

Causes of Litigation in the Saudi Arabian Construction Industry

by

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## ABSTRACT

The problem of litigation and disputes in the construction sector is a major impediment to countries' development goals. The purpose of this paper is to investigate the problem of high legal costs and long delays that arise due to litigation involving project owners, designers, contractors and other construction parties worldwide and in Saudi Arabia, as well as to give recommendation according to the outcomes of this research. The causes of litigious behavior in Saudi Arabia and other countries around the world were identified and documented, also the differences in litigation of the Saudi Arabian construction industry as compared to other countries were identified. Preliminary investigations revealed that there are some level of similarity in the nature of the causes. Thus, these causes were grouped into three main categories which are expectation factors, communications factors and documentation factors. Further research based on existing literature showed that the practices used to minimize litigation in the construction industry were investigated. The following delivery process were researched: design-build (DB) delivery method, Alliance Contracting, Construction Manager at Risk (CMAR), Best Value Approach, Integrated Project Delivery (IPD), and Public-Private Partnerships (PPPs), and the PIPS/PIRMS approach. These delivery methods were found to have issues, which means the methods by observation do not seem to be the ideal solution to minimize litigation in the construction industry. The only delivery method found to have no litigation issues was the PIPS/PIRMS approach.

***Key words:*** litigation, construction industry, Saudi Arabia, risks.

## DEDICATION

I want to dedicate this to my father and my mother for all the love and life experiences they gave me. Without them nothing would have been possible for me. Moreover, I would like to thank them for the educational investment they have made in me.

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## **Introduction**

Saudi Arabia is one of the largest exporters of oil and gas in the world. Consequently, the Saudi economy has experienced a boom, especially in the construction sector, which has seen a remarkable increase in activity from 1995 to 2015. Key trends in the Saudi construction sector include an increased government emphasis on expanding national infrastructure, such as roads, seaports, and airports. There is also an increased government focus on residential housing projects and buildings to address the shortage occasioned by an increasing population. Moreover, Saudi Arabia is experiencing a huge demand for construction services as evidenced by the dramatic increase in the demand for building materials and the number of new and ongoing projects in the country. Recently, the president of the Saudi Law Training Center, Majid Garoub (Hussein, 2014) stressed the need for high-quality engineering and legal aspects in construction projects in order to deal with the massive legal issues facing the sector in the Gulf region. Garoub warned that, if the litigation problem is not addressed, it could hamper economic development and government administration. The growing trail of contract litigations before the courts may disrupt the judiciary sector and related services, such as transportation, health, education, and municipal services. Despite the opportunities presented by the recent trends in Saudi's construction sector, there are various challenges that must be resolved. Major problems facing construction projects in Saudi Arabia include complex conflicts arising due to different construction methods and different contract specifications, among other issues, that lead to litigation. Litigation is problematic because it delays the completion of projects. A construction project is acknowledged as successful when completed on time, within the budget, and in accordance with specified quality

specifications (Chan, 2001). The purpose of this study was to examine the problems of the high legal cost and long delays that arise due to litigations involving construction projects in Saudi Arabia, to identify the causes of litigious behavior as compared to other countries, and to give recommendations to help the Saudi construction industry to improve.

### **Litigation in the Construction Industry**

Litigation in construction projects may cause disputes with varying impact all over the world. For instance, litigation can lead to a cascade of financial consequences for the contractors and project owners. The parties may wind up in court. In other cases, calculating the impact of damages resulting from litigations may not be easy because, sometimes, contractor's costs or part of their compensation portion may be tied to multiple projects. Overall, the impact of litigations can include complex damage calculations that can result in various economic damages, including disruptions, relocation costs, compensation delays, escalation damages, extra work, acceleration, and even contractor termination. The cost impact of litigations includes both direct and indirect costs. Indirect costs include those spent in dispute avoidance, such as costs arising from project rework, cost to reputation, costs due to inefficiencies or delays, and firm organizational costs. Direct costs are the costs directly involved in the litigations, including court interventions and costs associated with alternative dispute resolution (ADR).

The legal environment influences construction projects in multiple ways. According to (McGeorge et al, 2007), the construction industry has the reputation of being adversarial and, paradoxically, a leader in both dispute occurrences and dispute



resolution systems. The inability to complete construction projects on time and within budget is a major concern. This is especially important given that the construction industry is complex and comprised of a large number of parties, such as contractors, owners, consultants, and regulators (Enshassi, Mohamed, & Abushaban, 2009).

Construction conflicts and litigation affect the interests of many stakeholders and reduce profits. Preliminary investigation shows that stakeholders have become increasingly dissatisfied with the legal methods of construction conflict resolution (Mitkus & Mitkus, 2014). Litigation may involve a wide range of issues, including contractor conduct such as allegations of bad faith, fraud, and deceit. Litigations may also involve allegations of material variations contrary to agreed terms of the contract as established in the Procurement Law, licensing, subcontracting, payments or even the selection of other construction professionals, such as engineers and architects. Jaffer, Tharim, and Shuib, (2011) classified these factors of conflicts in construction projects into three categories which are behavioral factors, contractual problems and technical problems.

