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Factors influencing construction delays in public investment civil projects: The case of Hanoi, Vietnam

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Abstract: Construction delays in public investment civil projects remain a critical challenge in many developing cities, including Hanoi, Vietnam. This study aims to investigate and rank the key factors influencing these delays, providing evidence-based insights for improving project performance. A quantitative research approach was adopted using a structured questionnaire survey targeting 152 construction professionals, including project owners, contractors, consultants, and regulatory authorities. The Relative Importance Index (RII) method was employed to evaluate the significance of seven identified delay factors. The results indicate that contractor capacity (RII = 0.854), supervision consultant capacity (RII = 0.814), and the legal framework for public investment (RII = 0.762) are the most influential contributors to delays. In contrast, socio-economic (RII = 0.720) and natural conditions (RII = 0.700) exert less impact. Based on these findings, the study proposes practical recommendations such as improving contractor evaluation and supervision practices and streamlining legal procedures. The findings have significant implications for policymakers and stakeholders seeking to enhance the effectiveness of public investment in infrastructure, particularly in rapidly urbanizing environments. This research also enriches the global body of knowledge on delay mitigation in public construction projects within emerging economies.

Keywords: *Construction delays, Contractor capacity, Developing countries, Hanoi, Project management, Public investment projects, Relative Importance Index (RII), Supervision consultancy.*

1. Introduction

The construction industry plays a crucial role in a nation's socio-economic development, with public investment projects acting as a fundamental driver in improving infrastructure. In the context of Vietnam's rapid economic integration and robust growth, public investment is essential for building and upgrading infrastructure, thereby stimulating socio-economic progress [1]. In particular, civil projects financed by public investment, such as schools, hospitals, and administrative offices, are vital for enhancing the quality of life and improving the operational efficiency of government agencies. However, it is of serious concern that delays in the construction of public investment civil projects are quite common. Such delays lead to numerous negative consequences, including wastage of resources, idle capital, disruptions to development plans, and public dissatisfaction [2].

Hanoi, the capital of Vietnam, is not only the political, cultural, historical, and educational center of the country but also a key hub for international activities such as hosting state leaders, organizing international conferences, and signing cooperation agreements. With a population of approximately

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8,435,650 and a density of about 2,511 persons/km² (making up 8.48% of the national total and ranking second after Ho Chi Minh City), Hanoi plays a significant role in driving development in the northern region and nationwide [3]. Consequently, investing in construction and reinforcing infrastructure to meet public needs is an urgent priority that directly impacts people's lives and national development. According to the Hanoi People's Committee, as of June 2024, 705 out of 712 public investment construction projects in the city have experienced delays, extending from six months to one year beyond the original schedule. In 2023, 225 out of 2,738 public investment projects were delayed [2]. This situation underscores the urgent need to research and develop effective solutions to address construction delays.

2. Literature Reviews

Construction delays are a common issue in construction projects, especially in major urban centers such as Hanoi. Previous studies have identified numerous factors affecting construction progress, including socio-economic conditions, legal frameworks, stakeholder capacities, natural conditions, and coordination among parties.

Socio-economic conditions play a crucial role in determining construction timelines. These conditions directly influence construction progress through factors such as inflation, fluctuations in the prices of construction materials, and the financial health of the project participants [4, 5]. International studies, such as those by Odeh and Battaineh [6] have indicated that economic fluctuations, inflation, and unemployment rates can delay projects [6]. In Vietnam, and particularly in Hanoi, rapid urbanization and population growth have put pressure on infrastructure, leading to delays in construction [7]. Moreover, social issues such as land clearance and resettlement are also common causes of delays [8]. According to the study by Nguyen and Nguyen [9] factors like inflation and fluctuations in material prices significantly impact the progress of irrigation and hydropower projects in Vietnam [10].

Natural conditions, including weather, geology, and climate, can also considerably affect construction schedules. Frimpong, et al. [11] pointed out that unfavorable weather conditions are a common cause of delays [11]. In Hanoi, a study by Ha and Nguyen [12] found that heavy rains and extreme heat have a significant impact, frequently disrupting construction activities [12]. Additionally, complex geology is another factor that poses challenges [4].

