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Identify Causes of Delay and Cost overrun in Residential Construction Projects at Surat Region in India: A Review

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Abstract: A construction project is deemed successful if it is finished within the timeframe provided. A variety of variables lead to project major failure. Construction delays and cost overruns are two of them. Project delays impede growth in all other connected disciplines. A project delays study was conducted to examine the delay causes, the impact of delays, and techniques for decreasing construction delays. Poor performance measure is a typical concern in building projects, with few projects finishing on time and within budget. According to previous studies (publications), around 90% of construction projects have delays and cost overruns ranging from 5% to 200%. The research includes a literature review as well as a questionnaire survey. A detailed questionnaire survey was used to collect data for this investigation. The building of the urban development project is significantly more challenging due to the large number of players involved. These parties include the client, contractors, architect, suppliers, consultants, and labours. It is essential to figure out whether delay is crucial or not, as identifying the critical delays aids in the implementation of relevant actions at the proper time. The purpose of this research is to assess the various forms of delays as well as the reasons of those delays that are hurting projects in India's Surat area. 8 main groups were responsible for construction delays. The weights of the delay factors and groups were computed and evaluated. An examination of the literature revealed 45 variables that influence delays. The questionnaire was distributed to construction projects.

Keywords: Construction, Project, Delay, Cost overrun, Time, Process, Factors, Management, client, contractor, designer, suppliers, consultant and labours, India.

1. Introduction:

The building industry in India has been critical to the country's development and economic growth. A huge number of infrastructural, residential, commercial, and educational projects are now under construction and will be finished in the coming years. As per "makeinindia.com," the construction sector involved a huge number of working groups, and stakeholders working collectively, including a big amount of money. Construction activity accounted for 10% of India's Gross domestic product. Construction receives the highest FDI, providing it more actionable.[1] The building industry contributes significantly to the economy and its efficiency and productivity have a substantial impact on the profitability and productivity of many other sectors. There will be no mass investment in industry, agriculture, and services until infrastructural facilities are constructed. [2] The rising complexity of building projects creates a greater demand on project manager to finish projects on schedule, under budget, and at a high standard. A cost overrun, often known as a cost increase or cost overruns, is a type of cost overrun, refers to unanticipated expenses that exceed the funds allocated owing to an overestimate of the real cost while budgeting. [3] Construction companies are critical participants who must meet the project's criteria. They work on a variety of projects that require good management and coordination in order to maximise resource utilisation and ensure project completion. Cost overruns, on the opposite hand, pose a significant uncertainty to both the owner and the building worker. With lump sum and premeasured agreements, contractors face greater severe risks than some other parties. [4] In developing nations where project execution is riddled with uncertainty, project time and cost overrun are a severe concern. It consumes precious financial resources, delays facility provision and development, and escalates building prices. With globalism and tech expansion across the worldwide, a scientific and methodical approach to construction management is becoming increasingly important to guarantee ensure project objectives are met within time and budget limits.[5] Delays in construction projects have a detrimental impact on contractual parties (owner, contractor, & expert) in the form of increasing combative relationships, distrust, conflict, arbitration, cash-flow concerns, as well as a general sense of anxiety. As a result, recognising the true reasons of delay is crucial in order to reduce & eliminate delays in any building projects.[6] Infrastructure spending is expected to rise from INR 23.8 trillion in the 11 Five Year Plan period (2007-2012) to INR 56.3 trillion in the twelfth Five Year Plan period (2013-2017). (2012-2017). Despite increased government stimulus and aid, as well as several opportunities, the construction sector remains stagnant. Delays in construction projects are a worldwide occurrence, and India is not an exception. According to Central Govt. of India's monthly flash statement (IPMD, n.d.), 296 (23%) of the sum of 1272 current projects (spending INR 1.5 Billion or even more) are having time and cost overruns since about Aug 2017. [7] The Indian construction sector is a combination of complex, highly developed corporations like

L&T, TATA constructions, GMR, and others, along with undeveloped micro, smaller, and medium contractor companies that do the majority of their work using human labour and barely working technology. According to numerous news sources, the building construction business is plagued by project delays, with some estimates estimating that approximately 90% of construction-related projects experience delays and budget overruns in certain form or another. To solve the issue of delays, it is vital to properly understand the factors that lead to it, all the way through to local levels. [8]

2. Literature Review:

Assaf, S. A., et. al (1995) They identified and prioritised 56 major reasons of delays in Saudi big residential construction projects. A survey of contractors, owners, and architects/engineers in Saudi Arabia was conducted to determine the causes of delays in large construction projects. The variables were separated and classified into nine major categories. The nine groups were materials, people, equipment, money, changes, government connections, scheduling and regulating, the environment, and contractual links. The most serious delays, based on the contractors polled, were: 1) Create and review shop drawings 2) Contractor progress delay 3) Owners' payment 4) Changes to the design [9]**.**

Kaming et. al (1997) they investigated a number of factors that impact time and cost overruns in Indonesian construction. A questionnaire survey of project managers working in high-rise construction projects in Jakarta and Yogyakarta was conducted. Those elements of budget and time overrun were divided into variables, and their correlations were investigated using factor data analysis. A study of 31 high-rise structures in Indonesia found that length overruns are far less relevant than expenditure overruns. Cost overruns are mostly caused by material variation, faulty material forecast, and the level of difficulty. Design modifications, lower labour output, poor planning, and financial constraints are all examples of time overruns.[13]

Alwi and keith et. al (2003) they performed a survey to determine the key causes of construction project delays throughout Indonesia. A questionnaire was distributed to 89 major contractor participants and 23 micro contractor participants. Participants were asked to assess the significance of the 31 probable project delays. There are 6 major categories of delay reasons. Both big and minor contractors agreed on the defining a set of key delay factors based on the data. The study reveals that there's no consensus between both the 2 contractor groups. The expert management group was ranked highest by large contractors, whereas the

exterior groups were placed lowest. On the other hand, micro contractors priorities design and documentation above performance.[10]

