

THE KNOWLEDGE MANAGEMENT PROCESS AND ITS RELATION TO ORGANIZATIONAL PERFORMANCE: A CASE STUDY OF CARNIVAL CRUISE LINES

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Abstract

Many companies, in today, technology and dynamic surroundings, have acknowledged knowledge management (KM) and IT tools as valuable resources in addition to other resources for the competitive advantage of organizations. Therefore, this study was conducted with the aim to examine the influence of knowledge storage (KS), knowledge sharing and application (KShA), towards organizational performance (OP). Moreover, to investigate the moderating effect of knowledge management tools (KMT) in the relationship among these variables, in the cruise industry. Data were collected through a questionnaire survey from 283 participants employed on board three Carnival Cruise Lines ships. The Partial Least Squares Structural Equation Modelling (PLS-SEM) technique is adopted to explore relationships among variables. The results showed the significant and positive impact of knowledge storage, sharing and application on OP, as well as the existence of a moderating effect of KMT on the relation between these variables, which was further explained by simple slope analysis. This research contributes to the existing literature by exploring KM and OP specifically in the cruise industry. The practical implications indicate that organizations should integrate KM with technology and provide managerial training, which leads to the delivery of efficient, high-quality services, ultimately enhancing overall performance.

Keywords: Knowledge management, Organizational performance, PLS-SEM, Moderating effect of knowledge management tools.

1. INTRODUCTION

In the current knowledge-based economy, organizations recognise knowledge as a vital strategic asset, comparable to labour, land,

and capital, that can ensure a lasting competitive advantage (Chaithanapat et al., 2022). If organizations seek to pay more attention to the issue of performance, then organizations have to focus on knowledge

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management tools (KMT) and knowledge management (KM) as an integrated process that collects, stores, shares and uses knowledge in an organization.

Today, many companies and organizations worldwide are investing in knowledge management (KM). An organization's capability of creating organizational values depends on its ability to acquire, store, transfer, and use knowledge, which can increase organizational performance and competition. Knowledge management processes (knowledge acquisition, knowledge storage, knowledge sharing, and knowledge application) have a positive impact on innovation and it helps to present innovative ideas and to benefit from others' experiences. It is crucial for organizations to focus on disseminating and utilizing knowledge acquired from both internal and external resources within their workforce (Singh, 2018). Most employees fear sharing their knowledge because they believe that sharing knowledge with others reduces their level of power, and that is the main obstacle to knowledge sharing (Obeidat, 2019). The process of knowledge sharing and application has many forms and can be accomplished without relying on the presence of technology in some situations, such as direct communication that occurs between individuals at conferences, meetings, training workshops, dialogue sessions, exchange of ideas and methods since these methods are enabled by communication, is the acquisition of tacit knowledge that exists in the minds of individuals, and facilitates sharing and application of it, thus reinforcing the importance of the role of the human factor in the success of knowledge management in addition to technology (Obeidat, 2019).

However, technology plays a catalyst that enables and facilitates the process of knowledge sharing through the Internet. It is a tool that improves the mechanism of information exchange and the dissemination of knowledge, supports cooperation and interconnection between parts of the organization, increases the efficiency of coordination and access to information better and faster and facilitates the practice of E-mentality storms, exchange of dialogues and electronic discussions inside and outside the organization (Hassan, 2008). Finally, the database will be required to store acquired knowledge and to request specific queries and a filter series, resulting in the application and use of knowledge in the organization.

It is essential for organizations to find a balance between their technological and social systems (Rezaei et al., 2021). The success of an organization in the context of knowledge management depends on the ability of the organization to understand economic and technological changes with the aim of constant adaptation of strategy with competitive advantages (Bawany, 2000). Technologies can enhance individual efficiency and facilitate knowledge sharing within an organization (Lee et al., 2020).

The cruise industry, responsible for transporting millions of passengers, has seen substantial growth (Di Vaio et al., 2022). This sector offers a wide array of tourism services, including leisure, education, conferences, and adventure, along with a diverse range of accommodations (Logunova et al., 2020), allowing passengers to explore multiple countries (Smirnov et al., 2022). Consequently, forward-thinking companies like Carnival Cruise Lines have embraced information technologies, and applications, and have deployed a "working-smart" system. This approach enables the use of

fewer workers and saves time, while still serving the same number of passengers with greater efficiency and productivity.

There is a suggestion that technology can serve a moderating role in exploring the connection between knowledge storage, knowledge sharing and application, and organizational performance. This initial research idea has led to the establishment of two main objectives: (I) To examine the relationship among the composite variables of knowledge storage (KS), knowledge sharing and application (KShA), and organizational performance (OP). (II) To investigate the impact of the moderating variable knowledge management tools (KMT), in the relation between KS and KShA towards OP. Specifically, the paper will focus on the influence of KS and KShA, moderated by KMT on OP in the Carnival Cruise Line.

2. THEORETICAL BACKGROUND AND HYPOTHESES

This section deals with the literature review, development of hypotheses, and conceptual model.

2.1. Knowledge Management

Knowledge can be defined as information understood through comprehension and shaped by an individual's experiences (Wibowo & Waluyo, 2015). It includes accessible information that can be utilized for decision-making and taking action (Ali, 2022). According to Hossain et al. (2022), knowledge is an intangible concept that exists in two forms: explicit and tacit. It is suggested that knowledge is considered tacit when it is tied to the senses, experiences and

intuition (Zaim et al., 2015). Explicit knowledge is characterized as transmittable in formal language and can be stored in information systems (Borges, 2013), it is any knowledge that can be codified, verbalized, transferred, and articulated. As per Chamba-Rueda et al. (2021) a strategic asset that can contribute to achieving a competitive advantage, is knowledge. Koehler et al. (2019) describe KM as a series of processes aimed at converting data into knowledge or useful information that benefits a company's progress. These processes encompass knowledge creation, acquisition, storage, dissemination, and application, as noted by Mahdi et al. (2019). Gunjal (2019) describes KM as the process of collecting, managing, and disseminating human knowledge throughout an organization. KM and R&D activities are essential tools that empower firms to innovate new technologies, as noted by Habib et al. (2019).

