Chapter 1
The Roles of Dispute Resolution in Construction Contracts

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Abstract Dispute resolution clause sets out the procedure to settle disagreements that arise out of the contract. It also provides a gap fulfilling function to deal with unanticipated happenings. This chapter first provides a functional analysis of construction contract. The analysis explains the purposes and the inter-relationship among contract clauses. Whilst a number of dispute resolution mechanisms are available, it is advocated that the choice of mechanism should take into account the characteristics of the transaction. A mapping framework is proposed for this purpose. The use of the framework is illustrated by mapping dispute resolution mechanisms with four types of construction contract: main contract, nominated sub-contract, domestic sub-contract and direct labour contract.

1.1 The Primal Roots of Contract

According to Macneil (1974), there are four primal roots of contract. These are (i) specialisation of labour and exchange, (ii) sense of choice, (iii) conscious awareness of past, present and future and (iv) the social matrix. Macneil (1974) further suggested that the board principles of contract law are norms growing out of the four primal roots. The broad principles are characterised by (1) reciprocity; (2) role effectuation; (3) limited freedom of choice; (4) effectuation of planning; and (5) harmonising of contracts with their internal and external social matrices. Reciprocity is the fundamental underpinning of economic transactions and is manifested by exchange of mutual benefit. The norm of role effectuation reflects the need to enable the parties to perform their respective intended roles. Limited freedom of choice is the tension inherent with having a formal contract. Whilst freedom of contract means the choice by freewill, by entering into a contract, the parties are confined to

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those options allowed by the agreement. Planning embraces the provisions to deal with performance, risk allocation as well as dispute resolution, taking into account of the past, present and future. Ideally, contracts should be planned to facilitate performance, exercise of choice and meet the expectations of the social matrix. Contracting parties in construction businesses are mutually dependent. Rights are typically accompanied with obligations. Classical examples include payments for works completed, delay caused versus time extension, disruption versus loss and expense. Role effectuation is accomplished through conformance to norms and legal rulings. For example, architect, engineer and other agents are to perform their roles impartially and the client shall not intervene. Likewise, contractor is free to adopt construction methods under conventional design then build type of contract.

1.2 Functional Analysis of Construction Contract Clauses

In Modern Engineering (Bristol) Ltd v. Gilbert-Ash Northern [1974] AC 689, Lord Diplock described a building contract as "*an entire contract for the sale of goods and work and labour for a lump sum price payable by installments as the goods are delivered and the work done. Decisions have to be made from time to time about such essential matters as the making of variation orders, the expenditure of provisional and prime cost sums and extension of time for the carrying out of the work under the contract*". Thus, in its most basic form, a contract restates the intentions of the contracting parties. Moreover, in response to the uncertainty involved during construction, conditions of contract have become more and more sophisticated. For example, Turner (1994) discussed a building contract under the following headings: Intentions of the parties; Possession and completion; Control of works; Payment; Statutory obligations; Insurance; Determination and dispute resolution. It is now quite common to have highly elaborated contract documents setting out procedures to deal with potential contingencies (Hughes and Greenwood 1996). In these regards, contract clauses can be analysed in terms of the functions to be served. Figure 1.1 gives the framework proposed by Cheung and Pang (2013).

