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Assessing Supply Chain Management Ambidexterity, Integration of Knowledge Management Use and User Satisfaction

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Abstract

This study aims to address the knowledge gap in supply chain management between large corporations and small and medium enterprises by investigating the ambidexterity of supply chain management in small and medium enterprises. The study also focuses on the integration of knowledge management, user satisfaction, and supply chain management ambidexterity as its main novelty. A quantitative empirical technique was used, utilizing online data collection evaluated through partial least squares analysis with a sample of 372 reliable data points. This study presents five hypotheses, and the results of the Smart PLS 4 analysis indicate that all four theories have positive and significant influences. In addition, the results can be used for research in supply chain management and knowledge management, as well as for making plans to improve the quality of managed organizations.

Keywords: Supply Chain Management Dimension; Knowledge Management Use; User Satisfaction; Supply Chain Management Ambidexterity; Small Medium Enterprises.

1. Introduction

For some countries, particularly in Asia, small and medium enterprises impact a country's economic stability and may create more jobs than large industries. In terms of industrial globalization and maintaining economic stability during the pandemic, the role of supply chain management in small and medium enterprises is necessary, as large industries have dominated the implementation of supply chain management. Also, the challenges for small and medium enterprises will become even more complicated in the future, as they will need to align themselves with a knowledge-based economy to simultaneously adapt to the conditions of the new global economy. Knowledge management is crucial for industries, particularly small and medium enterprises, to foster sustainable innovation, maintain their competitive advantages, and strengthen global competitiveness. That is, the presence of knowledge management in small and medium enterprises enables the continuous creation of potential in business processes to create global competitive innovations. Based on the research of Friedman & Prusak [1], knowledge management can promote motivation and work innovation in individuals and organizations, so its role in an industry becomes essential. According to Okunoye & Karsten [2], the successful implementation of knowledge management in an organization is an essential factor for the sustainability of an industry.

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At present, the implementation of knowledge management is no longer dominated only by large industries but is also widespread in small and medium enterprises, as knowledge management is now a broad discipline that can be applied in all business areas. In addition, the introduction of supply chain management in small and medium enterprises makes it convenient to strengthen the operation of knowledge.

The concept of an information systems success framework has become a variable widely used by researchers in recent years. This framework is employed since it can measure value and has a significant impact on a system, as in research related to management systems, e-business, e-commerce, and mobile payments [3–7]. In addition, some previous studies have also discussed the integration of knowledge management with the information systems success model, but they have both theoretical and empirical shortcomings, making the integration less likely to be successful [8]. In particular, there is a paucity of research that addresses the integration of knowledge management and the information systems success framework in supply chain management in small and medium enterprises.

Markus [9] explains that the issue encountered by enterprises in implementing knowledge management is that employees are not yet accustomed to using knowledge management-based applications, making the performance of the knowledge management system less effective. To bridge the issue, this study adopts various dimensions from different sources, including the concept of knowledge management success framework [8, 10]. This framework is a modification and adaptation of the information systems success framework, which has been confirmed and validated by many researchers in recent years using empirical approaches. One of the drivers of supply chain management success in small and medium enterprises is strengthening the role of knowledge management, even though this is not easy to achieve in practice. Therefore, it is crucial to measure the success of knowledge management to aid small and medium enterprises in identifying which aspects of business processes and ongoing supply chain management activities need to be improved. Implementing knowledge management can also help improve the effectiveness and efficiency of supply chain management [10].

Small and medium enterprises (SMEs) face increasing pressure to respond rapidly and effectively to the transformations brought about by digitization in order to remain competitive. To this end, the utilization of knowledge management within SMEs that have adopted supply chain management can be leveraged to achieve benefits. There is a growing body of research examining the role of knowledge management in the development of business strategies as well as its application for managing knowledge resources among employees at all levels. However, the majority of previous studies have focused on large-scale industries and therefore may not accurately reflect the unique challenges, processes, and issues faced by SMEs. Implementing knowledge management and supply chain management in SMEs requires a comprehensive understanding of SME conditions and the development of tailored strategies and mechanisms. Despite the recognized potential benefits, previous studies have highlighted shortcomings in identifying and evaluating the factors that support knowledge management in SMEs, especially from the perspective of the implementation of supply chain management. For example, many studies focus only on establishing a knowledge management system in an organization but do not address the evaluation of the success of knowledge management [11–14]. The significance of implementing knowledge management in small and medium enterprises (SMEs) is not widely recognized, leading to a need for greater awareness and education on the topic. This includes increased research to better understand the role of knowledge management in SMEs. To effectively evaluate the outcomes of knowledge management implementation in SMEs utilizing supply chain management, a comprehensive framework is necessary. Such a framework will provide a systematic approach to assessing the impact of knowledge management on these organizations.

Despite the current state of research on knowledge management and supply chain management in small and medium enterprises and the amount of empirical research, we believe that small and medium enterprises have their own challenges when trying to maintain their business processes in order to survive and thrive. Small and medium enterprises are constrained in many ways, such as finance, human capital, management, technology, and regulations, which can impact knowledge management and supply chain management [4, 11-13]. Fragmentation is still quite prevalent when implementing knowledge management in small and medium enterprises. Therefore, this study provides a solution to this fragmentation by proposing a framework that can be used to evaluate knowledge management and supply chain management in small and medium enterprises. This study uses an empirical approach that incorporates multidimensional factors. The contribution of this study is to provide insight into the concepts of knowledge management and supply chain management in small and medium enterprises. In addition, a framework was developed that can be used as a benchmark for evaluating the ambidexterity of supply chain management in small and medium enterprises, as well as providing insights into how small and medium enterprises implement knowledge management and supply chain management.