2.2. Organizational Performance

Organizational performance takes a high position in any institution, as the final extract of the outcome of activities in it. Performance is tied to an organization's objectives and encompasses various concepts related to success and failure, both of which are measurable and evaluable. This process relies on specific elements aligned with the organization's vision and size, as well as its strategy and goals, which dictate the direction of services and products (Mahfodh, & Obeidat, 2020). Organizational effectiveness is the ability to achieve goals, gauged by service acceptance and its quality. Organizational efficiency reflects the ability to achieve goals with minimum utilize resources-human, financial, equipment, time, and information. The organizational

system's performance involves a complex array of criteria: effectiveness, efficiency, quality, productivity, cost control, innovation, and benevolence. It must be measured across multiple levels: organizational, main process, and business unit. Economic performance is reflected in the simultaneous reduction of costs and increases in income, and the effects of financial performance can be measurable (profit, ratios, etc.) and immeasurable (reputation). According to Huang & Li (2017), a company can significantly reduce costs through an adequate KM approach. Cost reduction is achieved through the rational use of limited resources, and better use of raw materials, while the change in customer orientation towards company products and services means a loyal market. The study model's performance metrics include quality, schedule-planning, safety and cost control, as the most important measures for Carnival Cruise Lines company operation and are been measured across it.

The most effective aspect of KM is the storage, sharing and application of knowledge to influence performance. Acquiring of relevant knowledge that did not previously exist significantly enhances the capacity to generate innovative ideas that are essential for addressing challenges and promoting employee creativity. Furthermore, this process facilitates the development of an organization's creative performance (Kimpah et al., 2023). Knowledge management can be particularly beneficial in enhancing a company's overall performance, as suggested by Graha et al. (2019) and Alshawabkeh et al. (2020). Research has established a definitive link between the application of knowledge management practices and the improvement of corporate performance, as noted by Hameed et al.

(2020). Additionally, various researchers, including Demir et al. (2023), Rezaei et al. (2021), Mahfodh & Obeidat (2020), and Yusr et al. (2017), have emphasized the significance of KM in relation to overall innovation and OP.

2.3. Knowledge storage and Organizational performance

In an organizational KM system, knowledge storage (KS) is, according to Demir et al. (2023) a strategy that facilitates the effective documentation of an organization's collective experiences, promoting growth and knowledge sharing. Furthermore, Bergeron (2003) posited that knowledge storage involves securing information in a suitable form for future access using information technologies. Building on this, Wobodo & Orduwa (2022) describe knowledge storage as the preservation of an organization's knowledge assets to ensure their future security and accessibility, utilizing both manual and computer-based systems. This perspective aligns with Alavi & Leidner (2001), who noted that organizational memory exists in various repositories, including electronic databases, written documents, expert systems, organizational procedures, processes, and the tacit knowledge within individuals' minds. The importance of knowledge retention is such that inadequate practices can lead an organization into a competitive crisis due to knowledge deficits (Wobodo & Orduwa, 2022). Knowledge storage enables an organization to internalize and disseminate valuable experiences, facilitating learning among employees and groups.

An effective knowledge storage and distribution system is crucial for the swift

retrieval of organizational knowledge. Successful implementation of knowledge warehousing improves rapid access to knowledge. The study carried out by Skyrme (2001) pointed out that through the adoption of a knowledge storage process, members of an organization enjoy quick access to organizational knowledge needed for problem-solving; which then results in better performance. Furthermore, the finding of the Wobodo & Orduwa (2022) study indicates that there is a significant relationship between the managerial practice of knowledge storage and organizational performance. As a result, the following hypothesis is proposed:

H1. Knowledge Storage (KS) activities have a positive impact on OP.

2.4. Knowledge sharing and application and Organizational performance

Knowledge sharing is one of the most important knowledge management activities, as it is not possible to talk about knowledge sharing within an organization without talking about transferring it; because the process of knowledge transfer is the critical step towards the process of sharing it (Saffar & Obeidat, 2020). In accordance with García-Morales et al. (2007), knowledge sharing is also known as disseminating information to others. Knowledge sharing significantly enhances workers' explicit and tacit knowledge, resulting in reduced errors and mistakes, and improved operational and economic sustainability (Maravilhas & Martins, 2019). The importance of knowledge sharing helps to understand the nature of the business in the organization, which leads to improving its performance (Mahfodh & Obeidat, 2020). Krsteska et al. (2023) pointed out that managers could

design better projects and effective training programs to enhance communication and synergy among employees. In addition, they state that the connection between organizational learning, knowledge sharing, and competitive advantage is vital, as it helps organizations become more efficient and competitive.

Finally, organizations must develop knowledge capabilities to effectively use created knowledge in integrated processes, ultimately leading to superior performance (Mitrović et al., 2018). The shared and stored knowledge must be applied in so that efficiency in the processes can be achieved. Knowledge application activities include integrating and applying knowledge to solve problems and finding easier and more effective solutions for the organization (Zack et al., 2009). Enterprises can use gained knowledge to improve their management practices (Krsteska et al., 2023). Knowledge application is the use of acquired knowledge in producing or delivering firm products and services (Mothe et al., 2017). Mulhim (2017) concluded that the application of knowledge is a main source for creating new competencies for organizations and enhancing their economic performance. The ability to incorporate new knowledge into daily activities can develop a unique competency that supports organizational innovation goals (Ririh et al., 2024; Khan & Tao, 2022). The literature identifies multiple outcomes of KM, such as enhanced problem-solving skills, improved performance (Vrontis et al., 2017) better team performance, financial performance (Giampaoli, et al., 2017), and increased innovative capability (Saenz et al., 2012), among others. Based on the relevant literature, the following research hypothesis was developed:

H2. Knowledge sharing and application (KShA) activities have a positive impact on OP.