Eccentric circles are used to illustrate evolving and progressive nature of the essential provisions of typical construction contracts. The central core of Fig. 1.1 represents the most fundamental components: to stipulate the obligations of the contracting parties during the contract period. Changes are considered to be necessary and inevitable in all construction projects, to effectuate such planning, provisions for raising variations, acceleration and postponement together with the corresponding time and monetary adjustments are incorporated. Thus the layer on top of the central core is for adjustment. According to Macneil (1975), planning for performance should define the obligations, incorporate ways to facilitate accomplishment and recognise discharge of obligations. Control measures include supervision, inspection, testing, surety and insurance. Collectively, these serve to ensure performance as planned. Certificates are used to signify successful discharge of obligations by the contractor. The third layer thus deals with control and approval.
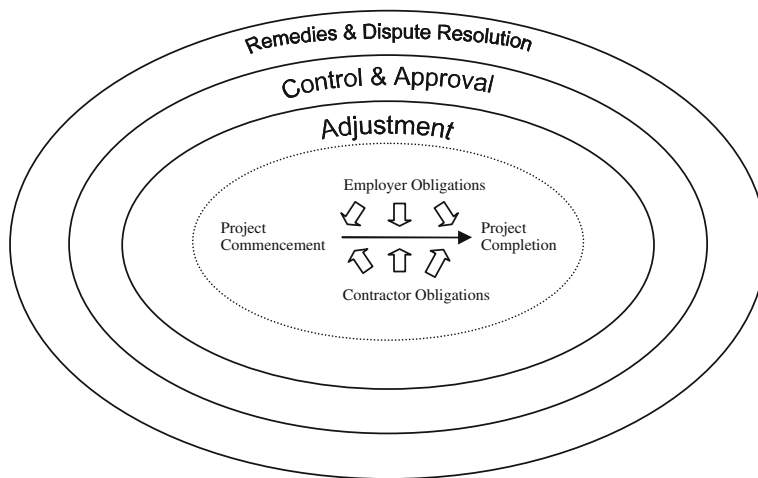
Adjustment: Variation orders; Acceleration; Postponement; Extension of Time; Loss & Expenses
Control & Approval: Testing & Inspection; Supervision; Insurance & Bond; Certificates
Remedies: Determination by Employer; Determination by Contractor; Damages for Non-completion
Dispute Resolution: Mediation, Adjudication & Arbitration etc.

Fig. 1.1 Functional analysis of construction contract clauses

The outermost layer resides the remedies available to the contracting parties for default of performance. Circumstances upon which the parties can determine the contract are typically listed together with the respective rights and obligations. Determination by either party is seldom un-contended. One common disagreement is the interpretation of the performance in terms of scope, level or both. Dispute resolution provisions are used to fill such gaps (Macneil 1975). Although dispute resolution is often regarded as stand-alone provision, its use is intimately related to the formulation and application of the provisions in the preceding layers. Where a contract cannot cater for all eventualities, a dispute resolution clause patches the holes and leaks whereby breakage of the contract is prevented.

1.3 Mapping Dispute Resolution Mechanisms with Contract Types

A dispute resolution clause set out the procedures and mechanisms to deal with disputes recognised by the contract. Macneil (1975) included dispute resolution as one of the three critical aspects of contract planning. The other two are performance and risk. Given the variety of dispute resolution mechanisms available, it is of interest to investigate how these mechanisms are to be selected with due consideration of the characteristics of the transaction.

The support for the use of alternative dispute resolution (ADR) (Hanbury 1992; Kwayke 1993; Latham 1994; Naughton 1990; Stipanowich and Henderson 1992; Tyrril 1992) is counterbalanced by the view that ADR is not a panacea to dispute epidemic (Totterdill 1991). For example, it is widely accepted that where a dispute is related to a point of law, the court should be the forum for resolution (Pengilley 1990). The choice of the dispute resolution process depends on the characteristics of the transaction. That means the choice of a dispute resolution mechanism is dependent on the characteristics of the type of contract. This chapter describes a dispute resolution mechanism mapping framework. In the following sections, the common types of dispute resolution mechanisms are first discussed. Employing the contract system classification suggested by Macneil (1974), and the transaction characteristic approach suggested by Williamson (1985), a dispute resolution mechanism—contract system mapping framework is proposed.

1.4 Dispute Resolution Mechanisms

Litigation and arbitration are well-established formal resolution mechanisms and heavily regulated by the courts or the institutions providing the service respectively. Alternative forms therefore have been promoted for use in construction with the aims of enabling a less confrontational setting that enables speedy and economical resolution. Collectively, these alternatives are called Alternative Dispute Resolution (ADR). These mechanisms are often compared with litigation and arbitration in terms of the cost and time involved. Figure 1.2 arranges the commonly used dispute resolution mechanisms in a stair-chart together with the cost, time and hostility implications.

1.5 Contract Systems and Dispute Resolution Mechanisms

The theoretical apparatus for the mapping framework draws on the work of Macneil (1974, 1975, 1978) and Williamson (1979, 1985). According to Macneil (1978), contracts can be classified into three board systems: classical, neoclassical and relational. Lyons and Mehta (1997) provide a helpful summary of the characteristics of the three contract systems (Table 1.1).