2. Literature Review

2.1. Supply Chain Management and Knowledge Management in Small and Medium Enterprises

Customers desire more excellent choices, quicker delivery, better quality products, and lower prices [15–17]. As a result, corporate development and survival will be more challenging and complex in today's cutthroat business

environment. Therefore, it is necessary to find a solution to help small and medium enterprises survive in the cut-throat business environment. Knowledge management is increasingly being taken into account in research and management practice since it has the ability to both guarantee a company's capacity for innovation and, on the other hand, improve the level of performance of employees. Similar circumstances apply to supply chain management, a type of supply chain management that also influences how well a company performs. Both are likely to be used in this situation to support the viability of small and medium enterprises. As a result of their propensity to be more adaptable and dynamic in this situation and their higher capacity to take in new information compared to larger organizations, small and medium enterprises do better than other businesses on a larger scale [7, 14]. Developing an effective plan for small and medium enterprises to maintain and grow solid knowledge management and supply chain management practices is critical to their long-term competitiveness. Knowledge management is the management of organizational insights through specialized and systematic processes within the company to gather, maintain, organize, share, update, and use explicit and implicit knowledge by workers to improve organizational performance and create value [18–20]. While supply chain management, in this context, refers to the management of a coordinated system connected to the integration of internal and external parts to improve profit and value from the results of business activities in a business as a whole. According to Chow et al. [16], supply chain management is a complete method that includes manufacturing and logistics process management, demand management, procurement, and sourcing. Wong et al. [21] define internal integration as the merger of functional units within a corporation, whereas external integration involves customer and supplier alliances and knowledge exchange. In this situation, Wong et al. [21] found that integration and innovation improve a company's ability to perform and develop new ideas.

Knowledge management is the capability to maintain and create value above and beyond essential competencies. It can be further extended to create business value and give it an advantage over other organizations. It also facilitates the communication and application of all types of knowledge to achieve business goals and make discoveries. Knowledge management facilitates actions like knowledge exchange, use, application, and acquisition to create improvements. After being comprehended, knowledge will be sent to the appropriate departments and people and kept in the repository. The knowledge in the repository is then utilized in business scenarios, giving rise to new concepts and reference frameworks, which eventually give rise to new knowledge. New knowledge must be comprehended, archived, transmitted, and implemented. Knowledge management is implemented to help employees enhance their talents and skills to add more value and help the enterprise strengthen its competitive advantage. Thus, knowledge management can be defined as collaboratively using organizational intelligence to arrive at the desired outcomes (goals, in this case, are strategic goals). Recognizing and identifying related knowledge is part of knowledge management. The knowledge will be disseminated and implemented to give the organization a sustained competitive advantage. It also holds for the personnel of the company.

Exploration and exploitation take place in the framework of supply chain management. According to Kristal et al. [22], exploitation refers to the activities used to enhance existing capabilities and resources to improve the supply chain. In contrast, exploration refers to the numerous practices used to develop novel supply chain solutions. Even though exploitation and exploration are two different things businesses have to choose between [23], ambidexterity has made it possible for new businesses to do both simultaneously [24–26].

Durst & Edvardsson [27] claim that knowledge management benefits small and medium enterprises in several ways, including better service, quicker response times, more effective business procedures and processes, increased innovation, a lower risk of losing critical capabilities, and improved communication. Because knowledge in this situation serves as a resource for small and medium enterprises, knowledge management applications in these organizations are increasingly crucial [28–30]. Small and medium enterprises should rely on improving product and process quality, increasing innovations that offer customer value, and improving learning capacities. According to Durst & Edvardsson [27], small and medium enterprises must be more imaginative in acquiring external perspectives due to restricted resources. Within the supply chain management framework, small and medium enterprises need to rely on trust and capacity in dealing with external sources to build their supply chains [31, 32]. In this case, knowledge management enables easy and rapid access to new, more intensive communication channels with partner companies, as well as accessible and rapid access to external information sources. So, for example, knowledge management can help small and medium enterprises become more flexible and better at capturing opportunities. It can also remove barriers to their ability to be innovative.

2.2. Information Technology and Information System Success Model for Supply Chain Management and Knowledge Management

Various studies were carried out to evaluate the success of the information system. DeLone & McLean [3] developed a clustering method to coordinate heterogeneous studies. The DeLone & McLean approach investigates six aspects by assessing the impact on success of elements that differ from one another. According to the theory of DeLone & McLean, this relationship is of concern. It determines whether or not characteristics of quality and information systems influence user satisfaction and increased use. The interfaces involved and the technical infrastructure underpin the system's quality,

while the utilization of reliable data underpins the information's quality. In this case, user satisfaction will enhance the degree of use and vice versa, so the two cannot be separated. Later on, the system's success will be determined by its use. DeLone & McLean updated their successful information systems model and addressed critiques of the original model by including recent improvements in information systems research. Revisions based on these criticisms will result in an updated framework for DeLone & McLean's information system success. The changeable intention of use is one of the most important new things about this study.

Jennex & Olfman [10] created the Jennex & Olfman knowledge management success framework based on DeLone & McLean's information systems success framework. In this scenario, knowledge management entails the modification of systems and information technology to improve and assist in the gathering and storage of insights, the process of developing insights, and the distribution and application of insights. In this case, success in knowledge management entails simplifying the knowledge management component by enhancing the accuracy and speed of the search function to make it superior to other types of knowledge management. The ability to retrieve and rediscover knowledge from a decision maker at a more appropriate time and the way can increase the effectiveness of decision-making and search operations in knowledge management. In other words, enhancing the effectiveness of knowledge management not only reflects the success of knowledge management but also makes knowledge management more successful than ever. It indicates that improving the effectiveness and success of knowledge management and decision-making capabilities will benefit the organization. If we understand how knowledge management works, we can understand how systems and projects are designed and carried out to meet expectations.

