

การวิเคราะห์การจัดการความรู้และผลที่มีต่อความสามารถหลักของ  
บริษัทก่อสร้างในเมืองกู่โจว สาธารณรัฐประชาชนจีน  
**Analysis of Knowledge Management and Its Effects on  
Core Capabilities of Construction Companies in Guizhou Province,  
People's Republic of China**

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### บทคัดย่อ

การวิจัยนี้มีวัตถุประสงค์เพื่อ 1) เพื่อศึกษาระดับระดับการจัดการความรู้ของบริษัทก่อสร้างของจีนในเมืองกู่โจว สาธารณรัฐประชาชนจีน 2) เพื่อศึกษาระดับความสามารถหลักของบริษัทก่อสร้างของจีนในเมืองกู่โจว สาธารณรัฐประชาชนจีน และ 3) เพื่อศึกษาผลของการจัดการความรู้ที่มีต่อความสามารถหลักของบริษัทก่อสร้างของจีนในเมืองกู่โจว สาธารณรัฐประชาชนจีน การวิจัยนี้เป็นการวิจัยเชิงปริมาณเก็บข้อมูลด้วยแบบสอบถามโดยประชากรในการวิจัย ได้แก่ พนักงานที่ปฏิบัติงานในบริษัทก่อสร้างซึ่งดำเนินธุรกิจในเมืองกู่หยาง ประเทศสาธารณรัฐจีน กลุ่มตัวอย่างจำนวน 352 คน ผู้วิจัยใช้แบบสอบถามเป็นเครื่องมือในการเก็บข้อมูลโดยรวบรวมแบบสอบถามจากกลุ่มตัวอย่าง ข้อมูลที่ได้นำมาวิเคราะห์และประมวลผลข้อมูลโดยใช้โปรแกรมสำเร็จรูปทางสถิติเพื่อการวิจัย โดยกำหนดระดับความมีนัยสำคัญ 0.05 สถิติที่ใช้ในการวิเคราะห์ข้อมูล ได้แก่ ค่าความถี่ ค่าร้อยละ ค่าเฉลี่ย และค่าเบี่ยงเบนมาตรฐาน วิเคราะห์สมการถดถอยพหุคูณ สำหรับค่านัยสำคัญทางสถิติที่ใช้ในการวิเคราะห์ กำหนดไว้ที่ระดับ 0.05 ผลการวิจัยพบว่า การจัดการความรู้ของบริษัทก่อสร้างซึ่งประกอบด้วย การได้มาซึ่งความรู้ การจัดเก็บความรู้ การใช้ความรู้ และการแลกเปลี่ยนความรู้ โดยรวมอยู่ในระดับมาก ความสามารถหลักของบริษัท โดยรวมอยู่ในระดับมาก ทั้งนี้ การจัดการความรู้ส่งผลต่อความสามารถหลักของบริษัททั้งความสามารถทางการตลาดและความสามารถทางเทคโนโลยี ที่ร้อยละ 50.10 อย่างมีนัยสำคัญทางสถิติที่ระดับ 0.05 ผลการวิจัยครั้งนี้สามารถนำไปเป็นแนวทางในการจัดการความรู้เพื่อให้สามารถส่งผลต่อการพัฒนาความสามารถหลักของบริษัทในภาคธุรกิจก่อสร้างได้ต่อไป

**คำสำคัญ:** การจัดการความรู้ ความสามารถหลัก ความสามารถทางการตลาด ความสามารถทางเทคโนโลยี

## Abstract

This research aims to: 1) examine the knowledge management level of Chinese construction companies in Guiyang City, the capital of Guizhou Province, People's Republic of China; 2) assess the core competency level of these companies; and 3) investigate the effect of knowledge management on their core competencies. This quantitative study utilized a survey methodology. Data were collected from a sample of 352 employees working in construction companies operating in Guiyang City, the capital of Guizhou Province, People's Republic of China. Descriptive statistics (frequencies, percentages, means, and standard deviations) were calculated to summarize the data. Multiple regression analysis was employed to examine the relationships between variables. All statistical analyses were performed using a statistical analysis software package. Results revealed that the overall knowledge management of construction companies, encompassing knowledge acquisition, storage, utilization, and exchange, was at a high level. Similarly, the companies' overall core competencies were found to be high. Knowledge management significantly affected the companies' core competencies, both in terms of marketing and technological capabilities, accounting for 50.10% of the variance. These findings provide practical guidelines for improving knowledge management practices to enhance the core competencies of construction firms in the industry.

