

Delays in Commercial Buildings and their Impact on Stakeholders

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Abstract—Completion of construction projects on time is crucial for all stakeholders. Unfortunately, the prevailing notion is that projects are rarely completed on scheduled time. Researchers have attributed project delays to excusable and non-excusable causes. This paper investigated the causes of delay in commercial projects in Saudi Arabia and depicted the impact of delay on stakeholders. The authors collected the necessary data from experts in Saudi Arabia through a questionnaire survey. The experts stated that delays exist in commercial projects. Owners' desires for high quality, slow decisions and contract modifications, consultants' disputes with contractors, poor contract management, payment issues, 'poor performance, defective work, and low labor productivity cause delays in the construction of commercial projects in Saudi Arabia. Acquisition of a bad reputation, decreasing labor productivity, and conflict between parties are the significant impacts on stakeholders who are expected to benefit from the results of this study in eliminating or at least mitigating the causes of delay in future projects.

Keywords— Commercial, Construction, Delay, Impact, Saudi Arabia, Stakeholders.

I. INTRODUCTION

Poor construction project performances have been the characteristics of the construction industry. Delays, cost overruns, construction wastes, low productivity, and compromised quality are common in construction projects globally. Raykar (2016) reported that a delay in a construction project is a global challenge. The unavailability of adequate resources and administrative problems make delays in construction projects predictable. This poor performance has been attributed to ineffective resource management in construction projects (Shehata and El-Gohary 2011; Meng 2012). Morris and Hough (1998) concluded that projects are rarely completed on scheduled time after examining more than four thousand construction projects from the UK and Europe. Many researchers observed similar outcomes in many other countries (Al-Hammad 1993; Arditi et al. 1985; Assaf et al. 1995; Rad 1979; Taha et al. 1993). Assaf & Al-Haji (2006) found that 70% of construction projects in Saudi Arabia experienced delays. Therefore, the probability of project

delays is high, but the magnitude varies significantly from project to project (Akhund, 2017).

Prior literature presents many causes contributing to the extension of project completion time beyond their agreed-upon durations. Assaf & Al-Haji (2006), Akhund (2017), Raykar (2016) and several others stated that the delay of a construction project is subjected to numerous predictable and unpredictable causes. Akhund (2017) investigated two essential kinds of delay: excusable and non-excusable.

A. Excusable Delay

A delay is considered excusable when caused by an event beyond the contractor's control and unforeseeable at the time of signing the contract. Hamzah (2011) described the excusable delay as the "Act of God" where the incidents causing a delay to the construction projects are beyond the contractor's control, such as fires, weather conditions, or government orders that obstruct the project's workflow and prevent the progress of proceeding forward with the subsequent activities. Usually, the contract conditions regulate the excusable delays and enforce the owner to grant the contractor an extension of time over the contractual completion, but without monitorial compensations. However, the contractor can claim time and monetary compensation for excusable delay when the perpetrator is the owner or his/her representatives.

B. Non-Excusable Delay

A delay is considered a non-excusable delay when it is occurred due to the owner, consultant, and/or contractor's negligence within the project. Kamandang (2018) stated that negligence within the project is a primary reason for causing this type of delay. The non-excusable delay is foreseeable and within the stakeholders' control. Therefore, the party who delays the project due to negligence is liable to grant the other party time extension and/or monitorial compensations. Table I presents the different types of delay.

TABLE I. Delay Classification

Category	Type of Delay	Foreseeability	Responsibility			Compensability
			Contractor	Owner	Consultant	
A	Excusable	No	No	No	No	Extension of Time + Cost
	Inexcusable	Yes	Yes	No	Yes	The contractor must compensate the owner according to the contract agreement.
B	Compensable	Yes	No	Yes	No	Extension of Time + Cost
	Non-Compensable	No	No	No	No	Extension of Time

TABLE II. Causes of Delays

The Responsible Party	Causes of Delay Location of the study	Reviewed Studies				
		(Alaghbari, 2007) Malaysia	(Frimpong, 2003) Ghana	(Vaardini, 2015) India	(Alharbi, 2020) KSA	(A. Assaf 2006) KSA
Owner	Financial problems	✓	✓	✓	✓	✓
	Contract modifications	✓	--	--	✓	✓
	Lack of coordination with contractor	✓	--	--	✓	--
	Slowness in making decisions	✓	--	--	✓	✓
	Lack of working knowledge	✓	✓	✓	✓	✓
	High quality of work required	--	--	✓	--	--
	Material procurement	--	✓	--	--	--
	Inflation	--	✓	✓	--	--
	Poor contract management	--	✓	✓	--	--
	Shortage and low productivity of labor	--	--	--	--	✓
Contractor	Financial and cash flow problems	✓	✓	--	--	✓
	Poor site management	✓	✓	✓	✓	✓
	Poor planning and scheduling	--	✓	✓	✓	✓
	Shortage of materials on site	✓	✓	--	--	--
	Construction mistakes and defective work	✓	--	✓	✓	--
	Delay in delivery of materials to the site	✓	--	--	✓	--
	Poor performance of the contractors	--	--	✓	✓	--
	Inadequate tender pricing	--	--	✓	--	--
	Inflation	--	✓	--	--	--
	Slowness in making decisions	✓	✓	✓	✓	✓
Consultant	Inflexibility	--	--	--	--	✓
	Slow to give instructions	✓	--	✓	--	--
	Lack of consultant's experience	✓	--	--	--	--
	Incomplete documents	✓	--	--	--	--
	Lack of consultant's site staff experience	✓	--	✓	✓	--
	Dispute between contractor and consultant	--	✓	✓	--	--
	Monthly payment difficulties	--	✓	✓	--	--
	Poor contract management	--	✓	--	✓	--
	Inflation	--	✓	--	--	--
	Absenteeism of the consulting team at the site,	--	--	--	✓	--