The focus of this study will be on the success of knowledge management and supply chain management, particularly in the case of small and medium enterprises. As there are differences in focus, the Jennex & Olfman framework is inappropriate. Based on the framework of DeLone & McLean, we adopted several elements from the Jennex & Olfman framework to fit the requirements of this research. Some factors that will be utilized to assess the quality dimension of supply chain management are related to the Jennex & Olfman concept of success in knowledge management. In this case, knowledge management and supply chain management are inextricably linked to boosting the company's performance and overall profit. The idea of knowledge management is used to adapt to the needs of this study so that more accurate and valuable data can be gathered to help people learn more about supply chain management and knowledge management in companies, especially in small and medium enterprises.

2.3. Supply Chain Management Ambidexterity

According to Burgess et al. [33], by implementing supply chain management, small and medium enterprises may balance the benefits and drawbacks and move flexibly under their dynamics and challenges. According to Rai et al. [34], a supply chain management innovation approach helps balance the time and financial restrictions that small and medium enterprises could encounter. Considering small and medium enterprises, where ownership is held individually, the application of modern information technology and supply chain management development methods will be substantially influenced by the manager's behavior, culture, and norms. According to Meehan & Muir [35], when there is knowledge of the importance of customer relationships, small and medium enterprises can take the lead in competitiveness with larger organizations and benefit from it. Small and medium enterprises may take advantage of their close relationships with customers and suppliers and their limitations, such as a lack of suitable information technology and human resources, to improve their flexibility in using current resources. It may be done by using both the relationship's strengths and weaknesses. Small and medium enterprises can rely on the capabilities of suppliers and customers to acquire access to innovative methods, materials, processes, and cutting-edge technology [36–41]. So, small and medium enterprises are in a good place, especially regarding supply chain management and accepting changes. Zimmerman et al. [37] studied in their research how the fit between innovation capabilities and supply chain (SC) strategy affects business performance. The data revealed that core and incremental innovation capabilities positively impact business performance and that SC strategy moderates the relationship between innovation capabilities and business performance. The analysis also shows that the combination of an agile SC strategy and incremental innovation capabilities offers the greatest opportunity to improve business performance.

Despite knowledge management being increasingly recognized in management research and practice, Edvardsson & Oskarsson [42] claim that there is a lack of understanding regarding how companies find new insights and how to analogize them to the company's added value and improved customer relationships. Large organizations have been the subject of numerous studies on knowledge management, which have addressed how to enhance a company's performance and competitive position within the knowledge management process and structural framework. Businesses have long recognized knowledge management as a crucial means of boosting performance and gaining an edge over rivals. The subject of knowledge management attracts a significant quantity of study, which in this case tests whether knowledge management works in businesses and what factors contribute to its success. Most research is done on large companies, while small and medium enterprises with similar problems are often overlooked. Before applying knowledge management to small and medium enterprises, several features should be recognized. Prior lately, knowledge management in small and medium enterprises has been examined in some empirical studies; nevertheless, studies of

knowledge management in small and medium enterprises are still uncommon. Therefore, it can be argued that knowledge management, in particular, has not been investigated in small and medium enterprises. Most studies on knowledge management and its application have concentrated on larger organizations, while those discussing knowledge management and its application in small and medium enterprises are relatively uncommon. As a result, knowledge management in small and medium enterprises only offers fragmented insights. Most of the time, issues affecting small and medium enterprises are overlooked. Studies on knowledge management in small and medium enterprises are relatively limited compared to most studies on large corporations [43, 44]. So, this study aims to fix the imbalance in how knowledge management is placed in small and medium enterprises.

3. Research Methods and Hypothesis Development

3.1. Development of Research Hypotheses

A comprehensive framework should be provided to evaluate the efficacy of knowledge management and supply chain management since the employees use knowledge management and supply chain management systems, which are full patterns. However, the knowledge management success framework developed by Jennex & Olfman does not match this study. As a result, a theoretical framework suited to engineering sociology has been developed, where success is determined by fusing human and technological components [45–48]. McLean & DeLone's framework states that one dimension will relate to other dimensions. Hence, the framework for knowledge management success consists of an inseparable unity of dimensions. In the original DeLone & McLean framework, a new clause was added between the use of the system and the intention to use it. Several variables have also been changed to fit the needs of this study and get the expected results. All of the hypotheses and the research model in this study are described in Figure 1.