Assaf et. al (2005) They performed a study on the causes of delays in various types of building projects around the Gulf to establish the reasons for the delay and their relevance based on every project stakeholder, namely the investor, consultant, and contractor. The field survey included participation from 23 contractors, 19 specialists, and 15 designers in total. Throughout the inquiry, 73 causes of the delay were found. According to 56% of professionals and 76% of contractors, the usual delay is 10% of between 30% of the anticipated time. "Scope change" is the most often cited cause of delay, according to all 3 parties. According to surveys, 45 of such 76 projects evaluated experienced delays, and 70% of projects experienced schedule overruns.[11]

Iyer and Jha et. al (2005) They are based on the results of a survey method on the budget performance of Indian building projects. There were 55 recognised factors. They concluded that dispute among construction stakeholders, ignorance and insufficient knowledge, the existence of poor construction features and the lack of participation, violent social economic and weather factors, reluctance to maintain accurate decisions, stiff competition at the tendering stage, and the most important elements influencing the cost management of building projects in India have been short bid preparation times.[19]

Sweis, et. al (2006) they performed research on the reasons why residential construction projects in Jordan are delayed. The poll was based on 40 probable delays, which were categorised into three main groups. The respondents were tasked with assessing the probability of each source of delay on a five-point Likert scale. An analysis of 91 responses revealed that the contractor's financial issues, the owner's excessive number of change orders, the contractor's poor planning and scheduling, the presence of low skilled workers, and a lack of technical professionals within the contractor's agency were all significant causes of delay.[14]

Azhar et.al (2008) they did a research to determine the top cost overrun drivers in Pakistan's building sector. There were 42 factors detected. Representatives from area general contracting businesses completed a questionnaire survey. The majority of cost overrun causes (88%) are found to have effects of medium intensity. They found that the top 10 factors contributing to cost overruns in Pakistan's construction industry are: fluctuating commodity prices; unpredictability of manufactured material costs; high machinery and plant costs; lowest tendering procedures; poor site management as well as cost control; delays in the design and

contracting phases; inaccurate and insufficient cost estimation methods; inadequate planning; and insensitive government regulations.[20]

Doloi H. et al. (2012) they conducted research to identify the reasons behind India's construction delays. They selected 45 qualities. In order to develop prediction models for calculating the effect these variables have on delays, their study initially identified the critical factors affecting delays within the Indian construction industry. It next described the relationship between the critical parameters. They used both person interviews and a questionnaires to conduct their investigation. Regression modelling and causes analysis were both done to determine the importance of the delay factors. According to the statistical study, a lack of commitment, poor site management, and insufficient site coordination were shown to be the most significant causes of project delays.[12]

Hemanta et al. (2012) In this study, the 45 factors were analysed to ascertain the causes of delays in Indian construction projects. The vital information for the study was gathered through questionnaires and in-person interviews. The applicability of project delays was investigated using element analysis and statistical modelling. The most significant factors were (1) a weak degree of dedication, (2) inadequate site management and oversight (3) a lack of site management, (4) unclarity in the project's goals, (5) a communication gap, and (6) a subpar contract. According to the regression analysis, the company made sluggish judgements, labour efficiency was low, and consultants were reluctant to modification and rework, which all added to the project's delay.[16]

J. Raj Bharath et. al (2013) They said that the nation's project delivery method is well shown by the conventional Bandra-Worli ocean link. The project was intended to cost Rs 300 Cr. and be finished by 2004, but it has ended up costing 1,600 Rs. and taking Five years longer. According to a case study by Ruth apolot, Henry alinaitwe, and Dantindiwensi (2013), lobbyists for the construction industry have the biggest impact on time and expense overruns. As a result, we advocate for minimising workload adjustments. To decrease payment delays and boost client cash flow, they switched from agreement to designs built.[17]

P. Rao et. al (2014) They believe that the 3 most crucial variables that the contractor creates with an impact on project success are inadequate project planning and delays with on transfers, as well as delays in subcontractor activity, followed by delays in delivery. Factors that were apparent too late during the process of revising and approving design documentation. Customers were blamed for 51% of such delays,

then contractors (36%), as well as consultants (13%). Document management challenges, as per ARC File Solutions (2015) study, are the top reason for building schedule overruns and timeouts.[18]

Dinesh Kumar et. al (2016) they identify the key factors contributing to delays in Indian construction projects, researchers conduct both a literature review and a questionnaire survey. The review of the literature identified 103 reasons for delays divided into 8 distinct groups, 8 consequences of delays, and ratings assigned by each investigator for the delay variables that differed depending on native and environmental characteristics. Also, a questionnaire survey is conducted with participants (contractors, owners, consultants, as well as others) inside the Indian construction industry to determine the top 20 issues relevant to the Indian context, and recommendations are provided to prevent delays in construction projects.[21]

M. Parmar et. al (2016) They carried out a rigorous study of the literature also on analysis and determination of cost-controlling elements in residential building projects in Gujarat. Various researchers "have sought to characterize the components determining project building cost considerations for a long time. They create a theoretical framework for the parameters that control residential development projects in major Gujarat city. A review of literature, papers, journal articles, and other sources led to the identification of nearly 54 variables, which were then classified into 9 various categories based on management, budgetary, governmental and political, duration, material and equipment, workers, technical and efficiency, quality factors, and environmental elements.[22]

A. Rezaei et.al (2018) they determined found construction project time and cost overruns are two important defects that might severely effect projects owing to disagreements among stakeholders, job quality, and safety standards. The study's aims, which include the reasons of project delays and cost overruns, were translated into a questionnaire. The shut question approach was also used in the creation of the questionnaire. Some suggestions were made to address the delay and budget issues, including the provision of extraordinary security teams, strict rule enforcement, recognition of labour motivating factors to improve productivity, special training events and workshops, more research on local skills, upgrading contractors with novel processes and techniques, and motivating locally owned construction firms.[23]

A. A. Salunkhe1, et. al (2018) they explore the influence of construction delays on program schedule overruns in an Indian setting. The client and the contractor are often concerned with project completion time and expense. 57 percent of Indian building projects are behind schedule. This study investigates how internal and external factors, as well as the impact of severe project delays, affect the building process. Infrastructure projects, as per numerous media accounts, have been plagued by protracted delays and large cost overruns.