**Keywords:** Knowledge Management, Core Capability, Market Capability, Technological Capability

## Introduction

China's economy has transitioned from high growth to high-quality development in recent years. The construction industry has always been a significant sector in the domestic economy and holds a specific position in the Chinese economy. The outbreak of the new crown pneumonia severely affected China's economy and the construction industry. This outbreak caused disruptions in the supply chain, stranded personnel, logistical challenges, and resource shortages, leading to notable cost increases and construction delays. Consequently, external development of construction projects faced unprecedented constraints. The internal demand market not only forms the foundation for the construction industry's development this year but also serves as the driving force for a certain period in the future. Despite the current challenges, this epidemic will eventually end. Therefore, it presents a test for the construction industry to adapt its development strategies, optimize its structure, and alter its growth trajectory to achieve sustainable and healthy development in the evolving economic landscape.

The Organization for Economic Cooperation and Development (OECD) released the report "Knowledge Economy" in 1996, which elaborated the concept of a knowledge economy and its related issues. Presently, countries worldwide have widely recognized the concept of a knowledge economy. According to the OECD, the knowledge economy is based on producing, distributing, and using knowledge and information. It is mainly an economic form in which knowledge and technology are the main driving forces of economic growth. High growth, low inflation, and low unemployment rate are factors in which the knowledge industry, represented by the information industry, plays a vital role as a driving force. People are realizing that knowledge has become critical to the new economic growth. In the era of the knowledge economy, knowledge determines status and wealth. According to the theoretical arguments of dynamic capabilities theory (Teece, 2018), firms need exceptional knowledge management capabilities, which enable them to identify and process existing and new knowledge and transform it into innovative business opportunities. Knowledge management capabilities are those foundational organizational activities that facilitate the infrastructure and processes for leveraging internal knowledge and acquiring, transforming, and applying external sources of knowledge (Gold et al., 2015). The proper knowledge and the ability to transform it into new value acquisition leads to a competitive advantage. Therefore, much attention has been given to developing and maintaining organizational knowledge (Mehta & Bharadwaj, 2015). Knowledge management also helps to integrate current knowledge into new technologies or products. Construction companies are also increasingly focusing on developing knowledge management capabilities as they realize the importance of managing knowledge to remain competitive. Construction companies must anticipate market surprises, adapt flexibly to rapid market changes, and overcome research into more sophisticated technical issues as part of their development.

Knowledge management is a requirement for enterprises to adapt to the knowledge-based economy. Improving the ability to innovate, apply acq, use, and store knowledge is an essential factor affecting the core capabilities of an enterprise. Core capabilities are a new concept arising from the knowledge economy. Since the 1990s, core capabilities have become the mainstream of enterprise strategic thinking. The theory of enterprise core capabilities, as an in-depth development of capabilities theory in the traditional sense, has immediately attracted the attention of many scholars in the field of knowledge management. Knowledge management mainly

comes from management theories and ideas that help achieve a competitive advantage in enterprise management reform. The research on enterprise core capabilities finally focuses on exploring enterprise knowledge management. Such issues are of great importance to the operations of various businesses, including the construction business, a highly competitive industry. Knowledge management is a concept widely applied in the business sector to drive the development of business capabilities to be competitive and grow.

