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# ISSUES WITH SUPPLY CHAIN MANAGEMENT DOCUMENTS THAT CONTRIBUTE TO PROJECT DELAYS

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## ABSTRACT

*Supply chain management is the process of obtaining the raw materials or components needed to create a product or service for an enterprise and deliver that product or service to customers. In construction, it is vital due to the involvement of a large number of resources and stakeholders. Hence, documentation plays a very important role in such a process. Yet, there are certain issues with supply chain management documents that contribute to the various issues of construction projects, including project delays. Hence, this research aimed to identify the potential factors affecting construction projects due to poor documents in supply chain management. This study was limited to building construction projects in Sri Lanka. Agreement errors of labour suppliers and material suppliers were the main areas of concern. In order to achieve the objectives of the research, semi-structured interviews were conducted among construction professionals such as site engineers, project managers, technical officers, and Quantity Surveyors. The results of the research revealed that the documents were not prepared correctly, which indirectly caused the project to be delayed. This could happen due to various causes, such as documentation errors that take a long time to be corrected, people are not aware of the documentation required in various stages of the supply chain, and the stakeholders are not aware of the procedures correctly for each of the scenarios. Findings further revealed that errors such as delays, arithmetic mistakes, and specification inaccuracies frequently disrupt operations. To address these issues, corrective actions tailored to each document type were detailed, emphasising early negotiation, skilled personnel involvement, and rigorous verification processes. The study contributes significantly to the field by offering practical solutions that enhance document accuracy, improve supply chain efficiency, and reduce project delays. These measures not only address immediate documentation issues but also provide a framework for maintaining high standards of documentation accuracy in the construction industry, ensuring smoother operations and successful project completions.*

**Keywords:** Construction; Documentation; Errors; Professionals, Supply Chain Management.

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## **1. INTRODUCTION**

The construction industry of Sri Lanka has become a pivotal factor in the economy, and it is necessary to sustain this growth by facilitating sectoral development (Jayasuriya, 2019). This sector has a significant responsibility and energetic relationship with other sectors (Singh, 2019). Following recent trends in the emerging economy of Sri Lanka, although Sri Lanka is a developing country, there is a huge demand for construction. The Sri Lankan construction industry experienced a 21.6% growth, contributing Rs. 894,683 million to the Gross Domestic Product (GDP), which represents 10.3% of the GDP. (Somachandra et al., 2023).

Due to the unique nature of the industry, supply chain management plays a significant role in the competitive construction market (Barber et al., 2000). Today, several developing countries face difficulties with supply chain management documents (Waidyasekara et al., 2016). Hence, over the decade in Sri Lanka, activities related to the construction industry have generated considerable factors that affect supply chain management (Aloini et al., 2012). They further mentioned that among them, one of the big issues is that construction projects also experience delays, leading to increased costs for the project.

Nevertheless, the research aims to identify the effects related to supply chain management, specifically regarding the documents, and then emphasise suggestions to address these weaknesses. Success in construction projects is evaluated using parameters such as quality, price, and the completion time of a project. To fulfil these requirements, the products obtained from suppliers are meant to be transferred to construction industry stakeholders safely and without interruptions. This supply chain includes the movement and storage of raw materials for work in progress, inventory, and fully furnished goods (Barber et al., 2000). The entire process is managed by supply chain management through proper design and planning of the chain (Singh, 2019).

Supply chain management aims to reduce costs and enable every member of the supply chain to generate profits (Hugos, 2024). Members of the supply chain consist of all parties who directly or indirectly meet the needs of the customer (Ruzo-Sanmartín et al., 2023). Due to the nature of the construction industry, selecting suppliers for the construction industry is a time-consuming and daunting task compared to other industries (Van der Vorst, 2004). A template is needed to select the right suppliers to make the purchase process smooth (Clavero, 2018).

Good project management in construction must vigorously pursue the efficient utilisation of labour, materials, and equipment (Ershadi et al., 2021). In building construction, material procurement is a process by which the materials required to construct a building are selected, ordered, invoiced, paid for, and delivered to the site (Donyavi et al., 2024). They further illustrated that materials will typically be ordered from the supply chain, often from external suppliers with whom the team may have had past successful dealings or who may be specified in the contract documents. Procuring materials is a crucial aspect of the construction process as contractors will normally be inundated with requests from suppliers for the provision of goods and services (Pararajasingam et al., 2024). They must, therefore, order materials that align with both the client's and contractor's objectives. In such a situation, various documents might be used, like purchase orders. A purchase order is a document that confirms an order for construction materials sent from a buyer to a material supplier or equipment renter. When a purchase order is accepted, a legal contract

forms between the two parties and sets basic terms between the parties – like price, payment terms, and time for performance (Clavero, 2018). A purchase order might be followed up with a written contract that further clarifies the relationship and expectations of the agreement (Benarroche, 2019).