Legal frameworks and regulations related to construction investment can either create barriers or facilitate construction progress. Complex administrative procedures, prolonged approval processes, and policy changes may lead to delays. An inconsistent and non-transparent legal system is one of the main causes of delays in construction projects. Al-Kharashi and Skitmore [13] pointed out that complicated and unclear approval processes often result in delays [13]. In Vietnam, overlapping and inconsistent legal regulations are a prominent issue [14]. The study Nguyen and Nguyen [15] also emphasizes that sudden policy changes can disrupt project timelines [15]. Furthermore, the research by Nguyen, et al. [16] indicated that issues related to legal and administrative procedures are among the primary causes of delays in construction projects Nguyen and Nguyen [9]. Nguyen, et al. [16] also found that investment and construction policies are major causes of delays in construction projects in Hanoi [16].

Investor capacity directly affects project timelines. Chan and Kumaraswamy [17] indicated that a lack of experience and insufficient financial resources among investors are the primary causes of delays [18]. According to the study by Sambasivan and Soon [18] the shortage of financial resources and managerial experience among investors is one of the main factors leading to delays in construction projects in Malaysia [17]. In Vietnam, the study by Nguyen, et al. [19] shows that many investors lack risk management skills and effective project planning capabilities [19].

The capacity of supervision consultants directly affects both the quality and progress of construction. Sambasivan and Soon [18] noted that the lack of experience and skills among the

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supervision team is a common cause of delays [17]. In Vietnam, inadequate capacity of supervision consultants is a primary reason for construction delays in projects in Hanoi [16, 20]. Additionally, the lack of coordination between supervision consultants and other stakeholders is also a significant concern [21]. The study by Bui [22] in Vietnam further indicates that poor supervision and project management is one of the leading causes of delays [22].

Contractor capacity is a key determinant of construction progress. Assaf and Al-Hejji [23] pointed out that a shortage of labor and materials is the primary cause of delays [23]. In Vietnam, the study by Luu, et al. [24] reveals that many contractors lack the experience and project management capabilities required [24]. Moreover, the use of outdated technology is also a significant factor [25]. Inadequate financial capacity to meet construction requirements, coupled with weak site management, further contributes to delays [26].

Poor coordination among stakeholders is another common cause of delays in construction projects. Olander and Landin [27] noted that insufficient communication and collaboration among project owners, contractors, and supervision consultants often lead to conflicts and delays [27]. In Vietnam, research by Nguyen and Nguyen [5] indicates that a lack of synchronization in project management is a serious issue [5]. Additionally, the absence of effective conflict resolution mechanisms is also a notable factor [28].

The factors influencing construction delays in projects in Hanoi include socio-economic conditions, legal frameworks, stakeholder capacity, natural conditions, and coordination among parties. A clear understanding and effective management of these factors is essential to improve project efficiency. Future research should focus on proposing specific solutions to minimize delays within the unique context of Hanoi.

After reviewing the literature on factors affecting the management of construction schedules in public investment civil projects, the research team proposed seven key factors contributing to delays.

Table 1.
Factors influencing construction delays.

No.	Influencing factor	References
1	Socio-economic condition	Bui and Nguyen [4]; Nguyen and Nguyen [5]; Odeh and Battaineh [6]; Anh, et al. [7]; [8] and Nguyen and Nguyen [10]
2	Natural condition	Bui and Nguyen [4]; Frimpong, et al. [11] and Ha and Nguyen [12]
3	Legal framework for construction investment	Nguyen and Nguyen [9]; Al-Kharashi and Skitmore [13]; Nguyen [14]; Nguyen and Nguyen [15] and Nguyen, et al. [16]
4	Investor (Project owner) capacity	Chan and Kumaraswamy [17]; Sambasivan and Soon [18] and Nguyen, et al. [19]
5	Supervision consultant capacity	Nguyen, et al. [16]; Sambasivan and Soon [18]; Nguyen [20]; [21] and Bui [22]
6	Contractor capacity	Assaf and Al-Hejji [23]; Luu, et al. [24]; Van Tam, et al. [25] and Giang and Duc [26]
7	Coordination among stakeholders	Nguyen and Nguyen [5]; Olander and Landin [27] and Vo, et al. [28]