This study focuses on the analysis of knowledge management and its effect on the core capabilities of construction companies in Guizhou, People's Republic of China. Guizhou has recently introduced various strategies to accelerate major projects' construction further and enhance productive investments. These initiatives include expediting the development of investment projects focused on new types of industrialization (The Guiyang Municipal People's Government, 2022). Guizhou has 3086 major provincial projects in 2024, with an estimated annual investment of 319.744 billion yuan, covering various fields, including construction and infrastructure projects (Futu, 2024). Despite the promising outlook for Guizhou's construction sector, numerous construction firms continue encountering significant challenges while navigating the shift from a centrally planned economy to a market-driven one. These companies must continually adapt and develop themselves to build and maintain their competitive edge.

Moreover, the sector has forecasted that it may anticipate a deceleration in the expansion of China's construction industry in 2024, attributed to the persistent weakness in the property market and the expected moderation in the growth of infrastructure investment (Fitch Rating, 2023). The findings of this study enrich the existing theoretical knowledge and better understand the effect of knowledge management on the core capabilities of construction companies. It also provides recommendations to help construction companies grasp knowledge management trends and utilize them for enterprise development.

## Research Objectives

The objectives of the present study are threefold :

1. to examine the knowledge management level of Chinese construction companies in Guiyang City, Guizhou Province;
2. to assess the core competency level of these companies; and
3. to investigate the effect of knowledge management on their core competencies.

## Literature Review

### 1. Knowledge Management

The concept of knowledge management has evolved significantly over time. It involves systematically managing an organization's knowledge assets to create value and improve decision-making processes. Drucker (1999) emphasized that knowledge should be managed systematically to enhance organizational performance and competitiveness. Building on this, Nonaka (2009) proposes a more dynamic approach, highlighting the importance of knowledge creation and innovation as ongoing organizational processes. His SECI model illustrates the dynamic processes involved in creating, sharing, and utilizing knowledge within organizations.

Knowledge management is an iterative and dynamic process that requires employees to continuously engage with information, acquire fresh knowledge, and utilize it to enhance decision-making capabilities (Mahdi et al., 2019). The core process of knowledge management includes knowledge generation, storage, distribution, and application (Mertins et al., 2013).

Based on the review of previous research, we identify four critical components in the knowledge management process, namely:

#### 1.1 Knowledge Acquisition

Knowledge acquisition is defined as a continuous learning process that overcomes the limitations of personal boundaries and available information through the acquisition of new contexts, worldviews, and knowledge (Nonaka et al., 2006). Individuals should interact and share implicit and explicit knowledge to learn and acquire new knowledge (Kamasak et al., 2010).

#### 1.2 Knowledge Storage

Once knowledge is acquired or created, organizations must organize and store it appropriately (Karen et al., 1991). This includes various forms of knowledge such as written documents, knowledge stored in expert systems, structured information in electronic databases, documented organizational procedures, and tacit knowledge acquired by individuals or personal networks.

### 1.3 Knowledge Use

Knowledge use or application combines knowledge from various origins to enhance organizational capacity using procedures rooted in routines, standards, or decision-making within contexts (Grant, 1996). Knowledge management initiatives should prioritize facilitating the assimilation and utilization of current knowledge into organizational tasks and problem-solving processes (Zack et al., 2009).

### 1.4 Knowledge Sharing

Knowledge sharing is considered an essential tool for firms to gain an edge in their core competencies (Small, 2006). Organizational cultures that promote knowledge-sharing practices can facilitate the efficient dissemination of information between people (Abbasi et al., 2020). Management’s ability to build interpersonal relationships among employees is necessary for effective knowledge sharing, creativity, and innovation (Alavi & Leidner, 2001).

In the context of the construction industry, effective knowledge management can boost a business’s competitive edge, improve customer focus, strengthen employee relations and development, foster innovation, and lower costs (Lam et al., 2021). For instance, a study by Chen and Mohamed (2008) on construction firms in Hong Kong found that knowledge management practices significantly improved project performance and organizational effectiveness.