2.5. Knowledge Management Tools as a Moderator

The effectiveness of KM is closely linked with information and communication technologies, resulting in many positive organizational outcomes, such as higher employee participation, improved communication, efficient problem-solving, better team performance, and improved financial performance (Alavi & Leidner, 2001). Technology encompasses the infrastructure of knowledge, tools, processes, methods, systems, platforms, and automated solutions that improve the development, application, and dissemination of knowledge (Chong et al., 2010) used to produce goods and offer services (Mentzas et al., 2001). Singh & Chakraborty (2024) suggest that technology is considered useful depending on its ease of use and its ability to help the user access necessary knowledge with minimal effort. In organizations, there are several mechanisms through which knowledge can be discovered, gathered, and disseminated. Some of the well-known IT tools/techniques, which are often used are: the internet, software browsers, e-mail, e-learning, chat, Voice and VOIP (Khajouei & Khajouei, 2017). Daft (2001) has identified the following mechanisms as a driving force for effective explicit knowledge management, such as Data warehousing, Data mining, Knowledge Mapping, and Electronic Libraries. The effective use of IT ensures timely access and exchange of knowledge so as to facilitate the decision-making process (Ho et al., 2012). Knowledge is transmitted within an

organization with the use of technological infrastructure (Ryan et al., 2010). Therefore, information technology (IT) is considered a valuable tool that supports the discovery of useful knowledge (Ho et al., 2012). Swift & Hwang (2013) indicate that the employee's knowledge increases his value, so if the organization wants to encourage employees to share their knowledge, they must provide the technological infrastructure and necessary knowledge management tools (KMT) for smooth storage, sharing and usage of knowledge. The IT infrastructure supports the transfer of tacit knowledge to explicit knowledge (Alavi & Leidner, 2001). It also allows explicit knowledge to be stored and recorded in official documents in order to facilitate knowledge retrieval (Yang et al., 2012). Several researchers Rezaei et al. (2021); Ho et al. (2012); Abouzeedan & Hedner (2012); and Ryan et al. (2010), emphasize technology infrastructure as a crucial element of knowledge sharing in organizations. Through knowledge sharing with the help of IT, individual knowledge is converted into organizational knowledge (Ryan et al., 2010). On the other side, shared knowledge needs to be accumulated and stored in an organizational warehouse in order to become organizational knowledge. Furthermore, few researchers have investigated the impacts of technology on performance. The technological infrastructure within an organization affects its economic performance (Doherty et al., 2010). Enhanced technology integration results in an efficient and inclusive learning environment (Singh & Chakraborty, 2024). In addition, the development of information systems may support efficient data integration, sharing, and management (Halfawy, 2010). Islam et al. (2015) explained how organizational structure and

culture contribute to the process of knowledge sharing, with the moderating impact of technological infrastructure. The results of a study conducted by Mitrović et al. (2018) indicated that technological advances such as intranets, internal portals, traditional databases and document management systems have facilitated access to knowledge and enabled knowledge sharing.

This study extends previous studies by identifying the knowledge management tools for knowledge storage, sharing and application and their impact as a moderating role in enhancing organizational performance. Based on the relevant literature, the following research hypotheses were developed:

H3a. Knowledge Management Tools (KMT) moderates the relationship between KS and OP.

H3b. Knowledge Management Tools (KMT) moderates the relationship between KShA and OP.

As existing empirical and conceptual evidence allows for the conclusion that processes of knowledge storage, sharing and application moderated by knowledge management tools can improve organizational performance, and according to the above-proposed hypotheses, a conceptual model was developed, as shown in Figure 1.

In the conceptual model, there are two independent latent variables: Knowledge Storage (KS) and Knowledge Sharing and Application (KShA); there is one moderating variable: Knowledge Management Tools (KMT) and one dependent latent variable: Organizational Performances (OP).

3. RESEARCH RESULTS

3.1. Data Sample and Methodology

A paper questionnaire was deployed as the measurement tool. The questionnaire

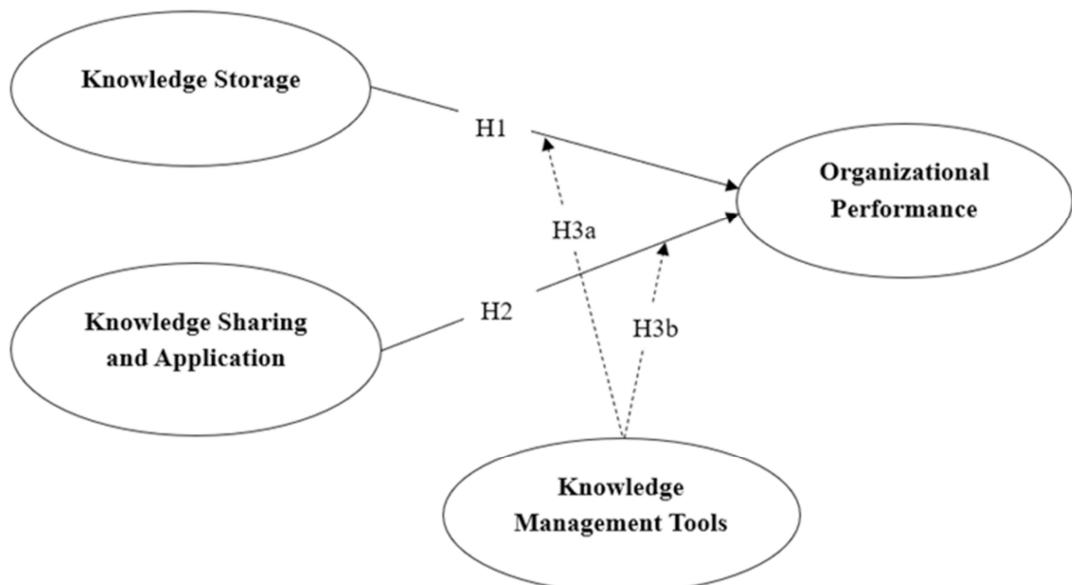


Figure 1. Conceptual model

contained 34 questions and was designed based on the questionnaire from a similar study (Yang et al., 2012). Pilot testing was conducted with 40 participants onboard Carnival Pride, to see the understanding of the questionnaire.

The study was conducted on board three Carnival Cruise ships: Carnival Pride, Carnival Vista, and Carnival Venezia, during the year 2023. The survey was designed to ensure that participation was entirely voluntary, and respondents were informed that no rewards or incentives would be offered for their involvement. Participants were briefed on the questionnaire's content and the research goals beforehand to ensure clarity. The anonymous perceptions of 323 company employees (Officers, Managers, and crew) from various nationalities were surveyed to assess the impact of KS and KShA on OP, by directly surveying participants. Out of 323 employees surveyed, 310 completed the questionnaire correctly. However, after a comparative analysis of the participants' responses, using the standard deviation function (which tells us how much,

the sample elements deviate from the arithmetic mean of the sample), it was observed that 27 responses were given under the influence of bias and represented a measurement error (STD less than 0.24). In this way, the sample was reduced to 283 respondents. The participants consisted of 171 men and 112 women. Table 1 provides a detailed analysis of the demographics of the survey participants.

