strategy does not enhance innovation since it just recycles knowledge and standardises processes (Swan and Newell, 2000). As a result, codification strategy is not supported by this study's findings, which show that knowledge management (codification strategy) has no positive influence on innovation performance in organizations.

From these five variables identified through the testing, only three variables (knowledge sharing, knowledge utilization and personalization strategy) have been proven significant to innovation performance at Telekom Malaysia. This study shows that RO2 was successfully achieved.

For RO3, identifying the solution has been contribute to the development of a research framework, which contains three variables that have been tested and verified during the validation process of the data. Figure 3 represents a research framework related to knowledge management activity at Telekom Malaysia.

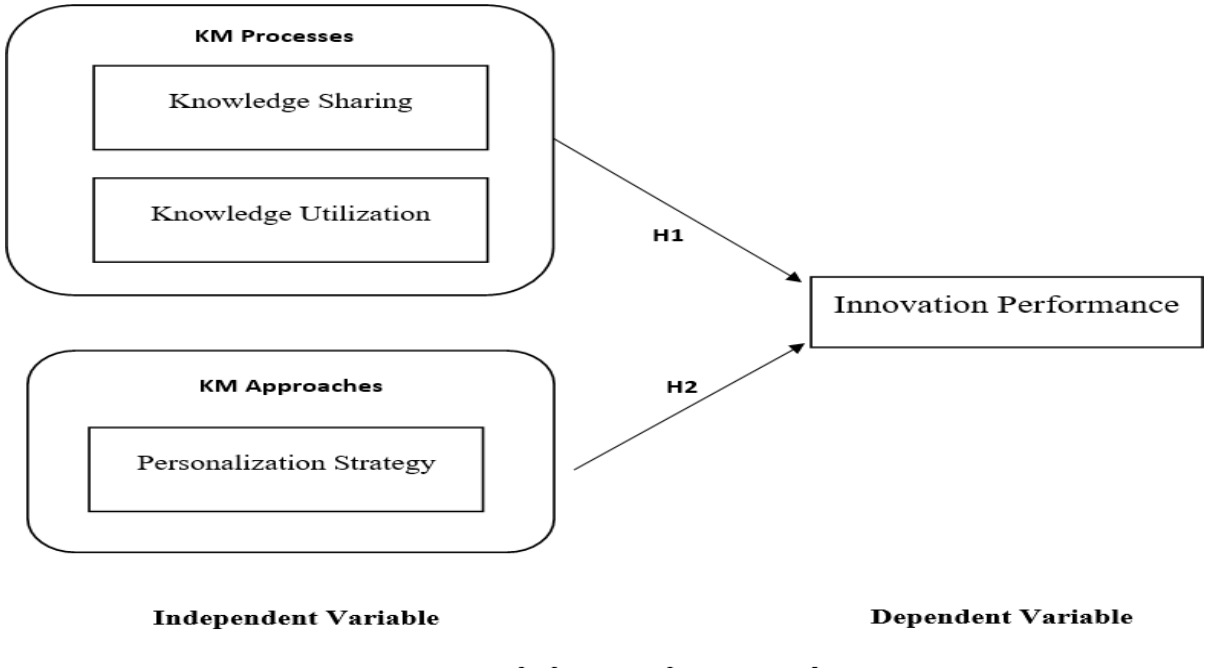

Figure 3: Final Theoretical Framework

In conclusion, in today's organizations, businesses may not apply moderately successful practices knowledge management. The main purpose of this study is to examine the impact of knowledge management processes (knowledge acquisition, knowledge sharing, and knowledge utilization) and knowledge management approaches (codification strategy and personalization strategy) on innovation performance at Telekom Malaysia. The significance of this research is the impact of knowledge management processes and approaches on innovation performance at Telekom Malaysia; however, the scale of population is only at Network Perak state, so future research should enlarge the scale of population. In addition, respondents also need to understand the importance of giving attention and the right feedback to avoid biased data and discriminant validity issues. In addition, by practicing knowledge management in the organization, it has a positive and significant impact on innovation performance. Thus, managing knowledge is important as part of the organization, hence sustaining competitive advantage and improving innovation.