## 2. Core Capability

Core capabilities represent the unique strengths, skills, resources, and competencies that distinguish an organization from its competitors and enable it to achieve sustainable competitive advantage. Prahalad and Hamel (1990) defined core capability as the collective learning and coordination of processes that provide unique value to customers and enable an organization to adapt and innovate over time.

In the construction industry, core capabilities play a crucial role in determining a firm’s success. For example, Yan and Cheung (2011) found that project management capability and technological innovation capability were key factors in the competitiveness of Chinese construction firms.

### 2.1 Marketing Capability

Marketing capability is a combination of processes that aim to utilize the firm’s necessary resources to meet relevant market demands, thus enabling the firm to increase its value and meet competitive market demands (Vorhies & Morgan, 2005). In the construction industry, marketing capability can involve skills in project bidding, client relationship management, and brand building (Yan & Cheung, 2011).

### 2.2 Technological Capability

Technological capability refers to a firm’s ability to implement new production technologies and solve problems associated with outdated production systems (Ouakouak et al., 2014). In construction, this might involve the adoption of Building Information Modeling (BIM), prefabrication techniques, or sustainable construction methods (Arayici et al., 2011).

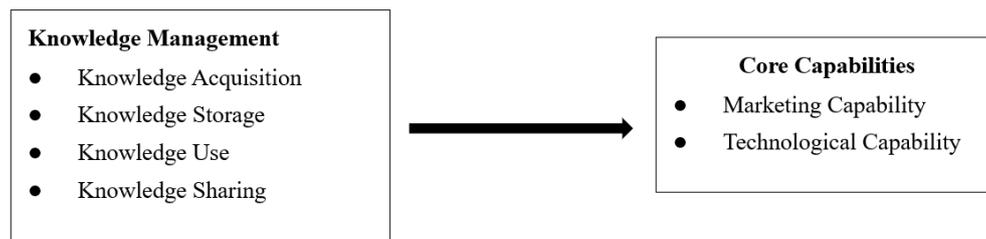
## 3. Relationship between Knowledge Management and Core Capabilities

Knowledge management practices can significantly impact the development and enhancement of core capabilities. By effectively managing knowledge, organizations can improve their marketing and technological capabilities, leading to increased competitiveness (Bashir & Farooq, 2019).

In the construction industry, knowledge management can help firms better understand market trends, client needs, and technological advancements, thereby enhancing their marketing and technological capabilities. For instance, a study by Robinson et al. (2005) found that knowledge management practices in UK construction organizations led to improved project performance and innovation capabilities.

### Conceptual Framework :

Based on the literature review, we propose the following conceptual framework :



**Figure 1 : Conceptual Framework**  
**Source : Authors**

This framework illustrates the relationship between Knowledge Management and Core Capabilities in construction companies. Knowledge Management is comprised of four key components: Knowledge Acquisition, Knowledge Storage, Knowledge Use, and Knowledge Sharing. These elements are hypothesized to influence Core Capabilities, which are represented by Marketing Capability and Technological Capability.

In the context of construction companies in Guizhou Province, this framework suggests that effective implementation of knowledge management practices across these four dimensions can lead to enhanced marketing and technological capabilities. For instance, better knowledge acquisition and sharing could lead to improved market understanding and client relationship management (marketing capability), while effective knowledge use and storage could contribute to more efficient adoption of new construction technologies (technological capability).

Based on this conceptual framework and the literature reviewed, we propose the following research hypothesis:

Hypothesis : Knowledge management has a positive effect on the core capabilities of construction companies in Guizhou, People’s Republic of China.

This framework suggests that effective knowledge management (including acquisition, storage, use, and sharing) positively influences core capabilities (with a major focus on marketing and technological capabilities), which in turn leads to improved organizational performance in construction companies.

## Methodology

### 1. Population and Sample

The study population comprises all employees with labor relations working in construction enterprises in Guizhou, People’s Republic of China. As of 2023, there were 216 construction companies in Guizhou, employing approximately 2,934 construction workers (Company Profile of Guizhou Construction Company, 2023).