The PLS-SEM (Partial Least Squares - Structural Equation Modeling) analysis was carried out using the SmartPLS 4 software package, known for its advanced modelling features to explore relationships among variables. The PLS-SEM modelling process is divided into two stages: the first stage is the evaluation of the measurement model, and the second stage is the assessment of the structural model.

3.2. Measurement Model Assessment

Measurement model assessment included establishing construct reliability (consistency) and validity (correctness) of

Table 1. Demographic characteristics of the sample (n=283)

Variables	Category	Frequency	Share (%)
Job position	Officer	71	25.1
	Manager	119	42.0
	Employee	93	32.9
School education	Elementary	14	5.0
	High	91	32.2
	College	89	31.4
	University	89	31.4
Age	≤ 29	54	19.1
	30-44	152	53.7
	45-54	63	22.3
	>55	14	4.9
Gender	Male	171	60.4
	Female	112	39.6
Years of employment	≤5	59	20.9
	6-15	122	43.1
	16-25	88	31.1
	>26	14	4.9

the scale tool (Huang, 2021).

First, the PLS-SEM method was employed to examine the interconnections among the proposed items. Assessing the measurement model involves determining factor loadings (FL), checking for multicollinearity with the Variance Inflation Factor (VIF), evaluating reliability using Cronbach's Alpha (CA) and Composite Reliability (CR), assessing convergent validity through the Average Variance Extracted (AVE), and verifying the discriminant validity for the proposed model.

Factor loadings assess the strength and direction of the relationship between research variables and their composite variables, ranging from -1 to +1, with higher absolute values indicating a stronger relationship. This study adopted a 0.7 threshold for factor loadings, as recommended by Hair et al. (2010), to ensure

quality. Tests revealed that some research questions had factor loadings below this threshold, leading to their removal due to the implied weak relationship with the composite variables. Subsequently, a measurement instrument was adopted comprising 23 research questions (refer to Table 2) and was included in the model. The first 5 questions focused on the typical characteristics of respondents (position, age, gender, education and working experience). The remaining 18 questions were divided into four groups: knowledge storage (KS) evaluated by 3 items, knowledge sharing and application (KShA) evaluated by 4 items, knowledge management tools (KMT) evaluated by 4 items, and organizational performances (OP) assessed through 7 items, as displayed in Table 2. A five-point Likert scale was used to evaluate the respondents' answers, and the answers could range from 1

Table 2. Questionnaire items and factor loadings

Group	Variables	Element of influence	Factor Loadings
KMT	KMT_1	The Internet is used to support KM practice.	0.790
	KMT_2	Document management system (DMS) is used to support KM practice.	0.847
	KMT_3	Video conference is used to support KM practice.	0.848
	KMT_4	Database management system (DBMS) is used to support KM practice.	0.750
KS	KS_1	Useful ideas and new knowledge are well documented in the organization.	0.790
	KS_2	Useful ideas and new knowledge are stored and updated periodically.	0.934
	KS_3	Knowledge storage is an important objective in an organization.	0.890
KShA	KShA_1	Knowledge is shared among the team members.	0.803
	KShA_2	Members of different departments cooperated with others to obtain new knowledge, methods, and inventions.	0.840
	KShA_3	The team members utilized knowledge to solve problems and make work more efficient.	0.829
	KShA_4	The knowledge is utilized into practice.	0.790
OP	OP_1	All assignments are proceeding according to plan.	0.793
	OP_2	All activities are complied with the passenger requirements.	0.748
	OP_3	The service quality objectives were achieved.	0.788
	OP_4	All operations complied with all applicable environmental, health, and safety laws and regulations.	0.758
	OP_5	The recordable accident rate is low.	0.787
	OP_6	Cost targets are met.	0.838
	OP_7	The total cost was significantly under the authorized budget.	0.827

(completely disagree) to 5 (completely agree). The factor loading values are presented in Table 2.

The construct reliability and convergent validity of the measurement model are assessed using Cronbach's alpha (CA), Composite Reliability (CR), and Average Variance Extracted (AVE), which are presented in Table 3.

The CA and CR values for all the constructs were much higher than the recommended value of 0.7 (Hair et al., 2010), and they indicate excellent internal consistency. Some authors argue that values for CR and CA above 0.90 are not satisfying because they imply that all the indicator variables are measuring the same phenomenon and are hence unlikely to be a valid measure of the construct. However, when a construct does not contain semantically redundant items but rather items that assess quite diverse measures of the construct domain (as in this case), the high-reliability concerns are unjustified (Hair et al., 2017). The Average Variance Extracted (AVE) for the constructs is higher than 0.5, indicating that the construct explains more than half of the variance of its

indicators. In that way, convergent validity is also confirmed (Hair et al., 2017).

In addition to convergent validity, discriminant validity must be verified prior to evaluating the structural model to ensure that each construct is genuinely distinct from others. Henseler et al. (2015) reported that the Fornell-Larcker criterion and cross-loadings do not consistently identify a lack of discriminant validity in typical research scenarios. Consequently, they introduced the heterotrait-monotrait ratio of correlations (HTMT, as shown in Table 4), which outperforms the former methods. Kline (2011) recommended a threshold of 0.85 or lower, whereas Franke & Sarstedt (2019), suggested a threshold of 0.90 or lower.

Table 4 shows that the HTMT ratio for each pair of constructs is below the recommended threshold of 0.90, which supports discriminant validity.

3.3. Structural Model Assessment

Once the reliability and validity of the measurement model are established, hypothesized causal relationships within the inner model can be evaluated using PLS-SEM.