RECOMENDATION FOR FUTURE STUDIES

In future research, it is recommended that should enlarge the scale of population Telekom Malaysia be selected for this study, since Telekom Malaysia is a large telecommunication organisation with over 10,000 employees and has several departments that could benefit. Besides, there may be other information society business themes (e.g., business sustainability and competitive performance) that could be studied. The researchers may extend these processes beyond the current performance limits in the future. Hence, this study focuses on 3 areas of knowledge management processes, but it is recommended that there may be other knowledge management processes that could be included in this study for future studies. For example, knowledge dissemination, knowledge organization, and many more.

REFERENCES

1. Al-Ali, A. A., Singh, S. K., Al-Nahyan, M., & Sohal, A. S. (2017). Change management through leadership: The mediating role of organizational culture. International Journal of Organizational Analysis, 25(4), 723–739. https://doi.org/10.1108/ijoa-01-2017-1117
2. Al-Abbadi, L., Alshawabkeh, R., & Rumman, A. A. (2020). Knowledge Management Processes and innovation performance: The moderating effect of employees' knowledge hoarding. Management Science Letters, 1463–1472. https://doi.org/10.5267/j.msl.2019.12.021
3. Ancori, B., Bureth, A. and Cohendet, P. (2000) 'The Economics of Knowledge: The Debate About Codification and Tacit Knowledge', Industrial & Corporate Change, 9(2), pp. 255-287

4. Alavi, M., & Leidner, D. E. (2001). Review: Knowledge management and knowledge management systems: Conceptual Foundations and Research issues. MIS Quarterly, 25(1), 107. https://doi.org/10.2307/3250961
5. Andreeva, T., & Kianto, A. (2011). Knowledge processes, knowledge-intensity and innovation: A moderated mediation analysis. Journal of Knowledge Management, 15(6), 1016–1034. https://doi.org/10.1108/13673271111179343
6. Andreeva, T. and Kianto, A. (2012), "Does knowledge management really matter? Linking knowledge management practices, competitiveness and economic performance", Journal of Knowledge Management, Vol. 16 No. 4, pp. 617-636. https://doi.org/10.1108/13673271211246185
7. Asrar-ul-Haq, M., & Anwar, S. (2016). A systematic review of knowledge management and knowledge sharing: Trends, issues, and challenges. Cogent Business & Management, 3(1), 1127744. https://doi.org/10.1080/23311975.2015.1127744
8. Baro, E. (2008), "The role of knowledge-intensive business services in innovation processes", Paradigms, pp. 88-97
9. Bazimya, S. (2023). Examine How Stakeholders' Participation in Project Identification Influence Project Performance, Case Study: Musanze District.
10. Beccera-Femandez, I. (2004). Knowledge Management: Challenge, Solutions, and Technologies. New Jersey: Pearson Prentice Hall.
