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Dispute Avoidance and Resolution: A Literature Review

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Dispute Avoidance and Resolution
A Literature Review

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PREFACE

This literature review was prepared by the University of Newcastle research team including:

Associate Professor Kerry London [Research Leader]

Team Member	Role
Emeritus Professor Denny McGeorge	Professorial Research Fellow
Marcus Jefferies	Lecturer
Peter Ward	Lecturer
Brianna Chesworth	Research Assistant

The University of Curtin research team provided assistance in sourcing materials and included: Professor Peter Love and Associate Professor Peter Davis

The Project Leader Rick Collins provided assistance in sourcing materials and offered invaluable expert opinion.

The draft literature review was presented to the research Project Team in October 2007 and feedback was provided. The Team included:

Member	Representing
Chris Burton	John Holland Group
Mark Lynch	Thiess
Bob Giles	QDPW
Dayv Carter	QDPW
Dennis Wogan	QDMR
Paul Champtaloup	BCC
Michael Griffiths	BCC

The Task Force offered their expert opinion and discussed key issues related to the topic of dispute at a meeting in August 2007 and the Research and Project Leader attended this meeting. This draft literature review will be presented to a second meeting of the Task Force in November 2007. The Task Force membership includes:

Member	Representing
Graeme Peck [Chair]	G.M. Peck & Associates Pty Ltd.
Jane Montgomery-Hribra	Australian Procurement Construction Council
Terence Cole AO, RFD,QC	The Honourable
Alan Tesch	Queensland Department of Main Roads
David Hudson	Leighton Holdings
Tony Barry	Connell Wagner
Robert Dahan	Civil Constructors Federation
Managing Director	Nominee from NSW Office of the Coordinator General or RTA
National President	Working also with MBA and mining industry client group to secure senior nominee

1. Literature Review

The aim of the project is to identify and communicate to key industry stakeholders recommended change management strategies to avoid dispute between clients, contractors and other industry stakeholders, and where dispute cannot be avoided, to manage disputes more effectively.

The overall project will consider the following:

1. The factors that currently impede the efficient, productive, timely and cost effective performance of projects, the root causes of disputes and practical strategies to avoid disputes or minimise the impact of disputes.
2. The general magnitude of the direct and indirect costs of disputes to clients, contractors, other industry stakeholders and the community at large.
3. The underlying principles of conflict management in the context of commercial disputes and practical dispute resolution strategies for facilitating the equitable, certain, amicable, timely and cost effective resolution of disputes.

A small research project such as this can not hope to create the change, however; it is the intention to develop some clarity on the current thinking both nationally and internationally on the **topic of dispute avoidance and resolution**. The first step towards this is the development of a literature review to understand trends in dispute resolution and avoidance.

To identify the factors that impede the efficient, productive and timely and cost effective performance of projects is perhaps a rather large task for one individual literature review. There have been numerous studies on many related topics. Therefore the starting point was to explore the international literature on disputes and conflicts and then identify key trends and movements which have resulted from the problem of the adversarial nature of the construction industry.

The literature review is organised as such:

- Terms and parameters
- Costs of disputes
- Sources of disputes
- Current thinking on dispute resolution systems
- Contemporary Issues on conflict management: dispute avoidance

2. Introduction

One of the important tasks of any literature review is to define the topic to be investigated and hence establish the parameters for the review. This literature review is based on the *prima facie* assumption that currently there is considerable level of disputation within the construction industry that can be reduced either by avoidance or resolution.

The basic intent of any literature review is to summarise and synthesis ideas and arguments which have been published in the field rather than present the personal views of its authors. However given that, in this case¸ the topic is very wide ranging, encompassing both the social and physical sciences, the selection of material for inclusion or conversely the exclusion of material inevitably leads to the emergence a line of, if not argument, then at least persuasion.

