Claim Management Process of General Contractors in South Korea

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Abstract: The purpose of this study is to investigate the current status of claim management process of general contractors in South Korea. As the claim management becomes more important nowadays, maintaining the process for claim management systematically and consistently becomes more important as well. To improve the claim management process, it is necessary to diagnose the current status of claim management process so companies establish their targets for improvement. This study develops a survey to identify the current status of claim management process that major general contractors in South Korea have. Questions in the survey are classified into four categories including entitlement check, potential claim event check, time bar check, and tasks for substantiation. By conducting a series of statistical analyses with 94 survey data collected from employees working in the general contractor companies in South Korea, this study examines and analyzes their claim management process in terms of the several categories. It is expected that the results contribute to diagnosing how practitioners maintain their claim management, which will help them establish the direction of management enhancement.

Key words: Construction claim, Claim management, Contractor's view, Work process, Survey research

1. INTRODUCTION

Construction projects have experienced more claims unexpectedly during their delivery as construction projects become larger and more complex. Unlike other products in various manufacturing industries, construction projects take place through a variety of participants with non-recurring processes. There are many stakeholders, such as client, architect, general contractor, subcontractors, vendors, and consultants, being involved for a construction project. Since they are different business entities, they have their own interests and their business processes are different substantially. Thus each construction project is unique, project stakeholders' processes need to be somewhat customized to reflect the project characteristics. Due to these, construction claims are inevitable in the construction industry. Claims are commonly occurred because of the inherent risks of long duration, various uncertainties and risks, and complex relationships amongst stakeholders with different and often competing interests [1].

Contract management has become more important as it is one effective way to minimize claims. In accordance with this tendency, many major construction companies recognized the importance of claim and contract management. While they created internal business processes taking various preventive measures, most of them are just nothing more than a cursory rule [2]. Many previous studies have been conducted regarding the construction claims, but most of them have focused on the causes of claims and developing the management model [3, 4].

This study investigates the status of claim management process from the perspective of general contractors in South Korea. Benchmarking is a systematic process of measuring and comparing a performance against that of other in key business activities [5]. In order to achieve the continuous improvement from the benchmarking process, it is necessary to diagnose the current status of a company on certain aspects so it can establish its targets for improvement. As mentioned previously, while many studies about claims have focused on the causes of claims and management model development, the current body of knowledge lacks how practitioners actually conduct the claim management. This research examines the current claim management process from the contractor's point of view in South Korea. For this, this study develops a survey to diagnose the current status of claim management process. Questions in the survey are classified into four claim management functions; entitlement check, potential claim event check, time bar check, and tasks for substantiation, which are mentioned as key work functions during the survey design. How the major contractors in South Korea execute claim management in terms of the four work functions is presented. In addition, the claim management by industry sector is investigated as well.

2. LITERATURE REVIEW

Claims have had significant impacts on construction projects. Arcadis (2018) reported that global construction disputes cost $43.4 million US dollar and last 14.8 months on average [6]. Based on the statistical data from United States and Canada, 50% of claims constituted an additional 30% of the original contract price and in some cases the claim values were as high as the original contract price [7]. In addition to this quantitative values, claim management has been included as one of the most important project management factors [4]. Overall, the claim management is one important managerial area that cannot be ignored in the construction industry.

The importance of claim management has been grasped and many previous studies related to claims have been conducted. These studies have been carried out in two main aspects. First, there have been many studies analyzing the causes and risks of claims based on the case studies, interviews, and surveys. To investigate this theme, some of the research studies investigated common mistakes and causes of construction claim [1], [8–10]. Second, many studies have been conducted on predicting contract risks causing claims and developing the evaluation models. Those research studies generally aimed to make process models representing different types of claims [11]. For this topic, there have been also many attempts to develop a process framework regarding the construction contractor's claim work [2, 12]. This type of studies suggested strategies to avoid or mitigate the predicted construction claim, and recommended the management focus on controlling those issues.