Furthermore, the construction company is following up with a written contract with the labour suppliers. These types of agreements are also a kind of document in the supply chain management in the construction industry. In such a way, various documents can be seen in the construction industry (Norouzi, 2021). If the supply chain management documentation is not done correctly, it can indirectly cause the project to be delayed and various other matters as well (Luo et al., 2020). Hence, this paper aims to identify the potential factors affecting construction projects due to the poor documents in supply chain management. It was achieved by identifying the issues in supply chain management in construction and by analysing the impact on the project due to the matter of documents in supply chain management.

## **2. LITERATURE REVIEW**

### **2.1 STAKEHOLDERS**

A stakeholder is any person, group, or organisation that is impacted in some way by the action or inaction of another (Phillips & Reichart, 2000). When implementing any project, especially in construction projects, different requirements need to be considered. Representatives of these requirements are the so-called project partners. There are two types of stakeholders: direct stakeholders and indirect stakeholders (Nguyen et al., 2019). Direct stakeholders are those directly associated with or involved in the project. These include employers, project managers, architects, structural engineers, quantity surveyors, contractors, labourers, and suppliers (Nguyen et al., 2019). Indirect stakeholders are those indirectly associated with the project. These include local authorities and environmental authorities, to name a few.

### **2.2 SUPPLY CHAIN MANAGEMENT**

Supply Chain Management (SCM) is one of the contemporary themes (Li et al., 2015). The concept of the supply chain was developed between the 1960s and 1970s when companies had to improve their strategies based on the attraction and retention of customers (Ali, 2014). This encompasses a broad range of activities required to plan, control, and execute a product's flow from materials to production to distribution in the most economical way possible (Satyro et al., 2021). The function of SCM is to design and manage the processes, assets, and flows of material and information required to satisfy customers' demands. Efficient SCM allows companies to develop, implement, and sustain supplier management and collaborative strategies (Li et al., 2015).

SCM encompasses the integrated planning and execution of processes required to optimise the flow of materials, information, and capital in functions that broadly include demand planning, sourcing, production, inventory management, and logistics or storage and transportation (Satyro et al., 2021).

SCM is an expansive and complex undertaking that relies on each partner from suppliers to manufacturers and beyond to run well. Since the construction industry is a key social and economic activity in every country, the application of SCM strategies is considered

helpful in achieving higher competitiveness for construction firms and the construction sector. The reality in the construction sector is quite different. A myriad of construction supply chains and markets need to be integrated by any construction firm when it delivers a solution to an end customer/client (Butkovic et al., 2016).

The success of a construction project is evaluated through parameters of quality, cost, and time. Construction companies use modern tools and technologies to improve the mentioned parameters in their supply chain. SCM is crucial in different stages of the construction industry including providing materials and tools as well as designing, supervising, and executing stages. The supply chain and its applications can be remarkably effective in each quality stage to reduce time and expenses. Construction companies need new tools and technology to improve the mentioned parameters in their supply chain. Therefore, one of the most important things under the supply chain is SCM.

SCM is a solution that has had acceptable results for construction and industrial companies in developed countries. Suppliers need to know market development policies. Suppliers face increasing stresses in terms of flexibility, diversity, time, and value to survive in a market. Organisations should pay great attention to the supply chain to reach their commercial goals and overcome management challenges (Ali, 2014).

The products that are obtained from the suppliers are meant to transfer the goods and services to the customers safely without any interruptions. SCM takes the whole process through the proper design and planning of the chain (Singh, 2019). Large-scale construction companies spend extra time and money due to the overlap of suppliers' activities and the activities of inferior contractors (Ali, 2014).