11. Burn, N.A., Din, S., Ng, A.H.H., & Yip, M.W. (2012). Integrated Knowledge Management Strategy: A preliminary literature review. Procedia - Social and Behavioral Sciences, 57, 209–214. https://doi.org/10.1016/j.sbspro.2012.09.1176
12. Carnevale, J.B. and Hatak, I. (2020), "Employee adjustment and well-being in the era of COVID-19: implications for human resource management", Journal of Business Research, Vol. 116, pp. 183-187.
13. Choo, C. W. (2003). Perspectives on managing knowledge in organizations. Cataloging & Classification Quarterly, 37(1-2), 205–220. https://doi.org/10.1300/j104v37n01_14
14. Chin, W. W. (2010). How to write up and report PLS analyses. Handbook of Partial Least Squares, 655–690. https://doi.org/10.1007/978-3-540-32827-8_29
15. Davidavičienė, V., Al Majzoub, K., & Meidute-Kavaliauskiene, I. (2020). Factors Affecting Knowledge Sharing in Virtual Teams. Sustainability, 12(17), 6917. https://doi.org/10.3390/su12176917
16. E. K. Huizingh, (2011). Open innovation: State of the Art and Future Perspectives. Technovation, 31(1), 2–9. https://doi.org/10.1016/j.technovation.2010.10.002
17. Espita, K. O., & Guhao Jr, E. S. (2022). A structural equation model on knowledge management performance in higher education institutions in Region VIII. Review of Integrative Business and Economics Research, 11(2), 95-114.
18. Fornell, C., & Larcker, D.F., (1981). Evaluating structural equation models with unobservable variables and measurement error. Journal of Marketing Research, 18 (1), 39-50.
19. Fornell, C., & Larcker, D.F., (1981). Evaluating structural equation models with unobservable variables and measurement error. Journal of Marketing Research, 18 (1), 39-50.
20. Fornell, C., & Larcker, D.F., (1981). Evaluating structural equation models with unobservable variables and measurement error. Journal of Marketing Research, 18 (1), 39-50.
21. Fornell, C., & Larcker, D.F., (1981). Evaluating structural equation models with unobservable variables and measurement error. Journal of Marketing Research, 18 (1), 39-50.
22. Gammelgaard, J. and Ritter, T. (2005), "The knowledge retrieval matrix: codification and personification as separate strategies", Journal of Knowledge Management, Vol. 9 No. 4, pp. 133-143. https://doi.org/10.1108/13673270510610387
23. Gold, A. H., Malhotra, A., & Segars, A. H. (2001). Knowledge management: An organizational capabilities perspective. Journal of Management Information Systems, 18(1), 185–214. https://doi.org/10.1080/07421222.2001.11045669
24. Greiner, M.E., Böhmann, T. and Krcmar, H. (2007), "A strategy for knowledge management",Journal of Knowledge Management, Vol. 11 No. 6, pp. 3-15. https://doi.org/10.1108/13673270710832127
25. Hansen, M.T., Nohria, N. and Tierney, T. (1999), "What's your strategy for managing knowledge?", Harvard Business Review, Vol. 77 No. 2, pp. 106-116.
26. Håkanson, L. (2007) 'Creating Knowledge: The Power and Logic of Articulation', Industrial and Corporate Change, 16(1), pp. 51-88

27. Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. Journal of Marketing Theory and Practice, 19(2), 139–151.
28. Hair, J. F., Hult, G. T., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2021). Partial least squares structural equation modeling (PLS-SEM) using R. Classroom Companion: Business. https://doi.org/10.1007/978-3-030-80519-7
29. Heffner, M., & Sharif, N. (2008). Knowledge fusion for technological innovation in Organizations. Journal of Knowledge Management, 12(2), 79–93. https://doi.org/10.1108/13673270810859532
30. Henderson R.M. & K. B. Clark, 1990. Architectural innovation: The reconfiguration of existing product technologies and the failure of established firms. Administrative Science Quarterly, 35: 9-30.
31. Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. Journal of the Academy of Marketing Science, 43(1), 115–135. https://doi.org/10.1007/s11747-014-0403-8
32. Jakubik, M. (2011). Becoming to know. shifting the knowledge creation paradigm. Journal of Knowledge Management, 15(3), 374–402. https://doi.org/10.1108/13673271111137394
33. Kaschig, A., Maier, R.K., & Sandow, A. (2016). The effects of collecting and connecting activities on knowledge creation in organizations. J. Strateg. Inf. Syst., 25, 243-258.
34. Kianto, A., Vanhala, M., & Heilmann, P. (2016). The impact of knowledge management on job satisfaction. Journal Of Knowledge Management, 20(4), 621-636. https://doi.org/10.1108/jkm-10-2015-0398
35. Kline, R. B. (2011). Principles and practice of structural equation modeling (3rd ed.). Guilford Press.
36. Lin, R., Che, R. and Ting, C. (2012), "Turning knowledge management into innovation in thehigh-tech industry", Industrial Management & Data Systems, Vol. 112 No. 1, pp. 42-63.
37. Ling, C.W., Sandhu, M.S. and Jain, K.M. (2009), "Knowledge sharing in an American multinational company based in Malaysia", Journal of Workplace Learning, Vol. 21 No. 2, pp. 125-142.
38. Mas-Machuca, M. and Costa, C. (2012), "Exploring critical success factors of knowledge management projects in the consulting sector", Total Quality Management & Business Excellence, Vol. 23 Nos 11/12, pp. 1297-1313.
39. Ma, W. W. K., & Chan, A. (2014). Knowledge sharing and social media: Altruism, perceived online attachment motivation, and perceived online relationship commitment. Computers in Human Behavior, 39, 51–58. https://doi.org/10.1016/j.chb.2014.06.015
40. Mangiarotti, G. I. O. V. A. N. N. I., & Mention, A. N. N. E.-L. A. U. R. E. (2015). Investigating firm-level effects of Knowledge Management Strategies on Innovation Performance. International Journal of Innovation Management, 19(01), 1550012. https://doi.org/10.1142/s1363919615500127
41. Nazari, F., Taghavi, S.S., Valizadeh, E., Soleymani, M., Farahani, D.S. & Bagheri, R. (2022) An Investigation on the Impact of Business Intelligence over the Performance of Startup Companies according to Innovation and Knowledge Management as Mediators. Mathematical Problems in Engineering. 2, 1-12. doi: 10.1155/2022/3834696.
42. Nonaka, I. (1994), "A dynamic theory of organizational knowledge creation", Organization Science, Vol. 5 No. 1, pp. 14-37.
43. Nonaka, I., and Takeuchi, K. (1995). The Knowledge Creating Company. New York,NY : Oxford University Press.
44. Nonaka, I., & Toyama, R. (2003). The knowledge-creating theory revisited: Knowledge creation as a synthesizing process. Knowledge Management Research & Practice, 1(1), 2–10. https://doi.org/10.1057/palgrave.kmrp.8500001
45. Ngoc Thang, N., & Anh Tuan, P. (2020). Knowledge acquisition, knowledge management strategy and innovation: An empirical study of Vietnamese firms. Cogent Business & Management, 7(1), 1786314. https://doi.org/10.1080/23311975.2020.1786314
46. Obeidat, B. Y., Masa'deh, R. M., & Abdallah, A. B. (2014). The relationships among human resource management practices, organizational commitment, and Knowledge Management Processes: A structural equation modeling approach. International Journal of Business and Management, 9(3). https://doi.org/10.5539/ijbm.v9n3p9
47. Obeidat, B., Al-Suradi, M., Masa'deh, R., & Tarhini, A. (2016). The impact of knowledge management on innovation. Management Research Review, 39(10), 1214-1238. https://doi.org/10.1108/mrr-09-2015-0214