Table 3. Construct reliability and validity

Variables	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Knowledge Management Tools	0.831	0.845	0.884	0.656
Knowledge Storage	0.841	0.843	0.906	0.763
Knowledge Sharing and Application	0.836	0.844	0.888	0.665
Organizational Performances	0.901	0.901	0.922	0.627

Table 4. Discriminant validity - Heterotrait-monotrait ratio (HTMT) – Matrix

Variables	KMT	KShA	KS	OP	KMT x KS
KShA	0.410				
KS	0.468	0.796			
OP	0.581	0.878	0.814		
KMT x KS	0.319	0.287	0.325	0.234	
KMT x KShA	0.277	0.143	0.200	0.121	0.821

This step enabled the researcher to generate path coefficients to determine the relationships between exogenous and endogenous constructs of this study. The second step was bootstrapping to generate the *t*-value to evaluate the significance of the relationship. There are various suggestions about how bootstrapping can be proceeded. This study adhered to the recommendation of Hair et al. (2014) by using 5000. Table 5 and Figure 2 present the results for the structural model, illustrating the direct connections between the constructs. The path coefficient

(β) indicates the strength and direction of the relationship, the *t*-value (T Statistics) assesses the significance of the path coefficients, and a *p*-value of 0.05 or less signifies a significant relationship.

Above, in Figure 2 are presented PLS-SEM model results combined of factor loadings for all items with path coefficients and *p*-values for all variables and R^2 (redundancy) shows the amount of variance in an endogenous variable which is attributable to independent latent variables. The model includes four hypotheses, named:

Table 5. Results of the Structural Model Assessment

Hypotheses	β	SDEV	<i>t</i>	<i>p</i>	Results
H1. KS → OP	0.293	0.044	6.664	0.000	Supported
H2. KShA → OP	0.479	0.035	13.818	0.000	Supported
H3a. KMT x KS → OP	0.107	0.051	2.084	0.037	Supported
H3b. KMT x KShA → OP	-0.148	0.044	3.352	0.001	Supported

Notes: β —path coefficient, STDEV – standard deviation, *p* – p-level of significance lower than 0.05.

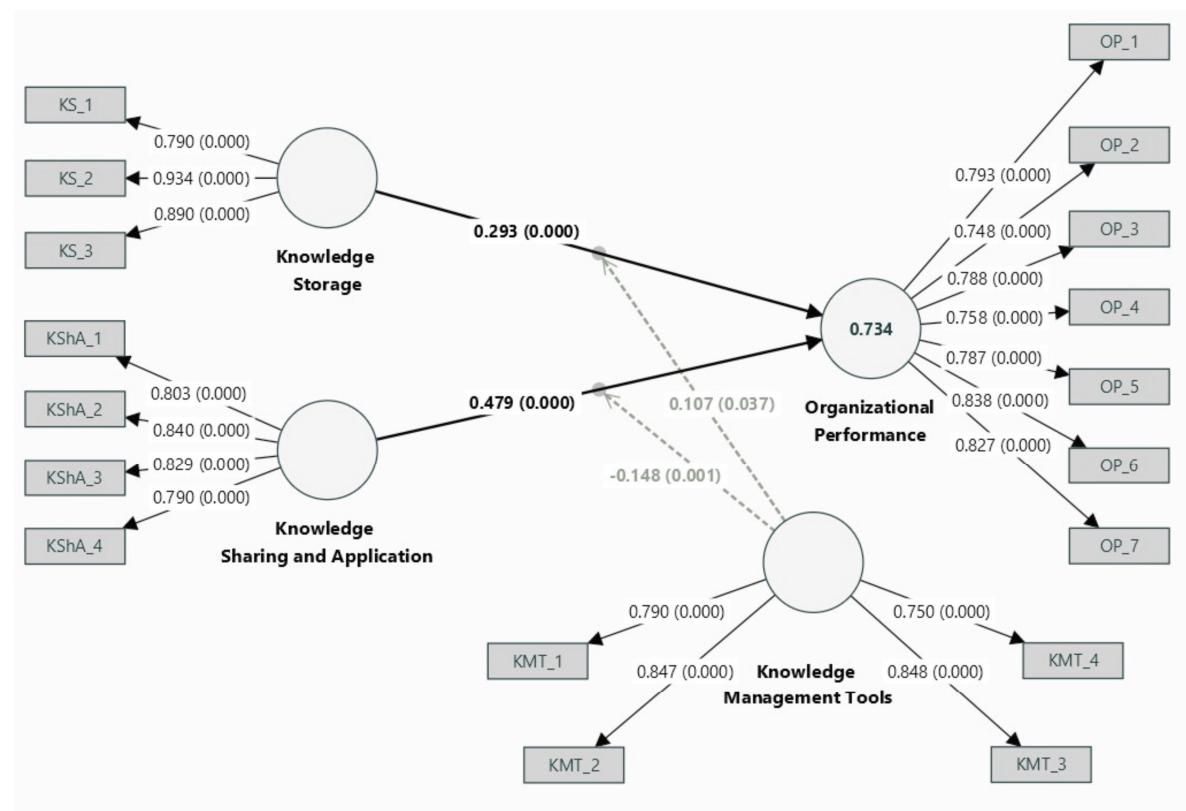


Figure 2. PLS-SEM Structural model

H1, H2, H3a, and H3b. The values $\beta=0.293$, $T=6.664$, and $p=0.000$ for hypothesis H1; $\beta=0.479$, $T=13.818$, and $p=0.000$ for hypothesis H2; $\beta=0.107$, $T=2.084$, and $p=0.037$ for hypothesis H3a; and $\beta= -0.148$, $T=3.352$, and $p=0.001$ for hypothesis H3b indicate that all four hypotheses are supported and statistically significant.

Hair et al. (2010), concluded that a moderating effect in PLS-SEM analysis exists if the interaction path is significant, which means that the t-statistic of the interaction effect must be 1.64 or 1.96 and above to be significant. Therefore, the results in Table 5 and Fig. 2, indicate that also hypotheses H3a and H3b are supported since the moderating effect is statistically significant.

Furthermore, hypothesis H3a implies that KMT is statistically significant and positive in moderating the relationship between KS and OP. The following Fig. 3 shows the findings of the moderating effect test and the existence of the positive moderating effect made by variable KMT on the relationship between KS and OP. The slope trend (Figure 3) shows growth at +1 standard deviation (green-upper line) indicating a stronger relation between KS and OP than when KMT is at -1 standard deviation (red-bottom line). Implementation and application of knowledge management tools strengthen the relationship between KS and OP, as per Hair et al. (2022).