Because the project contains several elements and players, each of who has its own list of reasons. On the other side, the success of the project is more strongly influenced by the proprietors, contractor, and consultants. As a result, the reasons of the stakeholders are investigated, which will improve the time and financial effectiveness of the overall project.[24]

M. Enrica et. al (2021) They look into cost overruns that occur when a project must deal with risks since it wasn't expected to be prepared, in order to lessen risks that cause delays in the carrying out of work sequences. This is unquestionably a significant problem when estimating building projects and a crucial duty including both owners and contractors; it has to be managed to reduce or avoid adverse impacts. According to an assessment of 50 journal articles, the most common source of budget increase is Project Stakeholders (25.6%) with case lover Planning, Construction Items (22.7%) to situation frequent Changes in Design, Estimated Costs (22%) with case Incorrect Estimate Costs, Finance (16.9%) with case High inflation Pressure, and Climate (12.8%) with case Climate Conditions..[25]

Shrivas A. et.al (2022) they identify and evaluate the primary variables affecting construction schedule delays in India, and instead, using an interpretive structural modelling method, they develop a framework based on the inverse interplay of those components. The 'drive variables' (i.e., the variables that lead another elements) and the 'carrying a significance' are identified in the paper using MICMAC research. There are twelve significant elements that affect delay, according to a survey of the literature as well as professional analysis. Five specialists collaborate to create an ISM model (3 from industry and 2 from academia). In the centre of the model, intermediate reasons include a lack of a clear project management strategy, unforeseen inter dependencies, contractor assessment, and poor project control. Level two issues impact design review durations, wastage of materials, poor management, dispute between owners as well as other parties, rework as a result of or performance noncompliance, and inadequate site supervision and management.[26]

Saad A. et. al (2022) They found a total of 83 risk variables, which were subsequently divided into nine groups. The structured questionnaire was sent to 200 Saudi construction specialists and professionals separated into four groups: customers, designers, advisors, and contractors. There were 55 valid surveys received and analysed. To determine the most significant risk variables, the importance index (RII) was utilised. Based on the survey data, the contractor's financial troubles, the founder's delay in making advance payment for practical completion, contracts awarded to a cheapest bidder, order has been placed during building projects, the contractor's inadequate project schedule, a lack of manpower, as well as poor site management and supervision were the most major risk factors contributed to the failure.[27]

3. Causes of Delay

Given how strongly the construction sector contributes to India's economy, it is critical to comprehend how stopped projects might seriously impede that nation's economic development. Failure to fulfil the project's goal time, projected cost, designer revisions or errors, weather, late delivery, and quality specifications has a number of unanticipated negative consequences. An unanticipated delay increases the overall time of project operations while also increasing project expenditures.[28] A construction project is judged successful when it is finished on time and on budget. The lengthening of the completion time for a task is referred to as delay. It may also be described as failing to complete the task within the stated time range.[29] Unexpected project delays are difficult to manage and have an adverse effect on construction operations and deliverables. Unexpected project delays are difficult to manage and have a negative impact on project management and outcomes. Project delays aggravate the resentment of all parties involved. [30] When the total cost of a residential project increased, the degree of delay and cost growth (overrun) increased as well. During the project implementation of their housing developments, private owner occupiers who spent so much time and money on or before spent so much on design, issued fewer variation orders, hired more expert contracting firms, and forced to hire a supervisory technician to personally oversee the advances of work and ensure material delivery experienced fewer time delays and cost increases.[31] The construction sector is plagued by a significant issue with delays. It is expensive for both owners and builders. Owners suffer financial losses as a result of passing up on possible project-related earnings and rising administrative and management costs. Losses incurred by contractors are brought on by rising overhead expenses and capital constraints. [15] It may be used by managers to effectively manage their projects, provide insight into the prevention of construction delays, and boost overall productivity in the construction management industry.[32]

When projects get delayed, they are typically extended or expedited, incurring more expenditures. Furthermore, the increase in worldwide energy costs affects the construction project. The cost of building will climb as well, as the cost of procuring supplies and paying labour rates. If the matter is not handled, the problems with the next development project in India would worsen.

As per the Ministry of Statistics and Programmed Implementation's most recent report, March 2022, which tracks infrastructure projects over Rs 150 Cr. or more.