Unfortunately, limited studies focus on influential causes affecting commercial project durations. Besides, no study has been conducted in Saudi Arabia to identify the impact of delay on the stakeholders, at least to the authors' knowledge. As it is essential to gain better insights and understand the causes influencing project performance, this study is performed to identify the influential causes affecting time management in commercial construction projects and measure the impact of delay on stakeholders.

Identifying the significant causes is expected to support owners, engineering design firms, contractors, subcontractors, and the project management teams to prepare essential plans and actions early to evade project delays. Hence, it is vital to recognize those causes to evade them, resolve them in the situation they happen, and ultimately execute the project more efficiently in terms of duration and cost.

Vaardini (2015) considered promptness in completing projects as one of the crucial successful causes of project performance. It is accomplished if the project is completed within the assigned duration and meets its goals and objectives as the plan prescribes. The accuracy of the project duration estimates and the monitoring and controlling during the execution are critical endeavours toward successful project

performance. However, the extension of construction projects beyond their scheduled durations is common globally. Delay influences work efficiency and the project's assigned budget, where any additional unplanned tasks added during the project execution may lead to delay.

The objectives of this study are to determine the causes of delays in the construction of commercial buildings in Saudi Arabia and to measure the impacts of delays on the owners, contractors, and consultants of commercial buildings in Saudi Arabia.

II. LITRUATURE REVIEW

Scholars have studied delays in construction projects in their countries, assuming that the problem differs from country to country and varies over time or projects. Those studies aimed to find the various causes of delay and/or the effects of delay on stakeholders. All previous studies are questionnaire-based surveys. The researchers used statistical methods, such as Frequency index (FI), Severity index (SI), Importance Index (II), Spearman's rank correlation, Mean, Standard deviation, Kendall coefficient of concordance, Chi-Square Test, Analysis of Variance (ANOVA), and Relative Importance Index (RII) to identify the most important causes.

The frequency of occurrence is a common concern to numerous researchers.

A. Causes of Delay

Assaf & Al-Hejji (2006) studied the causes of delays in construction projects in Saudi Arabia. They reported that construction projects experience an average delay between 10% to 30%. Alaghbari (2007) studied the influencing causes that could lead to an undesirable delay in commercial construction projects in Malaysia. He found that delay in construction projects is a severe problem. Vaardini (2015), Frimpong (2003), and Alharbi (2020) studied and identified the causes and impacts of delays in construction projects in India, Ghana, and Saudi Arabia, respectively.

All researchers attributed project delays to causes induced by owners, contractors, and consultants. Table II presents the owners, consultants, and contractors causes of construction projects delay.

Causes Related to Owners

Figure 1 illustrates the most common owner-related delay causes in a construction project. The two most common causes for delaying the project are financial problems and a lack of working knowledge. It seems that owners face difficulties financing projects at specific points of the construction process for poor budget estimates or financial management. The financial challenges may drive owners to either stop the project or delay progress payments to contractors leading to disputes. Also, owners are expected to delay construction projects for their bad experience in construction management.

Moreover, owners' contract modifications are also commonly exercised, leading to undesired delays in projects. Finally, the owner was found to have weak skills in making impotent decisions to proceed with the project. If the owner immediately makes the decisions, the contractor and the consultant will not pursue forward with the project activities.

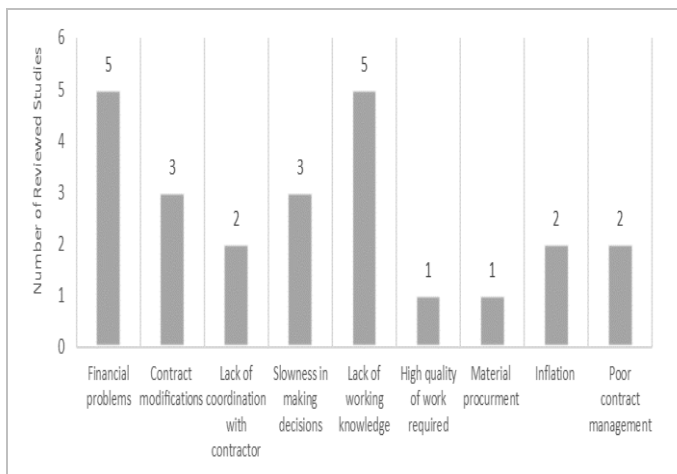


Fig. 1. Owner Related Causes Found in Previous Studies.