### **2.3 COST OVERRUN**

Considerable costs are imposed on the company due to a lack of balance between the design and the execution as well as between suppliers, inferior contractors, and public contractors (Ali, 2014). In construction, cost overruns are relatively common, occurring when the costs being incurred are more than the amounts that have been budgeted for (Andrady et al., 2022). One of the most critical reasons is project design errors (Shoar et al., 2023). Even it is allocated proper time and resources for accurate budget and schedule estimates in the pre-construction planning stage. If the design plans are defective, they will inevitably be destined for cost overruns in construction projects. Inaccurate project estimates also result in cost overruns in the construction industry (Amini et al., 2023). Often, in conjunction with design errors, change orders are another very common reason for cost overruns in construction projects. Not hiring the right team can also lead to cost overruns in construction projects (Amini et al., 2023).

### **2.4 TIME OVERRUN**

Not only the cost overrun but also the time overrun in construction projects has become one of the most common problems in the industry causing a multitude of negative effects on the projects and their stakeholders (Gómez-Cabrera, 2024). There are various factors responsible for the time overrun, which require serious attention to understand and address in order to achieve successful completion of projects on time (Memon et al., 2011).

Memon et al. (2011) have depicted some critical factors that lead to time overruns in construction projects. Some of the identified factors are plans and specifications not

received by the contractor in time, adequate resources not available on the site, wrong or faulty initial planning, and accidents on site. Delay is the process in which the construction project slows down without stopping it entirely while suppression is the stoppage of the project directed from the clients to the contractor (Clavero, 2018). Procurement issues can be a reason for the overall delay of construction projects (Egwim et al., 2023).

## **2.5 PROCUREMENT IN THE CONSTRUCTION INDUSTRY**

Procurement is a term describing the purchasing process for goods and services. In building construction, material procurement is the process by which the materials required to construct a building are selected, ordered, invoiced, paid for and delivered to the site (Donyavi, 2024). Materials will typically be ordered from the supply chain, often from external suppliers with whom the team may have had past successful dealings or who may be specified in the contract documents (Kollerath, 2019). However, a tendering method is used for imported material (Kar et al., 2021). Procuring materials is a crucial aspect of the construction process, as contractors will normally be inundated with requests from suppliers for the provision of goods and services. They must, therefore, order materials that align with both the client's and contractor's objectives (Benarroche, 2019).

A buyer orders material from the local market or international market. If the buyer orders materials from the local market, there is a simple procedure (Abdel-Galil et al., 2022). It is being done through a purchase order. A purchase order is a document that confirms an order for construction materials sent from a buyer to a material supplier or equipment renter (Nicoletti, 2022). When a purchase order is accepted, a legal contract forms between the two parties and sets basic terms between the parties – like price, payment terms, and time for performance (Benarroche, 2019).

If the buyer orders materials from the international market, materials should be imported using proper procedures. Those who wish to start importing to Sri Lanka should obtain a Tax Identification Number (TIN Number/VAT Number) and be required to enroll at Sri Lanka Customs as a registered importer. The importer is required to make a Customs Declaration through DTI (Direct Trader Input) for the Import of Cargo (Kollerath, 2019).

### **2.5.1 Material and Labour Procurement**

The first step of the import function is to ascertain whether the materials to be imported are banned, restricted, canalised, or free items. In the case of restricted items, the application is to be made to the government by giving proper justifications for import, hence that the government may review the import policies and issue clearance for imports under special circumstances (Shewal, 2018).

Correspondence is then initiated with the foreign suppliers and finally, suppliers are chosen based on price and quality/specification of the items, delivery schedule, terms of payment, and other conditions involved in the transaction (Shewal, 2018). In the order, all the required clauses are to be mentioned such as name and address of the suppliers, reference number of their offer, detailed quantity, quality/specification, testing, unit price and the total price of the items to be imported, delivery period, mode of shipment, terms, and mode of payment, packing and marking specification, transit insurance, documents required for clearance, particulars of foreign exchange sanction (such as the import license/foreign exchange release order) and guarantee and acceptance of the purchase order (Shewal, 2018).

Unless the clauses are clearly stated in the purchase order and properly followed by the foreign suppliers, there may be various complications afterwards, leading to long delays in the clearance of the imported goods. A long delay in the clearance of imported goods means a delay in the project (Shewal, 2018).

On receipt of the acceptance of the supplier, the importer arranges to open a letter of credit in a local bank in favor of the foreign supplier. The latter will receive payment from its bank on the timely shipment of ordered goods to the importer and on submission of the specified shipping documents within a specified period to the bank (strictly as per terms and conditions of the purchase order as laid down in the letter of credit). The foreign bank then forwards the shipping documents to the local bank, which releases the same to the importer to get payment as per the terms of the letter of credit. Payment can also be made to the foreign suppliers against “sight draft” (Shewal, 2018).