These previous studies carried out overall analyses about the current claim issues in the construction industry based on case studies or questionnaires. However, to improve the process for better performance, it is important to be able to diagnose the current status of claim management process [13]. Unfortunately, few studies have investigated this topic. So this research aims to measure and compare the status of key business activities in the claim management process. The claim management process may vary by industry sector as different sectors have different level of project complexity and budget for managing projects. For example, by using project-level data, Yun et al.(2016) compared the management efforts by industry sector and found that the infrastructure sector made less commitment to project management than building and industrial sectors [14]. In addition, Vldogah and Ndekugri (1997) found that civil engineering contractors are more likely to pursue claims compared to building engineering contractors [15], which infers that the claim management process can be different by industry sector.

This research aimed to investigate the status of claim management process across the construction industry. After investigating the overall claim management process by four work functions, this study compares them by industry sector as well.

3. SURVEY DESIGN

This study developed a survey asking the degree that respondents agree on certain work elements related to the claim management processes. Table 1 shows an example. As shown in the table, respondents have five choices for a certain statement.

Table 1. A Survey Question Example

NO	Question	Response				
		Strongly Disagree ①	Disagree ②	Neutral ③	Agree ④	Strongly Agree ⑤
Q1	The database of claim issues is maintained by and shared among claim managers and staff in relevant departments.					

The survey has 20 work elements which represent four major functions. Based on the literature review and industry expert interviews, this study considered four core work functions for claim management as follows.

(1) Entitlement Check

Once a claimable event occurs, it is necessary to check whether the event is eligible for entitlement or not. The work elements in this work process are about recognizing the exact contractual status and site condition. Thus this category contains work elements regarding claim logs of previous cases in company, preliminary education of relevant department, and appropriate interpretation regarding the contract. Mitropoulos and Howell (2001) argued the critical factor of dispute is checking about project uncertainty and contractual problem [16]. Checking project and contractual condition is often mentioned as the key factor which develop the claim in project [8, 17]. So, if the related participants miss the work process regarding the entitlement check, then the claims would not be submitted even though the claimant is sufficiently entitled.

(2) Potential Claim Event Check

In order to proactively prevent claims, all of the potential claimable events on site have to be monitored. The early involvement of management regarding claim event has positive influence to resolve the dispute [18]. So this category contains works which ask the effective monitoring of newly occurred events and sharing system. Love et al. (2010) asserted that the contractor should identify the circumstances arising from the situation of the project and it is a main underlying condition for claim [3]. Yates and Epstein (2006) also emphasized early recognition of potential delays to minimize the delay claim [19].

(3) Time-bar check

The work elements in the time-bar check work process are to keep the time-bar deadline specified in the contract. Providing responses timely is one of main strategy to mitigate claim [19, 20]. To keep this time-bar check, the provision should be fully acuquainted by employees and their communication should be effective [21].

(4) Substantiation

The work elements for substantiation regards document substantiation from site and head office. It is necessary to make appropriate logic to get the indemnification through the raised claims [2, 22]. Most of the previous studies mentioned that major weakness of claim management work is the immature, insufficient evidence [23–25]. If an organization keeps records properly, it will have less difficulties in substantiating the cause and effect for claims.

In addition to this literature review, industry expert interviews have been conducted to supplement the detailed tasks of each category. 21 experts from nine construction companies and one construction claim consulting company were interviewed on the subject of claim management issues [26]. Based on the literature review and industry expert interviews, 20 work elements representing four work processes are identified.

As an example of survey design, the first two questions asked the updating and sharing of the claim log database within the company. Based on the literature review, it was found that operating database for claims is substantially important [17, 20]. This is specified by industry experts interviews who particularly highlighted the importance of utilizing log data within the company. Through this pre-

investigation regarding entitlement check work, the keyword has been investigated as claim log and that database, so the final question regarding this work has been set as "Claim logs of each case shall be properly updated and managed in accordance with the relevant provision".