Discrete transactions typify classical contracts. A truly discrete transaction would be entirely separated not only from all other present relations but also from all past and future relations as well (Macneil 1978). Hence the identities and personal attributes of the contracting parties are irrelevant. Discrete transactions are usually of short duration, with the exchange of goods being a notable example. As these transactions are to be completed over a short duration, little change is anticipated. In the event that contingencies are to be planned, substantial efforts will
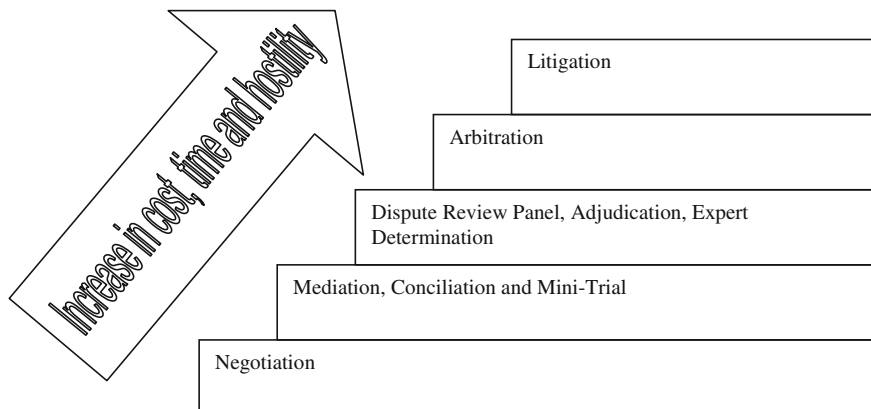
Fig. 1.2 Dispute resolution mechanisms commonly used in construction

Table 1.1 Characteristics of the three contract systems (Lyons and Mehta 1997)

Classical contract	Neoclassical contract	Relational contract
• The identities and personal attributes of parties are irrelevant	• The identities of the parties matter	• The identities and personal attributes of parties are crucial
• Specifies a discrete exchange (or duration)	• Normally specifies a fixed duration (or task to be completed)	• Normally of indeterminate duration
• Contingencies and penalties for non-performance are specified	• It is accepted that not all contingencies can be specified	• Norms of behaviour, or shared codes of conduct, inform responses to new developments as they unfold
• Written documentation overrules any verbal agreement	• Written documentation provides the status quo point from which to renegotiate	• Written documentation treated as a record of what has been agreed
• Law courts adjudicate in the event of disagreement	• Arbitration procedure for disputes	• Norms of behaviour, or shared codes of conduct, overrule written documents in settling disputes

be directed for the highest clarity. In such cases, penalties for non-performance are usually well-specified. Disputes arising out of this type of contract are best resolved in courts.

However, discrete transactions are rare. In reality, most contracts are executory and performance is affected by both internal and external factors. Hence classical contract law no longer suffices for exchanges that project into the future. In those situations, adjustment flexibility is critical. Two common characteristics of these 'projected' contracts are the existence of gaps in their planning and the presence of a range of processes and techniques used by contract planners to create flexibility. In this type of contract, it is acknowledged that eventualities cannot be exhausted.

Adjustments are necessary as the project unfolds. In this regard, written documentations shall provide the bases from which to negotiate. Furthermore, exercising flexibility will inevitably invite disagreement. Arbitration is the suggested method to fill the gaps that may arise.

A relational contract refers to a long-term contract where the contracting partners are tied not so much by the words of the contract; instead, the performance of the contract is underpinned by norms of behaviour, shared codes of conduct, and informed responses to new developments as they unfold. The identities and personal attributes of the parties in these circumstances are therefore extremely crucial, thus rendering confrontational mode of dispute resolution inappropriate. Disagreements are often negotiated for a solution, which can occur without jeopardising the relationship between the contracting parties. Resolving dispute through assisted negotiation such as Alternative Dispute Resolution (ADR) is considered appropriate. The contract system classification used by Macneil (1978) examines the characteristics of the transaction, hence more appropriately relate to the types of construction contracts instead of the procurement strategies. Nonetheless, the spirit of serial contracting and partnering type of procurement resemble those of relational contracts.