Causes Related to Consultants

Figure 2 demonstrates the most common consultant-related causes responsible for delaying projects. The primary expected delay cause is the consultant's slowness in making decisions. Usually, the consultancy service depends on the

experience and the availability of the resources to provide an efficient solution to the issues faced. Therefore, it seems that the consultant takes more than expected to decide on matters, which allows the contractors to not proceed with any further activities. Also, the lack of consultant staff on the construction site is a common major cause responsible for undesired delays in the construction work. The consultant might not have the qualified staff to provide the necessary service, which could put the consultant's reputation in an embarrassing situation.

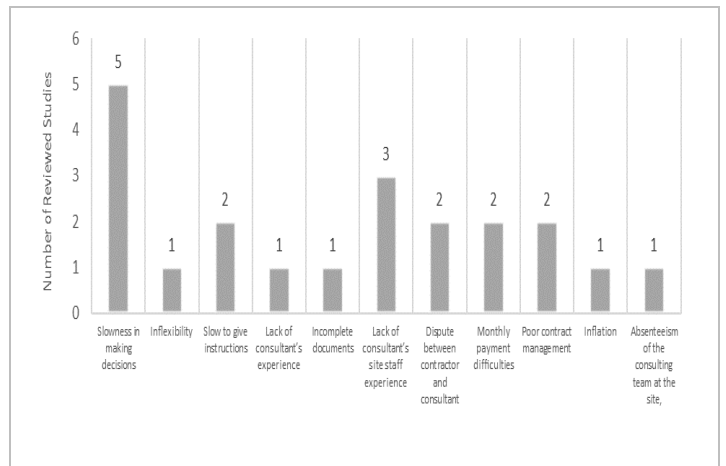


Fig. 2. Common Consultant Related Causes Found in Previous Studied.

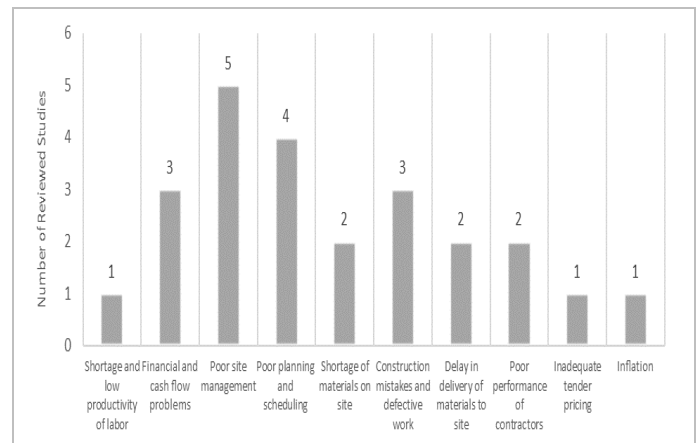


Fig. 3. Contractor Related Causes Found in Previous Studied.

Causes Related to Contractors

Figure 3 shows the cause responsible for the delay in the construction project and caused by the contractors. The most common cause related to the contractor was poor site management. If a local or international agency does not qualify the contractors working on the construction project, the contractor might not have the adequate experience to manage the project. The improper management could affect the estimated timeline for the activities, and the resources will not be controlled and monitored correctly. The contractor is responsible for developing his/her skills and abilities in using the available project management tools to ensure that the project is executed as planned. Also, the contractor will be required to redo the defects and mistakes within the project. Redoing a particular job must be re-estimated for the

necessary cost and time.

TABLE III. Potential Delay Causes

No.	Cause	Brief
Owner Related		
1	Financial problems	A financial problem is when an owner cannot meet his bills on time or afford necessary basic needs.
2	Contract modifications	Changes to design, specs, and conditions cause change orders that increase both duration and cost
3	Lack of coordination with the contractor	Coordination in various issues such as owner material delivery or other contractors' services
4	Slowness in making decisions	Response to approvals related to samples, instructions, etc
5	Lack of working knowledge	Knowledge of management and technical issues
6	High quality of work required	Desired quality. Owners usually desire high quality for the least cost
7	Material procurement	Owner provided materials
8	Inflation	A general increase in prices and fall in the purchasing value of money
9	Poor contract management	Contract administration
Consultant Related		
10	Slowness in making decisions	Response to approvals related to samples, instructions, etc
11	Inflexibility	Not flexible in changing design
12	Slow to give instructions	Giving instruction is to provide authoritative information or advice
13	Lack of consultant's experience	Incompetent consultant
14	Incomplete documents	The project documents (design, specifications, conditions, etc.) are not complete
15	Lack of consultant's site staff experience	Incompetent in supervision
16	Dispute between contractor and consultant	No collaboration or discussion about unclear issues amongst the designer or the contractor
17	Monthly payment difficulties	Can't make payments to subconsultants, suppliers, employees
18	Poor contract management	Not monitoring a contract once it is signed
19	Inflation	As above
20	Absenteeism of the consulting team at the site,	
Contractor Related		
21	Shortage and low productivity of labor	Labor productivity
22	Financial and cash flow problems	A financial problem is when an owner cannot meet his bills on time or afford necessary basic needs.
23	Poor site management	Incompetent site management
24	Poor planning and scheduling	Incompetent planning and scheduling department
25	Shortage of materials on site	Delay in ordering material or ordering the wrong quantity
26	Construction mistakes and defective work	Incompetent contractor
27	Delay in delivery of materials to the site	Even though the material is procured timely; still material delivery is delayed due to other reasons
28	Poor performance of contractors	Incompetent contractor
29	Inadequate tender pricing	Poor cost and contingency estimations
30	Inflation	As above