Any delay in filing or absence of documents can delay the clearance process and thereby importer is supposed to incur demurrage on the imported cargo. The efficiency of the Customs Clearance process depends on having valid documents, the accuracy of the information provided in the documents as well as the promptness in submitting the documents and filing the necessary applications for the Customs Clearance.

This research is analysing about material supply documents as well as labour supply documents. The labour supplier is the person who supplies the labourers to the construction site when necessary. Most suppliers have several workers permanently attached to them. Participants usually come together through family or friends and form a socially cohesive group, ranging from 5 to 50 members in Sri Lanka. The terms of the contract are usually a fixed price for an item or package of work. Under the first alternative, the supplier mobilises the workers, manages their output, and pays them daily until the work is finished (Winch, 2009). In this situation, the supplier is acting as an entrepreneur, in that he is taking a risk and hoping to make a profit. He tries to maximise his profit by controlling his labour costs and other expenses and getting the best possible price from the subcontractor. In good times the profit can be almost double the wage of a skilled worker, but substantially less in bad times (Wells, 2006).

Under the second alternative, the contractor pays the supplier a monthly income for supplying the labour but retains the responsibility for managing the work. The supplier may be responsible for paying the workers or they may be paid directly by the contractor. The essential difference is that his reward comes in the form of a wage or a fee rather than a profit (Wells, 2006).

In this case, the client would enter into a verbal agreement on the rates for various items of work, so payment would be on a task rate basis. Payments are made by the client to the supplier as each item is completed, minus a retention which is only paid after the completion of the work (Wells, 2006).

## **2.6 DOCUMENTS IN THE CONSTRUCTION INDUSTRY**

In the procurement documents plays a vital role, since they govern the rules and conditions in the process. There are various documents which can be used in the construction industry. These documents are described below:

- Supplier Contracts and Agreements

Supplier contracts are agreements between a company and their suppliers of services or goods. The supplier contract is the legal agreement governing the relationship between the supplier and the company. Wish (2014) has stated that, key elements of a supplier agreement are, the items the supplier must provide, pricing and payments for all goods and/or services, expected time frames for work completion and payments and the responsibilities and terms of the relationship. A clearly written agreement helps you make sure that the services and products ordered reach the client quickly without unnecessary complications (Wish, 2014). The terms and clauses of the agreements are different depending on the industry and products provided. Essentially, the agreement must include everything that governs a business manufacturing (Wish, 2014).

- Letter of Credit (LC)

An import LC is an unconditional undertaking, given by an at the request of their customer (the Applicant or Importer) to pay the supplier against stipulated documents, provided all the terms and conditions in the LC are complied with. The issuing bank can undertake to make payment to or to the order of a third party (the supplier) or to accept and pay bills of exchange drawn by the beneficiary at sight or on a fixed future date and authorise another bank (normally in the exporters' country) to affect such payment or to accept and pay such bills of exchange on a fixed future date (Lowden, 2013)

- Letter of Authority (LoA)

LoA is a legal document that allows customers to authorise someone to act on their behalf within agreed limits. They are often used to create an agreement between three or more parties. LoA gives customers confidence that the person they have appointed knows what they are authorised to act upon, whether it is account information, billing details, or personal information related to their business (Lee, 2017).

- Purchase Orders and Pro Forma Invoice

A purchase order is a kind of commercial document, which is issued by an importer to authorise an import deal (Lowden, 2013). A pro forma invoice is a preliminary bill of sale sent to buyers in advance of a shipment or delivery of goods. Usually, before all details of the sale are known. The invoice will typically describe the purchased items and other important information such as the shipping weight and transport charges (Frazelle, 2020).

- Cargo Clearing Process

At least three bank-stamped invoices, packing lists, goods arrival notices, air way bills, house way bills. Any delay in filing or absence of documents can delay the clearance process and thereby importer is supposed to incur demurrage on the imported cargo. The efficiency of the customs clearance process depends on having valid documents, the accuracy of the information provided in the documents as well as the promptness in submitting the documents and filing the necessary applications for the customs clearance (Kollerath, 2019).