To determine an appropriate sample size, we employed the Yamane (1973) formula :

$$n = \frac{N}{(1 + (Ne^2))}$$

Where,

$n$  = the sample size

$N$  = the population size

$e$  = the acceptable sampling error

95% confidence level and  $p = 0.05$  are assumed

$$n = \frac{2934}{1+2934(0.05)^2} \approx 352$$

This calculation resulted in a sample size of 352, with a 95% confidence level and a 5% margin of error. This sample size ensures statistical significance while remaining feasible for data collection

### 2. Research Instrument

This quantitative study employed a self-administered online questionnaire as the primary research instrument. The questionnaire, adapted from established theories and previous literature, consists of three sections : 1) participants’ personal information, 2) knowledge management assessment (17 items), adapted from Alavi & Leidner (2001) and Yee-Loong Chong et al. (2014), and 3) company’s core capabilities assessment (15 items), adapted from Momeni et al. (2011). Respondents rated their level of agreement using a five-point Likert scale (1 = strongly disagree to 5 = strongly agree).

The instrument underwent a rigorous validation process. First, to ensure content validity, three experts in the relevant field examined the questionnaire items. The Index of Item Objective Congruence (IOC) was used to evaluate the experts’ assessments, with IOC values for the questionnaire items ranging from 0.60 to 1.00, indicating acceptable content validity.

As the survey was conducted in China, a back-translation approach was used to convert all items into Chinese. Following Beaton et al’s (2002) recommendations, cross-cultural adaptation procedures were implemented for the translation and validation of the questionnaire.

To assess reliability, a pre-test was conducted with a targeted sample of 30 participants to evaluate the internal consistency of the questionnaire. Cronbach's alpha coefficients were calculated as suggested by Hair et al. (2010). As shown in Table 1, the Cronbach's alpha coefficients for all variables were above 0.8, indicating high reliability.

**Table 1 Results of the Cronbach's Alpha Coefficient of Variables**

Variables	Number of Items	Cronbach's Alpha Coefficient
Knowledge Acquisition Knowledge	4	0.937
Storage	4	0.934
Knowledge Use	5	0.938
Knowledge Sharing	4	0.936
Marketing Capability	6	0.888
Technological Capability	9	0.895

The high Cronbach's alpha coefficients (ranging from 0.888 to 0.938) demonstrate strong internal consistency for all scales used in the questionnaire, ensuring the reliability of the research instrument. This comprehensive validation process ensures that the questionnaire is a robust and reliable tool for data collection in this study.

### 3. Data Collection

The questionnaire was distributed and retrieved in Guizhou. Employees of Guizhou construction companies were encouraged to participate to ensure that the respondents were in line with this survey's research. The researchers printed the questionnaires and delivered them to the respondents' addresses. An online questionnaire was also created and sent to the incumbent employees of the firms via email and WeChat platforms. The questionnaire could be completed on a computer or mobile phone.

### 4. Data Collection

The data collection process was conducted in Guizhou Province, targeting employees of local construction companies. To ensure a comprehensive reach and maximize response rates, a dual-mode approach was implemented. Printed questionnaires were delivered directly to the respondents' addresses, which was particularly useful for reaching participants who might have limited access to digital platforms or prefer paper-based surveys. Simultaneously, an online version of the questionnaire was created and distributed through two primary digital channels: email and WeChat. The survey link was sent to the official email addresses of incumbent employees and shared via WeChat to reach a broader audience. The online questionnaire was designed to be responsive, allowing completion on both computers and mobile phones, thus enhancing accessibility and convenience for participants. Throughout the data collection period, reminders were sent to encourage participation and ensure a representative sample was achieved.

## Results and Discussion

### 1. Demographic Information Results

The data for the present study were collected from 352 respondents through questionnaires. The demographic information was categorized into seven main groups: gender, age, education, corporate positions, incomes, company department, and duration of working in the company.