### **Problem**

Currently, over 10,000 projects in the Gulf Region are involved in legal disputes (Hussin, 2014). The primary problem associated with litigations in Saudi Arabia's construction sector is the high legal cost and the time it takes to settle claims and disputes. Studies show that legal disputes in the construction sector in the Middle East take over a year (14.6 months) to resolve, an increase of 62% compared to static refed in 2012 (Sambidge, 2013). The Middle East also experiences disputes of high value, averaging \$65 million (Sambidge, 2013). In the Saudi construction industry, the following issues with disputes are identified

- Experts confirmed that the value of the issues in construction contracts in both public and private contractual disputes amounted to more than \$800 million, noting that the size of these contracts is estimated at 40% of the state budget (Alnomci, 2012).
- At a time when the Kingdom of Saudi Arabia is considered one of the biggest construction project markets in the Middle East, economic statistics estimated the projects that are still stalled are worth \$167 million, while the projects that have been cancelled have been estimated to have a value of \$196 billion, (Thunayyan, 2013).
- Saudi commercial disputes in the courts have increased in 2014 to 70%, and 80% of that constitutes construction sector and engineering disputes.
- Construction projects and contracts related to engineering conflicts accounted for 40% of the overall budget for Saudi Arabia. Also, the judicial value of contracts to resolve disputes in engineering projects in Saudi Arabia amounted to \$3 billion (Alnomci,2012)
- The judicial value of contracts to resolve disputes in engineering projects in Saudi Arabia amounted to \$7 billion. (Abaas, 2015)

### **Research Questions**

In order to achieve the aim of this study, the following research questions were proposed:

- What are the causes of disputes in the construction industry?
- What are the characteristics of these causes of disputes?

- What are the potential solutions used to minimize disputes?
- What are the performance analysis of these solution?

### **Methodology**

The research method in this study was based mainly on a literature review of litigious behavior in construction projects all over the world. The methodology involved identifying and documenting the causes of litigious behavior in the construction industry worldwide. The literature search was performed on causes of litigation in the construction industry and included the following steps:

1. Identify and document the causes of litigious behavior.
2. Identify the differences between the causes of litigation in Saudi Arabia and other countries.
3. Identify causes of litigation in different construction delivery methods.

The first purpose of this literature search was to show the causes of construction litigation in Saudi Arabia and in the rest of the world. The second purpose was to identify if these causes also occur in the major construction delivery systems. The researcher used different academic resources for this literature search. The three major databases used by the researcher were ABI/Inform, EI Compendex, and Google Scholar.

### **Existing Causes of Litigious Behavior in Construction Projects**

The researcher investigated the litigious behavior in the construction industry in different countries. The researcher then compared the main causes of litigation between these countries.

For Saudi Arabia, one of the most insightful studies on the litigious behavior in Saudi Arabia was done by Mahamid (2014), who identified the main causes of micro (direct) level and macro (indirect) level disputes in residential building in Saudi Arabia. According to Mahamid, the top direct causes of disputes include delays in the progress of payments by owners, change orders, unrealistic duration of construction projects, labor inefficiency, and poor quality of completed construction work. Accordingly, the main indirect root causes of legal disputes are either poor or lack of sufficient communication between construction parties, inadequate experience on the part of the contractor, poor planning and project scheduling by the contractor, inaccurate estimation practices, and cash glitches during the construction phase (Mahamid, 2014). Indirect causes of legal disputes in Saudi construction projects include mistakes in design, qualifications of subcontractors, inspection delays, and violation of contract conditions. Further analysis of the documented causes of litigious behavior shows a common underlying problem: a lack of transparency in the delivery of construction projects.

On the other hand, in the United States, the main causes of litigious behavior in the construction sector include delays, project disruptions, and scheduling disputes (Genberg, Riggs, & Abraham 2014). Another study on litigation in the United States pointed to defects in the design and construction projects, which are usually associated with the contracting process. Other causes of litigious behavior include terminations, claims over the scope of construction projects, and compliance disputes that may or may not involve state, federal, and local regulations and laws (Genberg et al., 2014)

In Korea, the main causes of litigations include differing site conditions, obstruction by local people, design errors and omissions, change order evaluations,

double meaning in specifications, and excessive quantity of work (Acharya & Lee, 2006). However, in the United Kingdom, construction litigations and claims arise due to claims over plans and specifications, disputes over drawing and submittals, change orders, differing site conditions, construction defects, and subcontractor substitution (Klinger, 2009). Moreover, other studies have been conducted regarding identifying the causes of disputes in the construction industries in different countries of the world, as shown in Table 1.

Table 1

*Comparison of the Main Causes of Litigation in Different Countries.*

<b>Cause</b>	<b>Country</b>	<b>References</b>
<ol style="list-style-type: none"> <li>1. Late payments by owners</li> <li>2. Change orders</li> <li>3. Unrealistic duration of construction projects</li> <li>4. Labor inefficiency</li> <li>5. Poor quality</li> <li>6. Lack of sufficient communication</li> <li>7. Inadequate experience of the contractor</li> <li>8. Poor planning by the contractor</li> <li>9. Inaccurate estimation practices</li> </ol>	Saudi Arabia	Mahamid (2014)
<ol style="list-style-type: none"> <li>1. Change orders</li> <li>2. The owner apply penalty on contractor without conducting investigation of the delay reason</li> <li>3. Lack of clarity in the contracts conditions</li> <li>4. Site conditions</li> </ol>	Saudi Arabia	Ghamdi (2008)
<ol style="list-style-type: none"> <li>1. Lack of clarity in the drafting of contracts</li> <li>2. Changing key people responsibility</li> <li>3. Increase the number of vendors</li> </ol>	Saudi Arabia	Abbas (2005)
<ol style="list-style-type: none"> <li>1. Disputes over drawing and submittals</li> <li>2. Change orders</li> <li>3. Differing site conditions</li> <li>4. Construction defects,</li> <li>5. Plans and specifications</li> </ol>	UK	Klinger (2009)
<ol style="list-style-type: none"> <li>1. Change the scope of work</li> <li>2. Change of condition</li> </ol>	UK	Hewitt (1991)