3. Research Methodology

This study was conducted to determine the extent to which various factors influence delays in the construction of public investment civil projects in Hanoi. The research process was organized systematically as follows:

3.1. Research Design

This study adopts a *quantitative research approach* to systematically assess the impact of various factors on construction delays. A *descriptive research design* was employed to quantify and rank the

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relative significance of these factors based on expert opinions and survey responses. The research follows a *cross-sectional study design*, meaning data were collected at a single point in time to analyze the current situation of project delays in Hanoi.

A *survey-based methodology* was chosen as the primary method for data collection, supported by expert consultations to ensure the contextual relevance of the identified factors. The study utilizes the *Relative Importance Index (RII)* method to analyze the relative influence of different delay factors, providing a structured approach for prioritizing mitigation strategies in public investment projects.

3.2. Research Procedure

The study followed a structured research process comprising the following steps:

Step 1: *Literature Review:* A comprehensive review of existing studies was conducted to identify the key factors contributing to delays in public investment civil projects in Hanoi.

Step 2: *Expert Consultation:* A panel of experts was engaged in discussions to refine and contextualize the identified factors, ensuring their relevance to Hanoi's construction industry.

Step 3: *Survey Questionnaire Development:* A structured questionnaire was designed based on the finalized factors and refined through expert feedback.

Step 4: *Data Collection:* The survey was administered to professionals involved in public investment civil projects in Hanoi.

Step 5: *Data Reliability Assessment:* The collected data were assessed for reliability and consistency.

Step 6: *Data Analysis:* The Relative Importance Index (RII) method was applied to evaluate and rank the significance of the identified factors.

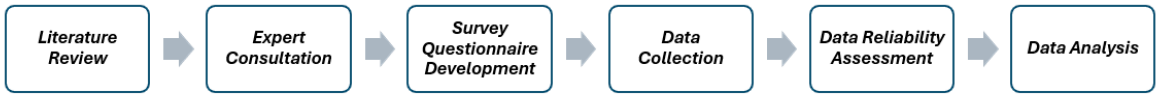

Figure 1.
Steps in Conducting Research.

3.3. Expert Consultation Process

Fifteen experts in construction management, including project owners, project management consultants, supervision consultants, and site supervisors, with at least 10 years of experience in their fields were selected. They were provided with a list of factors affecting delays in public investment civil projects in Hanoi.

For each factor, experts rated its impact using a 5-point Likert scale (1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree). Their feedback was reviewed, and through workshops and discussions, the authors and experts agreed on the seven key factors to form the basis of the survey questionnaire.

3.4. Survey Questionaire Design and Data Collection

3.4.1. Questionnaire Design

The survey questionnaire was divided into two main parts:

1. Basic information about the respondents (years of experience, field of work).
2. Evaluation of the impact of 07 factors on construction progress using a 5-point Likert scale.

A preliminary survey questionnaire listing the factors affecting delays in the construction of public investment civil projects (7 factors) was designed and sent to 15 experts. After a second round of expert consultation on the preliminary questionnaire, the authors adjusted and finalized the survey.

A 5-point Likert scale was used to assess the degree of influence, where 1-not influential at all, 2-

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minimally influential, 3-moderately influential, 4-highly influential, and 5-critically influential.

3.4.2. Data Collection Process

The target respondents are individuals directly involved in executing or managing public investment civil projects in Hanoi, employed in organizations such as contractors, project owners, state management agencies, as well as institutions involved in related training and education. These individuals should have a clear understanding of the nature of tasks involved in managing construction schedules or be capable of assessing the extent to which various factors affect delays in public investment civil projects in Hanoi.

3.4.2.1. Sample Method

Different methods exist for determining sample size. In this study, the minimum sample size was set at 50 (ideally 100 or more) based on guidelines by Hair Jr, et al. [29]. The observation-to-variable ratio was maintained at 5:1; with 9 independent variables, approximately 5*7=35 responses were required.