- Agreement with Labour Supplier

Labour supply agreements is the term to describe the supply of workers by a service provider to a receiving company in need of those services (Morgan, 2018). Factors to

consider when awarding a labour supply contract are; the date of commencement of service of each employee, the salary/wages and other benefits to which each employee is entitled, details of bonus or profit-sharing schemes, details of current disputes, and whether any are subject to a disciplinary or grievance procedures, details of litigation threatened, pending or ongoing, details of any changes to terms and conditions of any employees introduced in recent past.

## **2.7 ERRORS IN THE CONSTRUCTION DOCUMENTS**

Errors in construction industry-related documents can have significant consequences, leading to conflicts, financial losses, and safety hazards (Dosumu et al., 2017). For example, the absence of a contingency plan can leave a project vulnerable to unexpected challenges and delays. Arithmetic errors, such as inaccurately calculating the number of labourers needed, can result in inefficiencies and additional costs (Ghallab & Hosain, 2020). Furthermore, shortcomings in specifying goods specifications and payment terms can lead to misunderstandings and disputes between contractors and suppliers (Wish, 2014). In addition, the failure to include relevant Harmonised System (HS) codes in contracts and agreements can result in difficulties with customs clearance and import/export processes (Shiberu & Tamene (2021).

Failing to negotiate the terms of a letter of credit during the contract negotiation can expose parties to potential issues that they may be legally bound to, even if these terms are not in their best interest (Noah, 2021). Additionally, allowing someone inexperienced to prepare the documents under the letter of credit and other documents can lead to further complications (Noah, 2021). Hence, there should be a proper mechanism to reduce the errors in documentation of the construction industry.

## **3. RESEARCH METHODOLOGY**

This research aims to identify the issues present in SCM within the construction industry and emphasise the importance of SCM documents. The choice of a qualitative approach in this study is driven by the need to deeply understand the nuanced and context-specific issues related to documentation errors in SCM within the construction industry. Qualitative research is particularly effective in exploring complex phenomena where variables are not easily quantifiable and where understanding participants' perspectives is crucial (Creswell, 2014).

The preliminary study phase involved conducting an extensive literature survey to pinpoint the challenges faced in SCM within the construction sector and highlight the significance of SCM documents. This survey encompassed a thorough examination of articles, websites, books, and relevant sources. Additionally, insights were gathered from similar research studies conducted globally.

Following the literature review, semi-structured interviews were conducted with experienced professionals in the construction industry, including project managers, site engineers, and technical officers with over five years of expertise. Six such professionals were selected using purposive sampling, ensuring a diverse representation of roles and experiences. Their demographic data is presented in Table 1. These interviews were carried out to validate the quality and depth of the literature review findings.

Table 1: Details of the participants for the interviews

Persons	Academic qualification	Construction working experience	Project type (working now)
Response A	Bachelor of Quantity Surveying	6 to 10 years	Building project
Response B	Masters	16 to 20 years	Road Project
Response C	Bachelor of Civil Engineering	11 to 15 years	Building project
Response D	Bachelor of Quantity Surveying	6 to 10 years	Piling
Response E	Bachelor of Quantity Surveying	1 to 5 years	Facilities maintenance and development
Response F	Bachelor of Civil Engineering	11 to 15 years	Road Project

To assess the impact of inadequate SCM documents on construction projects and explore strategies to mitigate these impacts, two construction sites were visited. Semi-structured interviews were conducted during these visits with relevant stakeholders. In the data collection phase, semi-structured interviews with predetermined open-ended questions were employed to gather feedback from industry professionals. Semi-structured interviews were chosen for their flexibility and depth, enabling the researchers to explore specific areas of interest while allowing respondents to elaborate on their experiences and insights (Kallio et al., 2016). This format is especially suitable for understanding the practical challenges and real-world implications of documentation errors as it provides the opportunity to gather detailed narratives and examples from industry experts. These interviews primarily aim to validate the findings from the literature review and provide insights into the local construction industry's ground realities.

Finally, in the data analysis phase, the information obtained from the interviews were precisely evaluated manually. From the collected data, themes were developed that encapsulated the main issues found in the documents. Themes such as inadequate negotiation of terms, errors by inexperienced personnel, and verification and correction processes emerged as central to understanding the documentation errors. This analysis was enabling the presentation of clear and actionable results derived from the combination of literature findings, expert opinions, and on-site observations.

## 4. RESULTS AND DISCUSSION

### 4.1 MEASURES TAKEN TO FIX ERRORS IN THE DOCUMENTS

To address the issues in the SCM documents identified during the study, a comprehensive set of measures was implemented based on insights gathered from expert interviews. The measures taken were categorised according to the type of document and the specific errors observed. Table 2 was prepared using the identified errors in the document and their corresponding solutions.

