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Research Article

Barriers to Knowledge Sharing: A Case Study of Construction Companies in Surabaya

Andhika Agraprana*, Kartika Puspa Negara, Yatnanta Padma Devia

Department of Civil Engineering, Faculty of Engineering, Brawijaya University, Malang, Indonesia

Abstract.
Knowledge-sharing (KS) barriers prevent organizations from capitalizing on their skills and knowledge assets. This research aimed to investigate the main barriers to knowledge-sharing and identify the commonly used practice of the knowledge-sharing process in the construction company in Surabaya. Data was collected by sending questionnaires to the top management of large contractors (Qualification B) in Surabaya. Fifty-four questionnaires were collected and considered eligible for analysis. The Relative Importance Index (RII) method was used in this research. The results showed that internet/social media, e-mail, and face-to-face interaction are commonly used for knowledge-sharing. The results also showed that the top barrier to knowledge sharing was the lack of top management support and participation. Meanwhile, the top personal barrier was difficulties in generalizing knowledge from one project to another project. This study helped to understand the main barriers to the knowledge-sharing process in construction companies and provided some practical guidance for companies to deal with these barriers. Moreover, this study helped top management to provide strategies to alleviate the barriers to knowledge-sharing within their organization in order to achieve the success of construction projects.

Keywords: knowledge-sharing barriers, construction industry, knowledge-sharing practices

Corresponding Author: Andhika Agraprana; email: andhikaagraprana@gmail.com

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1. Introduction

With increasing competitive pressures and changing market conditions (demand for efficiency, reduced growth and cycle times, flexibility), organizations have turned their attention to knowledge management [1]. In particular, knowledge sharing, an important part of knowledge management [2–6], it is considered an important way to increase the productivity of employees and companies [7–10].

Due to the numerous barriers to knowledge sharing that prevent knowledge management from producing the desired results, however, achieving these advantages is not simple [11, 12]. Riege argued, building on this, that barriers to knowledge sharing prevent organizations from utilizing their knowledge and expertise [11]. Therefore, before implementing knowledge management initiatives, organizations should work to identify and eliminate barriers to knowledge sharing [11]. Individual and organizational barriers

to knowledge sharing and management initiatives and implementation are identified in the literature on knowledge management [11, 13–15].

However, those studies are still being carried out in the banking, trade, and service sectors. Furthermore, the number of KS research in the architecture, construction, and engineering are still limited because project-based companies generally do not have the necessary infrastructure to handle knowledge exchange [10]. In addition, projects under construction are specific and unique in terms of design, location, budget, and stakeholders. Based on this, the researcher will conduct research about KS barriers in the construction company in this paper.

This research was carried out to investigate the main barriers to knowledge-sharing in the construction company in Surabaya. Besides that, this study also aimed to identify the commonly used practice in the knowledge-sharing process in the construction company in Surabaya.

This research could help the researcher understand the main barriers to the knowledge-sharing process in construction companies with empirical evidence and provides some practical guidance for companies to deal with these barriers. Furthermore, it also helps the top management continuously anticipate and make an effort to overcome the main obstacle preventing knowledge-sharing activities related to the effective management of construction projects within their organizations.

2. Literature Review

2.1. Knowledge sharing in knowledge management

Knowledge Sharing (KS) is an activity in knowledge management to share information, ideas, knowledge, techniques, and experiences by the owner of knowledge with others. One of the most crucial phases of the knowledge management process is knowledge Sharing [2]. This is one of the biggest challenges for companies because employees are often reluctant to share knowledge.

Employee skills, experience, and knowledge are exchanged across all company departments as part of social interaction culture, which is also known as a knowledge sharing [16]. KS is a knowledge exchange activity using several media provided by the leadership to increase employee efficiency and productivity [17]. Any effort by organizations and individuals to learn and develop must include KS [18]. Knowledge sharing increases useful knowledge within the company or organization [19]. One of the most crucial phases of the knowledge management process is KS [2–6].

Previous researches have written that knowledge sharing is directly related with the company's competitive advantage [20]. And there is no denying that knowledge sharing is a critical aspect in knowledge management that can boost the competitiveness and innovation of knowledge-intensive organizations [21]. Therefore, it can be concluded that if knowledge is not shared, it will slow down the company's progress.