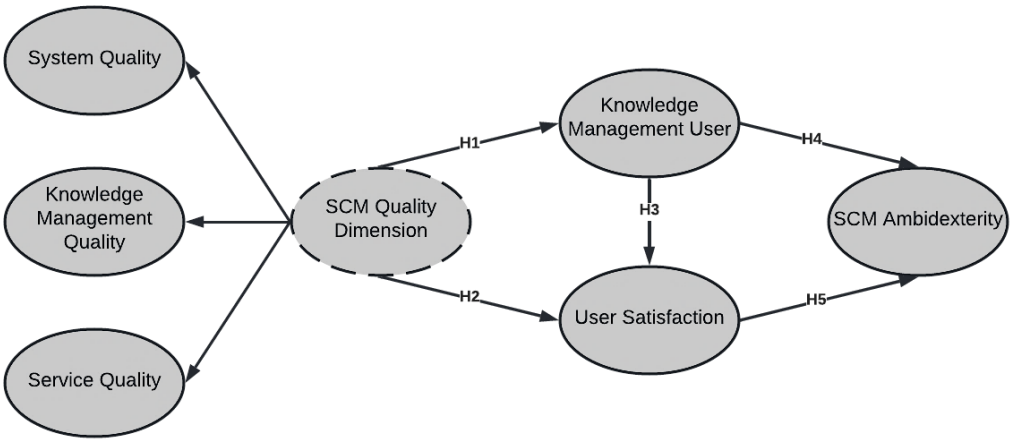

Figure 1. Research framework

3.1.1. Supply Chain Management Quality Dimension

System quality, knowledge management, and service quality comprise the supply chain management quality dimensions. System quality is determined by the interfaces involved and the technical infrastructure. According to Wixom & Todd [49], higher system quality is essential to user satisfaction in the information systems literature. System quality is related to use [50]. Therefore, the greater the system's quality, the more it will help complete work quickly. The quality of knowledge management can be evaluated by how well it executes associated activities spanning from knowledge acquisition to knowledge rediscovery. Sub-dimensions of system quality help with search, navigation, communication, and user response. It represents the simplification of information system processing, including software that, in this case, deals with how a system could be claimed to be technically proficient. The total level of user satisfaction rises as a result. Increased utilization will arise if knowledge management is easier to use, with a lower minimum requirement in terms of its level of difficulty. In the variable service quality framework, Jennex & Olfman say that using knowledge management well will involve parts of knowledge management that aim to ensure that knowledge management can help its users reach the goal of employment.

Both empirical and theoretical research support the notion that information and system quality positively enhance user satisfaction and system utilization [3, 51]. Supply chain management quality is a benchmark in this study's model for supporting and improving the supply chain management system for related activities. Previous research has included ease of use, but there was a difference in this study since the ease of use was discovered to be embedded in characteristics related to supply chain management quality. If knowledge management is of sufficient quality in this context, workers will see the value, which will favorably impact supply chain management quality. In this case, it will take less work to make contributions or discoveries, which leads to the assumption that a system's quality will lead to more people using it.

A simple system is understandable and does not require much effort to learn and utilize. According to Wixom & Todd [49], the system's quality is the most crucial factor in determining user satisfaction in the information systems literature. In this case, the system's quality is related to its use [50]. Therefore, the greater the system's quality, the more it will assist in completing the work. The satisfaction of information system users will rise when work is completed more quickly. Increased use will occur if an information system is easier to use, resulting in lower minimum requirement criteria, which leads to the idea that system quality impacts user satisfaction.

Furthermore, following the supply chain management success framework, this study proposes that combining knowledge management quality, service quality, and system quality impacts user satisfaction and the total degree of knowledge management use. We intend to prove the following hypotheses using theoretical analysis and a survey of related literature:

H1. *The supply chain management quality dimension has a positive relationship with knowledge management use.*

H2. *The supply chain management quality dimension has a positive relationship with user satisfaction.*

3.1.2. Knowledge Management Use

In this case, knowledge management, by Tzortzaki & Mihiotis [52], is a pattern in society (a social process) that essentially enhances the implementation of knowledge, which in this case is in the framework of the organization. According to related studies, implementation is one of the most popular ways to gauge the effectiveness of information systems [53]. Use is a suitable proxy to gauge the information system's success when not in an obligatory state [54]. In contrast to the DeLone & McLean success framework [55] and the Jennex & Olfman success framework [10], which combine user satisfaction and use, there is a belief that "use" is the proper technique for measuring success and a key variable in researching knowledge management success. The elements of individual users have thus been highlighted in this study to indicate the validity, nature, and extent of use in knowledge management. In this study's proposed paradigm, knowledge management is a standard for actions related to knowledge management and is not tied to a system.

There is currently a substantial amount of research that examines the association between user satisfaction and use, but less that examines the opposite relationship. Rai et al. [34] discovered a link between user satisfaction and system use. More research, however, is required to assess the relationship. It was discovered that in the context of knowledge management, the intention to use is highly associated with user satisfaction. There is a significant association between user satisfaction and the utilization of electronic-based learning. Iivari [50] found in his research of medical information systems that user satisfaction is highly associated with use when required. This study is expected to establish a similar relationship between user satisfaction and the use of knowledge management as a whole. If the users think the process is not complicated, doing activities related to knowledge management will give them the information they need to finish the work.

More specifically, an earlier study on exploitation and exploration found that the corporation could only concentrate on putting one of the two items into practice. Because exploitation and exploration are two distinct dimensions, the corporation can only engage in one of the two, as mentioned. Profits can be made soon if a corporation concentrates on exploitation. In contrast, if the business concentrates on the research phase, it will be able to reap long term benefits since it focuses on developing creative business solutions. However, recent studies state that grown companies will have ambidexterity, where the company can carry out both processes simultaneously. Ambidexterity knowledge will be stored in repositories and implemented in affiliated organizations. Therefore, in this study, a view emerges in the same context that knowledge management use will affect supply chain management ambidexterity. As a result, the following hypothesis emerges:

H3. *Knowledge management positively influences user satisfaction.*

H4. *Knowledge management use positively influences ambidexterity in supply chain management.*

3.1.3. User Satisfaction

It is based on a subject-specific evaluation of the many outcomes of a company's knowledge management system. In this context, the user satisfaction dimension is defined as an aspect that serves as a baseline for user satisfaction with supply chain management. So, assuming that the use of knowledge management and ambidexterity in supply chain management are related positively, the following suggestions are proposed:

H5. *User satisfaction positively influences supply chain management ambidexterity.*

3.1.4. Supply Chain Management Ambidexterity

According to Levinthal & March [55], the balance between exploitation and exploration processes must be maintained if there is ambiguity in the application of the exploitation and exploration processes. While exploitation involves optimizing processes connected to business operations by eliminating redundancy and enhancing supply chain technology efficiency, exploration entails integrating novel solutions and new chances to solve problems in the supply

chain [22]. In this context, Levinthal & March [55] also explains that the exploitation process will benefit the company in the short term because of the efficient utilization of resources throughout the exploitation process. It is different in the exploration process, which offers the organization long term benefits because it seeks novel solutions and fresh opportunities to minimize any potential future instability the company may experience. The corporation should first decide where its attention should be directed to maximize profits over the long and short terms. However, the company's ambidexterity has enabled it to generate short-term and long-term profits. Ambidexterity will ease managing the supply chain from upstream to down-stream more effectively and efficiently, which improves a company's internal and external business relationships with linked parties, such as those mentioned by Wong et al. [21].