The researchers found that because of the lack of experience of the contractors' staff, defects frequently happen, leading to owner un-satisfaction. Finally, the studies proved that the material delivery to the site is a concern that causes a project to be delayed over its estimated completion date. The material purchasing process is not managed to make the material available upon the need.

B. Delay Impacts

Researchers have investigated the impact of delay on stakeholders and presented numerous impacts that could lead to a project cancellation if the time extension is beyond the owner's capabilities. Kamandang (2018), Aydın (2019), and Adeboye (2020) reported several negative delay impacts: project costs are increased, as the market risk will be affected and significantly expanded, labor productivity is decreased because workers would be exhausted, contractors lose their reputation and faith, the stakeholders experience conflicts that could lead to the project's cancellation, and the work quality is low during the extended period.

III. METHODOLOGY

The comprehensive review of related literature helped in identifying and analyzing the causes responsible for construction delays and the consequences of delays on stakeholders. Table III presents the potential causes of delay in the construction of commercial projects in Saudi Arabia. Table IV shows the possible effects of delays on stakeholders in Saudi Arabia.

TABLE IV. Potential delay effects

No.	Effects	Brief
1	Project cancellation	The owner stops the project
2	Poor work quality during the extended time	Quality of work competed during the time extension
3	Labor productivity decreases	Quantity of work completed over a resource
4	Higher project cost	The project cost is higher than the contract value
5	Conflict between parties	Disagreement
6	Litigation	Legal process
7	Delay in making a profit for the owner	Loss of rent/lease
8	Acquisition of bad reputation	Business reputation

The literature review also helped develop the tool (a questionnaire) for collecting the necessary data for achieving the study's objectives. The questionnaire was distributed through social media platforms such as (WhatsApp, LinkedIn, Facebook, and Telegram). Owners, contractors, and consultants are sources of the required data. Hence, the researchers sent the questionnaire to the above stakeholders during the first quarter of 2022.

The social media questionnaire was adopted as the primary data collection period, allowing the researcher to collect data from multiple sources within a shorter time. Besides, social media questionnaires have scalability in that the participants can answer them anytime while also promoting their anonymity. Using questionnaires also reduced the research time and costs.

Additionally, a questionnaire can enable a more

straightforward comparison of data and a more painless analysis process, making it easier to visualize. The questionnaire involved two parts other than the personal information of the participants. The first part presented possible causes of delays attributed to owners, consultants, and owners. The second part presented the impacts of delays on owners, consultants, and contractors. The participants were asked to rate the significance of causes and effects using a five-point Likert scale, 1 being shallow importance/no impact and 5 being very highly important/very high impact.

Statistical and mathematical models utilized to examine information are relative importance/impact index (RII) and Coefficient of Variation (CV).

$$\text{Relative Importance Index (RII)} = \frac{\sum_{i=1}^5 a_i x_i}{5 \sum x_i} \quad (2)$$

Where: a_i = Constant expressing the weight given to i ; x_i = variable expressing the frequency of the response for $i = 1, 2, 3, 4, 5$ (Likert, R. 1932).

The questionnaire's internal consistency was tested by computing the "coefficient of variation" (CV) of the data returned. The variation coefficient measures the data points' dispersion in a data set around its mean. It represents the ratio of the standard deviation to the mean. It is a valuable statistic tool for comparing the degree of variation among data sets, regardless of the nature of the sets (Abdi 2010) and be calculated using Equation (3). The lesser the value of the CV, the more agreement among the response.

$$CV = \frac{S}{M} \quad (1)$$

S is the standard deviation of a data set; M is the data set's mean.

IV. RESULTS ANALYSIS

The study's target population included professionals who work directly or indirectly with the construction of commercial projects and work within Saudi Arabia. The study adopted the purposive sampling techniques, which involved targeting participants already working in the building industry. The study prejudged that the industry's professionals would be more conversant with the industry's issues. The questionnaire was distributed through social media to 150 experts. Follow-up was done via the same social media apps. Out of the one-hundred-fifty (150) experts, only seventy-two (72) responded

in time before the study moved to the results and discussion phase. Saunders et al (1997) recommend that for mail surveys: response rate = total no of responses / (sample size – ineligible – unreachable) >30%. In this survey, the response rate = 72 / (150 – 0) = 48%. The participating experts are distributed over the following organizations: owners (34 experts), consultants (24 experts), and contractors (14 experts).