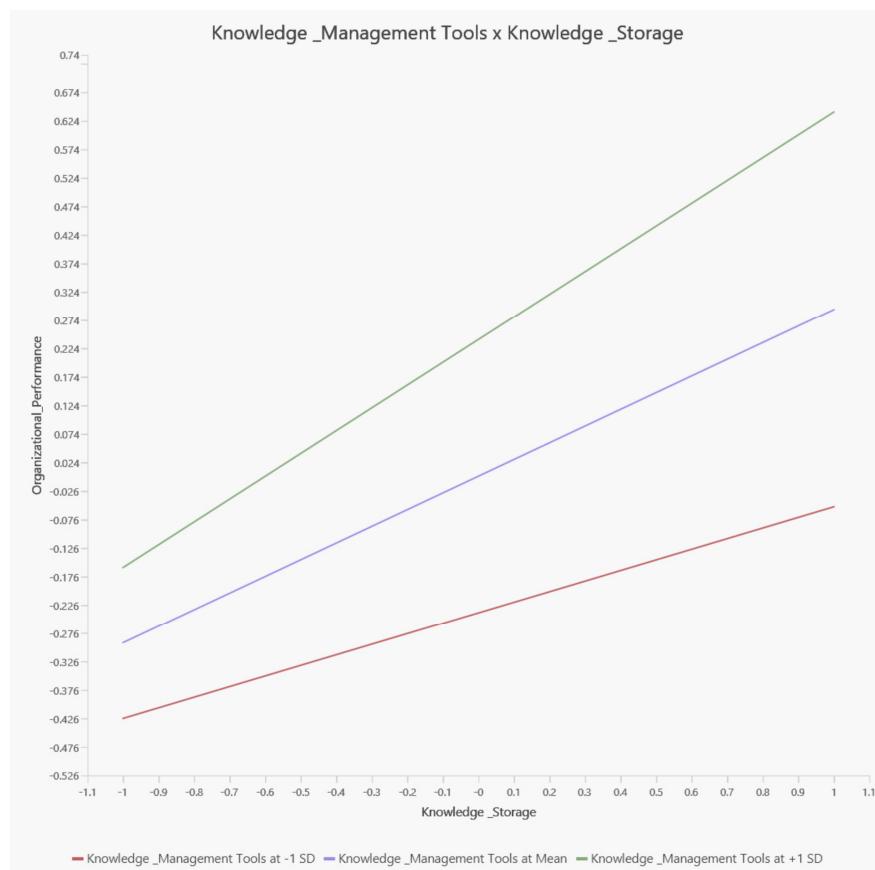


Figure 3. Simple slope analysis KMT x KS -> OP

Conversely, hypothesis H3b suggests that KMT significantly moderates the relationship between KShA and OP, albeit with a negative effect. Figure 4 illustrates the negative moderating impact of KMT on the KShA-OP relationship. The slope trend depicted in Figure 4, with growth at -1 standard deviation (red-bottom line), signifies a stronger negative correlation between KShA and OP compared to when KMT is at +1 standard deviation (green-upper line). According to Hair et al. (2022), the use of knowledge management tools weakens the relationship between KShA and OP.

Finally, the evaluation of obtained R^2 (the coefficient of determination) and f^2 (the

effect sizes of the paths) supplement the previous analysis (Table 6).

R^2 has been used to determine the explained variance of the latent dependent variable in relation to the overall variance. The cutoff R^2 values suggested by Chin (2009) are as follows: 0.190 weak, 0.333 moderate, and 0.670 substantial. According to the results in Table 6, it can be said that the model has a substantial predictive value (0.734).

Value f^2 measures the strength of each predictor variable in explaining endogenous variables. An f^2 value from 0.02 to 0.149 is considered small, from 0.15 to 0.35 is considered medium, and higher than 0.35 is considered large, according to Cohen (1988).

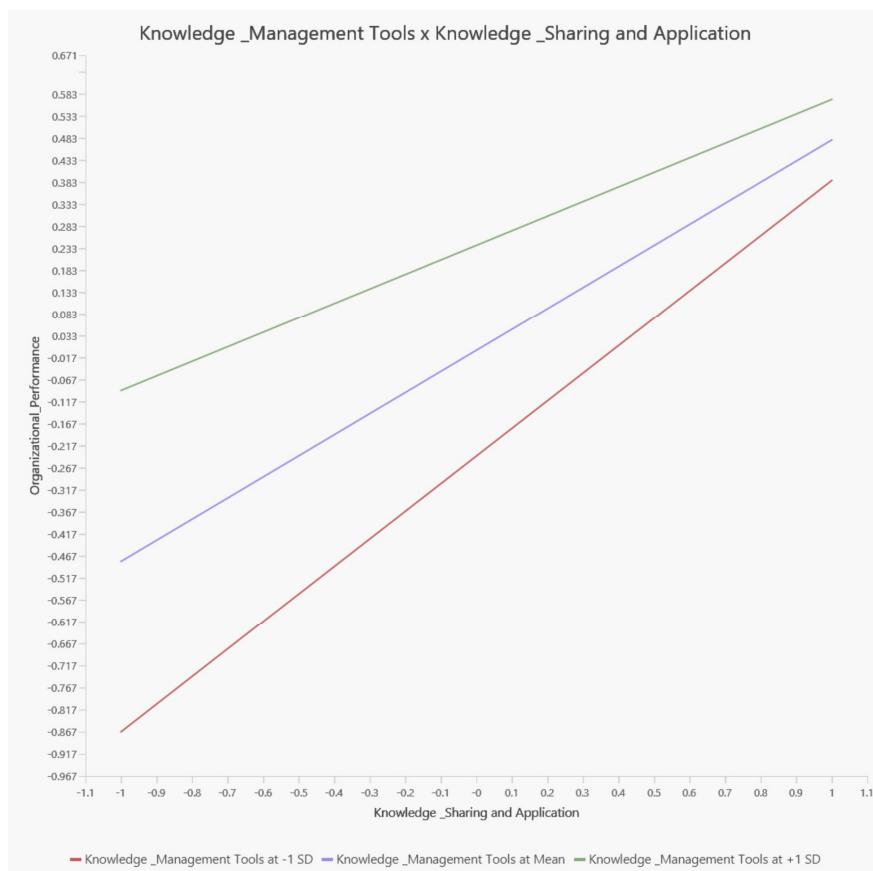


Figure 4. Simple slope analysis KMT x KShA -> OP

Table 6. R^2 and f^2 values

Predictor	Outcome	R^2	f^2
KS			0.164
KShA	Organizational Performance	0.734	0.420
KMT x KS			0.014
KMT x KShA			0.031