3.2. Research Methods

In this study, questionnaire-based surveying was used to collect samples. The measuring items used in this study are based on a few elements, including relevant literature, operational definitions, research frameworks, and research aims. Following multiple rounds of pretesting, the experts among them supply chain management operators discussed and amended the questionnaire. This study consults the current literature and the information in Table A-I part of Appendix I (which, in this case, offers the demographics of the respondents to describe the sample structurally) to choose the measuring items and operational definitions of constructs used generally. Between January 11 and June 24, 2022, 392 questionnaires were gathered for the study; 372 were assessed to be valid. Sample of character demographic are presented on Table 1.

Table 1. Demographic characteristics of the sample

Variables	Categories	Frequency	Percent
Gender	Male	216	58.1
	Female	156	41.9
Age	<25	93	25.0
	26 - 35	125	33.6
	36 - 40	92	24.7
	> 41	62	16.7
Education	Undergraduate lower	82	22.0
	Undergraduate	250	67.2
	Postgraduate	40	10.8
Industry types	Services	82	22.0
	Manufacturing	73	19.6
	Hospital	32	8.6
	ICT and Software production	75	20.2
	Retail	88	23.7
	Education Industry	22	5.9

This study employs VIF to analyze the possibility of multicollinearity between the existing constructs in addition to ensuring that the created model can be declared relevant. The inner VIF is used as a benchmark to determine the value of multicollinearity provided by SmartPLS at the time of computation. Following Hair et al. [56], the VIF value for each variable must be less than 5.0 to create a relevant model. As shown in Table 2, the VIF value in this study ranges from 1.000 to 3.822, indicating that the model does not have potential multicollinearity between latent constructs.

This study uses Seven Likert scales (1 to 7) where the value of 1 is strongly disagree and the value of 7 is strongly agree to increase the accuracy of the scales of questions asked to respondents. In addition, this research uses companies registered with the industrial department of the republic of Indonesia, then direct surveys are carried out to several industries and after that questioners are distributed. Respondents who are part of this study are employees in five types of industries that have been determined, namely Services, Manufacturing, Hospital, ICT and Software production, Retail, and Education Industry. Sample population of 372. To anticipate bias in this study we use the concept of inner VIF, as described in Table 2. That the VIF value is smaller than 5.0, so it can be stated that it does not contain elements of bias.

Table 2. Inner VIF result

Construct	VIF
SCMQ → KMU	1.000
SCMQ → SAT	2.290
KMU → SAT	2.290
KMU → SCMA	3.822
SAT → SCMA	3.822

4. Result

Partial least squares is a structural equation modeling technique that employs the component base in an approach to examine related relationships in addition to the variants specified by the structural equation model. This study used the partial least square approach to analyze the provided data. According to Chin [57], adopting this partial least square method has become even more prevalent because it places minor demands on the residual distribution and requires only a small sample size. The approach is appropriate for this research because it can handle minimal samples [58]. Furthermore, Henseler & Fassott [59] suggest that partial least squares can estimate mediation effects more accurately by accounting for measurement errors and enhancing theoretical validation. According to Chin & Newsted [60], the partial least square model is rather sophisticated. The phenomena researched are novel and dynamic, so partial least squares will function better if the object is a forecast. Estimating complex interactions between variables ensures a robust solution [61]. Anderson & Gerbing [62] divide the process of assessing structural equation modeling (SEM) data into two parts, which include the following:

4.1. Analysis of Measurement Models

Confirmatory factor analysis will be used to assess the validity and reliability of variables. Experts were requested to assess the ease of comprehension, logical coherence, contextual relevance, and arrangement of questions in the survey questionnaire, which would be provided as a pretest before the field survey.

These measuring models include assessments of discriminant validity, convergent validity, and composite reliability [62]. Composite reliability (CR), Cronbach's alpha, and individual item dependability should all be tested to ensure reliability. First, each feature of this study is assessed in terms of each factor using Cronbach's alpha.

The values for Cronbach's alpha presented in Table 3 range from 0.855 to 0.935, with 0.7 being the lowest cutoff value for Cronbach's alpha [63]. It indicates that Cronbach's alpha has high internal consistency. Reliability was assessed by examining the loading factors of the constructs and their respective measures. In this regard, Rivard & Huff [64] found that the reliability of each item met the criteria when the loading value of reliability was above 0.5. We conducted a composite reliability assessment and found that the composite reliability, in this case, had a value greater than 0.7, which, according to Chin [60] and Fornell & Larcker [65], means that the scale in question has satisfactory reliability. Convergent validity is the ability to measure the same concept among several related measures. Convergent validity is assessed by examining the average variance extracted (AVE). According to Fornell & Larcker [65], an average extracted variance with a value above 0.5 indicates good convergent validity of a scale. Table 3 above shows that the average extracted variance for all constructs has a value above 0.5. In this study, if the relationship of each factor is less than the average square root, a connected test is performed to evaluate the discriminant validity, as indicated by Chin [60]. The results of the analysis and discriminant validity are presented in Table 4, which in this case, is evaluated based on the relationship of the variables by calculating the square root of the average variance of each construct along the diagonal.