Gender distribution was nearly balanced, with 151 male employees (48.59%) and 160 female employees (51.42%). The age distribution showed that the majority of respondents were between 31 - 40 years old (39.2%), followed by 21 - 30 years old (32.39%), 41 - 50 years old (21.59%), and above 51 years old (6.82%).

Regarding education, most respondents held a bachelor's degree (48.01%), followed by those with less than a bachelor's degree (42.33%), and a smaller proportion with higher than a bachelor's degree (9.66%).

Income distribution revealed that 71.59% of participants earned 5,000 CNY or less per month, with 39.2% in the 3,001 - 5,000 CNY range and 32.39% earning less than 3,000 CNY. A significant portion (21.59%) reported earnings between 5,001 - 10,000 CNY, while only 6.82% reported earnings exceeding 10,001 CNY monthly.

The respondents were spread across various company departments, with the largest proportion in technical support (44.60%), followed by marketing (30.40%), human resources (15.91%), finance or accounting (6.53%), and other departments (2.56%).

Regarding the duration of employment, 39.77% of respondents had been with their company for 1 - 3 years, 37.22% for less than a year, 18.18% for 3-5 years, and 4.83% for more than five years. Table 2 provides a detailed breakdown of the participants' demographic information.

## 2. Results of Knowledge Management and Core Capability Levels

The data from respondents regarding knowledge management has four dimensions: knowledge acquisition, knowledge storage, knowledge use, and knowledge sharing. At the same time, core capabilities consist of marketing and technological capabilities, as shown in Table 3.

**Table 2** Mean Value and Standard Deviation of Knowledge Management and Core Capability

Variable	Statistical Value		Interpretation
	$\bar{X}$	S.D.	
Knowledge Management			
Knowledge Acquisition	3.61	1.19	High
Knowledge Storage	4.04	0.97	High
Knowledge Use	3.67	1.11	High
Knowledge Sharing	3.89	1.01	High
Core Capabilities			
Marketing Capability	3.79	1.04	High
Technological Capability	3.97	1.06	High

As can be seen in Table 2, when considering the level in more detail by each variable, the results indicated that all dimensions of knowledge management have a high mean value, including knowledge storage ( $\bar{X} = 4.04$ , S.D. = 0.97), knowledge sharing ( $\bar{X} = 3.89$ , S.D. = 1.01), knowledge use ( $\bar{X} = 3.67$ , S.D. = 1.11), and knowledge acquisition ( $\bar{X} = 3.61$ , S.D. = 1.19), respectively. Meanwhile, the mean value of core capability dimensions is high, including marketing capability ( $\bar{X} = 3.79$ , S.D. = 1.04) and technological capability ( $\bar{X} = 3.97$ , S.D. = 1.06).

**Table 3** Results of Pearson's Correlations and Descriptive Statistics

	CC	KA	KS	KU	KSR
Core Capabilities (CC)	1.000				
Knowledge Acquisition (KA)	0.477**	1.000			
Knowledge Storage (KS)	0.525**	0.421**	1.000		
Knowledge Use (KU)	0.541**	0.359**	0.276**	1.000	
Knowledge Haring (KSR)	0.454**	0.337**	0.360**	0.326**	1.000

Note: \*\*Correlation is significant at the 0.01 level (2-tailed).

As indicated in Table 3, Pearson's correlation matrix shows that all variables are positively correlated. The correlation results indicate that all variables are linearly correlated, consistent with the theory from Karl Pearson (1895).

## 3. Multiple - Regression Analysis

The firm's core competencies include marketing capabilities and technological capabilities; after examining these two variables, the impact of Knowledge management capabilities on core competencies can be derived. Multiple regression analysis was used to test this study, and the results are presented in Table 4.