A. Characteristics of the Participants

The results indicate that the vast majority (80%) of the participants have more than five years of experience in the construction of commercial buildings. The study further noted that experience could increase the likelihood of facing challenges constraining commercial construction projects, including multiple projects. Such expertise could also influence one's ability to determine the initial causes leading to challenges in projects, which may, in turn, present themselves as other problems. Besides, the experience will likely come with higher ranks in the organizations, hence getting first-hand experience with different causes. Therefore, one's hierarchical position in their organization may affect what type of problems/ challenges the participant is aware of and how a challenge may present itself to them. For instance, the owner's financial issues may contribute to them as they are to higher-ranking managers but may not adequately communicate to the subordinates. Hence, they portray themselves as another problem, such as poor project management. The results indicated that the majority (59%) of the participants (15, 10, and 17 participants from owners, consultants, and contractors' organizations, respectively) have participated in developing less than three commercial projects. About 27% of the participants have participated in developing more than three but less than 6 commercial projects. The remaining participants have been involved in developing more than five commercial projects. The majority (81%) of the participants have experienced delays in commercial projects. Therefore, the collected data from such experts are sound and reliable.

Figure 4 elucidates the experience distribution of the participating experts. It shows that 15 experts have less than 5 years of experience, 37 experts have an experience between 5 to 10 years, and the rest of the experts have an experience of more than 10 years.