(continued)

Table 1: *Comparison of the Main Causes of Litigation in Different Countries.* (continued)

<b>Cause</b>	<b>Country</b>	<b>References</b>
<ol style="list-style-type: none"> <li>1. Deferring site conditions</li> <li>2. Errors and omissions in design</li> <li>3. Double meaning in specifications</li> <li>4. Excessive quantity of work</li> <li>5. Obstruction by local people</li> <li>6. Change order</li> </ol>	Korea	Acharya & Lee (2006)
<ol style="list-style-type: none"> <li>1. Communications</li> <li>2. Access to construction site</li> <li>3. Access to materials</li> <li>4. Changes of scope</li> <li>5. Site conditions</li> </ol>	Australia	Waldron (2006)
<ol style="list-style-type: none"> <li>1. Change orders</li> <li>2. Design issues</li> <li>3. Quality issues</li> </ol>	USA	Killian (2003)
<ol style="list-style-type: none"> <li>1. Delays and disruptions on project</li> <li>2. Design issues</li> <li>3. Change of project scope</li> <li>4. Termination claims</li> <li>5. Compliance disputes</li> </ol>	USA	
<ol style="list-style-type: none"> <li>1. Lack of Communications</li> <li>2. Changes of site conditions</li> <li>3. Changes the scope of work</li> <li>4. Lack of predictability</li> <li>5. Unrealistic expectations</li> <li>6. Design issues</li> <li>7. Contract documents</li> </ol>	Hong Kong	Kumaraswamy (1997)
<ol style="list-style-type: none"> <li>1. Misunderstanding between the Stakeholders</li> <li>2. Lack of predictability</li> </ol>	Netherlands	Sykes (1996)
<ol style="list-style-type: none"> <li>1. Change the scope of work</li> <li>2. Change in site conditions</li> </ol>	Netherlands	Heath, Hills, & Berry, (1994)

It is clearly seen that the change order, or changing the scope of work, is a common cause factor in most of the identified studies. This factor occurs because each party performs in silo and cannot see other party's performance, and once they have an issue of not meeting their expectations, the change order will be issued and there will likely be conflict. In Saudi Arabia, the construction industry is suffering from changing

orders and lack of clarity in issues in the contracts' conditions. In addition, the literature research found only two major differences between the causes of litigation in Saudi Arabia and the rest of the world. They are:

1. Changing key personal responsibilities.
2. Clients applying penalties on the contractor without conducting an investigation of the reason for delays.

All of these factors shown in Table 1 create disputes and the litigation environment in the construction industry. In addition, most of the countries have common factors that cause litigation.

### **Discussion and Analysis**

A critical analysis revealed some level of similarity in the nature of the causes, as shown in Table 2. Overall, most of these causes could be categorized into three main categories:

- Communication related factors
- Expectation related factors
- Documentation related factors

Communication problems are prevalent in the construction industry due to its dynamic and fragmented nature. For instance, many stakeholders frequently operate in changing sets of relationships that are contractually binding. According to Hoezen, Reymen, and Dewulf (2006), the problem of communication relates to the nature of information processing, feedback, trust, and satisfaction with communication. The absence of these attributes can lead to conflicts and disputes, which lead to disruptions and delays. Poor communication can also lead to claims related to compliance, project

scope, and termination claims, even if the parties agree to terminate building contracts (Aiyewalehinmi, 2013,).

Table 2

Common causes of Disputes in Construction Industry

<b>Cause Factor</b>	<b>Group</b>	<b>References</b>
<ul style="list-style-type: none"> <li>• Change orders/ Scope</li> <li>• Change in site conditions</li> <li>• Compliance disputes</li> </ul>	Expectation issues	(Mahamid, 2014),( Al-Ghamdi, 2007), (Klinger, ,2009), ( Hewitt, 1991), (Acharya & Lee , 2006), (Waldron, 2006), (Killian, 2003), (Genberg, Riggs, & Abraham, 2014), (Kumaraswamy, 1997) (Heath, Hills, & Berry, 1994)
<ul style="list-style-type: none"> <li>• Lack of communication</li> <li>• Increase the number of vendors</li> <li>• Obstruction by local people</li> <li>• Changing key people responsibility</li> <li>• The owner applies a penalty on the contractor without conducting an investigation of the delay reason</li> </ul>	Communication issues	(Mahamid, 2014), (Abbas, 2005) (Waldron, 2006). (Acharya & Lee, 2006), (Kumaraswamy, 1997) (Ghamdi, 2008)
<ul style="list-style-type: none"> <li>• Inaccurate estimation practices</li> <li>• Lack of clarity in the contracts conditions</li> <li>• Lack of clarity in the drafting of contracts</li> <li>• Plans and specifications</li> <li>• Errors and omissions in design</li> <li>• Design issues</li> <li>• Design and construction disputes</li> <li>• Design issues</li> <li>• Contract documents</li> </ul>	Documentation issues	(Mahamid, 2014), (Ghamdi, 2008) (Abbas, 2005), (Klinger, 2009), (Acharya & Lee, 2006), (Killian, 2003), (Genberg, Riggs, & Abraham, 2014), (Kumaraswamy, 1997)



Preliminary research shows that many factors influence communication, including the type and organization of the construction process. Transparency is inversely proportional to lack of communication. Therefore, solutions that enhance transparency have the potential to improve communication in the sector. Transparency ensures openness and accuracy in information.