1.6 Transaction Characteristics and Contract Systems

Williamson (1985) sees contracts as 'Governance Structures'. Contracts are frameworks under which transactions are conducted in a changing world. The variations among these structures can be expressed in terms of the extent of formality and flexibility. The optimal choice therefore should cater for the key transaction characteristics. In Williamson's view, three technical characteristics are central in describing a transaction: specific investment, frequency and uncertainty. Specific investment describes expenditure on plant and machinery, time or effort that has a reduced value if used for any purpose other than to service a particular customer or supplier (Lyons and Mehta 1997). It is this latter point that inspires the inclusion of identity of the contracting party in the proposed dispute resolution mapping framework.

The second characteristic is frequency. Repeated transactions make it worthwhile to make special investments. The third characteristic is uncertainty. The greater the degree of uncertainty over future requirements, the greater the need for contracts to allow room for adapting to new conditions. To facilitate model integration and empirical study, Williamson (1979) left out uncertainty and provided the following integrated model of contract systems and transaction characteristics (Table 1.2).

Table 1.2 Transaction characteristics and contract systems (adapted from Williamson 1985)

		Transaction characteristics		
		Non-specific	Mixed	Idiosyncratic
Frequency	Occasional	Classical Contracting	Neoclassical Contracting	Neoclassical Contracting
	Recurrent	Classical Contracting	Relational Contracting	Relational Contracting

1.7 Mapping Framework

Figure 1.3 presents the interrelationships between contract systems, transaction characteristics and dispute resolution mechanisms. In addition to the three transaction characteristics used by Williamson (1979), discreteness and presentation are also included in the framework.

For classical contracts, litigation is the dispute resolution mechanism. Transactions under this contract type are discrete and are characterised by "*sharp in by agreement and sharp out by performance*" (Macneil 1974). Litigation is employed to ensure that the parties shall keep their promises. With neoclassical contracts, the reality of incomplete presentation is acknowledged. Planning for flexibility and hence the ability to fill gaps becomes critical. *Presentiate* is defined in Oxford English Dictionary as: "*to make or render present in place or time; to cause to be perceived or realised as present*". Arbitration has evidently been employed to effect gap-filling. The desire to continue with the relationship while disputes are being arbitrated typifies transactions under the neoclassical contracting system.

The increase in transaction cost between the parties encourages idiosyncratic investments for which vertical integration is favored over trading. The growth of relational contracting responds to this sort of situation and preservation of relationship becomes the dominant objective. The spirit of partnering is a close example of relational contracting in construction (Baxendale and Greaves 1997; Fellows 1997). Examples of idiosyncratic investment include the establishment of design office and contracting arm within a developer. A commonly observed modified form of integration occurs when a developer uses the same design consultant and contractor repeatedly. The need to minimise transaction costs in these cases has prompted the formation of stable coalitions (the client, contractor and subcontractors) across a series of transactions (Alsagoff and McDermott 1994; Lyons 1994).

In sum, five transaction characteristics are used in the mapping framework. These are discreteness, presentation, uncertainty, frequency and identity. Accordingly, the differences among the three contract systems can be described by their respective degrees of variation in relation to the five transaction characteristics.
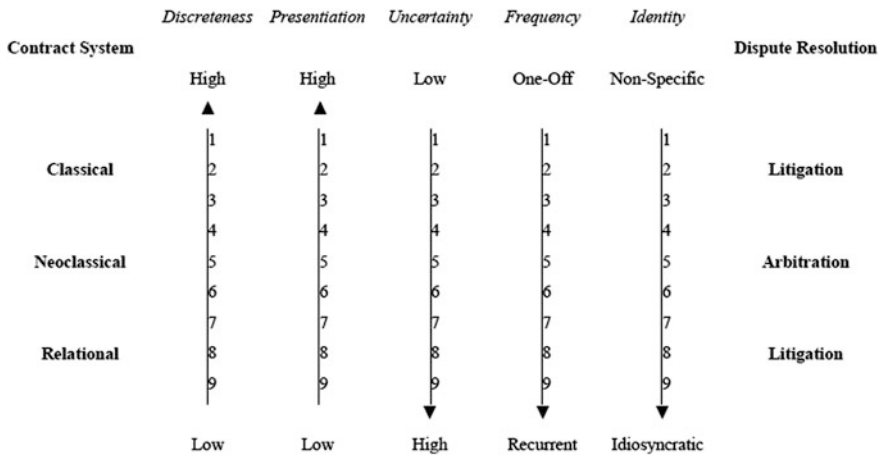
Fig. 1.3 A mapping framework for dispute resolution mechanisms and contract types