3.4.2.2. Data Collection Method

Both online surveys via Google Forms and face-to-face interviews were used to ensure comprehensive and accurate data collection.

3.5. Relative Importance Index (RII) Method

To analyze the collected data and determine the significance of factors contributing to project delays, this study applied the Relative Importance Index method. The RII approach is widely used in construction management research to prioritize factors based on expert judgment, making it well-suited for this study, where data is derived from professionals' assessments. Given that project delays are influenced by multiple interrelated factors, RII provides a systematic and quantifiable means to rank these factors according to their perceived importance. The RII is computed using the following formula [30]:

$$RII = \frac{\sum W}{A \times N} \quad (1)$$

In which:

$\sum W$ is the total score given by all respondents for a specific factor (with scores ranging from 1 to 5 on the Likert scale).

A is the highest possible score (5 in this case).

N is the total number of respondents (152 individuals).

The impact thresholds on the 5-point scale are defined as follows:

- RII from 0.00 to 0.20: No influence
- RII from 0.21 to 0.40: Negligible influence
- RII from 0.41 to 0.60: Moderate influence
- RII from 0.61 to 0.80: High influence
- RII from 0.81 to 1.00: Very high influence

The RII method allows for clear and systematic analysis to determine which factors are most critical for improving construction performance.

The authors encoded the data as shown in Table 2 and then used Excel for data entry and analysis.

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Table 2.
Coding of influencing factors.

No.	Factor description	Code
1	Socio-economic condition	KT
2	Natural condition	TN
3	Legal framework for construction investment	PL
4	Investor (Project owner) capacity	CDT
5	Supervision consultant capacity	GS
6	Contractor capacity	NT
7	Coordination among stakeholders	PH

4. Research Results and Discussion

4.1. Survey Data Results

A total of 152 valid responses were collected, meeting the required sample size. Among these, the respondents included: (17) experts serving as project owners from the Project Management Board, (13) experts from research and training institutions, (28) experts from contractor management, (14) supervision consultants, (29) design consultants, (10) project management consultants, (8) state management officials in construction, and (33) experts from other related fields.

The number of experts closely matched the target profile, with nearly 70% being senior leaders. Additionally, 32% of respondents had more than 10 years of experience in the construction industry. These details are presented in the following tables.

Table 3.
Respondents' Experience.

Experience in the industry	Number of Responses
Less than 5 years	46
5 to less than 10 years	57
10 to less than 15 years	46
15 to less than 20 years	0
20 to less than 25 years	0
More than 25 years	3

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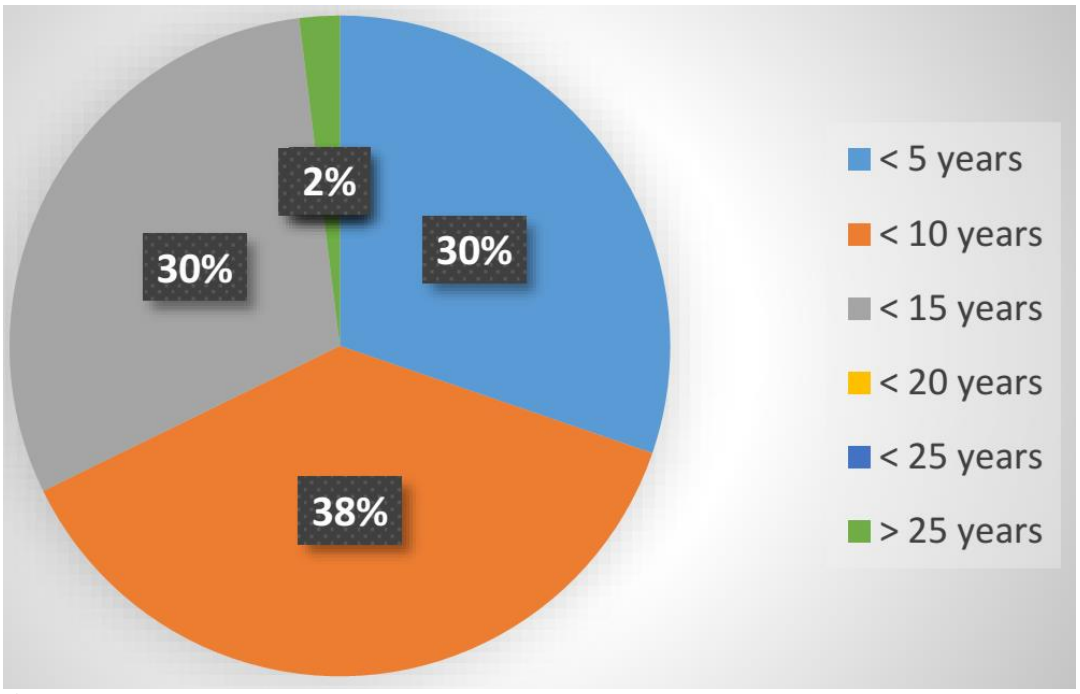