The second category, expectation related factors, arises when there is a misunderstanding about what is expected. According to Mane and Pimplikar (2012), a dispute is defined as a misunderstanding between two parties. Consequently, one of the greatest challenges facing the construction sector is how to resolve misunderstandings or disputes. This is especially important because expectations can cause delays in payments by contractors, hence creating cash problems. Expectations can also affect the project planning process, leading to excessive work or change orders, which trigger litigations. Transparency and project misunderstandings are inversely proportional. Increasing transparency can help minimize misunderstandings because it creates an environment that facilitates communication and a culture of teamwork.

Documentation is the third category that causes disputes. In an ideal world, design and documentation provided for construction projects should be complete and unambiguous. However, contractors often receive incomplete and erroneous project documentation that takes time to resolve, hence causing delays or eliciting protracted legal processes. According to Tilley, Wyatt, and Mohamed (2004), the problem relates to the increase in documentation regarding registers for a massive number of architectural drawings and other documentation that increase up to the end of the project. Documentation is important; however, its massive increase in construction projects may

create conflicts among parties, leading to delays or litigations such as those associated with change orders, design errors, and other forms of disruptions. Increasing transparency can resolve problems arising due to increased documentation. Transparency would ensure that designers and contractors do not need to produce multiple documents. In addition, the construction industry involves extensive use of expertise at various levels. This expertise ranges from managerial skills to technical craft skills. Failure to utilize expertise can lead to deeper problems, with legal implications and consequences to the project completion. For instance, failure to use expertise may lead designers or architects to perform tasks for which they are not competent, causing an excessive quantity of work, obstruction of the project by local communities, or different forms of project claims. According to Sambasivan and Soon (2007), contractors should never take on jobs in which they do not have sufficient skills.

### **Litigious Behavior in Construction Delivery Systems**

In the construction industry there are efforts to address this problem by focusing on project delivery methods and practices that entrench transparency, accountability, and good governance. Recently, there has been increased scholarly interest in approaches such as Design Build (DB), Construction Manager at Risk (CMAR), Integrated Project Delivery (IPD), Alliance Contracting, Private-Public Partnerships (PPP), and Best Value Method (BVM). In this section, existing literature is reviewed in order to identify if causes of dispute factors exist in the identified delivery methods. The main objective is to examine their flaws in terms of solving the problem of costly disputes and litigations in construction projects.

## **Design Build (DB)**

In the DB delivery method, the contractor and architect serve as a single entity hired by the project owner in order to deliver a complete project. A single point of contact fosters improved communication, accelerates delivery of projects, and minimizes adversarial roles. The DB approach suits highly sensitive construction projects with smaller user groups and minimal need for user reviews. With regard to solving litigious situations, this approach has elicited intense scholarly attention. Garner, Richardson, and Castro-Lacouture (2008) noted that DB represents the best value selection delivery of construction projects in terms of providing an owner with a single source of accountability, which eliminates lengthy litigious behavior. However, a lack of expertise and experience among participating firms may hamper these advantages and trigger conflicts of interest leading to litigations. Another potential cause of construction disputes using the DB method relates to its sophistication in that, if the project owners do not have full comprehension of the project concepts and scope, it may cause owner-instigated litigations. More importantly, DB does not allow checks and balances between architect and contractor, which may lead to conflicts and potential disputes. In a related study, Friedlander (n.d.) argued that the existence of a team comprised of designer and contractor raises unique legal problems regarding their specific relationships, including questions of who serves as the owner and who becomes the subcontractor and whether the entity is a joint venture, a limited company, or a corporation. Further research showed that DB fails the transparency test due to potential conflicts in the interpretation of the client's requirements, unclear responsibilities, and lack of confidence (Lam, Chan, & Chan, 2012).

## **Construction Manager at Risk CMAR**

In CMAR, the Construction Manager (CM) and the Design Team work together to develop and estimate designs. The project owner can select a fee-based firm before completing design and bidding documents, based on experience. Cunningham (2005) established that, although the CMAR approach enhances transparency because of the open costs and fees, previous studies have established that adversarial relationships may develop if there is little collaboration between the CMAR firm and the designer on one hand, and the CMAR firm and the Commissioning Authority on the other hand. Jeelani, Al-Dosary, and Karthikeyan (2012) have established the same problem with CMAR, which may lead to complex conflicts and litigations that affect project delivery.

## **Integrated Project Delivery (IPD)**

The use of IPD is based on the premise that it emboldens a collaborative process that exploits efficiency in the design and construction phases of projects (Cleves & Gallo, 2012). That is, IPD reduces conflicts and related litigations due to facilitation of early stakeholder participation, shared goals, and reduced exposure to liability (AIA California Council, 2007).

O'Connor and Benson (2009) established that collaboration arrangements designed to enhance cooperation and eliminate litigious behavior in projects fail because of lack of trust (p. 11). The problem is that nearly 60% of alliances fail due to high dependency on familiarity and trust as opposed to contract terms, which also opens new avenues for litigations in the event of breaches. In a related study, Akintan and Morledge (2013) admitted that, although IPD increases information and knowledge sharing, it may not necessarily guarantee transparency and project success,

## **Alliance Contracting**

One of the solutions proposed to eliminate or minimize conflicts, disputes, and litigations involved in construction projects is the use of a model that emphasizes the principles of alliance contracting. The impetus of strategic alliance is that it promises improved cooperation between parties in the construction industry, which can likely lead to reduced litigious behavior. Hampson and Kwok (1997) opined that potential pitfalls of alliance contracting include the lack of the relevant attributes that serve to facilitate transparency, such as the lack of commitment, poor cooperation and lack of communication.