3.1 Delay and cost overruns in infrastructure projects

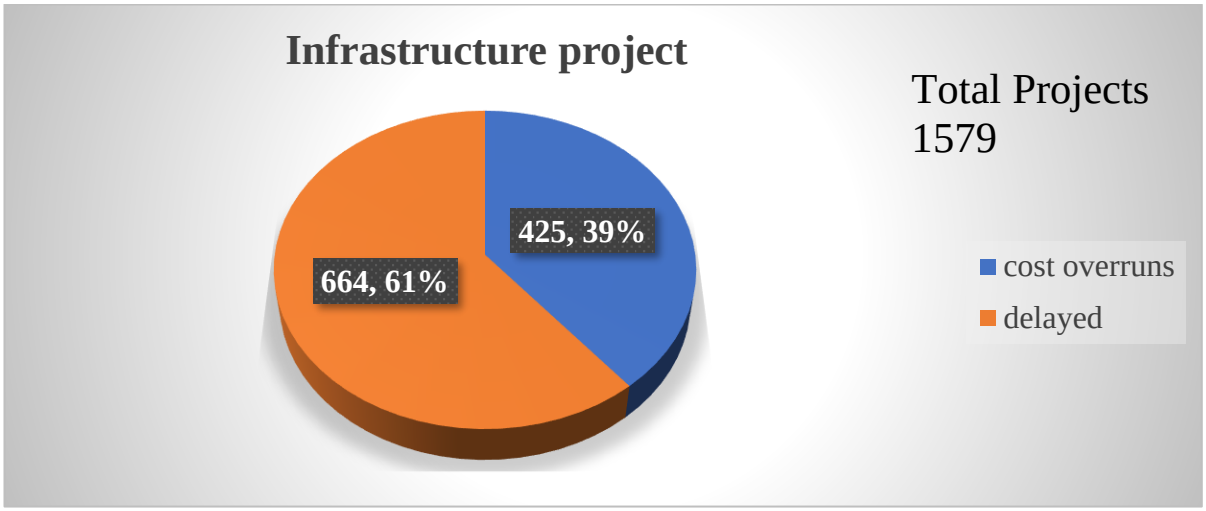

Figure 2. Total Infrastructure project delays and cost overruns

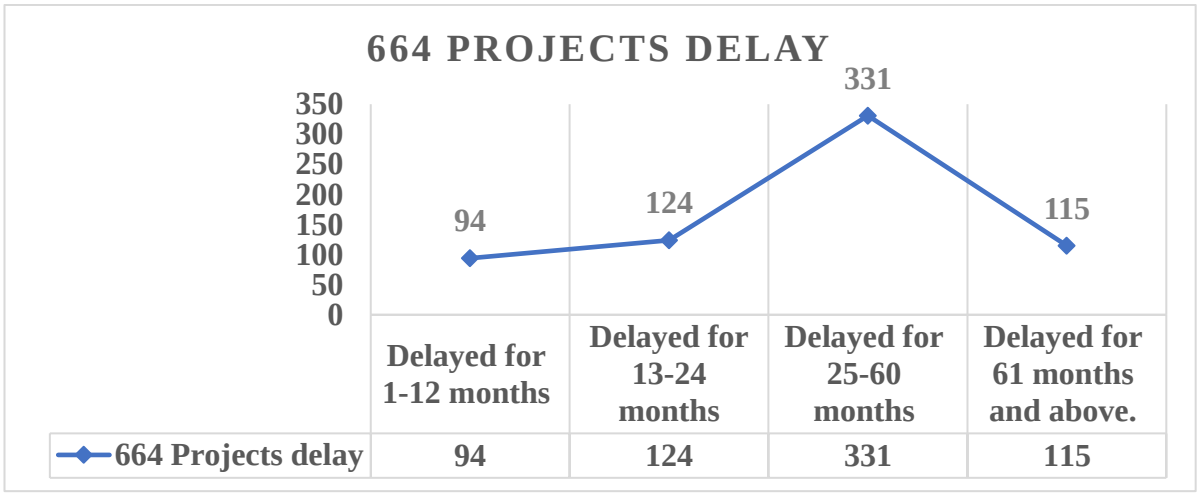

Figure 3 Infrastructure project delay

4. Causes of Cost Overrun

Every building project must take the cost of the project into account. To keep costs under control, proper and precise assessment of numerous project-related variables, as well as a knowledge of the size of their impacts, are required. [33] The construction business is a complicated, interchangeable sector that is always changing from the beginning to the end of a project. [34] Cost is among the most crucial factors in how well a construction project performs. Cost management, which encompasses processes like estimating, monitoring, and regulating, is a discipline that is crucial to the successful completion of building projects of all sizes and

levels of complexity. The processes of cost estimate, cost estimating, and cost control are all included in cost management, which enables projects to be completed within authorised budgets (s). [35] In most development initiatives all over the globe, poor cost estimate is a common problem that leads to significant cost overruns. [36] Cost overruns, cost escalation, and cost growth are other names for this phenomenon. Cost management refers to the actions required to ensure that the project or projects are completed within the predetermined budget. [37] Cost escalation is the difference between the project's actual costs, as determined at the closure phase, and the budgeted amount anticipated before it began. The severity of cost overruns and delays varies based on a number of variables, such as the country, industry, project features, and project timetable.[38]