As another example, for the questions about the substantiation work function, Kartam (1999) emphasized the importance of daily inspection reports as a type of legal document reporting the facts on the jobsite [24]. Kim et al. (2004) stressed the importance of substantiation document management which includes client instruction management, record of site situation as daily construction reports, and meeting minutes [23]. In addition to this academic bases, the actual documentation systems that construction companies currently operate project have been investigated through the field consultation. According to this background, the detailed documentation work elements in this substantiation category have been designed. Overall, 20 questions representing four work functions were developed.

4. DATA COLLECTION AND RESULTS

The online survey was distributed to employees working at more than 10 general contractor companies in South Korea. 104 survey responses were collected from various construction companies. Among them, 10 survey data which have more than 60% of missing values were removed. After all, 94 data were included for the data analyses. Table 2 summarizes the database by industry sector and respondents' work experiences. As shown in the table, the plant industry submitted the highest number of data, data by industry sector were distributed relatively evenly. The average work experience was 18.9 years.

Table 2. Dataset by Industry Sector and Work Experience (n=94)

variable	category	N	%
Industry Sector	Building	23	24%
	Civil	23	24%
	Plant	39	41%
	Others	9	10%
	Total	94	100%
Work Experience	~10 yrs.	17	18%
	10~15 yrs.	25	27%
	15~20 yrs.	19	20%
	20~25 yrs.	11	12%
	25~30 yrs.	10	11%
	30yrs.~	12	13%
	Average	18.9	(years)

4.1. Status of claims management work

Table 3 presents the descriptive statistics for each work element and category. Because of the missing responses, the sample sizes being used for each work element vary from 79 to 94. A higher mean score means respondents more agree on the statement describing the work element. The category overall scores are calculated by averaging the element scores. When calculating the category overall scores, missing values were replaced by the mean values for each category of the respondent, which is a typical way to deal with missing data [27]. Replacing the missing values was applied only for the data that a respondent answered more than two-thirds of questions. The internal reliability for each category has been reported as Cronbach's alpha in Table 3. The category of Entitlement check, Potential event check and Task for Substantiation had a Cronbach alpha more than 0.7, which is considered relevant [28]. The time-bar check category had a Cronbach alpha of 0.682, which is questionable but near to acceptable range[29].

In terms of the category overall score, Task for Substantiation shows the highest mean score, 3.516, as shown in Table 3. The category also shows the lowest standard deviation (SD=0.665). In summary, the general contractors in South Korea consistently insist that tasks for substantiation have been maintained better than other major work functions for claim management. Documentation work has been frequently mentioned as the most critical element to success of construction claim [25]. As it has been regarded as one challenging task for claim management [24], it was expected that the mean score for this work function is low. One possible way to interpret this conflicting result may be the companies that respondents work. Those companies are major construction companies in South Korea. Thus the processes for documentation have been established relatively well. Future studies are necessary to investigate the relationship between company size and claim management process. Within the work function, the work element "items for weekly meetings and daily construction reports are recorded and shared" shows the highest mean score.