## **Best Value Method (BVM)**

The BVM emphasizes assessing various alternatives and selecting the solution that meets the best value over long-term project management. It has been defined as a process where quality and price factors influence the evaluation process in order to enhance the value and long-term performance of construction (Scott, Molenaar, Gransberg, & Smith, 2006). Although the BVM is a robust solution for enhancing successful completion of projects, it suffers certain limitations that may lead to a lack of transparency and trigger litigious behavior. Some of the challenges attributed to this approach include the perception of favoritism when project teams consider factors other than the confines of ordinary responsibility (Scott et al., 2006). The perception of favoritism may cause conflicts that later transform into litigations. In addition, bidder qualification in the BVM may tend to favor larger and experienced companies. This could be problematic because it can create conflicts among construction stakeholders, leading to adversarial relationships. More important, the subjectivity of performance

evaluations in this approach may lead to dishonesty and lack of transparency in the bidding process. The common notion in existing literature is that BVM is most successful for projects that are less complex.

### **Private-Public Partnerships (PPP)**

Growing evidence in recent years suggested that PPP can enhance partnerships and reduce cases of construction disputes and litigations. The idea is that PPP encourages good governance, accountability, and transparency. According to Ribeiro and Dantas (n.d.), although PPP promises benefits in terms of enhancing successful completion of projects in the construction sector, international experiences have shown various issues can affect the implementation of trust. The problem could be attributed to differences in the priority criteria used to manage stakeholder expectations and need for public and private sectors (Takim, 2009). In a recent study, Fombad (2014) demonstrated that PPPs in developing countries suffer from three main transparency and accountability issues: (a) complexity of legislation and policies, (b) transparency, and (c) monitoring of PPPs. Other issues related to transparency include nondisclosure, procurement irregularities and corruption due to involvement of state agents with deep-rooted irregularities.

### **PIPS/PIRMS**

The Performance Based Studies Research Group (PBSRG) at Arizona State University has been developing an approach that integrates into construction industry performance. This approach is called best value PIPS/PIRMS (Mselle, Kashiwagi, & Sullivan, 2009). PBSRG has overcome industry problems in its prior applications in the United States, Canada, the Netherlands and other countries. Following are some of the performance metrics with regard to best value PIPS/PIRMS implementations:

1. 98% of clients were satisfied and there was no vendor-caused cost deviation (PBSRG, 2010; Kashiwagi, 2009).
2. Vendors increased their profits up to 100% without increasing costs to the client (PBSRG, 2010; Kashiwagi, 2009).
3. 1,750 international projects, costing \$5.8 billion USD, have used the BV environment (PBSRG, 2012).
4. A total number of 20 projects (\$100 million USD) have been performed in the State of Oklahoma in the United States using the BV model. The total savings from these projects has been \$29 million USD.
5. Arizona State University adopted the change in paradigm with the Best Value environment for its dining services and bookstore management. It has saved them \$100 million since adopting Best Value (PBSRG, 2012).
6. In total, nine projects (\$209 million USD) have been performed at the University of Alberta, resulting in savings worth \$12 million USD.
7. The results from projects in the Netherlands showed their delivery time was accelerated by 25%. Time and cost spent on transactions were reduced by 50-60% for both vendors and clients (Kashiwagi et al., 2012).
8. One of the largest contractor developers in Malaysia (which is operating in a more underdeveloped culture) is using the best value PIPS and IMT concepts to optimize their operations

Overall, the only delivery method system in the construction industry that shows a dominant result and has helped the construction industry to improve its performance is PIPS\PIRMS. On the other hand, the studies showed issues with DB, CMAR, BVM, IPD

and Alliance Contracting. All of the issues that have been identified in the literature about construction delivery systems are related to the three identified categories that have been presented in this paper, which are communication factors, expectation factors, and documentation factors, as shown in Table 4.

Table 3

*Summary of Issues in Construction Delivery Systems*

<b>Type of delivery method</b>	<b>Issues of dispute</b>	<b>Reference</b>
Design Build.	<ul style="list-style-type: none"> <li>• Poor communication between architect and contractor creating room for conflict</li> <li>• Sophisticated approach; Owner must have clear idea of project concept/scope</li> <li>• Inexperience</li> <li>• Contentions on responsibilities</li> <li>• Unclear clients requirements</li> </ul>	<p>Garner et al., 2008</p> <p>Friedlander, n.d</p> <p>Lam et al., 2012</p>
Construction Manager at Risk	<ul style="list-style-type: none"> <li>• Little collaboration between designer and CMAR firm during design phase</li> <li>• Little collaboration between Commissioning Authority and the CMAR firm</li> </ul>	Jeelan et al., 2005
Integrated project delivery	<ul style="list-style-type: none"> <li>• Over reliance on trust and familiarity</li> </ul>	O'Connor et al., 2009
Alliance Contracting	<ul style="list-style-type: none"> <li>• Lack of commitment</li> <li>• Independent problem solving</li> </ul>	Hampson & Kwok, 1997
Best value approach	<ul style="list-style-type: none"> <li>• Perceptions of favoritism</li> <li>• Subjectivity of performance evaluations</li> </ul>	Scott et al., 2006
Public and Private Partnerships	<ul style="list-style-type: none"> <li>• Differences in priority criteria, needs and expectations between private and public stakeholders</li> <li>• No-disclosure</li> <li>• Corruption</li> <li>• Procurement irregularities</li> </ul>	<p>Takim, 2009</p> <p>Fombad, 2014</p>
PIPS/PIRMS	<ul style="list-style-type: none"> <li>• NO Issues were found</li> </ul>	