4.1 Infrastructure project cost overrun

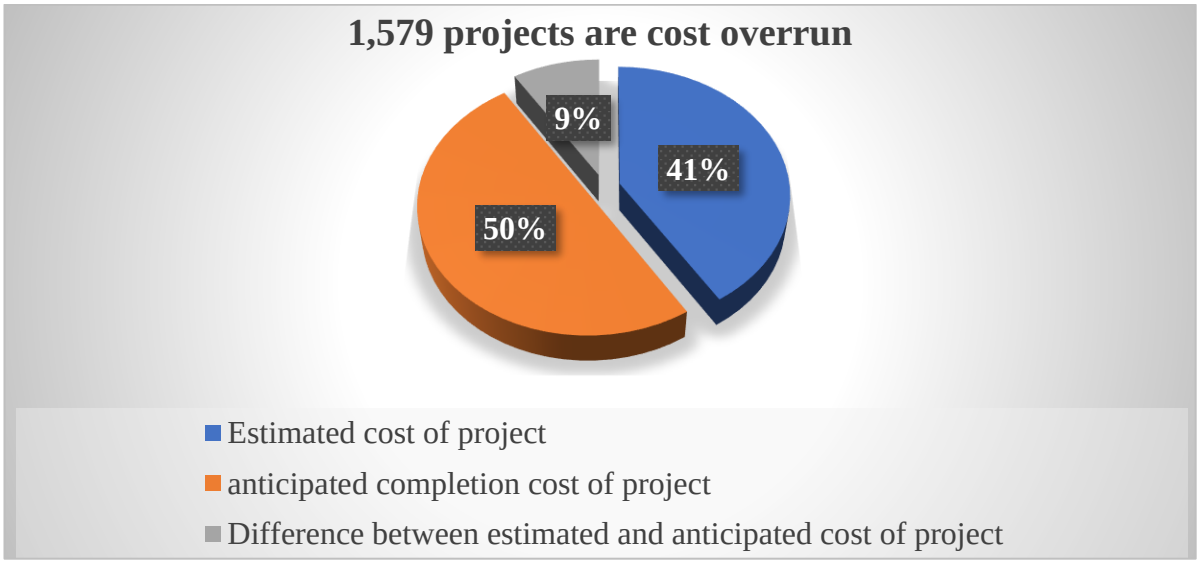

Figure 4. Infrastructure project cost overrun

5. Multi Criteria Decision Making of (MCDM) Method

When working on complicated projects, project leaders encounter challenging decision contexts and difficulties. There are multiple issue aspects, and their interrelationships are exceedingly complicated. Simple proportionality can almost always explain variations in the constituents. People judgement and long - term viability are also important factors in project issues. As a result, making smart choices is vital to project success.

Decision theory and analysis make extensive use of multiple criteria decision-making (MCDM) techniques. They intend to openly examine more than one factor to assist decision-making. The purpose of MCDM approaches is to assist decision-makers in learning about the difficulties they are confronted with, their own as well as other parties' individual value systems, organisational goals and objectives, and how to determine a preferable course of action by studying them in the context of the issue.[39]

Table. 1 Summary Multi Criteria Decision Making of (MCDM) Methods

Method	Advantages	Disadvantages	Areas of Application
(MAUT)	Considers uncertainties; opinions can be included.	A great deal of input is necessary, and choices must be accurate.	Economics, finance, water management, agriculture, and other fields, for example.
TOPSIS	Has a basic technique that is easy to use and programed; regardless of the amount of characteristics, the number of steps stays unchanged.	Its use of Distance measure overlooks attribute connection; weighting and maintaining consistency of assessment is tough.	Management of human resources and water resources, manufacturing processes, business & marketing, and so on.
PROMETHEE	It is straightforward to use and doesn't rely on the criteria being proportional.	There is no standardized procedure for determining weights.	Manufacturing, fuel and chemistry, business and finance, transportation and logistic, etc.
VIKOR	It provides both an ideal and a substandard answer.	Complicated to comprehend and implement.	Design and production Health care, business and marketing Control of the supply chain and logistics

Analytic Hierarchy Process (AHP)	**Flexible, scalable; straightforward and simple to use; hierarchical structure quickly adjusts to accommodate a wide range of issue sizes; no biases in decision making.**	**To address ranking inconsistencies, additive aggregation is utilized. As a result, critical information may be lost. Additional pairwise comparisons are necessary.**	**Performance, strategic planning, business policy and strategy, policy making, and planning problems.**

5.1 Analytic Hierarchy Process (AHP)

Prof. Thomas L. Saaty created the Analytic Hierarchy Process (AHP) as a mechanism for making Multi Criteria Decisions. It is a method for creating ratio scales from pairwise comparison in a summary. Actual metrics such as price, weight, and so forth can be used, as can subjective responses such as pleasure and preference.

AHP allows for modest variations in judgment since people aren't always consistent. The ratio scales are calculated using the primary Eigen vectors, as well as the consistency index is calculated using the principal Eigenvector.

