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Investigating the Quality of Conflict Management on the Performance of the North Tehran Freeway Project with the Mediating Role of Flexibility

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Abstract


The purpose of this study is to investigate the effect of conflict management quality on the performance of the North Tehran Freeway Project with the mediating role of flexibility. The study population is managers and experts of the North Tehran Freeway Project. Given that the size of the statistical population in this study is 280 people, and according to the Cochran formula, the required sample size is 162 people. In this study, a standard questionnaire was used to collect data. The questionnaires were distributed and collected using a random access method. To analyze the data, structural equation testing with partial least squares was used using SMART-PLS software along with descriptive statistics. The test results at a 95% confidence level showed that the quality of conflict management, with the mediating role of flexibility, has a positive effect on project performance ($p < 0.05$). The quality of conflict management has a positive effect on project performance. The quality of conflict management has a positive impact on flexibility. Flexibility has a positive impact on project performance. Therefore, project managers with the appropriate conflict management style and flexibility can partially reduce the possible consequences of destructive conflict, including increased costs, severe reduction in communication between individuals and groups, resistance to change, increased tension and stress, failure to deliver projects on time, poor performance, and unhealthy business relationships.

Keywords: Conflict management quality, Project performance, North Tehran Freeway, Flexibility.

1 | Introduction

Today, road construction projects are implemented with limited and predefined time frames and resources, in the rapidly changing, turbulent environment of today and intense market competition. However, growing

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demand, complexity, and unplanned pressures exist in these projects and are intensifying every day [1]. Due to the unique nature of the road construction industry, conflict situations are very common in these large projects. Conflicts always cause stress for managers and workers, and also lead to employee safety concerns [2], and at a higher level, they may even cause the loss of all or part of the capital, which seriously threatens the performance of the project. Conflict management in this context is a key component of project management, as stakeholders and project managers with diverse expertise work together on projects, which greatly increases the possibility of conflict [3].

In addition, flexibility can lead to reduced conflicts and improved performance [4]. Since road construction projects are usually large projects that cost billions of tomans, due to their high complexity with different characteristics and methods, they create significant challenges for managing large projects. Since road construction projects are usually large projects that cost billions of dollars, due to their high complexity with different characteristics and methods, they create significant challenges for managing large projects. Senior management of these projects inevitably requires the design of contracts between the project owner and one or more specialized contractors. In such circumstances, contracts play an important role in the macro-management of projects. These contracts have significant impacts on the economic success of the contracting parties. Due to the inherent nature of large project contracts, they are usually long-term, incomplete, and complex, which may lead to disputes or conflicts between the contracting parties [5].

Similarly, contracts can lead to increased project time and cost if there is no mechanism for resolving conflicts in projects. Large projects usually experience 50% or even close to 100% cost overruns over anticipated costs, which may result from the project's inflexibility. Therefore, the changing and complex environmental conditions associated with large projects require flexibility to deal with project predictability uncertainties. Flexibility helps to achieve greater efficiency, lower costs, and minimize project risk. Project flexibility leads to finding an effective response to ever-changing conditions by implementing flexible conditions [6].

The Tehran-North Freeway Project is a road construction project that has progressed about 50 percent physically. Due to its physical characteristics, the Tehran-North Freeway Project is not just a road construction project, but a special and complex project that includes the country's longest freeway tunnel, the Alborz Tunnel, which is 6,400 meters long. Lack of access to the financial resources we need, which, due to the increase in the exchange rate and the much higher inflation, lack of flexibility has increased conflicts between project managers, which may severely affect project performance. According to the above, the main issue of the present study is that poor conflict management in the field of road construction projects may severely undermine project performance.

Because the lack of conflict management assessment makes it difficult for project managers to evaluate conflict management strategies and processes, which leads to managers not receiving appropriate feedback and not making appropriate adjustments to ongoing programs, which may lead to project inefficiency, increased costs, and delays in timely project delivery. Therefore, the main question of the present study is what effect does the quality of conflict management, with the mediating role of flexibility, have on the performance of the North Tehran Freeway project.