Table 4

*Classification of issues based on its nature*

<b>Issue</b>	<b>Type of contract</b>	<b>Communication</b>	<b>Expectation</b>	<b>Documentation</b>
Poor communication between architect and contractor	DB	X		
Sophisticated approach; Owner must have clear idea of project concept/scope			X	
Contentions on responsibilities			X	
Unclear clients requirements			X	
Little collaboration between designer and CMAR firm during design phase	Construction Manager at Risk	X		
Little collaboration between Commissioning Authority and the CMAR firm		X		
Over reliance on trust and familiarity	Integrated project delivery	X		
Lack of commitment	Alliance Contracting	X		
Independent problem solving		X		
Perceptions of favoritism Subjectivity of performance evaluations	Best value approach	X	X	
Differences in priority criteria, needs and expectations between private and public stakeholders	Public and Private Partnerships		X	
No-disclosure			X	
Corruption		X		
Procurement irregularities				X

## **Conclusion**

Litigation is a worldwide construction industry issue. Due to the critical role that the construction industry plays in the Kingdom of Saudi Arabia's economic development, this has become a major concern for the country. Research shows that the value of the issues in construction contracts, in both public and private contractual disputes, amounted to more than 800 million, noting that the size of these contracts is estimated at 40% of the state budget (Alnomci, 2012).

The objective of this study was to identify the causes of litigation in the construction industry. A literature search of 3 academic databases and 90 publications identified that the major causes of litigation were due to:

1. Changes of orders
2. Changes of scope of work
3. Design issues
4. Changes of site conditions and lack of clarity of contract conditions

The literature research found only two major differences between the causes of litigation in Saudi Arabia and the rest of the world:

1. Changing key personal responsibilities
2. Clients applying penalties on the contractor without conducting an investigation of the reason for the delays.

After further investigation into the causes of litigation in the world, it was identified that the reason for legal disputes could be categorized into three major issues:

1. Inaccurate expectations
2. Miscommunication

### 3. Incorrect documentation

The literature research investigated the efforts to address these problems which are the major construction delivery systems. Seven types of delivery methods were investigated (DB, CMAR, BVM, IPD, Alliance Contracting, PPPs and PIPS/PIRMS). The results showed that every delivery method was shown to have issues in one of these categories (inaccurate expectations, miscommunication, and incorrect documentation) except the PIPS/PIRMS. None of the identified issues causing legal disputes were found to occur in the PIPS/PIRMS method.

## References

- Abbas, N. Activating the role of the engineer in building the national economy by arbitration. The role of the engineer in building the national economy conference in Riyadh. May 13, 2005
- AIA California Council (2007). *Integrated project delivery: A working definition*. McGraw Hill Construction, Dodge Sweets Architectural Record ENR Regional Publications, 1-13. Retrieved from <http://aiacc.org/wp-content/uploads/2010/07/A-Working-Definition-V2-final.pdf>
- Aiyewalehinmi, E. O. (2013). Factor analysis of communication in the construction industry. *The International Journal of Engineering and Science*, 2(10), 49-57. Retrieved from <http://www.theijes.com/papers/v2-i10/Part.1/H02101049057.pdf>
- Akintan, O. & Morledge, R. (2013). Improving the collaboration between main contractors and subcontractors within traditional construction procurement. *Journal of Construction Engineering*, pp. 1-11. doi:10.1155/2013/281236
- Alnomci, M. (2012). 3 billion riyals value of contractual disputes stalled projects issues. *Saurs Newspaper*. Retrieved from <http://www.sauress.com/alyaum/62201>
- Berk, C. (2012). A risk management proposal to the international contractors industry from the financial perspective. *Journal of Applied Finance & Banking*, 2(5), 199-216. Retrieved from [http://www.scienpress.com/Upload/JAFB/Vol%202\\_5\\_13.pdf](http://www.scienpress.com/Upload/JAFB/Vol%202_5_13.pdf)
- Chan, A. (2001). *Framework for measuring success of construction projects*. Report 2001-003-C-01. Retrieved from [http://eprints.qut.edu.au/26531/1/2001-003-C-01\\_Framework\\_for\\_Measuring\\_Success.pdf](http://eprints.qut.edu.au/26531/1/2001-003-C-01_Framework_for_Measuring_Success.pdf)
- Cleves, J. & Gallo, L. (2012, April). *Integrated project delivery: The game changer*. Paper presented at the American Bar Association Annual Meeting on Advanced Project Delivery: Improving the Odds of Success, Las Vegas, NV. Retrieved from <http://www.hansonbridgett.com/~media/Files/Publications/2012-ABA-Construction-Industry-Plenary-7-Paper.pdf>
- Cooley, L. & Cholakis, P. (2013). Efficient project delivery: BIM, IPD, JOC, Cloud Computing and more. *Journal of Architectural Engineering Technology*, 2(107). doi:10.4172/2168-9717.1000107
- Cunningham, G. (2005). *Commissioning large public projects using construction manager at risk (CMAR)*. National Conference on Building Commissioning, May 4-6. Retrieved from [http://www.enovity.com/downloads/commissioning\\_using\\_cm\\_at\\_risk.pdf](http://www.enovity.com/downloads/commissioning_using_cm_at_risk.pdf)