Figure 1.3 presents a mapping framework developed through the integration of transaction characteristics, contract systems and their associated dispute resolution processes. By examining their respective transaction characteristics, construction contracts can be mapped to contract systems (classical, neoclassical and relational). The choice of a dispute resolution mechanism can then be based on the mapping framework as presented in Fig. 1.3.

1.7.1 Illustration on the Use of the Mapping Framework

This section demonstrates the use of the proposed mapping framework. During the construction process, various types of contract are used. Those regularly used include main contracts, nominated subcontracts, domestic subcontracts and labour contracts. Firstly, it is suggested that these four types of construction contract vary in different degrees, in terms of the five transaction characteristics as described. Secondly, the five transaction characteristics are having different degrees of importance in relation to the selection of dispute resolution mechanism. In these connections, the mapping involves the following steps:

(1) Measurement of the transaction characteristic ratings.
(2) Establishing the relative importance weightings of the transaction characteristics.
(3) Developing the contract mapping scores.
(4) Interpretation of the contract mapping scores.

1.7.2 Measurement of Transaction Characteristic Ratings

Figure 1.4 shows the instrument used for the measurement of transaction characteristics. For each of construction contracts, the respondents were asked to assign a rating (1–9) against the five transaction characteristics. The scales are arranged as follows:

Transaction characteristics	Scale
Discreteness (high–low)	1–9
Presentation (high–low)	1–9
Uncertainty (low–high)	1–9
Frequency (one-off–recurrent)	1–9
Identity (non-specific–idiosyncratic)	1–9

The scales are so arranged that the higher the rating, the more relational is the construction contract type. For ease of comparison, the measurement sheet is also arranged so that under each of the transaction characteristics, the four types of construction contract are compared seriatim. For illustration purpose, Table 1.3 presents the transaction characteristic ratings obtained from Respondent "A".

1.8 Establishing the Relative Importance Weightings of the Transaction Characteristics

To recognise the non-uniform impacts of the transaction characteristics toward the mapping, weightings are therefore necessary to reflect their relative importance. In this regard, the second step of the study involves the solicitation of the relative importance weightings of the transaction characteristics. The sum of the weightings must be one.

1.9 Developing Mechanisms/Contract Types Mapping Scores

For each of the four types of construction contract, with the results obtained from the previous two steps, a contract mapping score (M_c) can then be calculated by:

$$M_c = \sum_{i=1}^{5} W_i T_i \tag{1.1}$$

Transaction Characteristics of Construction Contracts

Please indicate the characteristics of the transactions as described on a scale of 1 to 9.

I. Discreteness

Contract Type	1 very high		3 high		5 medium		7 low		9 very low
Main Contract	1	2	3	4	5	6	7	8	9
Nominated Subcontract	1	2	3	4	5	6	7	8	9
Domestic Subcontract	1	2	3	4	5	6	7	8	9
Labor Contract	1	2	3	4	5	6	7	8	9

II. Presentiation

Contract Type	1 very high		3 high		5 medium		7 low		9 very low
Main Contract	1	2	3	4	5	6	7	8	9
Nominated Subcontract	1	2	3	4	5	6	7	8	9
Domestic Subcontract	1	2	3	4	5	6	7	8	9
Labor Contract	1	2	3	4	5	6	7	8	9

III. Uncertainty

Contract Type	1 very low		3 low		5 medium		7 high		9 very high
Main Contract	1	2	3	4	5	6	7	8	9
Nominated Subcontract	1	2	3	4	5	6	7	8	9
Domestic Subcontract	1	2	3	4	5	6	7	8	9
Labor Contract	1	2	3	4	5	6	7	8	9