5.2 The AHP's seven pillars are as follows:

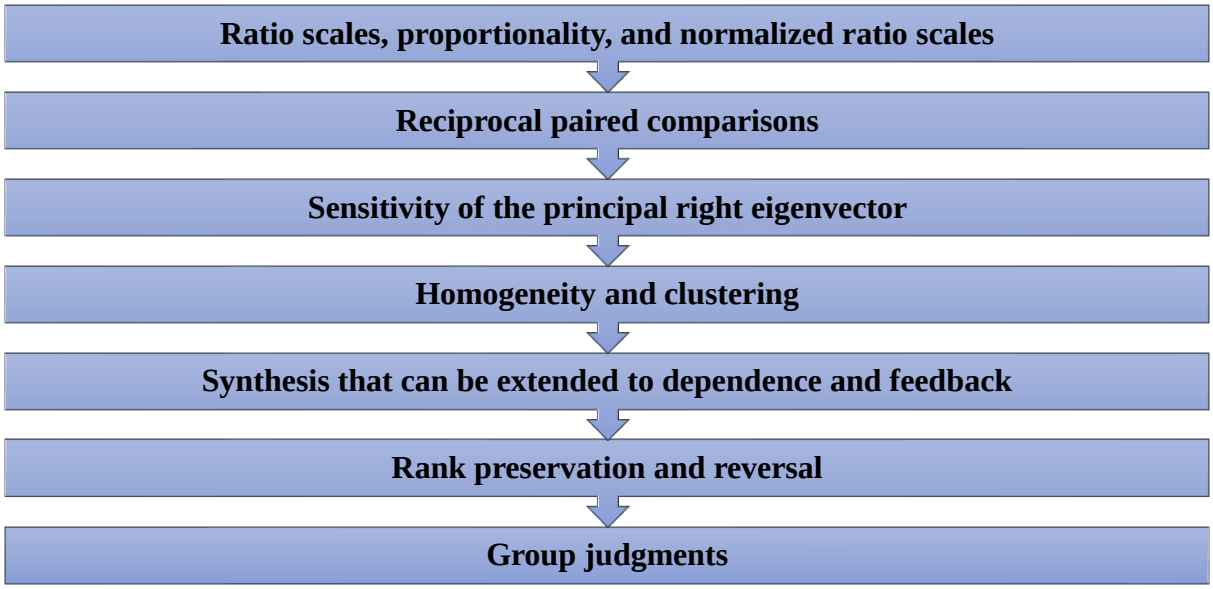

Figure 6. The AHP's seven pillars are as follows

5.3 Pair-wise comparison (What is Pair-wise comparison)

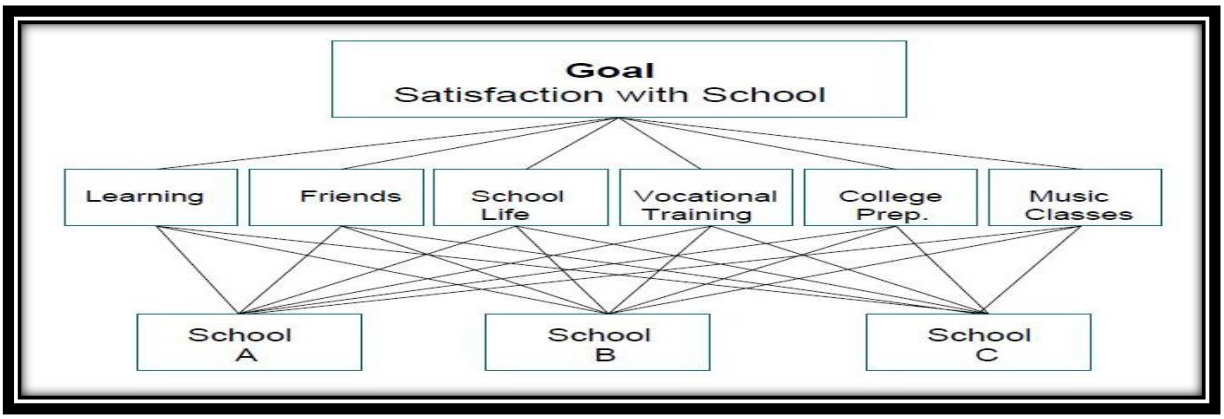

Figure 7. Analytical Hierarchical Process (AHP)