48. O'Meara, M., & Kelliher, F. (2021). Knowledge Codification. Knowledge Management And Learning Organizations, 25-50. https://doi.org/10.1007/978-3-030-71079-8_2
49. Palacios, D., Gil, I. and Garrigos, F. (2008), "The impact of knowledge management on innovation and entrepreneurship in the biotechnology and telecommunications industries", Small Business Economics, Vol. 32 No. 3, pp. 291-301.
50. Polanyi, M. (1962) Personal Knowledge: Towards a Post-Critical Philosophy. New York: Harper & Row.
51. Powell, T., & Ambrosini, V. (2012). A pluralistic approach to knowledge management practices: evidence from consultancy companies. Long Range Planning : International journal of strategic planning, 45(2-3), 209-226.
52. Penmasta, A., Nandamuri, G., Sheikh, M., Chittila, S., & Vemulapally, T. (2022). Challenges and Practices for Effective Knowledge Transfer for New Members in ad hoc Virtual Teams. PDXScholar. Retrieved 31 July 2022, from https://pdxscholar.library.pdx.edu/etm_studentprojects/2299.
53. Plessis, M. (2007), "The role of knowledge management in innovation", Journal of Knowledge Management, Vol. 11 No. 4, pp. 20-29.
54. Queirós, A., Faria1, D., & Almeida, F. (2017, September 17). Strengths And Limitations of Qualitative and Quantitative Research Methods. Academia.edu. Retrieved February 2, 2023, from https://www.academia.edu/34587557/STRENGTHS_AND_LIMITATIONS_OF_QUALITATIVE_AND_QUANTITATIVE_RESEARCH_METHODS
55. Rahi, S., Alghizzawi, M., Ahmad, S., Munawar Khan, M., & Ngah, A. H. (2021). Does employee readiness to Change Impact Organization Change Implementation? empirical evidence from emerging economy. International Journal of Ethics and Systems, ahead-of-print(ahead-of-print). https://doi.org/10.1108/ijoes-06-2021-0137
56. Ramírez, A. M., Vasauskaite, J., & Kumpikaitė, V. (2012). Role of knowledge management within innovation and performance. ECONOMICS AND MANAGEMENT, 17(1). https://doi.org/10.5755/j01.em.17.1.2293
57. Ringle, C., Wende, S., & Will, A. (2005). SmartPLS 2.0 (Beta). Hamburg, (www.smartpls.de)
58. Shannak, R., Masa'deh, R. and Akour, M. (2012), "Knowledge management strategy building: literature review", European Scientific Journal, Vol. 8 No. 15, pp. 143-168.
59. Starken, K. (2013). Individual gendered experiences of organisational elements impacting on knowledge creation processes in a knowledge-intensive organisation (Order No. U638758). Available from ProQuest Dissertations & Theses Global. (1687700275). Retrieved from http://search.proquest.com.ezaccess.library.uitm.edu.my/dissertations-theses/individual-gendered-experiences-organisational/docview/1687700275/se-2?accountid=42518
60. Scheepers, R., Venkitachalam, K., & Gibbs, M. R. (2004). Knowledge strategy in organizations: Refining the model of Hansen, Nohria and Tierney. The Journal ofStrategic Information Systems, 13(3), 201–222.
61. Sofiyabadi, J., Valmohammadi, C., & Asl, A. S. (2022). Impact of knowledge management practices on innovation performance. IEEE Transactions on Engineering Management, 69(6), 3225–3239. https://doi.org/10.1109/tem.2020.3032233
62. Storey, C., & Kahn, K. B. (2010). The role of Knowledge Management Strategies and task knowledge in stimulating service innovation. Journal of Service Research, 13(4), 397–410. https://doi.org/10.1177/1094670510370988
63. Swan, J. and Newell, S. (2000), "Linking knowledge management and innovation", European Conference on Information Systems, Vienna, July, pp. 591-598
64. Taminiau, Y., Smit, W. and Lange, A. (2009), "Innovation in management consulting firms through informal knowledge sharing", Journal of Knowledge Management, Vol. 13 No. 1, pp. 42-55
65. Tiwana, A. (1999), Knowledge Management Toolkit, 1st ed., Prentice Hall, PTR.
66. Vafaeinejad, M. (2023). Studying the mediating role of new financial technologies and business intelligence in the relationship between knowledge management and sustainable performance. Romanian Journal of Information Technology and Automatic Control, 33(3), 55-70.
67. Vorakulpipat, C., & Rezgui, Y. (2008). An evolutionary and interpretive perspective to knowledge management. Journal of Knowledge Management, 12(3), 17–34. https://doi.org/10.1108/13673270810875831

68. Wetzels, Martin & Odekerken, Gaby. (2009). Using PLS Path Modeling for Assessing Hierarchical Construct Models: Guidelines and Empirical Illustration. MIS Quarterly, 33(1), 177. https://doi.org/10.2307/20650284
69. Yli-Renko, H., Autio, E., & Sapienza, H. J. (2001). Social Capital, knowledge acquisition, and knowledge exploitation in young technology-based firms. Strategic Management Journal, 22(6-7), 587–613. https://doi.org/10.1002/smj.183
70. Zhang, W. and Zhang, W. (2018), "Knowledge creation through industry chain in resource-based industry: case study on phosphorus chemical industry chain in western Guizhou of China", Journal of Knowledge Management, Vol. 22 No. 5, pp. 1037-1060. https://doi-org.ezaccess. library.uitm.edu.my/10.1108/JKM-02-2017-0061