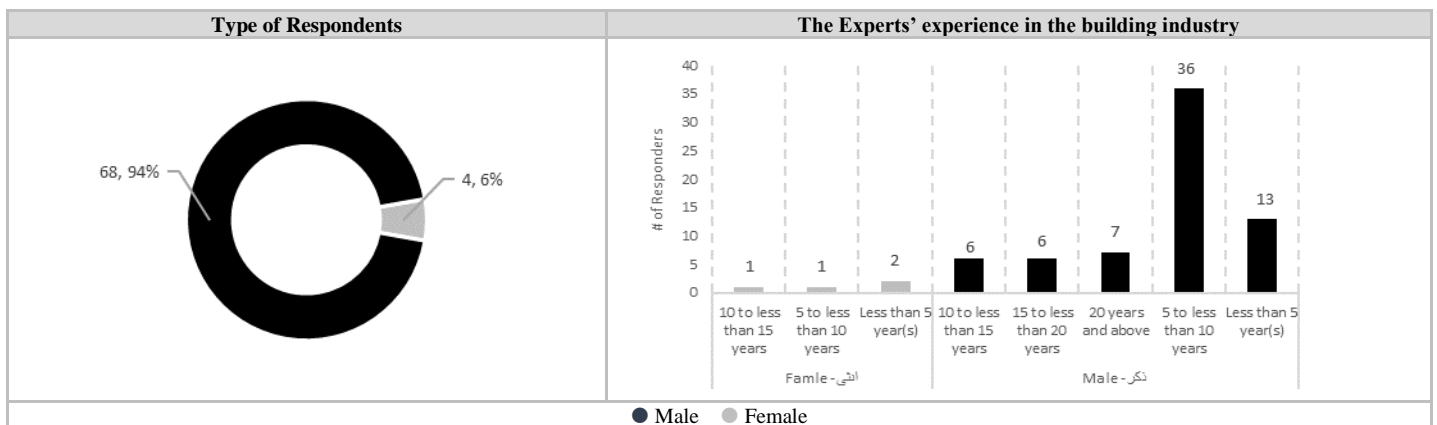


Fig. 4. experts' Experience in the building industry

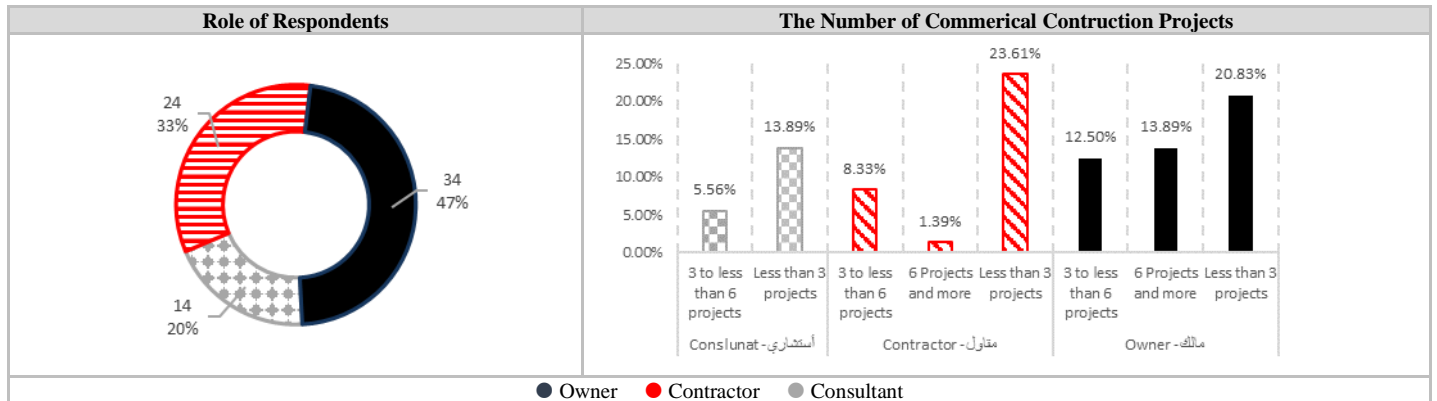


Fig. 5. Experts' experience in the construction of commercial projects

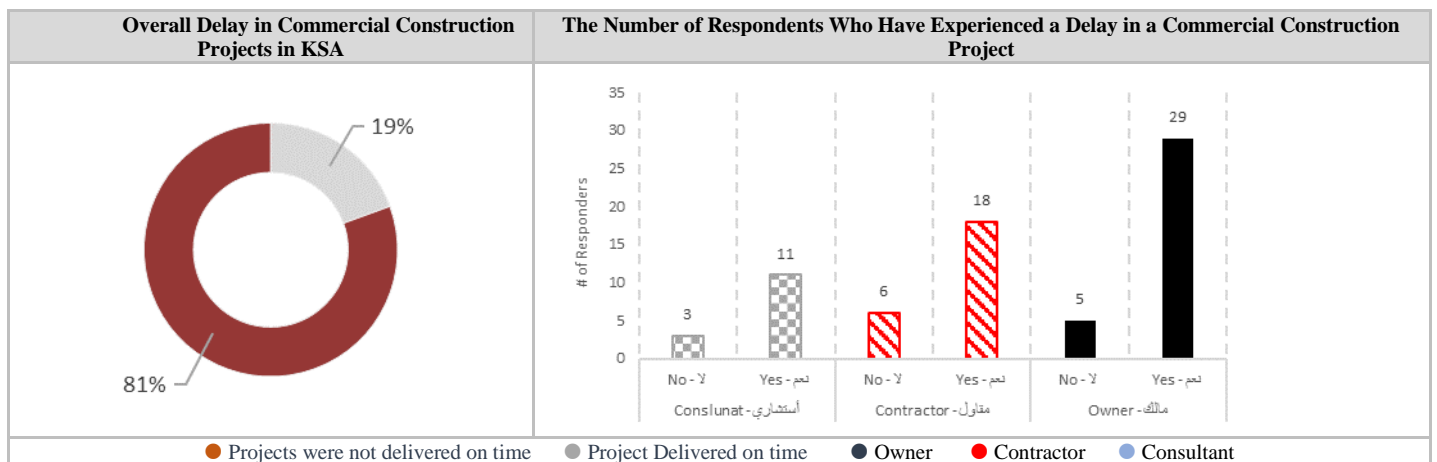


Fig. 6. Role of Respondents with Their Relative Experience in delay

The experts were asked to indicate the number of commercial projects they have participated in their development to demonstrate valuable and reliable data sources for the study. The more involvement an expert has in commercial projects, the more knowledge he has of the causes of delays. The results indicate that all experts have various experiences in the construction of commercial projects. The results indicate that eleven experts (10 from the owner and one from the contractor) have completed six and more commercial construction projects. Moreover, 19 experts have completed 3 to 6 commercial construction projects. However, the results indicate that 59% of the experts have accomplished less than three commercial construction projects. These experts are distributed as follows: 10 consultants, 17 contractors, and 15 owners. Figure 5 presents the distribution of experts according to their participation in the construction of commercial buildings.

Figure 6 illustrates that 81% of completed and ongoing commercial construction projects have experienced delays. Only 19% of commercial construction projects were completed on time. In addition, Table V shows the number of owners, contractors, and consultants and their responses to commercial construction project delays.

B. Causes of Delay

The participants provided numerical scoring expressing their opinions on the causes of delaying commercial project

construction. Each stakeholder is evaluated from the perspective of the other two stakeholders. The weighted average for each cause was calculated, then divided by the upper scale of the measurements in what is referred to as the "Relative Impact Index" (RII). Besides, the Coefficient of Variations (CV) was calculated to measure the participants' agreement level on the delay causes. All statistics are presented in Table V.

The results demonstrate that owners, consultants, and contractors delay commercial construction projects through different causes. Each cause, regardless of origin, generally contributes to project delay. The following sections present the owner, consultant, and contractor delay causes

Causes related to Owner

The participating experts from the consultant and contractor's organizations indicated that owners delay commercial projects through several causes. These experts agree (CV ranges between 31.7% to 45.1%) on the owners' related delay causes. They indicated that the owners' demand for high-quality work is the highest cause of delay. The experts have experienced delays in some projects where owners stopped the work progress because they required high-quality works that are not included in the consultants' and/or the contractors' scope of work. It seems that the economic conflict between an owner and a contractor prevails in such projects. The owners want the highest quality for the least cost, and the contractors, on the other hand, want to provide

the minimum required quality for the highest price. This conflict drives projects beyond their scheduled time. These experts claimed that owners take more than necessary time to make decisions concerning project issues. It seems owners do not respond promptly to situations where their decisions are critical for the project's forward movement. It appears that owners' internal approval process suffers from procuracy, causing delays in making decisions and/or owners consult with other organizations in the decision process leading to late responses. Owners also delay projects through contract modifications, which are inevitable in construction projects. It

seems that the type of modifications causes time and cost changes.