5.4 Examples - 1

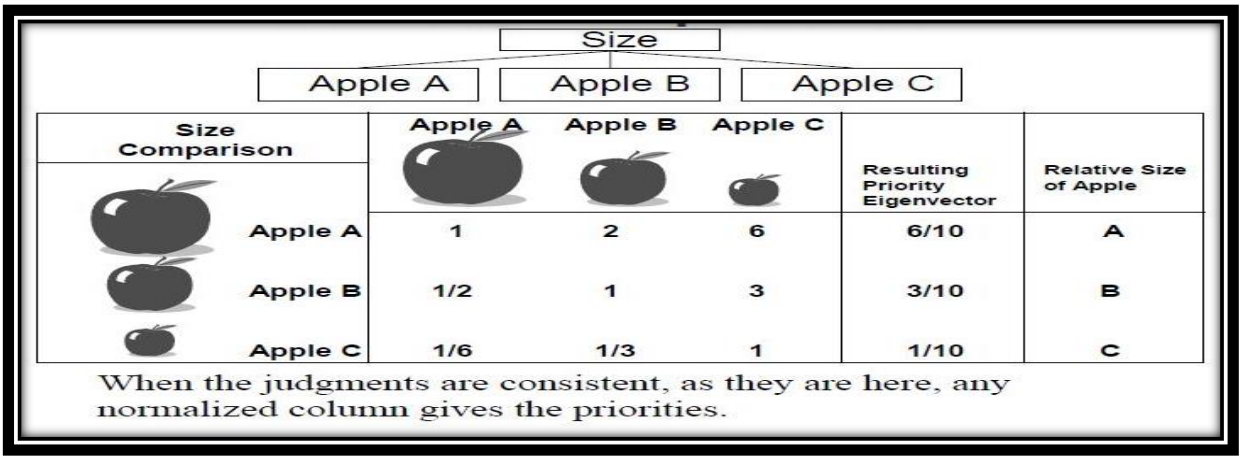

Figure 8. Pairwise comparison

6. Summary of literature study:-

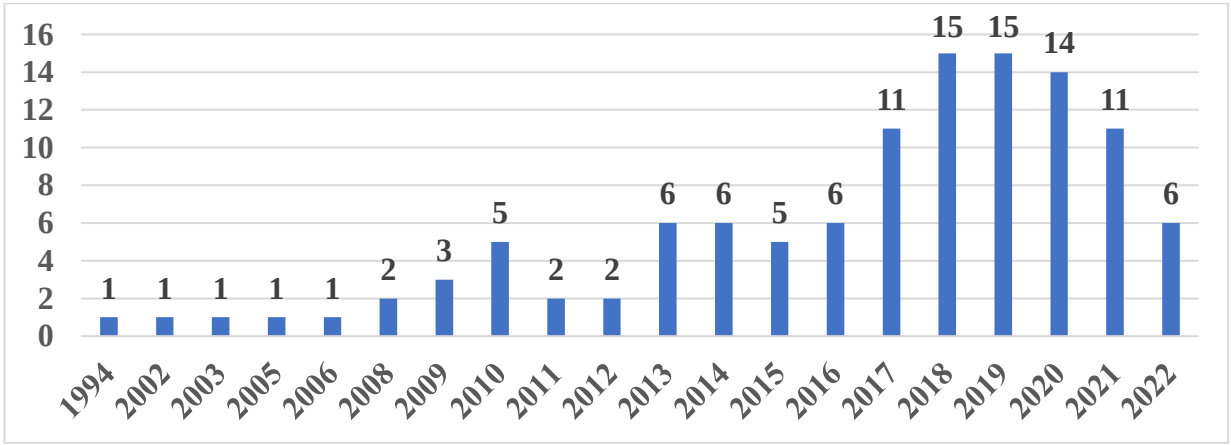

Figure 9. Previous Studies on Delay and Time Overrun (adapted from [4] **)**

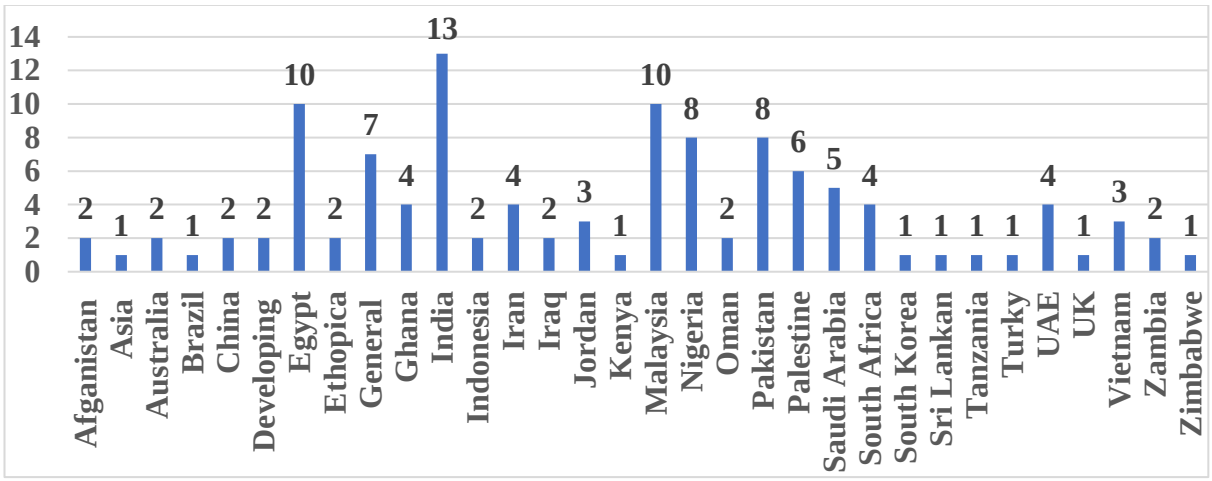

Figure 17. Previous Studies According to the Country of the Study(adapted from [4] **)**

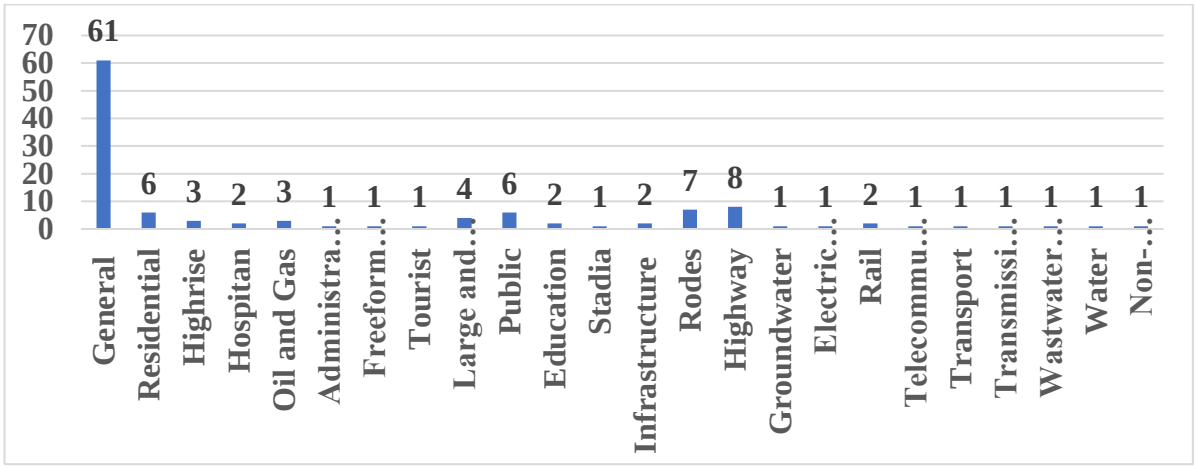

Figure 18. Type of Projects in Previous Studies (adapted from [4] **)**

Table. 2 Factor finding Delay and Cost overrun

No.	Delay and Cost Overrun Cause	1	2	3	4	5	6	7	8	9	10	Total	Rank
1	Poor site management	√	√	√	√	√	√	√	√	√	√	10	1
2	Unrealistic project scheduling	√	√	√	√	√	√	√	√	√	√	10	1
3	Shortage of skilled labors / material	√	√	√	√	√	√	√	√	√	√	10	1
4	Design change / Specification	√	√	√	√	√	√	√	√	-	√	9	2

5	Subcontractor delay	√	-	√	√	√	√	√	√	√	√	9	2
6.	Shortage of Equipment	√	√	-	√	√	-	√	√	√	√	8	3
7	Effect of bad weather	√	√	√	√	-	√	√	√	-	√	8	3
8	Payment regarding issue	√	√	√	√	√	-	√	-	√	√	8	3
9	Price fluctuation	√	√	√	-	√	-	√	√	√	-	7	4
10	Accident on site	√	√	√	√	-	-	√	√	-	√	7	4
11	Poor communication with stockholders	√	√	-	-	√	√	-	-	√	√	7	4
12	Dispute and litigation	√	√	√	-	-	√	√	-	-	-	6	5
13	Government regulation and laws	√	√	-	-	√	√	-	-	√	-	5	6
14	Costs due to variations work	√	√	-	√	-	√	-	-	-	√	5	6
15	Slow rate of making decisions	√	-	√	-	√	-	√	-	-	√	5	6