The owner and recipient of the knowledge must have a relationship with one another in order for knowledge to be shared. While the recipient internalizes the knowledge, the knowledge owner shares it through an externalization process. Because it is ingrained so deeply in a person's mind and will never leave that person's mind, tacit knowledge is challenging to transfer. Therefore, it can be interpreted that when an individual leaves the company, his tacit knowledge will go with them. For this reason, companies need to encourage their employees to share knowledge by investing in technology or policies or regulations as a medium that can help and facilitate the knowledge-sharing process so that when someone leaves the company, knowledge is already shared with other people in the company and knowledge will be left behind and can be reused in the future [2].

2.2. Barriers in knowledge sharing

Researchers have begun to recognize the existence of knowledge sharing barriers at various organizational and industrial settings in response to the growing importance of knowledge management [12, 14, 22]. Many barriers have been proposed as ways to stop knowledge sharing initiatives in organizations [13]. The knowledge management literature also identifies organizational and personal barriers that prevent knowledge sharing and management initiatives from being implemented [11, 13–15].

Previous study said that individual barriers and organizational barriers have a negative impact on knowledge sharing [23]. So, it is crucial to know the main barriers of knowledge sharing process so that the top management can continuously anticipate and try to remove the main barrier of knowledge sharing activities within their company.

3. Research Methods

3.1. Population and sample

The population in this study were personnel working from construction companies (Qualification B) in Surabaya. The sample for this study was selected using a purposive

sampling technique. With the non-random sampling technique known as porporsive sampling, the researcher chooses the sample by identifying particular characteristics that are coherent with the study's objectives and are presumed to be capable of answering the questions at hand. The selected sample is top management and engineering team from construction companies (qualification B) in Surabaya who have implemented knowledge management in their companies. It was found that in the city of Surabaya there are 5 companies that have implemented knowledge management in their companies. So that top management and engineering team from these companies will be the sample in this study, because they are considered as the personnel who often carry out the knowledge sharing process on the construction company.

3.2. Methods used for data collection

Quantitative approach was selected for this study. A questionnaire was distributed to collect data about the main barriers on the knowledge sharing process in the construction companies to the personnel working in large contractors (Qualification B) in Surabaya who were registered with GAPENSI. GAPENSI is a national construction service association founded 63 years ago and is the oldest and largest construction service association in Indonesia. GAPENSI has four qualifications for its members, namely Small (K), Medium (M), Large (B), and Special (S).

This classification is based on a number of variables, including size, complexity of the work, access to equipment, scope of work, technical expertise, and managerial capabilities.The reason for choosing the questionnaire as the data collection method is that it is expected to be able to draw accurate and convincing conclusions from the results of the questionnaire.

This questionnaire consisted of four parts, with the first outlining the respondent's profile (respondent's education and respondent's work in construction), the second part eliciting responses about the commonly used practice in the knowledge-sharing process in the construction company, the third part eliciting responses on the organizational barriers on knowledge sharing process, and the fourth compiling data about personal barriers on knowledge sharing process in contruction company. The questionnaire asked respondents to rate their agreement with each statement on a Likert scale from 1 (strongly disagree) to 5. (Strongly agree). This study collected 54 questionnaires that were complete and considered eligible for analysis.

3.3. Analysis methods

The Relative Importance Index (RII) method will be used to analyze the data gathered from the questionnaire about the barriers to knowledge-sharing in order to determine the main barriers to knowledge sharing implementation in construction companies. RII uses a ranking system based on the value weights assigned to respondents after completing the questionnaire to determine the most influential factors. To calculate the RII value, we will use SPSS software version 25 and Microsoft Excel.

4. Survey Findings and Analysis

4.1. Respondent profile

Five major contractors are involved in this study. As shown in Figure 1 (a), among all these respondents, 13% had an SMA/SMK education, 1.9% had a D2 education, 14.8% had a D3 education, 66.7% had an undergraduate education, and 3.7% had a master's degree education.

Furthermore, as illustrated in Figure 1 (b), it is known that of the 54 respondents, 50% have work experience for 1 to 10 years, 37% of respondents have work experience for 11 to 20 years, and 11.1% of respondents have work experience for 21 to 30 years.