Generally it was found, in compiling this review, that there was not a great deal of dissent amongst commentators and reviewers on detailed issues relating to construction industry disputes, moreover many of the reported findings were remarkably similar. What was

evident however was considerable confusion and lack of clarity in the terminology used to describe disputes and processes associated with dispute avoidance and dispute resolution. This confusion of terminology is not simply a matter of semantics but is more deeply rooted with different meanings being ascribed to the same word or phrase depending on whether the word or phrase is used in an industry, academic or legal context. The potential for confusion is described in the New South Wales GC21 Clause 83 viz. "Some words and phrases have special meaning in the Contract. In some cases, the defined meaning is different from the meaning that the word or phrase may have in ordinary usage, or it might include conditions that don't normally apply. In order to understand the Contract, you need to take these meanings into account" (NSW Construction Agency Coordination Committee, 2003).

2.1 Terminology Academic, Legal or Industry Usage?

The GC21 statement that a defined meaning may be different from the meaning that the word or phrase may have in ordinary usage is a useful starting point to a discussion on terminology in dispute avoidance and dispute resolution. A fundamental difficulty would appear to be that words such as 'conflict', 'dispute' and 'disagreement' carry emotive meanings when used in an industry context whereas these words when used in legal context are used with precision and are devoid of emotional connotations. A similarly precise approach should also apply in academic publications, although this is does not always appear to be the case. Many authors, with the words 'conflict' and 'dispute' in the title of their paper, often do not give a specific definition of either. Several authors make the point that the terms conflict, dispute and claims are used interchangeably whereas their meanings are actually quite different [Gebken, 2006; Al-Tabtabai and Thomas, 2004, Econtech, 2007] Phrases such as "if conflict is poorly handled then it may degenerate from a simple dispute into open warfare" illustrate the looseness of the language often used. Conflict escalating into a dispute is another term which is also used. Similarly Econtech [New South Wales Department of Commerce, 2007] state that "Resolving conflicts more quickly will mean higher productivity in the building and construction industry". This cavalier approach to terminology leads to further confusion when management techniques such as conflict management, conflict management resolution and dispute resolution are introduced.

A further case in point, with respect to the emotive nature of words associated with dispute avoidance and dispute resolution, is demonstrated in the GC21 contract where, in effect, the word 'dispute' has been replaced by the word 'issue' (New South Wales Department of Commerce, 2007). The adoption of the word 'issue' in turn, gives rise to the GC21 term 'issue resolution' as opposed to the more conventional 'dispute resolution'.

There is an obvious need for consistency in terminology irrespective of whether words and phrases associated with dispute avoidance and resolution are framed in an industry, legal or academic context Achieving this consistency is a considerable challenge particularly when subtle nuances are introduced such as "disagreements are not disputes" [Gebken, 2006 ;Al-Tabtabai, 2004].

The following sections discuss the definitions and meanings of words commonly associated with dispute avoidance and dispute resolution.

2.2 Conflict

It would appear that the word 'conflict' is rarely used in the construction industry (at least in communications between parties). This presumably is, as previously discussed, due to the emotive nature of the word. The word 'conflict' and the concept of conflict is however central to many of the academic publications and critiques on disputes and the resolution of disputes [Cheung et al, 2006; Econtech, 2006; Fen et al, 1997; Gardener and Simmons, 1995; Gebken,2006; Kassab et al, 2006; Kumaraswamy et al, 2004; Semple et al, 1994b]. It was therefore felt important to include some discussion on the nature of conflict from an academic

perspective given that conflict, as a concept, provides an underpinning to much of the literature in the field.

Most authors on the topic are at pains to stress that conflict is inevitable in any society and more particularly that conflict can be viewed as either positive or negative [Gebken, 2006; Al-Tabtabai and Thomas, 2004]. Leung et al.[2005] take the view that conflict in the construction industry should not simply be defined as a functional or dysfunctional element in the management process and several authors advocate that moderate levels of conflict can improve satisfaction in a working environment until a point where conflict escalates and satisfaction diminishes [Hughes, 1994, Gardener and Simmons, 1995, Loosemore, 1994]. Al-Tabtabai and Thomas [2004] cite Thamhain and Wilmon [1975] in support of the view that conflict is a dynamic and evolving process and is perceptual in nature. Rosenhead [2006] argues that, on the basis of complexity theory, a conflict free environment is unattainable and even undesirable. Rather than trying to consolidate a state of stable equilibrium (i.e. conflict free) the organisation should aim to position itself in a region of bounded instability i.e. in tension. Few papers in the construction press deal with a theoretical exploration of the nature of conflict. The exceptions being Yiu and Cheung [2006] who examine the use of catastrophe theory in weighing the balance between tension and behavioural flexibility as a means of determining the 'tipping point' when tension ceases to be creative and becomes counter-productive. And also Price and Chahal [2006] who cite the three basic assumptions of conflict theory as being:

competition, rather than consensus, is a key human trait

structural inequalities in power and reward exist in all social structures

revolutionary change is often the result of conflict from competing interests rather than through adaptation.