IV. Frequency

Contract Type	1 very low		3 low		5 medium		7 high		9 very high
Main Contract	1	2	3	4	5	6	7	8	9
Nominated Subcontract	1	2	3	4	5	6	7	8	9
Domestic Subcontract	1	2	3	4	5	6	7	8	9
Labor Contract	1	2	3	4	5	6	7	8	9

V. Identity

Contract Type	1 Irrelevant		3 unimportant		5 medium		7 important		9 very important
Main Contract	1	2	3	4	5	6	7	8	9
Nominated Subcontract	1	2	3	4	5	6	7	8	9
Domestic Subcontract	1	2	3	4	5	6	7	8	9
Labor Contract	1	2	3	4	5	6	7	8	9

Fig. 1.4 Transaction characteristic ratings

where W_i is the weighting of the transaction characteristic i; T_i is the rating of transaction characteristic i.

Table 1.4 gives the contract mapping scores of Respondent "A".

Table 1.3 Summary of transaction characteristic ratings by Respondent "A"

	Respondent "A"
Discreteness	
Main contract	2
Nominated subcontract	4
Domestic subcontract	5
Labour contract	5
Presentation	
Main contract	1
Nominated subcontract	2
Domestic subcontract	2
Labour contract	5
Uncertainty	
Main contract	8
Nominated subcontract	6
Domestic subcontract	5
Labour contract	2
Frequency	
Main contract	6
Nominated subcontract	5
Domestic subcontract	5
Labour contract	6
Identity	
Main contract	6
Nominated subcontract	4
Domestic subcontract	8
Labour contract	5

1.10 Interpretation of Contract Mapping Scores

The mapping exercise was conducted with construction professionals in Hong Kong. One hundred and forty-five sets of data had been successfully obtained. The average contract mapping scores for the four types of construction contract are given in Fig. 1.5.

The framework maps dispute resolution mechanisms to contract types. The empirical study in essence classifies the four commonly used construction contracts into the contract systems expounded by Macneil (1978). The classification was achieved through the assignment of ratings and relative importance weightings for the five transaction characteristics. The contract mapping scores as calculated by Eq. 1.1 can be interpreted as:

Mapping score	Dispute resolution mechanism suggested
1–3.33	Litigation
3.34–6.66	Arbitration
6.67–9	ADR

Table 1.4 Contract mapping scores of Respondent "A"

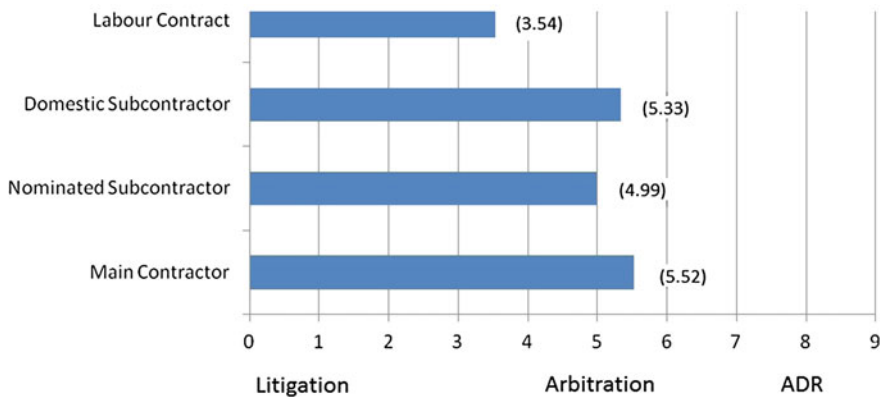|		Respondent "A"			
		Head Con	Nom Sub	Dom Sub	Lab Con
Discreteness	0.15	2	4	5	5
Presentiation	0.15	1	2	2	5
Uncertainty	0.40	8	6	5	2
Frequency	0.20	6	5	5	6
Identity	0.10	6	4	8	5
		5.45	4.7	4.85	3.25

Fig. 1.5 Average contract mapping scores

In Fig. 1.4, the mapping range (1–9) is presented as a continuum of dispute resolution mechanisms. Against this continuum, the average contract mapping scores obtained from the thirty-three respondents are plotted. The four average mapping scores all fall within the band of 3.34–6.66. Strict interpretation of the selection framework would suggest the use of arbitration for all four types of construction contracts. This can be explained by the phenomenon that arbitration has been used for a long time and that the industry has somewhat accepted its use as the norm. However, a more detailed study of the relative positions of the four contract types on the continuum provides valuable insight.