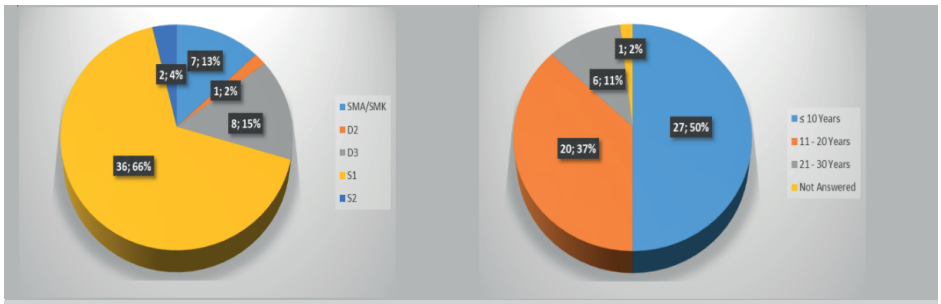

Figure 1: (a) Respondent's education, (b) Respondent's work in construction.

4.2. Reliability analysis of data

The consistency of the responses was examined using reliability analysis. Finding the Cronbach's Alpha value allowed researchers to examine the consistency of the respondent's responses to the same question. Table 1 shows the reliability test results after reliability analysis was performed using the SPSS software.

Table 1: Calculation results of reliability.

Question	Alpha Value
Frequency of technique uses	0.776
Organizational Barriers to sharing knowledge	0.920
Personal Barriers to sharing knowledge	0.939

Table 1 shows that all of the questions in this research have a Cronbach's Alpha value > 0.60. These results explain that the construct of all questions used is reliable.

4.3. The commonly used practice in the knowledge-sharing process in the construction company in Surabaya

It was discovered that the internet/social media, e-mail, and face-to-face interactions are the top three practices Surabaya practitioners use in their construction companies (Table 2), whereas mentoring and tutoring internal training courses, and talks and seminars/workshop are practices they seldom use.

Table 2: Practices in knowledge-sharing process.

Practices	RII	Rank
Internet/Social Media	0,889	1
E-mail	0,881	2
Face-to-face interactions	0,818	3
Informal chatting and storytelling	0,774	4
Site meeting	0,737	5
Project briefing and interviewing sessions	0,737	5
Practices	**RII**	**Rank**
Phone calls and teleconferencing	0,703	7
Mentoring dan Tutoring	0,659	8
Internal training course	0,574	9
Talks and seminars/workshop	0,574	9

This shows that construction companies in Surabaya have not fully facilitated their employees to realize the practice of sharing knowledge. This statement is supported by the survey results, which show that companies seldom hold seminar/workshop programs, and internal training courses to accommodate the knowledge-sharing process for their employees. While using the internet, especially social media such as WhatsApp and e-mail, is very commonly used in the practice of sharing knowledge in construction companies. This is because the employees of construction companies are spread across various projects located in various regions, so using the internet (social media) and e-mail is the right choice, according to construction companies in Surabaya.

However, face-to-face interactions, informal chats and storytelling remain the preferred practice of construction workers. This is in line with previous study [15], which said that knowledge would be more effective if shared directly, where the level of distortion and misunderstanding can be minimized.

4.4. The main barriers to knowledge-sharing process in the construction company in Surabaya

Numerous barriers stand in the way of the knowledge-sharing process in construction companies, as was found in earlier research. The main barriers to knowledge sharing among contractor companies in Surabaya, as shown in Tables 3 and 4, are the lack of top management support and participation, lack of defined responsibilities and budget for knowledge sharing, lack of ICT infrastructure, and time constraints on sharing, as a result of the heavy workload and the busy nature of the work.

The policies/rules set by the company for creating the knowledge-sharing process, as well as the support and participation of top management, can direct and subtly encourages employees to develop and implement knowledge-sharing within the organization. So it is very unfortunate if this becomes the main barrier in the knowledge-sharing process in construction companies. Another barrier is the lack of ICT infrastructure. This greatly reduces the efficiency and effectiveness of the knowledge sharing process. This is because technology is not a prerequisite for collaborative activities, but a key enabler form of knowledge sharing [15], especially in today's digital era where everything is can be done without having to meet face to face, considering that in the construction world, construction workers in one company can be scattered in various places or regions. Therefore, technology should be a very helpful medium in the knowledge-sharing process.