- Dos Santos, A., Powell, J., Sharp, J., & Formoso, C. (1998). Principles of transparency applied in construction. *Proceedings IGLC, Guaruja Brazil*. Retrieved from <http://www.ce.berkeley.edu/~tommelein/IGLC-6/dosSantosEtAl.pdf>
- Enshassi, A. Mohamed, S. & Abushaban, S. (2009). Factors affecting the performance of construction projects in the Gaza strip. *Journal of Civil Engineering and Management*, 15(3), 269-280. doi:10.3846/1392-3730.2009.15.269-280
- Fombad, M. C. (2014). Enhancing accountability in public-private partnerships in South Africa. *Southern African Business Review*, 18(3), 66-92. Retrieved from [http://www.unisa.ac.za/contents/faculties/service\\_dept/docs/Sabview\\_18\\_3\\_Chap%204.pdf](http://www.unisa.ac.za/contents/faculties/service_dept/docs/Sabview_18_3_Chap%204.pdf)
- Friedlander, M. (n.d.). Design-build-legal obstacles and solutions. *Journal of Management and Engineering*, pp. 1-8. Retrieved from [http://www.schiffhardin.com/binary/legal\\_obstacles\\_design\\_build.pdf](http://www.schiffhardin.com/binary/legal_obstacles_design_build.pdf)
- Garner, B., Richardson, K., & Castro-Lacouture, D. (2008). Design-build project delivery in military construction: Approach to best value procurement. *Journal for the Advancement of Performance Information and Value*, 1(1), 35-50. Retrieved from <http://cibw117.com/journal/index.php/performance-info-and-value/article/view/46/44>
- Genberg, I., Riggs, F., & Abraham, A. (2014). *Construction litigation*. Troutman Sanders. Retrieved from [http://www.troutmansanders.com/construction\\_litigation/](http://www.troutmansanders.com/construction_litigation/)
- Ghamdi, M. The Role of Dispute in Delaying the Projects, MasterThesis , King Saud University. July 8, 2008.
- Hampson, K. & Kwok, T. (1997). Strategic alliances in building construction: A tender evaluation tool for the public sector. *Journal of Construction Procurement*, 3(1), 28-41. Retrieved from <http://eprints.qut.edu.au/30062/1/30062.pdf>
- Heath, B., Hills, B. & Berry, M. (1994). The Origin of Conflict within the Construction Process, CIB Publication 171, First Plenary Meeting of TG-15, the Netherlands.
- Hewitt, J. (1991). *Winning Construction Disputes: Strategic Planning for Major Litigation*, Ernst and Young, London.
- Hoezen, M. E. L., Reymen, I. M., & Dewulf, G. P. (2006). *The problem of communication in construction*. Enschede, The Netherlands: University of Twente, Retrieved from [http://doc.utwente.nl/58078/1/06\\_Hoezen.pdf](http://doc.utwente.nl/58078/1/06_Hoezen.pdf)

- Hosseinian, S., & Torghabeh, Z. (2012). Major Theories of construction accident causation models: A literature review. *International Journal of Advances in Engineering & Technology*, 4(2), 53-66. Retrieved from [http://www.academia.edu/1990668/Major\\_theories\\_of\\_construction\\_accident\\_causation\\_models\\_a\\_literature](http://www.academia.edu/1990668/Major_theories_of_construction_accident_causation_models_a_literature)
- Hussein, A. (2014). 10 thousand project Gulf tripped because of judicial disputes. AL-jazirah Newspaper. <http://www.al-jazirah.com/2014/20141219/ec4.htm>
- Jaffer, N., Tharim, A., & Shuib, M. (2011). Factors of conflict in construction industry: A literature review. *Procedia Engineering*, 20, 193-202. doi:10.1016/j.proeng.2011.11.156
- Jannadia, O., Assaf, S., Bubshait, A., & Naji, A. (2000). Contractual methods for dispute avoidance and resolution (DAR). *International Journal of Project Management*, 18(1), 41-49. doi:10.1016/S0263-7863(98)00070-2
- Jeelani, S. A. K., Al-Dosary, A. S., & Karthikeyan, J. (2012). Empirical evaluation of performance of construction management at-risk (CM at-Risk) project delivery system with and without agency-CM. *International Journal of Engineering and Advanced Technology*, 2(2), 1-12. Retrieved from <http://www.ijeat.org/attachments/File/v2i2/B0851112212.pdf>
- Kashiwagi, D. Kashiwagi, J. & Savicky, J. (2009). Industry structure: misunderstood by industry and researchers. *2nd Construction Industry Research Achievement International Conference, Kuala Lumpur, Malaysia, CD-Day* (Vol. 1, pp. 3-5)
- Kashiwagi, J. and Morrison, J. (2012). "Minimizing Protests through a Transparent Selection Process." RICS COBRA Conference 2012, Las Vegas, NV, USA (September 11-13, 2012).
- Kilian, J. J. (2003). A forensic analysis of construction litigation, US Naval Facilities Engineering Command. TEXAS UNIV AT AUSTIN.
- Kumaraswamy, M. (1997). Conflicts, claims and disputes, *Engineering, Construction and Architectural Management*, 4(2), 95-111. Retrieved from <http://dx.doi.org/10.1108/eb021042>
- Klinger, M. (2009). Confronting construction conflicts. *EC&M. Electrical Construction and Maintenance*, 108(3), C14. EBSCOhost Accession number 37377159.
- Lam, E. Chan, A. & Chan, D. (2012). Why is design-build commonly used in the public sector? An illustration from Hong Kong. *The Australian Journal of Construction Economics and Building*, 3(1), 53-64; doi:10.5130/ajceb.v3i1.2911