2 | Project Flexibility and Performance

Various researchers have analyzed the relationship between flexibility and performance from the perspective of supply chain flexibility, team flexibility, and contract flexibility. She introduced the concept of supply chain flexibility and pointed out that if the entire supply chain is composed of flexible components, the performance of the entire supply chain can be improved. Later, researchers also confirm the relationship between flexibility and team performance, that high-quality flexible team personnel improve the team to have a positive impact on team performance, the complexity of the environment in the face of uncertainty, flexibility as a strategy that can improve team cohesion and team efficiency. However, when faced with a diverse and complex environment, a flexible strategy reduces team performance and cohesion.

Contract flexibility, as an important mechanism for dealing with risks and uncertainties, can guide the contracting parties to adjust their behaviors according to dynamic changes in the external environment, and contract flexibility can also improve service levels and satisfaction. The flexibility literature specifically analyzed how to integrate flexibility into the contract management process and clearly points out that contract flexibility has a positive impact on improving project management performance, and can also help companies improve contract management capabilities and cope with changes in the external environment. Of course, there are results on the relationship between project flexibility and project success or performance. Zaman et al. [7] point out that project flexibility acts as a risk reduction strategy to protect the project from the impact of an uncertain environment, thereby reducing project failure.

Incorporating project flexibility is important for most projects to succeed. Project flexibility has been proven to increase the performance of a project. In summary, many studies have been conducted on the relationship between resilience and performance, but a unified understanding has not been achieved, which also shows that in different environments, the composition and elements of resilience are different and there are large differences in impact. Therefore, defining the concept and indicators for measuring the flexibility of construction projects is still the first task to be solved. Although the overall impact of flexibility on performance theoretically shows a positive trend, the role of flexibility needs to be confirmed [7].

3 | Flexibility in the Supply Chain

The need for flexibility in the supply chain needs to be better understood and the dimensions of supply chain flexibility need to be defined. The components of manufacturing flexibility play an important role in supply chain flexibility. But as the supply chain expands beyond the institution, supply chain flexibility must also extend beyond flexibility within a company. A limited number of authors have dealt with flexibility from a supply chain perspective. Researchers emphasize the importance of combining lean concepts related to waste elimination with agile concepts related to exploiting opportunities in volatile markets. Their definition is to create a supply chain with the ability to respond to an unpredictable market, which includes a point of experience along the chain where the product becomes unique. Before the point of decomposition, pure concepts are applied and the product is built as predicted. After this stage, customer orders will drive supply chain processes [8]. Based on the organizational literature, researchers have defined five supply chain flexibilities. Supply chain flexibilities (should be considered from an integrated, customer-centric perspective). Flexibilities directly affect a company's customers and are responsible for two or more internal and external functions for the company.

These five defined flexibilities are:

- I. Product flexibility or the ability to customize the product to meet specific customer demand.
- II. Volume flexibility or the ability to adjust capacity to meet changes in customer quantities.
- III. New product flexibility or the ability to introduce new or modified products.
- IV. Distribution flexibility or the ability to provide widespread access to products.
- V. Responsiveness or the ability to respond to the needs of the target market [9].

A complete definition of supply chain flexibility components includes the dimensions of flexibility required for all participants in the supply chain to successfully meet customer demand. Using previous definitions of supply chain management, these activities include the delivery of a product from raw materials to the customer, including sourcing raw materials and parts, manufacturing and assembly, warehousing and inventory routing, order entry and order management, distribution across all channels, customer delivery, and the information systems necessary to monitor all of these activities. Flexibility in the supply chain requires flexibility within and between supply chain partners, including departments within the organization as well as external partners such as suppliers, shippers, third-party companies, and information system providers. This includes flexibility in gathering information about market demand and exchanging information between organizations [9].