**Table 4** Results of Multiple Regression Analysis

Knowledge management	Unstandardized Coefficients		Standardized Coefficients	t	Sig	VIF
	B	SE <sub>b</sub>	Beta			
(Constant)	0.789	0.178		4.423	0.000	
Knowledge Acquisition	0.135	0.031	0.194	4.399	0.000*	1.352
Knowledge Storage	0.301	0.040	0.323	7.433	0.000*	1.352
Knowledge Use	0.238	0.034	0.293	6.988	0.000*	1.225
Knowledge Sharing	0.157	0.038	0.175	4.110	0.000*	1.259

R = 0.708<sup>a</sup> R-Square = 0.501 Adjusted R-squared = 0.495 F = 87.108

Note: Dependent variable: Core compatibilities.

\*Correlation is significant at the 0.05 level (2-tailed).

Hair et al. (2010) recommended that the variance inflation factors (VIF) range from 1.225 to 1.352, which is lower than 10. The VIF result indicates that the remaining predicted variables in the multiple regression model might contain all variables with undetected multicollinearity and independent variables. According to table 4, knowledge management, including knowledge acquisition, knowledge storage, knowledge use and knowledge distribution affect the core capabilities of construction companies. The results show a significant effect of knowledge management on core capability (F = 87.108, P = 0.000) with R-squared = 0.501, suggesting that 50.10% of the data is predicted by the listed factors and the remaining 49.90% is influenced by other factors that were not taken into consideration in this study. The sig values of the perceived knowledge management capabilities are less than 0.05, which means that knowledge management significantly affects the core competitiveness of enterprises, supporting this study’s hypothesis. Based on the data in Table 4, the following multiple regression equation was established in this study:

$$Y_{CC} = 0.789 + 0.135X_{KA} + 0.301X_{KS} + 0.238X_{KU} + 0.157X_{KD}$$

The results of the analysis of the four dimensions of knowledge management showed that all dimensions had a positive impact on the core capabilities of construction companies in Guizhou.

This study emphasizes four critical dimensions of knowledge management. It provides empirical support for the potential effect of knowledge management on the core capability of a construction company in Guizhou, People’s Republic of China. According to the results of the study, construction firms in Guizhou adopt these four critical dimensions of knowledge management sufficiently to enable them to grasp the key to the development of their firms, thus enabling them to operate their firms in a way that enhances the competitiveness of their firms in the marketplace. This result highlights that construction firms that use knowledge management can collect information cost-effectively, cost-effectively gather information, and obtain updates based on economic support. Employees of construction companies analyze the most valuable information to improve operations, reduce costs, innovate technology, and increase revenues and profits with the most valuable information analyzed by employees. Secure and reliable access to information through knowledge management.

Knowledge acquisition is essential for building and maintaining market and technological capabilities. By continuously acquiring and leveraging knowledge about the market, customers, and competitors, organizations can enhance their ability to compete effectively, innovate, and thrive in dynamic business environments. This is consistent with the research by Tubigi and Alshawi (2015), who reported that knowledge generation and acquisition positively impact organizational performance through various means, including self-reporting, documentation, program instrumentation, networks, and knowledge engineering. The findings also show that knowledge storage has the highest value in the knowledge management dimension of this study. This may be because it is the basis of many companies’ activities to store knowledge in various types. This result aligns with Sumbal et al. (2017), who stated that storing knowledge helps convert implicit knowledge into explicit knowledge, making it a valuable organizational asset accessible through suitable databases, networks, and information technology tools. Similarly et al. (2020) found that knowledge storage aims to boost work efficiency, fulfill knowledge strategies, and enhance sustainable organizational performance.

In addition, knowledge use enables a company’s market and technological capabilities by better understanding market trends and customer needs and insights into emerging technologies, industry best practices, and customer preferences. This finding is based on the findings reported by Tubigi and Alshawi (2015) that the

primary goal of knowledge is to ensure that pertinent information reaches the appropriate individuals when needed, facilitating the sharing and utilization of diverse knowledge types to enhance organizational performance. The findings also suggest that by communicating and learning from employees, concluding practice, and storing information initially, employees can quickly improve their capabilities and generate profit for the company. This finding is consistent with Hamdoun et al. (2018), who found that knowledge management fosters enhanced information sharing among involved parties, thereby facilitating the creation of novel ideas and collaboration within organizations.