Figure 2.
Distribution of years of experience among survey respondents.

Table 4.
Respondents' Areas of Expertise.

No.	Area of Expertise	Number of Responses	Percentage (%)
1	State management in construction	8	5
2	Project management cosultancy	10	6.5
3	Design consultancy	29	13
4	Supervision consultancy	14	9
5	Contractor management	28	18
6	Research/ Training	13	8.5
7	Project owners (Management Board)	17	11
8	Others	33	21

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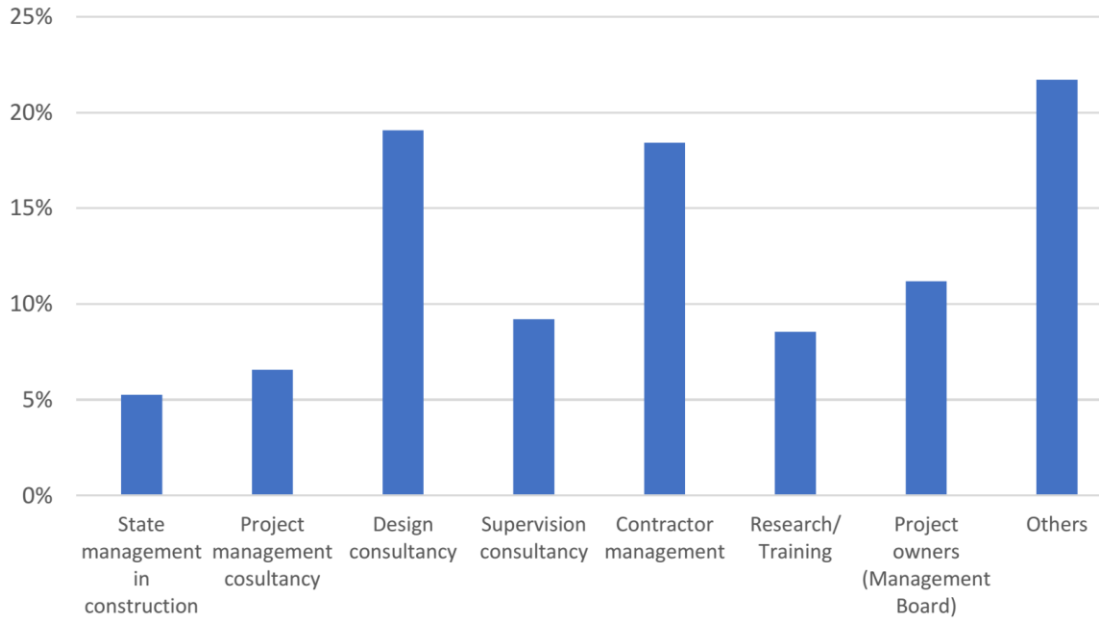

Figure 3.
Percentage distribution of survey respondents' areas of expertise.

4.2. Reality and Validity Testing
4.2.1. Data reliability was assessed using Cronbach's Alpha

Table 5.
Cronbach's Alpha.

Cronbach's Alpha	Cronbach's Alpha Bases on Standardized Items	N of Items
0.666	0.648	7

Cronbach's Alpha of 0.666 indicates that the reliability of the collected data is moderate and acceptable [31]. The similarity of the standardized value (0.648) suggests that data normalization did not significantly affect the results. These findings support the use of the factor groups in subsequent RII analysis.