Table 3. Reliability and validity results

Construct	Measurement Items	Factor Loading	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Knowledge Management Quality (KMQ)	KMQ1	0.738	0.878	0.917	0.735
	KMQ2	0.915			
	KMQ3	0.915			
	KMQ4	0.849			
Knowledge Management Use (KMU)	KMU1	0.799	0.855	0.912	0.775
	KMU2	0.925			
	KMU3	0.912			
User Satisfaction (SAT)	SAT1	0.921	0.935	0.958	0.884
	SAT2	0.953			
	SAT3	0.947			
SCM Ambidexterity (SCMA)	SCMA1	0.864	0.873	0.911	0.72
	SCMA2	0.805			
	SCMA3	0.881			
	SCMA4	0.841			
Service Quality (SEQ)	SEQ1	0.874	0.897	0.929	0.765
	SEQ2	0.903			
	SEQ3	0.920			
	SEQ4	0.797			

System Quality (SYQ)	SYQ1	0.906	0.895	0.927	0.761
	SYQ2	0.856			
	SYQ3	0.846			
	SYQ4	0.880			

Table 4. Discriminant validity Fornell Larcker criterion

	KMQ	KMU	SAT	SCMA	SCMQ	SEQ	SYQ
KMQ	**0.857**						
KMU	0.728	**0.881**					
SAT	0.650	0.859	**0.940**				
SCMA	0.762	0.785	0.806	**0.848**			
SCMQ	0.775	0.751	0.689	0.724	**0.848**		
SEQ	0.710	0.746	0.686	0.728	0.772	**0.875**	
SYQ	0.752	0.724	0.680	0.716	0.786	0.738	**0.872**

Note: Knowledge management quality (KMQ), knowledge management use (KMU), user satisfaction (SAT), SCM ambidexterity (SCMA), SCM quality dimension (SCMQ), service quality (SEQ), system quality (SYQ).

Based on the calculations performed, it is found that all the square roots of the mean are more significant than the corresponding correlation coefficient by other factors. So, in this study, a related review will be conducted to assess discriminant validity, as stated by Chin [60].

4.2. Structural Model Analysis

In this study, each percentage value and path coefficient hypothesis described in R2 was subjected to structural framework partial least square analysis. The term "R2" is used to represent variance in this study. The path coefficient represents the strength of the relationship between the independent and dependent variables. R2 represents the model's overall predictive power. According to Fornell & Bookstein [66] and Wixom & Watson [49], the greater the value of R2, the better the model prediction's quality. In this case, the partial least squares method will be used to determine the outcomes of hypotheses 1–5, as shown in Table 5 and Figure 2.

Table 5. Discriminant validity Fornell Larcker criterion

Hypothesis	Path	Standardized path coefficient	t-value	Results
H1	SCMQ → KMU	0.751***	18.223	Accepted
H2	SCMQ → SAT	0.301***	2.437	Accepted
H3	KMU → SAT	0.783***	11.900	Accepted
H4	KMU → SCMA	0.352***	3.420	Accepted
H5	SAT → SCMA	0.504***	4.932	Accepted

Note 1: SCM quality dimension (SCMQ), user satisfaction (SAT), knowledge management use (KMU), SCM ambidexterity (SCMA).

Note 2: *** p-value < 0.001.

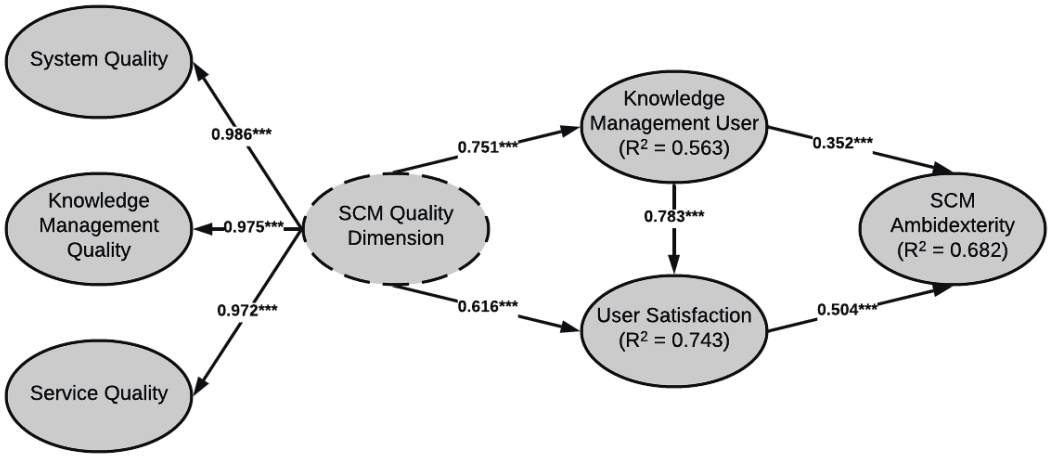

Figure 2. Hypothesis testing results of the partial least square analysis. Note: *** p-value < 0.001

As seen in Table 5 above, there is a positive relationship between the constructs, which in this case indicates that a significant impact on one another can be anticipated. The relationship between knowledge management use and the construct of the supply chain management quality dimension was tested for the first time. Hypothesis 1 tests the association between knowledge management use and the supply chain management quality dimension, with the result t-value = 18.223, showing that knowledge management use has a substantial relationship with the supply chain management quality dimension. Hypothesis 3 investigates the association between knowledge management use and user satisfaction and obtains a t-value of 11.900, indicating a relationship between knowledge management use and user satisfaction. Hypothesis 5 investigates the relationship between user satisfaction and supply chain management ambidexterity, discovering a positive relationship (t-value = 4.932).

In order to determine how quality affects user satisfaction, this study examines the relationships between user satisfaction, supply chain management ambidexterity, knowledge management use, and supply chain management quality dimension. The findings reveal a positive relationship between the supply chain management quality dimension and user satisfaction (t-value = 2.437), which endorses hypothesis 2. A substantial relationship between knowledge management use and supply chain management ambidexterity is found in Hypothesis 4 (t-value = 3.420), indicating that this relationship exists between the variables.