The findings also highlighted that knowledge management positively affects a company's core capabilities, including marketing and technological capabilities. Technological capacities demonstrate an organization's ability to utilize technology effectively in transforming inputs into outputs (Afuah, 2002). However, to leverage technological capabilities, companies must draw on complementary knowledge management. Regarding market capability, the findings indicate that knowledge management enhances companies' market capability. It reflects an organization's ability to link with and serve customer groups (Song et al., 2005), enabling companies to forge beneficial customer relationships, retain existing customer bases, and use market knowledge to their advantage (Spanos & Lioukas, 2001). This is to previous research, comprised of a study by Teece (2014) and Hughes & Hodgkinson (2021), who found that the core capability empowers companies to predict and adapt to shifts in the market landscape by consistently adjusting their resource foundation, thereby aligning with the dynamic business environment. This capacity is nurtured by knowledge management practices such as disseminating information and maintaining organizational memory. A similar conclusion was reached by Reichert and Zawislak (2014); their findings implied that the technological capability of a company is based on its accrued knowledge to undertake various tasks, leading to the creation of fresh technological knowledge and ultimately yielding favorable economic outcomes.

## Conclusions and Suggestion

### 1. Conclusions

This study is on the knowledge management of construction firms and its effect on their core capabilities, including market and technological capabilities. 1) The overall mean value of knowledge management was at a high level with the highest value was knowledge storage. 2) The overall mean value of core capabilities was at a high level with technological capability has a higher value than marketing capability. 3) Knowledge management enables companies to gather, organize, and analyze market information, allowing them to identify emerging opportunities and customer needs, maintaining a competitive edge and strengthening their market capabilities. By leveraging the collective knowledge of its organization, a company can develop innovative products, services, and processes that address market needs and differentiate it from competitors, thereby enhancing its technological capabilities. Adopting knowledge management concepts is essential for companies seeking to enhance their market and technological capabilities.

### 2. Suggestion

#### 2.1 Implementation Recommendations

The finding suggest that the company should implement knowledge management in all dimensions and continuously implement it in every department. The company should also support employees in participating thoroughly in knowledge management activities. Nevertheless, this study has limitations because it conducted only one region in the People's Republic of China, Guizhou, which may limit the possibility of generalizing the findings elsewhere in China. Therefore, future research should extend the area of study and compare the effect of knowledge management on construction firms in different regions to understand whether the effect of core competencies on Chinese construction firms is unique. Finally, this study used a quantitative methods approach; therefore, in the future, researchers can use qualitative methods to explore more diverse research directions.

The company's employees should utilize their expertise to quickly adapt their working condition, methods and techniques to the market. In addition, through knowledge management is what drives the company's economic development. It is a way for employees to be able to appreciate that their value is reflected in the company. If used properly, knowledge management can enhance the employees' own abilities, thus obtaining more benefits for the company. Lastly, employees should strengthen their networking on the company's information system because it can be faster and easier for them to use the company's information system to find the information they need. The higher the intensity of the use of knowledge management by the company's employees, the greater their own value and the stronger the company's core competitiveness in the construction market. employees of construction companies are expected to constantly explore the latest policies issued by the state, technological innovations, and trends in the construction market.

## 2.2 Suggestions for Future Research

This study suggests that future research should conduct comparative studies between construction companies in different areas to understand regional differences in knowledge management practices and their impact on core capabilities. It would also be interesting to conduct detailed case studies of construction companies that have successfully implemented knowledge management systems to identify best practices and key success factors. Another suggestions for future research is to analyze the impact of local and national policies and regulations on knowledge management practices and core capabilities in the construction industry.

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