The average mapping score for main contracts was 5.52, the highest among the four. The contractual arrangements between employers and main contractors have undergone tremendous changes in the past two decades, notably with heavier involvement of the main contractor in the design of the works. This requires a co-operative working relationship between the parties. In this regard, maintenance of working relationship is of prime concern if successful project delivery is to be achieved. Partnering, alliance contracting and the like have been advocated as the

way forward (Alsagoff and McDermott 1994). These types of contracting arrangements resemble relational contracting and have been advocated as a model procurement strategy in the both United Kingdom (Egan 1998) and Hong Kong (CIRC 2001; HKHA 2000). The main contract is therefore viewed as the most relational type of contract among the four contract types.

Domestic subcontracts obtain an average contract mapping score of 5.33. It is a well-established principle that a main contractor is responsible for the work of his subcontractors, both domestic and nominated. Construction is a risky business and working with strangers adds further risks. This equally applies to both the main contractor and the domestic subcontractor. Domestic subcontractors tend to form alliances with several main contractors for work. The identity of the parties therefore is crucial in this type of contracting. Nevertheless, as the number of main contractors in the market far exceeds that of clients, it is easier for domestic subcontractors to make associations with a greater number of main contractors. In this respect, domestic subcontracts can be less relational than main contracts.

Nominated subcontracts obtain an average contract mapping score of 4.99. The use of nominated subcontractors is a unique form of subcontracting method under the British system. Nominated subcontractors are usually responsible for specialist works. They are selected by the employer and then forced upon the main contractor. The main contractor has no involvement in the selection process. It is perfectly possible that the main contractor has to enter a contract with a nominated subcontractor with no previous working relationship, a contracting mode analogous to neoclassical contracting. The average contract mapping score of 4.34 suggests the use of arbitration.

Labour contracts obtain an average contract mapping score of 4.33. Construction activities on site are labour intensive. Labourers are usually paid on a weekly or piece meal manner. The performance requirements are fairly clear-cut and the contract duration is relatively short. These contracts exhibit the characteristics of discrete transactions, for which litigation is the mode of dispute resolution.

In summary, the empirical study suggests that:

Contract type	Dispute resolution process
Main contract	Towards ADR
Domestic subcontract	Towards ADR
Nominated subcontract	Arbitration
Labour contract	Towards litigation

It is also prudent to note that the empirical result presented in the study is obtained in Hong Kong. The mapping framework can be used as an aid for contract planner in planning dispute resolution in construction contracts. The assessment of the relative importance weightings for the transaction characteristics can reflect situational factors.

1.11 Chapter Summary

Having a hard and fast rule for the selection of dispute resolution mechanisms is not advisable. The mapping framework suggested in this chapter is underpinned by the theoretical constructs of contract law systems (Macneil 1974, 1978) and transaction characteristics (Williamson 1979, 1985). The mapping framework is introduced through a detailed descriptive analysis and its use is illustrated by an empirical study. The results of the empirical study make good practical senses as these reflect the prevalent practices in the construction industry in Hong Kong. Notable examples include the dominant use of design-then-build as a procurement methodology and arbitration as the dispute resolution method. The findings suggest that main contracts are the most relational; the use of ADR for dispute resolution would be expected once the contracting environment becomes more co-operative, as in the case of partnering. In addition, the discrete nature of labour contracts is also spot-on. The average contract mapping score of 3.54 is indeed very close to 3.33 (the upper-range figure for classical contracts in the mapping model). Domestic subcontracts are more relational than nominated subcontracts can also be explained by the contracting practices commonly used in Hong Kong. The mapping framework can be used by contract planner as a decision aid to select dispute resolution mechanism according to the transaction characteristics.

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