- Mahamid, I. (2014). Micro and macro level of dispute causes in residential building projects: studies of Saudi Arabia. *Journal of King Saud University- Engineering Sciences*. doi:10.1016/j.jksues.2014.03.002
- Mane, A. & Pimplikar, S. (2012). Dispute-a case study. *International Journal of Engineering and Advanced Technology*, 1(5), 389-393. Retrieved from <http://www.ijeat.org/attachments/File/v1i5/E0553061512.pdf>
- McGeorge, D., Love, P., Davis, P., Jefferies, M., Ward, P., & Chesworth, (2007). Dispute avoidance and resolution: A literature review. *CRC for Construction Innovation*. Report No. 1.
- Mitkus, S. & Mitkus, T. (2014). Causes of conflicts in a construction industry: a communicational approach. *Procedia-Social and Behavioral Sciences*, 110, 777-786. doi:10.1016/j.sbspro.2013.12.922
- Mitra, S. (2012). Lessons learned from large construction projects in Saudi Arabia. *Benchmarking: An International Journal*, 19(3) 308-324. doi:10.1108/14635771211242978
- Mselle, P., Kashiwagi, D., & Sullivan, K. (2009). Graduate Risk Management Research & Education Program in Botswana. In Manuscript submitted for publication. Fifth International Conference on Construction in the 21st Century (CITC-V)“Collaboration
- Mulcahy, F. (2000). *The effectiveness of partnering and source selection in job order contracting*. (Unpublished master’s thesis). University of Washington, Seattle, WA.
- Noble, A. (2013). *About Andrew Noble*. Retrieved from <http://www.nobleadr.com/>
- O’Connor, P. & Benson, F. (2009). *Integrated project delivery: Collaboration through new contract forms*. Retrieved from [www.faegrebd.com/webfiles/AGC-IPD%20Paper.pdf](http://www.faegrebd.com/webfiles/AGC-IPD%20Paper.pdf)
- Ohrn, G. and Rogers, T. (2008). *A survey of satisfaction with job-order-contracting as a project delivery method by large or multi-facility owners*. Flagstaff, AZ: Northern Arizona University. Retrieved from <http://ascpro0.ascweb.org/archives/cd/2008/paper/CPRT220002008.pdf>
- PBSRG 2014 *About Performance Based Studies Research Group*, Arizona State University, Available from: <<http://www.pbsrg.com/about/>>
- Prasad, B. (2000). *Advances in Concurrent Engineering: CE00 Proceedings*. Boca Raton, FL: CRC Press

- Ribeiro, K. & Dantas, A. (n.d). *Private-public partnership initiatives around the world: Learning from the experience*. Christchurch, New Zealand: Institution of Professional Engineers.
- Sambasivan, M. & Soon, Y. W. (2007). Cause and effects of delays in Malaysian construction industry. *International Journal of Project Management*, 25(5), 517-526. doi:10.1016/j.ijproman.2006.11.007
- Sambidge, A. (May 2013). *Construction legal disputes most costly in Middle East*. *Arabian Business*. Retrieved from <http://www.arabianbusiness.com/construction-legal-disputes-most-costly-in-middle-east-502794.html>
- Scott, S., Molenaar, K., Gransberg, D., & Smith, N. (2006). *Best-value procurement methods for highway construction projects: National Cooperative Highway Research Program (NCHRP) report 561*. Washington, DC:Transportation Research Board. Retrieved from [http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp\\_rpt\\_561.pdf](http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_561.pdf)
- Sykes, J. (1996). Claims and disputes in construction, *Construction Law Journal*, 12 (1), 3–13.
- Takim, R. (2009). The management of stakeholders' needs and expectations in the development of construction project in Malaysia. *Modern Applied Science*, 3(5), 167-175. Retrieved from <http://ccsenet.org/journal/index.php/mas/article/view/1955/1859>
- Thunayyan, Fahd. (2013). Billion dollars, the value of the canceled projects in the Kingdom and 167 million deferred projects. *Al-riyadh newspaper*. Retrieved from <http://www.alriyadh.com/889416>
- Tilley, P., Wyatt, A., & Mohamed, S. (2004). *Indicators of design and documentation deficiency*. Retrieved from [http://www.academia.edu/3580735/INDICATORS\\_OF\\_DESIGN\\_AND\\_DOCUMENTATION\\_DEFICIENCY](http://www.academia.edu/3580735/INDICATORS_OF_DESIGN_AND_DOCUMENTATION_DEFICIENCY)
- Waldron, B. D. (2006). *Scope for Improvement: A Survey of Pressure Points in Australian Construction and infrastructure Projects*. A Report Prepared for the Australian Constructors Association, Blake Dawson Waldron, Sydney.
- Watts, V. M. & Scrivener, J. C. (1992). Review of Australian building disputes settled by litigation, in Fenn, P. and Gameson, R. (Eds.), *Construction Conflict Management and Resolution*, E & FN Spon, London, 209–218.