

A Literature Review on Developing A Framework for Improving Quality of Supply Chain in Construction Industry

Nithin R¹ and Aswin Bharath A²

Post Graduate Student, M.E Construction Management, Department of Civil Engineering¹

Assistant Professor, M.E Construction Management, Department of Civil Engineering²

Kumaraguru College of Technology, Coimbatore, Tamil Nadu, India

Abstract: *Quality management is of paramount importance in the construction industry's supply chain. The construction sector relies on a complex network of suppliers, subcontractors, and vendors to deliver projects of high quality. This abstract highlight the significance of quality in supply chain management within the construction industry. Effective quality management ensures that materials, products, and services meet the specified standards and requirements. It involves the establishment and implementation of robust quality assurance processes, including inspections, audits, and certifications. These measures aim to identify and rectify any quality issues at various stages of the supply chain, ensuring that only superior-quality inputs are utilized in construction projects. Supplier selection and management play a crucial role in maintaining quality in the supply chain. By carefully evaluating potential suppliers and maintaining strong relationships with existing ones, construction companies can ensure a reliable flow of high-quality materials and services. Supplier performance is regularly monitored, and improvement initiatives are undertaken to foster a culture of continuous quality improvement. Quality management also serves as a vital component of risk management in the construction supply chain. By enforcing stringent quality control measures, construction companies can minimize the risks associated with substandard materials, equipment failures, and non-compliant processes. This proactive approach reduces the likelihood of project delays, cost overruns, and safety incidents. Effective collaboration and communication among supply chain stakeholders are essential for achieving and maintaining quality standards. Clear and transparent communication channels enable timely information exchange, facilitating prompt decision-making and issue resolution. Collaborative efforts between contractors, suppliers, and subcontractors foster a shared commitment to quality, resulting in enhanced project outcomes.*

Keywords: six sigma, supply chain, Effective quality management, stakeholders.

REFERENCES

- [1]. Zeng, Wenjuan, Mike YK Tse, and Minmin Tang. "Supply chain quality management: An investigation in the Chinese construction industry." *International Journal of Engineering Business Management* 10 (2018): 1847979018810619..
- [2]. Papadopoulos, Georgios & Zamer, Nadia & Gayialis, Sotiris & Tsiopoulou, Ilias. (2016). Supply Chain Improvement in Construction Industry. *Universal Journal of Management*. 4. 528-534. 10.13189/ujm.2016.041002. S. Zhang, C. Zhu, J. K. O. Sin, and P. K. T. Mok, "A novel ultrathin elevated channel low-temperature poly-Si TFT," *IEEE Electron Device Lett.*, vol. 20, pp. 569–571, Nov. 1999.
- [3]. Erin M. Mitchell, Jamison V. Kovach, Improving supply chain information sharing using Design for Six Sigma, *European Research on Management and Business Economics*, Volume 22, Issue 3, 2016, R.
- [4]. Wong, Alfred. (1999). TQM in the construction industry in Hong Kong : a supply chain management perspective.