Considering the mentioned thresholds, the predictor variable KShA ($f^2=0.420$) significantly explains the endogenous variable OP, whereas KS ($f^2=0.164$) has a moderate explanatory influence on OP. A minor effect of the predictor moderator variable KMT ($f^2=0.031$) on the KShA-OP relationship was observed. Conversely, no impact was noted on the moderating influence between KS and OP ($f^2=0.014$).

4. DISCUSSION, IMPLICATIONS, AND LIMITATION

4.1. Discussion

Rapid development of technology, dynamic surroundings, and a new type of workers created a need for an organizational culture, and strategy based on knowledge management and usage of IT tools, which can create organizational knowledge that will further positively impact organizational performances. Many companies in developed countries, such as the USA have accepted this new way of doing business to improve their competitive position.

In this research, the knowledge storage, sharing and application, and knowledge management tools were studied and analyzed to assess their impact on organizational performances.

The study's primary findings emphasize the comprehension and implementation of KM strategies and tools by cruise ship staff, markedly enhancing existing literature and

offering valuable practical insights. The research broadened the scope of the knowledge-based view and its theoretical implications by employing KMT to attain a more profound comprehension of how organizational performance is achieved. Specifically, it investigated the direct relationships between KS and KShA towards OP within Carnival Cruise Lines. Moreover, it evaluated the moderating role of KMT on the dynamics between these variables. The results indicate a substantial, positive correlation between KS and OP (H1), and between KShA and OP (H2), aligning with recent empirical studies that identify KM as a pivotal element for augmenting organizational capabilities and business performance (Demir et al., 2023; Alshawabkeh et al., 2020; Graha et al., 2019).

The results of this study affirm the primary hypotheses, revealing that knowledge storage significantly and positively influences organizational performance (OP), thus supporting hypothesis H1. This finding aligns with Demir et al. (2023) and Bakar et al. (2016), who also reported a positive correlation between these variables. Additionally, knowledge management tools were found to positively moderate the relationship between knowledge storage and OP (H3a). Equally, the study indicates that knowledge sharing and application significantly and positively affect OP (H2), corroborating the findings of several prior studies (Demir et al., 2023; Mahfodh & Obeidat, 2020; Muhammed & Zaim, 2020; Torabi & El-Den, 2017). The positive effects of KS and KShA on OP indicate that the cruise line under study acknowledges the significance of knowledge management. This is evidenced by their integration of knowledge storage, sharing,

and utilization into daily operations, alongside the adoption of new technologies and tools such as the internet, intranet, databases, emails, Document Management Systems (DMS), video conferencing, presentations, and advanced applications. These measures enhance knowledge improvement, storage, and ultimately, organizational performance, consistent with Demir et al.'s (2023) definition. Such practices are instrumental in storing, sharing, and applying knowledge to create services that align with guest expectations. The contribution that KM has to OP takes place thanks to well-developed information systems, in the Carnival Cruise Line, which enables an accelerated process of knowledge storage.

Contrary to the results of hypothesis H3a, hypothesis H3b indicate the presence of a negative moderating impact of KMT on the KShA-OP relation. The reason for a negative moderating effect of hypothesis H3b may be that team members of Carnival Cruise Line don't recognize basic knowledge management tools (internet, emails, video conferences) as tools used for knowledge and information sharing and application, therefore their subjective perceptions are based on unknowledge and non-understanding of knowledge management tools in the day to day activities. In that case, the knowledge management system of Carnival Cruise Line does not play a decisive role. Furthermore, training emphasizing the value of knowledge is crucial. The implementation of these systems and consistent staff training invariably improve organizational performance. This not only fulfils company goals but also increases sales, profits, market share, efficiency, and overall performance, corroborating findings by Demir et al. (2023).

If all employees recognize knowledge as a significant organizational resource and adjust their behaviour accordingly, it can be anticipated that knowledge management tools in today's technological world will positively moderate the relationship between knowledge storage, sharing, and application towards organizational performance. Numerous researchers have identified IT as one of the three most crucial components of KM, as noted by Hajimohammadi & Vafaei (2019), and Okumus (2013), technology facilitates the formalization of knowledge, as well as its storage and distribution. Moreover, the prevalent view is that IT usage yields many positive organizational outcomes, such as improved communication, efficient problem-solving, and enhanced team performance.

4.2. Theoretical and practical implications

This study enhances the body of existing literature and introduces new practical implications. It extends current knowledge by exploring the relationship between Knowledge Storage (KS), Knowledge Sharing and Application (KShA), Knowledge Management Tools (KMT), and Organizational Performance (OP). Utilizing the Partial Least Squares Structural Equation Modeling (PLS-SEM) technique, the study examines the impact of KS and KShA on OP, with KMT serving as a moderating factor. It delineates how Knowledge Management (KM) and KMT aid in boosting the organizational performance of the Carnival Cruise Line company.

The research model proposed, built upon similar frameworks from prior studies (Demir et al., 2023; Mahfodh & Obeidat, 2020) demonstrated how an organizational

culture focused on knowledge management and the use of knowledge management tools can enhance company performance. The research indicates that for organizations to attain peak performance, they should give precedence to the deployment of KM processes. It underscores the crucial role of KS and KShA in enhancing organizational performance via KM tools.