4 | Flexibility in Construction Project Contracts

Flexible contracts have been widely used in conducting commercial projects in markets where there are environmental uncertainties and cultural differences. Typically, East Asian countries such as Korea, Japan, and China make communication exchanges more common than Western countries [10]. For example, the relationship-oriented culture in China often leads companies to view the contract as a starting point for ongoing negotiation and collaboration, rather than considering a deal as just a deal.

Therefore, keeping contracts open to align the interests of the parties in a dynamic and uncertain environment in the long term is crucial for commercial success in construction projects. The issue of flexibility is relatively well-defined, and the potential value of flexibility is greater in a cross-cultural context [11]. Contract flexibility refers to the extent to which the contract addresses unforeseen contingencies and provides relevant instructions to handle contingencies. Contract flexibility assumes that a contract is imperfect in nature and cannot specify all possible contingencies that may arise in the future [12].

Flexible contracts can realign investments and restore efficiency when unforeseen environmental disruptions occur. However, flexible contracts not only help both parties to cope with potential uncertainties, but may also lead to shadowing behavior by one party. Shadowing refers to a retaliatory behavior that involves the cessation of cooperation, active cessation, and reciprocal action by one party [13]. Therefore, companies face the challenge of contract flexibility in operating in today's markets. Managing this challenge is critical to ensuring the success of inter-firm collaboration. Contractual flexibility may be viewed as a dual function of coordination and control to align inter-firm expectations and reduce the risks of opportunism and control the behaviors of trading parties. These insights reveal economic approaches to persuade compliance and reduce project-related costs.

5 | Conclusion

The project environment, especially the North Tehran Freeway project, has become very dynamic and complex today due to high levels of uncertainty in local and international market forces such as the global economic crisis and political tensions, Iran and the US, international sanctions. Amidst these challenges, it is essential to achieve performance and productivity. Studies have shown that project team management can be considered one of the biggest challenges facing projects. Teamwork helps achieve the various goals and objectives of a project. When a project is assigned to individuals with different perspectives, skills, experience, and assessments, teamwork and collaboration can lead to greater flexibility and enhance project performance.

However, within the project team, there may be different conflicts, contradictions, and disagreements, and it is the responsibility of the manager or team leader to manage these conflicts. A project manager can basically be defined as someone who can influence other people and the manager also has managerial authority in the workplace. A team functions cohesively as a single unit when it is well coordinated and aimed at solving a specific problem or achieving a specific goal in the project. These individual strengths and competencies align project members to achieve common team goals. Although much research has shown that conflict is not necessarily a bad thing, the form of conflict determines how constructive or detrimental it can be to project performance.

Therefore, conflict can be classified as constructive or destructive. Constructive conflicts emphasize reaching a reasonable and acceptable solution for the involved parties. Destructive conflicts, on the other hand, involve contested and personal conflicts. Conflict management is essential to maximize project effectiveness and increase project team member satisfaction. Unresolved conflicts have hindered the flexibility and proper performance of the North Tehran Freeway project. This has led to team members constantly disagreeing on criteria, strategies, tactics, and solutions. If conflicts are not resolved, this harms communication, coordination, and control across the team, resulting in increased project performance levels, quality of the final product, project delivery deadlines, and costs.

Therefore, as a general conclusion, it can be stated that project managers with an appropriate conflict management style and creating flexibility can partially reduce the possible consequences of destructive conflict, including increased costs, severe reduction in communication between individuals and groups, resistance to change, increased tension and stress, failure to deliver the project on time, poor performance, and unhealthy business relationships.

Author Contributions

Sadaf Mehdipour Parizad developed the research concept, designed the methodological framework, collected the data through field surveys, and conducted the statistical analysis and interpretation of results. Habibeh Karimi assisted in refining the theoretical framework, reviewing related literature, and contributed to revising and editing the final manuscript. Both authors reviewed and approved the final version of the paper for submission.