Causes Related to Consultants

The experts from the owners' and contractors' organizations indicated that the consultants' highest cause of delay is the conflict with contractors. The conflict may arise from the lack of professionalism, reluctance to change, lack of experience, lack of contractor/consultant supervision and coordination, lack of contract understanding, poor communication and misunderstanding, and scope and design changes.

TABLE V. Delay Causes in commercial construction projects

No.	Causes	Mean	SD	CV %	N	RII %	Rank
Owner's Related Causes							
1	Financial problems	3.368	1.326	39.4	38	67.37	8
2	Contract modifications	3.579	1.290	36.1	38	71.56	3
3	Lack of coordination with the contractor	3.526	1.141	32.4	38	70.53	4
4	Slowness in making decisions	3.605	1.247	34.6	38	72.11	2
5	Lack of working knowledge	3.474	1.186	34.1	38	69.47	6
6	High quality of work required	3.763	1.223	32.5	38	75.26	1
7	Material procurement	3.526	1.118	31.7	38	70.53	4
8	Inflation	3.158	1.424	45.1	38	63.16	9
9	Poor contract management	3.447	1.163	33.7	38	68.95	7
Consultant's Related Causes							
1	Slowness in making decisions	3.017	1.280	42.4	58	60.34	11
2	Inflexibility	3.276	1.186	36.2	58	65.52	8
3	Slow to give instructions	3.241	1.179	36.4	58	64.83	9
4	Lack of consultant's experience	3.326	1.237	37.2	58	66.55	7
5	Incomplete documents	3.172	1.341	42.3	58	63.45	10
6	Lack of consultant's site staff experience	3.362	1.241	36.9	58	67.24	5
7	Dispute between contractor and consultant	3.724	1.111	29.8	58	74.48	1
8	Payment Issues	3.456	1.354	39.9	58	67.93	3
9	Poor contract management	3.509	1.148	33.3	58	68.97	2
10	Inflation	3.379	1.375	40.7	58	67.59	4
11	Absenteeism of the consulting team at the site	3.345	1.267	37.9	58	66.90	6
Contractor's Related Causes							
1	Shortage and low productivity of labor	3.686	1.227	33.3	48	73.75	3
2	Financial and cash flow problems	3.396	1.287	37.9	48	67.92	6
3	Poor planning and scheduling	3.521	1.354	38.5	48	70.41	4
4	Shortage of materials on site	3.167	1.161	36.7	48	63.33	8
5	Construction mistakes and defective work	3.729	1.150	30.8	48	74.58	2
6	Delay in delivery of materials to the site	3.396	1.168	34.4	48	67.92	6
7	Poor performance of contractors	3.750	1.181	31.5	48	75.00	1
8	Inadequate tender pricing	3.521	1.155	32.8	48	70.42	4
9	Inflation	3.125	1.184	37.9	48	62.50	9

Legend: SD: Standard Deviation, CV: Coefficient of Variation, RII: Relative Important Index, N: Number of respondents

TABLE VI. Effects of delay on Owners, Consultants, and Contractors

Effects	Owner					Consultant					Contractor				
	Mean	SD	CV	RII	Rank	Mean	SD	CV	RII	Rank	Mean	SD	CV	RII	Rank
Cancellation of the project	2.18	0.589	27.05	43.5	8	2.50	0.649	25.97	50.0	4	3.13	0.567	18.15	62.5	1
The quality of the work could be low	3.09	0.722	23.39	61.8	5	2.21	0.636	28.74	44.3	8	3.04	0.540	17.74	60.8	3
Labor productivity decreases	3.21	0.611	19.07	64.1	3	3.07	0.643	20.93	61.4	2	2.83	0.587	20.71	56.7	8
The cost will be higher	2.88	0.675	23.43	57.6	6	3.07	0.620	20.19	61.6	3	2.96	0.652	22.03	59.2	5
Conflict Between Parties	3.24	0.623	19.28	64.7	2	2.36	0.600	25.46	47.1	5	3.04	0.612	20.12	60.8	3
Litigation	2.79	0.640	22.89	55.9	7	3.07	0.643	20.93	61.4	2	2.88	0.552	19.22	57.5	6
Delay in making a profit for the owner	3.29	0.637	19.35	65.9	1	2.36	0.689	29.22	47.1	5	2.88	0.582	20.24	57.5	6
Acquisition of bad reputation	3.21	0.649	20.24	64.1	3	3.07	0.686	22.33	61.4	1	3.08	0.561	18.21	61.7	2

The experts indicated that consultants manage contracts poorly, leading to project delays. It seems that consultants consider themselves designers rather than managers. The results indicate that consultants do not possess managerial experience and assign inexperienced architects/engineers to

the construction site. Poor contract management creates chaos in the project development and prolongs the project duration. Experts related the consultants' inability to manage contracts to the following reasons: misunderstanding of the scope of work, the complexity of projects, inaccurate identification,

poor assessment of contract benefits, poor communication with other parties, damaging and ineffective negotiation with other parties, low monitoring and controlling contracts, and the absence of using technology within the organization. Therefore, contract management requires high skills and time to be accurately accomplished to approach the benefits of the construction project.