Table 3. Descriptive Statistics for Each Work Element and Category

Work Function		Question	N	Mean	Std.dev
Entitlement Check	1	The database of claim issues is maintained by and shared among claim managers and staff in relevant departments	79	2.330	1.900
	2	Claim logs of each case shall be properly updated and managed in accordance with the relevant provision.	84	2.740	1.743
	3	When a project is launched, the relevant department of the head office conducts a preliminary orientation regarding potential contract/claim risks.	92	3.580	1.131
	4	During the initial setting-up stage of a project, interpretation of the contract, determination of the situation at the site, and other relevant tasks are shared among all participants.	94	3.630	0.916
	5	After the launch of the project, participants smoothly coordinate claim-handling works according to their R&R.	94	3.390	0.870
	6	Those in charge check claim risk issues, which are expected to occur in each project execution stage on a regular basis.	94	3.540	1.002
		Category Overall ($\alpha = 0.784$)	94	3.233	0.883
Potential Event Check	7	If a potential event occurs which could lead to a claim, it is directly shared by the staffs of the head office, who are in charge of claims, through a system or a relevant provision.	93	3.380	0.977
	8	When a potential event occurs which could lead to a claim, the information about it is immediately shared among the relevant staff.	94	3.360	0.926
	9	When such a potential event is shared, feedback of an expert or the dedicated team of the head office is immediately conveyed to the site.	94	3.450	0.946
		Category Overall ($\alpha = 0.800$)	94	3.397	0.799
Time-bar Check	10	A provision or a dedicated team has been well established to interpret and share any claim-related clauses (regarding the time bar for a claim event, etc.) of the project contract.	94	3.810	0.871
	11	All staff related to the project are well acquainted with claim-related clauses of the contract (with the help of preliminary orientation/regular training or workshop, etc.).	94	3.280	0.860
	12	The provision (specifying the list of main documents to be submitted, preparation of documents, and handling work for a claim received) is faithfully followed.	88	2.350	1.626
		Category Overall ($\alpha = 0.682$)	94	3.170	0.913
Task for Substantiation	13	There is a provision regarding the dispatch of onsite experts (QS, Scheduler) or support for the relevant department by the head office during the claim process.	84	2.810	1.704
	14	During the documentation stage, feedbacks are communicated to relevant departments (contract team, legal affair team, etc.) to a reasonable level.	94	3.870	0.907

Work Function		Question	N	Mean	Std.dev
	15	All the instructions given and agreements made orally by clients (or supervisors) during inspections or meetings are documented.	94	3.520	0.826
	16	Items (including information about construction quantity and schedule) for weekly meetings and daily construction reports are recorded and shared.	94	3.900	0.749
	17	work process regarding recording of situations at the site (labor attendance, equipment, construction details, etc.) is faithfully followed.	91	3.450	1.285
	18	In case a claim-related issue occurs, staff are instructed to take photos and share them with the persons concerned. (e.g., excessive inspection of the client or the supervisor, demand of design modification for the site, accelerating, and other similar cases that may generate additional costs).	93	3.660	0.759
	19	The latest schedule of the project is appropriately managed and shared in accordance with the relevant provision and system.	89	2.910	1.788
	20	The schedule of the project is appropriately updated (weekly, monthly, etc.) according to the provision regarding phase updation frequency.	93	3.880	0.720
		Category Overall ($\alpha = 0.705$)	94	3.516	0.665

(Note: α denote Cronbach's Alpha)

Contrary to Task for Substantiation, the work function "Time-bar Check" shows the lowest mean value and the highest standard deviation. Particularly, the work element "The provision (specifying the list of main documents to be submitted, preparation of documents, and handling work for a claim received) is faithfully followed" shows the lowest mean value with the highest standard deviation. This result is probably related to the lack of training about claim regulations and sharing of contract interpretation. For better claim management, it may be necessary to establish a better process to train employees for claim regulations and share them effectively.

For the work element level, there are four work elements which have mean values lower than 2. These four elements, element numbers 1, 2, 12, and 13, are about sharing information about claim management with relevant employees. Considering the fact that these four elements have high standard deviation values, these probably are the key work elements differentiating companies maintaining better claim management processes in South Korea.

Overall, it was found that general contractors in South Korea are relatively good at tasks for substantiation and have more room for improvement for the works related to time-bar check. These strength and weakness show the same aspect in terms of deviation. This result shows that the industry experts think that updating the documents at project sites and head offices is processed well. However, they answered that these documents are not linked to real claims due to participants' lack of awareness about contracts and claims. Another possible interpretation is that the documents and data created are not properly used for claims because of the immaturity of the sharing system or work procedure. Therefore, in order to promote the claim management from the viewpoint of contractors, processes that help all relevant participants understand the status and condition of claims and share data required to address them properly should be established.