In this study, tests were performed to determine the magnitude of the mediation effect of one variable on another. The Sobel test model assesses the relationship between one variable and another through a specific mediator. Based on their respective mediator variables, we investigate the relationship of supply chain management quality (SCMQ) with many variables, including user satisfaction (SAT) and supply chain management ambidexterity (SCMA). Knowledge management use (KMU) and user satisfaction are two mediator factors (SAT). Variable relationships are acceptable if they meet the Sobel test criterion, which in this case must be higher than 1.96. Table 6 shows the findings of this mediation effect test.

Table 6. Mediation effects testing

Constructs	Constructs relationships	T-value	Sobel test's
SCMQ → KMU → SAT	SCMQ → KMU	18.223	9.963***
	KMU → SAT	11.900	
SCMQ → KMU → SCMA	SCMQ → KMU	18.223	3.361**
	KMU → SCMA	3.420	
SCMQ → SAT → SCMA	SCMQ → SAT	2.437	2.184**
	SAT → SCMA	4.932	

Note 1: Supply chain management quality dimension (SCMQ), knowledge management use (KMU), user satisfaction (SAT), supply chain management ambidexterity (SCMA).

Note 2: **p-value < 0.01; ***p-value < 0.001.

Table 6 demonstrates the results of this study's initial evaluation of the association between user satisfaction and the supply chain management quality dimension, which indicated that the Sobel test value was 9.963. As a result, the relationship between user satisfaction and the supply chain management quality dimension is considered acceptable through the employment of knowledge management as a mediator. The Sobel test value for this study is 3.361 when it examines the association between supply chain management quality dimension and supply chain ambidexterity through knowledge management use. As a result, it is considered acceptable that supply chain management quality dimension and supply chain ambidexterity are related through knowledge management use mediation. Third, user satisfaction is a mediator between the supply chain management quality dimension and supply chain ambidexterity. The association between supply chain management quality dimension and supply chain ambidexterity through user satisfaction mediation was determined to be satisfactory, with a Sobel test score of 2.184.

5. Discussion and Findings

5.1. Discussion

Supply chain management has become a highly sought-after practice as it provides companies with a significant advantage in the marketplace. Despite its widespread adoption in larger organizations, small and medium enterprises (SMEs) should not overlook its importance to their own success. Durst & Edvardsson [27] highlight the critical role of systematic supply chain management for the survival of SMEs. This study shows that having a dedicated manager for supply chain management is essential. The results of this study, based on statistical analysis, questionnaire surveys, a literature review, and theoretical discussions, show a strong relationship between knowledge management use, user satisfaction, supply chain management quality dimensions, and supply chain management ambidexterity in SMEs. The results indicate that by improving knowledge management, service, and system quality in supply chain management, SMEs can increase user satisfaction and knowledge management usage, which leads to increased supply chain management ambidexterity.

Among the other variables, system quality is the most important. The distinction between users and creators of knowledge can impact the extent of knowledge use [9]. Users who differ in certain aspects, particularly the depth and breadth of their knowledge, will struggle to understand the search terms in their knowledge management system. Users will receive useless information in this instance. As a result, it is required to create a system that can connect users with the authors of the relevant knowledge, which will then assist users in understanding and implementing the available insights [8]. Designing a system with a user-friendly interface that effectively conveys knowledge is essential. Service quality, alongside knowledge and system quality, has a significant impact on user satisfaction. As knowledge management becomes an integral part of the users' daily work routines, the importance of seamless system operation increases, gradually reducing user concerns.

The measurement of various relevant variables will remain an issue. This model will provide many profiles connected to the dynamics of knowledge management use, metrics of supply chain management quality, supply chain management ambidexterity, and evaluation of user satisfaction. This research underlined that user satisfaction, agility in supply chain management, ambidexterity, and knowledge management use are interconnected despite their various attributes. This study also stresses that user satisfaction influences supply chain management ambidexterity. Maintaining service levels, ensuring access to knowledge management in the workplace, and equipping users with the information they need to develop knowledge management and supply chain management successfully are all things that can enhance knowledge management, the perception of user satisfaction, and supply chain management ambidexterity.

This study represents a milestone in advancing the understanding of strategies for enhancing and assessing supply chain management within small and medium enterprises. The key contributions of this study include: 1) it confirms the relevance of supply chain management for small and medium enterprises, which has been previously overlooked in comparison to large corporations; 2) it employs a comprehensive methodology that considers all relevant constructs and performance variables, which is a unique approach in the field of supply chain management; 3) it explores the role of mediating variables between different dimensions, which has not been previously studied in the context of supply chain management; and 4) it employs more advanced instruments to gain a deeper understanding of the topic, which distinguishes it from previous studies in the field.

5.2. Theoretical Implications

This study fills the gap in the current understanding of supply chain management in small and medium enterprises by offering a comprehensive examination that takes into account the specific needs of these businesses. Despite the potential impact of supply chain management on a company's performance, there is limited evidence of its efficacy in small and medium enterprises. This study seeks to address this gap and identify similarities and differences with larger organizations. A proper understanding of supply chain management within the scope of small and medium enterprises needs to be further developed [33]. This study sheds new light on the evaluation of supply chain management success in small and medium enterprises. Despite its potential impact on an organization, the typical information system success framework has not been fully explored in the context of supply chain management. Previous studies have neglected to examine the factors that contribute to supply chain management success. This study fills this gap by validating and proposing a comprehensive framework for measuring supply chain management success that incorporates elements of DeLone &McLean's information systems success framework and Jennex & Olfman's framework. Four key measures of success are considered: supply chain management quality, user satisfaction, knowledge management use, and supply chain management ambidexterity. As intended by McLean & DeLone (2002, 1992) [3, 67], this framework is an appropriate framework for evaluating supply chain management in this study.