- [5]. Fernandes, Ana & Sampaio, Paulo & Sameiro, Maria & Truong Quang, Huy. (2017). Supply chain management and quality management integration: A conceptual model proposal. *International Journal of Quality & Reliability Management*. 34. 53-67. 10.1108/IJQRM-03-2015-0041.
- [6]. Carol J. Robinson, Manoj K. Malhotra, Defining the concept of supply chain quality management and its relevance to academic and industrial practice, *International Journal of Production Economics*, Volume 96, Issue 3, 2005, Pages 315-337, ISSN 0925-5273, <https://doi.org/10.1016/j.ijpe.2004.06.055>.
- [7]. Khalfan, Malik & Mcdermott, Peter & Cooper, Rachel. (2004). Integrating the supply chain within construction industry. *Association of Researchers in Construction Management*. 1. 897-904.
- [8]. Erfan Taghavi, Alireza Fallahpour, Kuan Yew Wong, Seyed Amirali Hoseini, Identifying and prioritizing the effective factors in the implementation of green supply chain management in the construction industry, *Sustainable Operations and Computers*, Volume 2, 2021, Pages 97-106, ISSN 2666-4127, <https://doi.org/10.1016/j.susoc.2021.05.003>.
- [9]. Husnain Arshad, Tarek Zayed, Critical influencing factors of supply chain management for modular integrated construction, *Automation in Construction*, Volume 144, 2022, 104612, ISSN 0926-5805, <https://doi.org/10.1016/j.autcon.2022.104612>.
- [10]. Azar, Adel, Reza Ahmadi Kahnali, and Allahviridi Taghavi. "Relationship between supply chain quality management practices and their effects on organisational performance." *Singapore Management Review* 32.1 (2010): 45-69.
- [11]. Lin, Lin & Gibson, Peter. (2011). Implementing Supply Chain Quality Management in Subcontracting System for Construction Quality.. *LISS 2011 - Proceedings of the 1st International Conference on Logistics, Informatics and Service Science*. 3. 139-144.
- [12]. Katarzyna Antosz, Małgorzata Jasiulewicz-Kaczmarek, Robert Waszkowski, Jose Machado, Application of Lean Six Sigma for sustainable maintenance: case study, *IFAC-Papers On Line*, Volume 55, Issue 19, 2022, Pages 181-186, ISSN 2405-8963, <https://doi.org/10.1016/j.ifacol.2022.09.204>.
- [13]. Erbiyik, Hikmet & Saru, Muhsine. (2015). Six Sigma Implementations in Supply Chain: An Application for an Automotive Subsidiary Industry in Bursa in Turkey. *Procedia - Social and Behavioral Sciences*. 195. 2556-2565. 10.1016/j.sbspro.2015.06.447.
- [14]. Assrar Sabry, Factors critical to the success of Six-Sigma quality program and their influence on performance indicators in some of Lebanese hospitals, *Arab Economic and Business Journal*, Volume 9, Issue 2, 2014, Pages 93-114, ISSN 2214-4625, <https://doi.org/10.1016/j.aebj.2014.07.001>.
- [15]. Rohin Titmarsh, Fadi Assad, Robert Harrison, Contributions of lean six sigma to sustainable manufacturing requirements: an Industry 4.0 perspective, *Procedia CIRP*, Volume 90, 2020, Pages 589-593, ISSN 2212-8271, <https://doi.org/10.1016/j.procir.2020.02.044>.
- [16]. Chitra Lekha Karmaker, Tazim Ahmed, Sayem Ahmed, Syed Mithun Ali, Md. Abdul Moktadir, Golam Kabir, Improving supply chain sustainability in the context of COVID-19 pandemic in an emerging economy: Exploring drivers using an integrated model, *Sustainable Production and Consumption*, Volume 26, 2021, Pages 411-427, ISSN 2352-5509, <https://doi.org/10.1016/j.spc.2020.09.019>.
- [17]. Matthews, Jason & Pellew, Leah & Phua, Florence & Rowlinson, Steve. (2000). Quality relationships: Partnering in the construction supply chain. *International Journal of Quality & Reliability Management*. 17. 493-510. 10.1108/02656710010371191.
- [18]. Luo, Hanbin & Ling, Lin & Chen, Ke & Antwi-Afari, Maxwell & Chen, Lijun. (2022). Digital technology for quality management in construction: A review and future research directions. *Developments in the Built Environment*. 12. 100087. 10.1016/j.dibe.2022.100087.
- [19]. Vincent, Anne & Pocius, Donnah & Huang, Yun. (2021). Six Sigma performance of quality indicators in total testing process of point-of-care glucose measurement: A two-year review. *Practical Laboratory Medicine*. 25. e00215. 10.1016/j.plabm.2021.e00215.