4.3. Difference between Industry sector

In order to investigate the difference in management status by industrial sector, this research divided the data into four groups as shown in Table 2. For the three industry sectors excluding "others" in Table 2, analysis of variance(ANOVA) test was carried out to check whether there is a statistically significant mean value differences for the claim management work functions by industry sector. Table 4 summarizes the results. As shown in the table, all of the work functions show the highest mean values in the plant sector. The building sector, on the other hand, shows the lowest mean values for Potential Event Check, Time-bar Check, and Task for Substantiation. For the ANOVA test, the significances for the four work functions are higher than the significant level of $\alpha = 0.05$. Thus it can be concluded that the claim management work function differences in terms of industry sector are not statistically significant at the level of $\alpha = 0.05$. Even though the result shows no statistically significant difference,

the plant sector tends to have higher mean values for all of the work functions. Plant projects tend to have much higher total project costs than projects in other sectors. Thus they tend to spend more management efforts than other industry sectors [14]. This is probably why the industry sector shows higher mean values. Further studies are recommended to investigate the claim management process by industry sector.

Table 4. Analysis of variance(ANOVA) by Industry Sector

Work Functions	Building			Civil			Plant			ANOVA	
	N	Mean	SD	N	Mean	SD	N	Mean	SD	Fvalue	*Sig.*
Entitlement Check	23	3.035	1.024	23	3.022	0.796	39	3.455	0.832	2.487	*0.089*
Potential Event Check	23	3.290	0.713	23	3.348	0.685	39	3.436	0.940	0.244	*0.784*
Time-bar Check	23	2.978	1.035	23	3.145	0.869	39	3.218	0.936	0.466	*0.629*
Task for Substantiation	23	3.481	0.694	23	3.490	0.625	39	3.566	0.706	0.149	*0.862*
Overall	23	3.242	0.739	23	3.276	0.537	39	3.460	0.727	0.923	*0.401*

5. CONCLUSION

This research investigates the current work process of general contractors in South Korea in terms of the claim management. A survey with 20 questions about the construction claim management process was developed based on the literature review and industry experts interviews. By using 94 data collected by the practitioners having experiences in the claim management, it was found that Task for Substantiation shows the highest mean value among the four work functions investigated in this study. On the other hand, it was also found that Time-bar Check shows the lowest mean value. Thus in order to improve the claim management process, rather than focusing on document preparation works, companies need to focus more on revising their processes such that employees understand the contract condition properly and share information properly when claims occur.

In addition, when comparing the claim management process by industry sector, it was found that the plant sector tends to show higher mean values for the four work functions of claim management but the differences among industry sectors are not statistically significant at the level of $\alpha = 0.05$. It was inferred that the differences among the industry sector are related to the characteristics of projects in each section but more studies are necessary to validate it.

The main contribution of this study is to diagnose the current practitioners' perception about claim management in South Korea. The results also should be helpful when practitioners establish plans to improve their claim management process which becomes more important nowadays.

This study is not free from limitations. The main limitation of this study is the data source. Based on the results of the questionnaire survey, this research examined the status of field claim management tasks from the perspective of general contractors. However, as all of the data were submitted by general contractors in South Korea, the findings should not be generalized. As companies in different countries may have difference claim management processes, future studies using the same survey for respondents from various countries are recommended to generalize the findings. In addition, the claim management processes can be influenced by company size. It is reasonable to assume that smaller companies may have different claim management processes because of their limited amount of resources. Data used in this study are from employees working in major construction companies in South Korea. Studying the claim management processes by company size can be another interesting topic to be investigated. As another topic of future study, the authors plan to investigate the relationship between process consistency measured by the dataset in this study and claim management performance [26]. It will be hypothesized that companies having more consistent claim management work process tend to show better claim management performance.

ACKNOWLEGEMENTS

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