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Data Availability

The data used in this research were obtained through structured questionnaires distributed among project experts. Due to confidentiality considerations, raw datasets are not publicly available; however, anonymized and processed data may be provided by the corresponding author upon reasonable request.

Conflicts of Interest

The authors declare that there is no conflict of interest related to the conduct or publication of this research.

References

- [1] Zhou, Y., Tong, C., & Wang, Y. (2022). Road construction, economic growth, and poverty alleviation in China. *Growth and change*, 53(3), 1306–1332. <https://doi.org/10.1111/grow.12617>
- [2] Alazemi, M., & Mohiuddin, A. (2019). Conflict management of construction projects-a research. *International journal of engineering and advanced technology*, 8, 3809–3817. <https://doi.org/10.35940/ijeat.F9396.088619>
- [3] Zhang, L., & Huo, X. (2015). The impact of interpersonal conflict on construction project performance: A moderated mediation study from China. *International journal of conflict management*, 26(4), 479–498. <https://doi.org/10.1108/IJCMA-09-2014-0072>
- [4] Guangdong, W., Zhao, X., Zuo, J., & Zillante, G. (2017). Effects of contractual flexibility on conflict and project success in megaprojects. *International journal of conflict management*, 29. <https://doi.org/10.1108/IJCMA-06-2017-0051>
- [5] Hu, Z., Wu, G., Zhao, X., Zuo, J., & Wen, S. (2021). How does the strength of ties influence relationship quality in Chinese megaprojects? The mediating role of contractual flexibility. *Baltic journal of management*, 16(3), 366–385. <https://doi.org/10.1108/BJM-09-2020-0347>
- [6] Wang, Y., & Zhang, Q. (2024). The impact of entrepreneurial orientation on innovation performance through strategic flexibility in modern project management. *The journal of modern project management*, 12(1), 166–179. <https://journalmodernpm.com/manuscript/index.php/jmpm/article/view/776>

- [7] Zaman, U., Nawaz, S., Tariq, S., & Humayoun, A. A. (2019). Linking transformational leadership and “multi-dimensions” of project success: Moderating effects of project flexibility and project visibility using PLS-SEM. *International journal of managing projects in business*, 13(1), 103–127. <https://doi.org/10.1108/IJMPB-10-2018-0210>
- [8] Liu, H., Yan, J. W., & Yang, Q. H. (2015). Engineering philosophy-based reflections on efficient development of shale gas in China. *Frontiers of engineering management*, 2(2), 108–113. <https://journal.hep.com.cn/fem/EN/10.15302/J-FEM-2015030>
- [9] Alvarez, C., Gabaldon, A., & Molina, A. (2004). Assessment and simulation of the responsive demand potential in end-user facilities: application to a university customer. *IEEE transactions on power systems*, 19(2), 1223–1231. <https://doi.org/10.1109/TPWRS.2004.825878>
- [10] Lin, Y. H., Guo, Y., Kim, C. J., Chen, P. H., & Qian, M. (2020). The impact of relational governance on the adaptability of international contractors: A comparative study between China and Korea. *Engineering, construction and architectural management*, 27(10), 3235–3259. <https://doi.org/10.1108/ECAM-12-2019-0719>
- [11] Choi, S. (2017). Managing Flexible work arrangements in government: Testing the effects of institutional and managerial support. *Public personnel management*, 47(1), 26–50. <https://doi.org/10.1177/0091026017738540>
- [12] Wang, S., Wang, X., & Zhang, J. (2021). A review of flexible processes and operations. *Production and operations management*, 30(6), 1804–1824. <https://doi.org/10.1111/poms.13101>
- [13] Frydlinger, D., Hart, O., & Vitasek, K. (2019). A new approach to contracts. *Harvard business review*, 97(5), 116–126. <https://mediation.com.sg/wp-content/uploads/2024/01/7-Harvard-BR-A-New-Approach-to-Contracts-2019.pdf>