The payment issues are considered a high cause of project delay. Consultants depend heavily on payments from owners to pay employees' salaries and other designing specialists (subcontractors). Delays in the consultant's progress payments put him in a weird situation in front of his employees and subcontractors. It seems that consultants do not proceed with the work until they receive their deserved payments. This action would cause project delays, especially if it turned into disputes.

Causes related to Contractor

The results indicate that the experts from the owner and the consultants' organizations accuse contractors of delaying the construction of commercial projects through poor performance, poor workmanship (mistakes and defective work), poor labor productivity, poor planning and scheduling, and poor project pricing. These observations indicate that contractors' selection systems that owners use are ineffective. Experts from the owners' organizations believe that contractors awarded commercial projects were unqualified for the work.

The experts from the owner and consultant organizations believe that contractors suffer from poor performance and workmanship, causing delays in the completion of commercial construction projects. It is believed that many skilled labors have returned to their countries during the COVID-19 pandemic and may be replaced with unskilled labors. The unskilled labors produce unacceptable work to owners and/or the Saudi Building Code. The experts believe that contractors commit massive construction mistakes and defective work. The defective work demands additional time to be added to the project schedule, extending the overall project duration. The utilization of defective material and the absence of quality checks throughout the construction process are significant reasons for unsatisfactory work. The results indicate that 61% of the experts agree to strongly agree that the contractor's low-quality work causes delay. All contractors' causes of delay are inexcusable and, hence, not liable for time and money compensations.

In addition, the experts claimed that some contractors do not prepare accurate pricing for the construction of commercial projects.

C. Effects of Delay

All the participants responded to the questions in total. The results showed that delay affects owners, consultants, and contractors in several departments but with different severity. Table VI shows the different delay impacts on owners, consultants, and contractors.

Impact on owners

The experts from the owner organizations indicated that the highest impact of delays on owners is the adjournment of

expected rents and leases. The calculated CV (19.35) means that the experts collectively agreed that delay deprived owners of collecting revenues from the project on the planned date. Sometimes owners transfer this risk to contractors by considering the project time in the contract as of essence and listing the desired penalties for crossing this timeline.

The experts from the owner organizations collectively agreed (CV= 29.28%) that delay leads to conflict with other parties. It seems that every party blames the others for the delay leading to the expenditure of time, money, and efforts in defending themselves. The experts collectively agreed that delay gives owners a bad reputation. A repetitive builder protects its business reputation by attracting qualified contractors to his projects. Besides, the delay leads to cost increases and poor quality of work during the time extension due to labor fatigue and a poor working environment characterized by high tension among the stakeholders.

Impact on Consultant

The experts from the consultant organization collectively agreed (CV=22.33%) that delay significantly affects the consultant's business reputation. A delay makes the consultant appears ineffective in administrating construction projects. This characteristic under the design-bid-build delivery system may derive consultant from new design projects where the notion that the designer is also the contract administrator. The results indicate that delay makes the consultants spend higher than the allocated budget, reducing or diminishing the allocated service fees. The calculated CV (20.19) means that the experts collectively agreed that delay increases the consultant's project costs.

Impact on Contractors

The contractor organizations' experts reported that delay penalizes contractors by the owner's decision to cancel the project. When owners feel that the project will be delayed beyond a specific date and believe they will not benefit from an economic opportunity, they may decide to cancel those projects. The experts believe that delay rewin the contractor's business reputation, similar to the owners and consultants, which will affect his ability to secure projects in the future. The experts declared that delay leads contractors to produce low-quality work during the extension period due to labor fatigue and an inducive working environment. The results indicate that delay drives contractors into conflicts with other parties draining time, cost, and effort.

Table VI presents the assessment of all experts on the impacts of delays on stakeholders. It is evident that delay negatively impacts the stakeholders' reputations, business relationships, and cost increases for each party. The experts collectively agree (CV ranges between 20.78% to 21.88%) on several delays impacting the factors above.

V. CONCLUSION

The construction of commercial projects experiences delays, similar to other types of projects, caused mainly by the stakeholders. Owners perform practices that have negative impacts on project durations. They demand contractors provide higher quality products than those in the contract without compensation, take time to make decisions, modify

contracts after award, coordinate work activities poorly with contractors, and manage owner-provided materials badly. Consultants also contribute to delay projects through conflict with contractors, poor contract management, payment issues, and a lack of experienced staff in the fields. Contractors cause project delays through poor construction performance, defective work, poor labor productivity, poor planning and scheduling, inaccurate tender price, and financial and cash flow problems.

Delay has adverse effects on the stakeholders. Delays give stakeholders bad reputations, create conflicts, delay economic benefits to owners, increase project costs, reduce work quality, and drive stakeholders to litigation.

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