4.2.2. Additional Tests Using the Kaiser-Meyer-Olkin (KMO) Measure and Barlett's Test of Sphericity Was Conducted to Assess the Suitability of the Data:

Table 6.
KMO and Barlett test.

Test	Value
KMO Measure of Sampling Adequacy	0.82
Barlett's Test of Sphericity	
• Approximate Chi-Square	1200.45
• Degress of Freedom (df)	21
• Sig. (p-value)	0.000

The KMO value is 0.82, indicating that the data is suitable for factor analysis (since KMO≥0.7).
The p-value is 0.000, which is less than 0.05, demonstrating that there is a significant correlation

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between the variables.

These results confirm that the data is appropriate for conducting factor analysis using the Relative Importance Index (RII) method [31].

4.2.3. Relative Importance Index (RII) Analysis Results

Based on the survey data and RII calculations, the ranking of factors affecting delays in Hanoi's public investment civil projects is presented in Table 7:

Table 7.
Ranking of the factors contributing to delays in progress.

No.	Code	Factor Description	RII	Rank	Level of Influence
1	NT	Contractor	0.854	1	Very high
2	GS	Supervision Consultant Capacity	0.814	2	Very high
3	PL	Legal Framework for Construction Investment	0.762	3	High
4	CDT	Investor (Project Owner) Capacity	0.759	4	High
5	PH	Coordination Among Stakeholders	0.747	5	High
6	KT	Socio-economic Condition	0.720	6	High
7	TN	Natural Condition	0.700	7	High

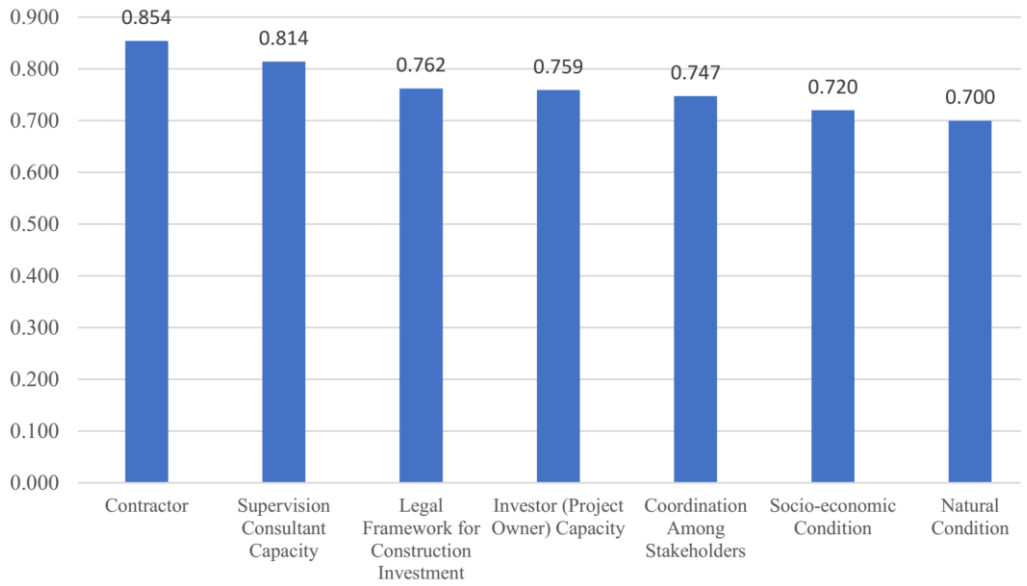

Figure 4.
Ranking of the impact levels of the 7 factors on delays based on their average values.

Based on the analysis of data from 152 valid survey responses, the study evaluated the impact of seven factors on delays in the construction of public investment civil projects in Hanoi. The results were measured using the Relative Importance Index (RII), which shows that the factors exert different levels of influence, ranked from highest to lowest.