5.3. Managerial Implications

This study focuses on the importance of knowledge management in small and medium enterprises. According to Anantatmula & Kanungo [68], the main causes for the increased attention on knowledge management are changing consumers, globalization, short product life cycles, and intense competition. The study identifies three key dimensions that determine the success of knowledge management: insight quality, service quality, and system quality. The goal is to provide a comprehensive understanding of how to effectively implement knowledge management in small and medium enterprises. The results of the study will hopefully improve management performance and provide guidance for small and medium enterprises in implementing both supply chain management and knowledge management.

This research is valuable as it addresses the organization's interest in economic insights. The supply chain management measurement framework is critical to effectively implementing supply chain management and realizing its benefits. The study concludes that: (1) investing in supply chain management and knowledge management is necessary; (2) efficiently implementing and building supply chain management and knowledge management initiatives and systems is critical; (3) prioritizing the essentials should be the focus of managers; (4) this study can serve as a basis for evaluating small and medium enterprises. The underlying objective of this study is to determine whether the implementation of supply chain management and knowledge management can improve the operations of small and medium enterprises.

6. Conclusion

The study highlights the importance of supply chain management for small and medium enterprises to remain competitive. It examines the relationship between knowledge management, user satisfaction, supply chain management quality, and supply chain management ambidexterity. By improving these elements, SMEs can enhance their knowledge management and supply chain management capabilities, leading to improved user satisfaction and overall supply chain management ambidexterity. The study highlights the critical role of system quality in successful supply chain management, with a well-designed system connecting users to relevant knowledge and providing efficient ways to communicate information. Service quality also has a significant impact on user satisfaction. The study provides a model to evaluate key variables such as knowledge management use, supply chain management quality, supply chain management ambidexterity, and user satisfaction. This study makes significant contributions to our understanding of supply chain management in small and medium enterprises, confirming its importance, exploring the interplay between related dimensions, and using more comprehensive instruments compared to previous research.

The sample is one of the factors to consider when applying the findings of this study. In this situation, the sample consists of instruments that are managed individually. Another thing to remember is that the actual results may differ because the samples in this study were explicitly from small and medium enterprises. Respondent impressions, which form the basis of this study, may differ significantly depending on function and ownership and respondents' work experience, particularly in small and medium enterprises. Future research may discover SME scenarios by applying comprehensive concepts, broadening study results, and validating transferability. It should shed more light on how supply chain management is progressing, particularly in small and medium enterprises. Other factors that must be considered include the several essential external factors that can negatively impact supply chain management. More research is required to evaluate the framework's successful use in more diverse compositions. Future research will build on this study's findings and provide new knowledge, particularly in knowledge management and supply chain management, as they apply to small and medium enterprises.

7. Declarations

7.1. Author Contributions

Conceptualization, A.R. and T.H.; methodology, W.A.; software, A.R.; validation, A.R., T.H. and W.A.; formal analysis, A.R.; investigation, A.R.; resources, T.H.; data curation, W.A.; writing—original draft preparation, A.R.; writing—review and editing, T.H.; visualization, W.A.; supervision, T.H.; project administration, T.H.; funding acquisition, T.H. All authors have read and agreed to the published version of the manuscript.

7.2. Data Availability Statement

Data sharing is not applicable to this article.

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7.4. Institutional Review Board Statement

Not applicable.

7.5. Informed Consent Statement

Not applicable.

7.6. Declaration of Competing Interest

The authors declare that there is no conflict of interests regarding the publication of this manuscript. In addition, the ethical issues, including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, and redundancies have been completely observed by the authors.

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Appendix I

Figure A-I. Measurement items

Construct	Items	Sources
KMQ1	The knowledge management quality allows me to control the knowledge quality in a document.	Aini (2021) [17]; Adiandari (2022) [19]; Trang (2020) [20].
KMQ2	The knowledge management quality guarantees that I receive relevant information in the office.	
KMQ3	The knowledge management quality provides me with the best solution to my problem.	
KMQ4	The quality of knowledge management ensures the quality of information disseminated in my office.	
KMU1	We go looking for customers and searching for important information in the database to gain knowledge that is appropriate for our work.	Trang, 2020 [20]; Wong et al. (2013) [21].
KMU2	There is evidence of use and benefits of the rules in the idea to be used in some knowledge.	
KMU3	We improve work efficiency by sharing information and knowledge.	
SAT1	I am satisfied with the knowledge management quality services	Hariguna et al. (2020) [32]
SAT2	The knowledge management quality helps me identify problems in my work.	
SAT3	The quality of knowledge management quality changes the way you do things to better meet the needs and goals of the business.	
SCMA1	When SCM is managed properly, it makes work easier.	DeLone & McLean, (2003) [3]; Hitoshi (2021) [39]; Mukhtar et al. (2021) [69].
SCMA2	SCM helps me solve most of my information-related problems.	
SCMA3	SCM is very important to ensure the sustainability and balance of the organization.	
SCMA4	Good SCM management influences innovation in the organization.	
SEQ1	My organization encourages online discussion concerning new ideas and work methods.	Fernandes et al. (2021) [70]; Watts et al. (2021) [71]; Gupta et al. (2021) [72].
SEQ2	I find it difficult to communicate with my colleagues without discussing work-related problems and solutions.	
SEQ3	Our organization actively communicates the importance of knowledge quality.	
SEQ4	My organization holds meetings almost constantly to manage the information quality.	
SYQ1	Knowledge quality is very important for system quality	Kumar et al. (2020) [73]; Wang et al. (2020) [6]; Vates et al. (2020) [74].
SYQ2	It is easier for me to do my job when the quality of knowledge is controlled.	
SYQ3	Vital data is easier to find when the information is of high quality.	
SYQ4	The system in the organization is very efficient when it processes good knowledge quality.	