Table 2: Details of the participants for the interviews

Document	Identified Errors	Solutions
Letter of Credit	Unable to send letters of credit on time and is not providing the original date as required	Passing an amendment with the bank to rectify the error of not being able to send letters of credit on time
	Failing to negotiate the terms of a letter of credit during the negotiation of the contract.	Initiate discussions before receiving it. Addressing terms early ensures accuracy and smooth transactions.
	Errors occurred due to inexperienced people handling the documents.	Make sure the person who is preparing the documents under the letter of credit has all the background information and resources available to do this correctly.
Purchase Order	Arithmetic errors	Include revision numbers and error details in the amendment process for correction.
	Goods specifications and payment terms are not mentioned properly	Ensure accurate goods specifications and payment terms by having skilled personnel fill out the purchase order correctly.
	Errors in the HS Code	Rectify the error of missing HS codes by correcting and resending documents through the same email or file to the supplier for proper inclusion.
Supplier Contract and Agreement	Arithmetic errors and spelling mistakes	Both parties must sign a new agreement correcting arithmetic errors and spelling mistakes, ensuring the contract's accuracy and legal validity
Proforma Invoice	Errors in Quantities, Prices, Shipping details, Bank details, measurement units, unit price	Verify all details against the pro forma invoice. Follow local authority ordering processes and obtain BOI approvals if applicable.

The measures implemented to rectify documentation errors have significant implications for improving SCM efficiency and reducing project delays. The proactive steps taken to address these errors ensure that the documentation is precise, thereby minimising misunderstandings and transactional discrepancies. This approach not only streamlines operations but also reinforces the importance of meticulous documentation practices in the construction industry.

The findings indicate that errors in supply chain documents, such as purchase orders and letters of credit, can substantially impact project timelines and costs. The emphasis on early negotiation of terms and ensuring that documentation is handled by experienced personnel highlights the need for thorough training and procedural checks within organisations. Additionally, the standardisation of labour contracts and the rigorous review of critical documents like proforma invoices are essential steps toward mitigating risks associated with documentation errors.

These measures not only address the immediate issues but also contribute to a broader understanding of best practices in SCM within the construction sector. The study

underscores the necessity of implementing standardised procedures and continuous training programs to maintain high standards of documentation accuracy, ultimately contributing to the successful completion of construction projects within the stipulated timeframes and budgets which can be applied not only within Sri Lankan context but also in other geographical contexts.

## 5. CONCLUSIONS AND RECOMMENDATION

The research findings highlight several crucial points regarding documentation errors and procedures in international trade and construction projects. Firstly, minor errors in import or labour agreement documents can disrupt project timelines significantly, underscoring the need for precise documentation to avoid delays. Secondly, there's a lack of awareness among stakeholders in Sri Lanka regarding specific import documents, contrasting with their familiarity with labour contracts. Thirdly, import trade procedures vary across countries, but essential documents like supplier contracts and pro forma invoices remain universally important. Lastly, errors are more common in documents like purchase orders and agreements with labour suppliers, emphasising the importance of meticulousness in handling documentation. Overall, the research emphasises the critical role of accurate documentation in ensuring smooth international trade and construction processes.

Based on the conclusions drawn from the research, it is recommended that standardised labour contracts within SCM be implemented to reduce errors. Additionally, thorough review of documents, such as letters of credit, before signing is advised to avoid costly mistakes and potential project delays. This proactive approach not only ensures accuracy but also helps in saving money by preventing unnecessary corrections and amendments. Therefore the recommendation is to focus on standardising labour contracts and emphasising the importance of meticulous document review to streamline supply chain processes and minimise delays. These findings not only address immediate documentation issues but also contribute to a deeper understanding of effective SCM practices, reinforcing the importance of meticulous documentation and continuous training programs in the industry.

The main limitation of this study lies in its reliance on qualitative data from a relatively small sample of industry experts. While the insights provided are valuable, the findings may not be fully generalisable to all contexts within the construction industry. Future research could address this limitation by incorporating a larger and more diverse sample, including quantitative data to validate and expand upon the qualitative findings. Investigating the role of advanced technologies, such as blockchain or AI, in reducing documentation errors could also provide valuable insights for improving SCM practices.

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