The heavy workload and busy nature of work in the construction company have resulted in time constrain on knowledge sharing. Because every construction company has a goal, like the completion of the project needed on time and with the right quality, especially when working on a large project, a contractor may need to handle many different jobs at once, which results in time constraints and difficulties in sharing knowledge and experience. Moreover, due to a heavy workload, a contractor is required to be able to complete his work under a very tight schedule [15]. This can cause individuals to have an attitude of "not my business" or selfish because each individual will think of himself to be able to complete his tasks according to the targets that have been determined.

Furthermore, the difficulty in generalizing knowledge from one project to use in another project becomes the main barrier from a personal aspect. Because a construction project has a 'unique' nature and cannot be equated with other projects. This results in individuals experiencing confusion or dilemmas when they want to share their knowledge with others because they have doubts about whether the knowledge they have can be used in other projects or not, then whether their knowledge is important for others or not, and whether their knowledge will be useful for others or not.

TABLE 3: Organizational barriers to knowledge sharing process.

Organizational barriers	RII	Rank
Lack of top management support and participation	0,704	1
Lack of defined responsibilities and budget for knowledge sharing	0,696	2
Lack of ICT infrastructure	0,670	3
Time constraints on sharing, as a result of heavy work load and busy nature of work	0,652	4
Lack of proactive management strategies, for example, internal staff rotation	0,648	5
No knowledge sharing culture within the department	0,648	5
No reward, either monetary or nonmonetary, from the company	0,641	7
Lack of sharing spaces	0,637	8
No unified vision of knowledge sharing	0,633	9
Lack of experienced colleagues	0,581	10
Competitive working environment	0,537	11

TABLE 4: Personal barriers to knowledge sharing process.

Organizational barriers	RII	Rank
Difficulties in generalizing knowledge from one project for use in another	0,700	1
Individuals are selfish and unwilling to share	0,685	2
"Not my business" attitude	0,681	3
Poor communication skills	0,681	3
Lack of trust and poor relationship among colleagues	0,648	5
Lack of common language	0,644	6
Lack of commitment to the company	0,630	7
Lack of understanding of the benefits of knowledge sharing	0,607	8
Lack of respect from others due to the presence of departmental hierarchy	0,581	9
Individuals do not share their best knowledge so as to be competitive	0,578	10
Limited access to database and intranets	0,578	10

5. Conclusion

This research focuses on finding what practices are often used in the knowledge-sharing process and what are the main barriers in the knowledge-sharing process in construction companies in Surabaya. The survey found that the practices commonly used for the knowledge-sharing process are internet/social media, e-mail, and face-to-face interaction, whereas mentoring and tutoring, internal training courses, and talks and seminars/workshops are practices they seldom use.

In the process of knowledge sharing, various barriers hinder the efficient processing of activities. According to the survey results, the main barriers to knowledge sharing in the construction companies are the lack of top management support and participation, followed by lack of defined responsibilities and budget for knowledge sharing, lack of ICT infrastructure, time constraints on sharing as a result of the heavy workload and the busy nature of the work, and so forth. As for personal barriers, this study found that difficulties in generalizing knowledge from one project for use in another, individuals are selfish and unwilling to share, and“not my business” attitudes are the top three main barriers that occur in Surabaya construction companies.

6. Limitation and Recommendation

The small sample size does not allow us to generalize the results. However, despite its limitations, this research certainly adds to our understanding of the main barriers in the knowledge-sharing process. Hence, further research must be done to validate this research and strengthen the data. In terms of samples, the sample in this study was limited to only a few construction companies in the city of Surabaya, so further research is expected to use a more comprehensive sample, such as other locations with a larger number of samples.

Below are some suggestions for construction companies on how to adopt effective and efficient knowledge-sharing within their departments in light of the research.

It is advised that companies make the IT infrastructure best suited to their needs in order to support knowledge sharing among employees. The participation and support of top management is also essential for the process of knowledge sharing to be successful. Top management should foster a knowledge-friendly culture rather than one that is competitive to encourage better knowledge and experience sharing. It is a culture that values the process of exchanging knowledge and in which experience, knowledge, and innovation take the place of hierarchies. Top management can develop this culture by

making policies/rules that can encourage the knowledge-sharing process within the company.

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