It is essential for organizations to strategically approach process reengineering, foster design thinking, and incorporate technology within functional units to achieve success and capitalize on opportunities. Access to knowledge, up-to-date information, and technological applications is crucial for organizational members to maximize business value. Tools based on knowledge can amplify this effect. Thus, within an organizational setting, Knowledge Management (KM) is an intangible asset that warrants development to bolster operational performance. This notion is underpinned by the findings of hypotheses H1 and H2, aligning with the theoretical framework suggesting that a strong knowledge management system impacts an organization's operational capabilities. Including KM and Knowledge Management Tools (KMT) conceptually, the research offers new theoretical insights into both domains, providing valuable guidance for leaders and policymakers aiming to advance the transformation of industrial operations.

The results of this analysis contributed to the realization that it is not enough just to adopt a knowledge management system and knowledge management tools as a strategic direction of the market. Instead, it is also necessary to have management commitment to training the employees to translate these concepts into effective organizational contributions, which is pointed out by

Razzaq et al. (2019). Carnival Cruise Line should invest more in KM practice and tools, as well as in management training since higher levels of KS and KShA increase the benefits of OP.

To maximize the value of their knowledge, cruise companies should ensure that all members of the organization have access to up-to-date information, prioritizing a deep understanding of knowledge management tools used for knowledge storage, sharing and application and its importance for company growth and performance. Digital transformation, through KM frameworks, can redefine organizational capabilities.

KM, with continuous input of updates of connected systems, offers cruise lines constructive learning, encouraging change and continuous operational improvement, thereby improving OP.

By harnessing technological innovation, organizations can implement knowledge management tools that empower their employees to deliver swift yet high-quality services, which in turn fosters enhanced organizational performance. Consequently, organizations should also concentrate on employee training and coaching programs, enabling them to seamlessly integrate their knowledge into daily operations, thereby augmenting knowledge sharing, and ultimately, increasing OP.

In light of regulatory pressures, organizations need to recognize the imperative to allocate more resources to revamp existing business strategies into models that align with the knowledge sustainability paradigm. In this scenario, it is increasingly vital to embed the significance of the knowledge management process into the workforce's cognitive behaviours and establish a knowledge-centric organizational

culture. Furthermore, managers ought to prioritize knowledge as the organization's paramount asset.

The results obtained from this research can be used for comparative analysis with the results of research obtained from other organizations. In this way, it would be possible to establish universally valid connections that would contribute to the development of the concept of knowledge management. In addition, this study is only able to focus on the service sector in Carnival Cruise Lines due to the lack of time and limited financial resources. Therefore, it is recommended that future research be investigated in other countries and sectors to provide more valuable findings.

4.3. Limitations of the study

This research is not without limitations and open questions for future research. There are several limitations to consider. First, the research is based on the subjective assessment of the respondents and the scale was based on respondents' perceptions and evaluations, which may be subject to bias and measurement error. The second limitation is the small sample size and the fact that data refer to only one company. Further research should be conducted on these findings and try to cover all these limitations.

5. CONCLUSION

By implementing knowledge management practices, organizations can not only enhance their performance but also gain a competitive advantage. Our research provides insights into the significance of knowledge management (KM) in positively

affecting organizational performance (OP), considering the role of knowledge management tools (KMT) as a moderating factor, thereby enriching the literature, particularly regarding knowledge storage (KS) and knowledge sharing and application (KShA). This study addressed two research questions (RQs): (i) Investigate the relationship between KS and KShA towards OP. (ii) Assess the moderating effect of KMT on the relationship between these constructs. The findings revealed that both KS and KShA have a positive impact on OP. Regarding RQ2, it was discovered that KMT positively moderates the relationship between KS and OP, but negatively affects the influence of KShA on OP.

Although the concepts of KM, KS, KShA, KMT, and OP are extensively discussed in the literature, there is a scarcity of research within the context of Carnival Cruise Lines. Our study seeks to bridge this gap by presenting findings specific to this company. While previous research has often suggested a direct correlation between KMT or IT tools/technologies and OP, our study suggests that KMT acts as a moderator in the relationship between KS and KShA towards OP, underscoring the vital role of knowledge management tools and technology in attaining organizational performance. These results suggest that adopting a "knowledge-based" approach may have become part of the workplace culture at Carnival Cruise Lines, thereby enhancing KM policies and initiatives. Employees who are well-aligned with the organization's objectives tend to pursue these goals through their work-related activities, whether voluntarily or as mandated by their job roles.

However, the current study has shown also that knowledge management tools negatively moderate KShA-OP relations in a

studied organization and are not in line with KM practice and need to be improved and encouraged to be a source of organizational performance improvement.

Therefore, further research should be conducted in order to enhance the understanding of the concepts and the effect of KM towards organizational performance by taking knowledge management tools as a moderator variable.

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ПРОЦЕС УПРАВЉАЊА ЗНАЊЕМ И ЊЕГОВА ПОВЕЗАНОСТ СА ОРГАНИЗАЦИОНИМ УЧИНКОМ: СТУДИЈА СЛУЧАЈА “CARNIVAL CRUISE LINES”

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Извод

Многе компаније у данашњем технолошком и динамичном окружењу препознају управљање знањем (КМ) и ИТ алате као вредне ресурсе, поред осталих ресурса, за постизање конкурентске предности организација. Стога је ова студија спроведена с циљем испитивања утицаја складиштења знања (KS), дељења и примене знања (KShA) на организациони учинак (ОР). Поред тога, истраживан је и модераторски ефекат алате за управљање знањем (КМТ) у односу између ових променљивих у индустрији крстарења. Подаци су прикупљени анкетним упитником од 283 учесника запослена на три брода компаније Carnival Cruise Lines. За анализу односа између променљивих примењена је техника моделовања структурних једначина методом парцијалних најмањих квадрата (PLS-SEM). Резултати су показали значајан и позитиван утицај складиштења, дељења и примене знања на организациони учинак, као и постојање модераторског ефекта КМТ на однос између ових променљивих, што је даље објашњено анализом једноставних нагиба. Ово истраживање доприноси постојећој литератури истражујући управљање знањем и организациони учинак посебно у индустрији крстарења. Практичне импликације указују на то да организације треба да интегришу управљање знањем са технологијом и обезбеде менаџерску обуку, што доводи до испоруке ефикасних и квалитетних услуга, а самим тим и до унапређења укупног учинка.

Кључне речи: управљање знањем, организациони учинак, PLS-SEM, модераторски ефекат алате за управљање знањем.

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