Author: - (1)-Doloi et.al (2012)[12], (2)-Saraf et. al. (2013), (3)-Tejale et.al (2016)[5], (4)-Belachew et.al (2017) [40], (5)-P. Kuware et.al (2021)[8], (6)-Nega et.al (2008) [41], (7)-Sepasgozadeh et.al (2019), (8)-Monem et.al (2022)[4], (9)-Jean Paul et.al (2019)[42], (10)-M.Parmar et.al (2016)[22]

7. Summary

Investigator/ Author/ Journal	Year	Country	Important causes of delay and cost overrun
Arditi et al. [43] (Taylor & Francis)	1985	Turkey	6,3,2,28,25
Chan and Kumaraswamy et. al [44] (JSCP)	1997	Hong Kong	1,2,35,20,32
Kaming et al. [13] (Taylor & Francis)	1997	Indonesia	1,3,6,12,15
Mezher and Tawil et. al [45] (ECAM)	1998	Lebanon	3,12,1,2,22
Al-Khalil et. al [9] (Taylor & Francis)	1999	Saudi Arabia	19,32,28,39

Walker and Vines et. al [46] (ECAM)	2000	Australia	37,2,36,32,3
Frimpong et. al [47] (IJPM)	2003	Ghana	37,12,2,17,19
Koushki et al. [31] (Taylor & Francis)	2005	Kuwait	15,12,17,7,31
T. Lo et al. [32] (ASCE)	2006	Hong Kong	22,30,13,19,39
Faridi et. al [48] (Taylor & Francis)	2006	United Arab	2,20,37,3,13
Iyer and Jha et. al [19] (ASCE)	2005	India	22,33,39,20,19
Sambasivan et. al [49] (ELSEVIER)	2007	Malaysia	1,2,7,28,31
Long et. al [50] (KSCE Journal of Civil)	2008	Vietnam	2,1,25,30,7
Nega et. al [41] (ELSEVIER)	2008	India	30,1,25,29
Enshassi et al [51] (JCDC)	2009	Gaza strips Palestine	12,6,37,1
Olawale et. al [52] (Taylor & Francis)	2010	U.K.	25,28,29,18,32
Mahamid et al. [53] (Taylor & Francis)	2011	West Bank	27,19,2,22,16
Doloi et al. [54] (ELSEVIER)	2012	India	15,26,12,2,1,25
Aziz, et. al [55] (ELSEVIER)	2013	Egypt	22,24,29,23,19
Subramani et al. [56] (IJETAE)	2014	India	20, 3,25,21,12
D. Kumar R. et. al [21] (IRJET)	2016 India	India	17,18,6,2, 19

Tejale et al. [5] (IJARCSMS)	2016	India	14,15,12,6,7
Belachew et. al [40] (ASCE)	2017	Ethiopia	12,6,3,1
Rachid Z, et. al [57] (Taylor & Francis)	2019	Algeria.	10,11,19,1
Sanni-Anibire MO, [27] (Taylor & Francis)	2020	Saudi Arabia	17,6 ,2,6
Muneeswaran G. et. al [40] (ASCE)	2020	Indian	4,1,9, 11
Shah M N. et. al [58] (Taylor & Francis)	2021	India	6,1,2,7
Shrivas et. al [26] (Taylor & Francis)	2022	India	(2) 5, 1, 10,16

1) Poor project planning and scheduling, 2) Poor project site management, 3) Delayed design reviews, 4) Inexperienced design professionals, 5) Poor contracting approach, 6) Materials and equipment delivery difficulties 7) Public agencies' and contractors' financial difficulties 8) Quality construction, 9) Bad relationships among workers, 10) Change orders, 11) Impractical contract duration, 12) Material price fluctuation, 13) Lack of experience of technical consultants, 14) Delay in preliminary handing over of project, 15) Unpredictable weather conditions, 16) Equipment allocation problems, 17) Contractor's work was inadequate, 18) Lack of risk management and ignorance, 19) Delay in progress payments, 20) Slow decision making, 21) Wrong/inappropriate choice of site, 22) Lowest bidding procurement method, 23) Bureaucracy in the bidding/tendering process, 24) Incorrect cost estimation method, 25) Due to construction mistakes, design changes/rework are required, 26) Accidents on site, 27) Political situation; 28) Nonperformance of subcontractors, 29) Complexity of works, 30) Insufficient geotechnical investigation, 31) Inadequate contractor experience, 32) Conflict among project participants, 33) Hostile socioeconomic and climatic conditions, 34) Shortage of manpower, 35) Unforeseen ground conditions, 36) Conflict with existing utilities, 37) Material procurement, 38) Procurement method, 39) Conflict between contractor and client

8. Future scope:

The study's next step is to enhance the questionnaire by finding and integrating new elements that contribute to residential building project delays. Second, an analytical procedure should be provided to increase the accuracy of the findings. Because certain causes and consequences vary by nation, the researcher can undertake comparable studies in different regions of the world to determine the factors and effects of delay.

Conclusion

One of the most critical concerns in the construction sector is time and expense overruns. Several elements, according to research, determine the success or failure of every endeavour. It should be highlighted that the success of every enterprise is dependent on all participants. As a result, this study's purpose was to look into the core reasons of budget and time overruns. The research also intended to identify key time and cost overruns in the typical residential construction industry of the Surat area. The study also looked at the effects of time overruns and how to mitigate them. Key competence criteria required by the Project Manager that prevent cost and schedule overruns were discovered via various literature evaluations. The essential competences necessary to manage huge costs, according to the research, are equivalent to those required to handle time overruns. The study revealed that the essential abilities for controlling cost overruns include financial control, planning, and regulation, project budget execution, cash flow analysis, and strategic implementation. Planning and scheduling, site management, construction technique application, decision-making, and risk assessment were the essential competences for time overruns.

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