The factor "*Contractor Capacity*" has the greatest impact on delays (RII = 0.854). In Hanoi, many public investment construction projects have experienced delays, affecting both economic efficiency and the reputation of the stakeholders. One of the main reasons identified is the capacity of the contractors [30]. Contractor capacity encompasses factors such as financial strength, construction experience, project management, and the ability to mobilize resources. When these elements do not meet the

required standards, construction progress is severely impacted. This finding is also consistent with the study by Giang and Duc [26], which indicates that the management capacity of both the investor and the contractor plays a crucial role in influencing project timelines [26].

To reduce delays caused by contractor capacity issues, project owners should comprehensively assess a contractor's financial strength, experience, and management skills when selecting them. During project implementation, project owners need to consistently monitor construction progress and provide timely support to the contractor as required. On the contractor's side, there should be ongoing investments in capacity building-this may involve organizing training sessions and skill-enhancement programs for engineers, procuring modern construction equipment, strengthening financial capabilities, and improving overall management and site supervision. Enhancing contractor capacity is critical not only for maintaining the project schedule but also for improving the quality of construction and the efficient use of public investment funds.

The "*Supervision Consultant Capacity*" factor, with an RII of 0.814 and ranking second, indicates that inadequate supervision is one of the primary causes of construction delays. This highlights the essential role of supervision consultants in ensuring both the progress and quality of construction projects. They are responsible for inspecting and monitoring the construction process to ensure adherence to design specifications, technical standards, and the predetermined schedule. Acting as intermediaries between project owners and contractors, they ensure that the work is carried out in accordance with contracts and current regulations [20, 32]. When supervision consultants lack sufficient capacity, they may fail to promptly identify and resolve technical issues, leading to extended repair periods and overall delays. Moreover, insufficient management and planning skills among supervision consultants can result in inadequate monitoring of progress and a failure to implement timely corrective measures. In cases where they do not possess enough experience to propose appropriate technical solutions for complex issues encountered during construction, delays may further escalate.

To reduce delays caused by inadequate supervision consultant capacity, project owners should select supervision consulting firms that are reputable, experienced, and possess capacities suited to the scale and nature of the project. They should closely monitor and periodically evaluate the performance of these consultants to promptly identify and resolve any issues. Additionally, supervision consultants should independently organize training sessions and continuous professional development programs for their engineering teams to ensure they meet job requirements. Enhancing the capacity of supervision consultants is critical not only for maintaining project schedules but also for improving construction quality and the efficient use of public investment funds.

In Hanoi's construction projects, the capacity of project owners (RII = 0.759) is ranked fourth in terms of its impact on delays. This indicates that although project owners play an important role in managing and implementing projects, their impact on delays is considered moderate compared to factors such as contractor capacity, supervision consultant capacity, and legal issues. In practice, responsibilities are shared among various stakeholders, including project owners, contractors, supervision consultants, and state management agencies. Consequently, delays may arise from multiple causes, not solely from the project owners. Issues such as land clearance, cumbersome legal procedures, and untimely funding arrangements are often beyond the direct control of the project owners. For instance, in 2023, there were 2,848 delayed projects, with the primary causes being land clearance issues (1,598 projects), complications in investment procedures (315 projects), and untimely funding arrangements (447 projects) [30]. Moreover, the capacities of contractors and supervision consultants directly affect construction progress. Even if project owners manage well, deficiencies in the capacity of these parties can still result in project delays.

Economic fluctuations, policy changes, or social issues can affsect funding sources and construction schedules. However, compared to the other factors, the influence of socio-economic conditions on delays in Hanoi is considered to be lower. In a study on the factors affecting delays in public investment civil

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projects in Hanoi, "*Socio-economic condition*" were categorized as having a low level of influence. This can be explained by the following factors:

- *Macro-economic stability and steady growth in Hanoi and Vietnam:* Both Vietnam in general and Hanoi in particular have maintained stable economic growth over the years. According to the General Statistics Office, Hanoi's GDP in 2023 increased by 5.87% compared to the previous year, which is higher than the national growth rate (5.05%) [33]. This steady growth helps ensure a consistent flow of capital for construction projects, reducing the risks associated with macroeconomic factors. Additionally, the Consumer Price Index (CPI) in Hanoi increased by only 2.98% in 2023, remaining low and stable. This enables construction companies to better forecast material and labor costs, thereby minimizing the negative impact on project schedules. Compared to other major cities worldwide, Hanoi is less affected by economic recessions or high inflation, so socio-economic conditions do not lead to significant project delays.
- *Favorable business environment as the capital of Vietnam:* Hanoi benefits from a stable and favorable business environment. Public investment projects are less impacted by socio-economic fluctuations because the state budget is allocated in advance. Hanoi ranks among the top regions in the country for disbursing public investment funds, achieving 74.2% of the planned target in 2023. In the same year, Hanoi attracted USD 2.9 billion in FDI, demonstrating investor confidence in the stability of the business environment and positioning the city as a leader in attracting foreign direct investment [2, 30]. Furthermore, the legal framework for investment and construction has been continuously improved, such as with the Public Investment Law [34] and the amended Construction Law [35] which helps mitigate risks associated with socio-economic conditions. These factors ensure that the business environment in Hanoi's construction sector is less disrupted by socio-economic issues, resulting in a relatively low impact on project delays.

These results are also consistent with several other studies, which indicate that the impact of socio-economic conditions is significant only in the context of an economic crisis; when the economy is stable, this factor is not the primary cause of delays. Bui [22] found that the influence of socio-economic conditions on construction progress in Vietnam is insignificant, whereas project management and administrative procedures have a much stronger impact [22]. Thus, both in Vietnam and worldwide, the impact of socio-economic conditions on project timelines typically emerges only during severe crises. In the context of Hanoi, where the economy is stable, the effect of this factor is minimal.

Factors such as weather and geological conditions can pose challenges to construction. However, with advancements in technology and increased management experience, the influence of natural conditions has been mitigated and is no longer the main cause of delays (RII = 0.700). In Hanoi's construction projects, natural conditions are assessed as having the lowest level of impact on delays. This can be explained by the following aspects:

Impact of Natural Conditions in Hanoi:

- Moderate Climate: Hanoi is located in a tropical monsoon climate zone with four distinct seasons. Although there are rainy and dry seasons, extreme weather events such as severe storms, flooding, or prolonged droughts occur infrequently and are usually forecasted in advance, allowing contractors to plan their construction activities accordingly.
- Favorable Topography: Most areas of Hanoi have flat terrain with few hills, which is conducive to implementing construction projects without significant topographical challenges.

Forecasting and Response Capabilities:

- Accurate Weather Forecasting: With technological advancements, weather forecasting has become increasingly accurate, enabling contractors to plan construction schedules flexibly and avoid adverse weather conditions.

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- Flexible Construction Measures: Contractors can adjust their work schedules, focus on indoor tasks, or work on components that are less affected by the weather during rainy days, ensuring the overall progress of the project.

Although natural conditions can sometimes impact construction timelines, in Hanoi, the relatively favorable climate and topography, combined with effective forecasting and response capabilities, render this factor the least influential compared to others such as contractor capacity, supervision consultant capacity, or legal issues.

5. Conclusion

The analysis using the Relative Importance Index (RII) reveals that management and operational factors have a greater influence on construction delays in public investment civil projects in Hanoi than external, objective factors.

- Contractor Capacity is the most critical factor (RII=0.854), reflecting that eficiencies in technical, financial, and managerial capabilities are the primary causes of delays.
- Supervision Consultant Capacity is the second most influential factor (RII=0.814), highlighting the essential role of effective supervision in ensuring project quality and timeliness.
- Legal Procedures (RII=0.762) also contribute significantly to delays, although they are not the leading factor.
- Investor (Project Owner) Capacity (RII=0.759) has a moderate impact, suggesting that while important, its influence is somewhat less dominant.
- Socio-economic Condition (RII=0.720) and Natural Condition (RII=0.700) have the least impact, reflecting Hanoi's relatively stable economic environment and favorable natural conditions.

These results support previous research findings and suggest that improving construction progress in Hanoi requires focused efforts on enhancing contractor capacity, optimizing supervision consultancy, and reinforcing investor responsibilities rather than concentrating solely on administrative or socio-economic factors.

Transparency:

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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