In summary, Fenn et al. [1997] make the observation that there are two academic standpoints viz. those who treat conflict and dispute as pathological states and seek to understand cause and treatment; and those who take conflict for granted and study the behaviour associated with it. It is suggested that the more productive approach for this project is to take conflict for granted and study the behaviour associated with it.

Whilst it might be argued that the word 'conflict' is one which the construction industry would like to avoid at all costs, there does seem to be the need for a term which describes the competitive nature of social intercourse which takes place between organisations and between individuals in each organisation. There is also a need to recognise situations in which organisations and individuals have conflicting goals "when one party or individual perceives that one or more others have frustrated or about to frustrate a major concern of theirs" [Thomas, 1992]. If the construction industry finds that the word 'conflict' is too emotive in nature, and then perhaps the use of the word 'disagreement' as used the NSW Contract Dispute Resolution Guideline and in GC21 would be more appropriate if 'disagreement' is taken to mean a robust discussion as opposed to a situation which has purely negative connotations.

There is no doubt however that 'conflict', from an academic standpoint, is firmly embedded in construction literature and is generally viewed (as illustrated in Figure 1) as the starting point for the exploration of disputes and dispute resolution.

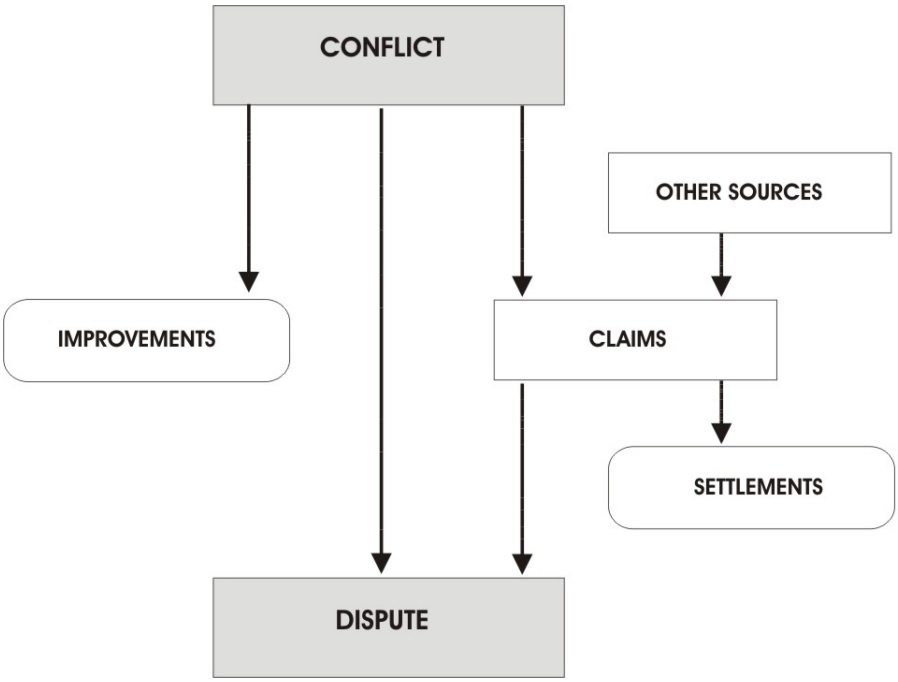


Figure 2.1 Conceptual Model [Source: Kumaraswamy, 1997]

2.3 Dispute

Reid and Ellis [2007] in a paper entitled 'Common sense applied to the definition of a dispute' make the argument that there is no definitive meaning of "dispute" and the existence of a dispute in construction adjudication is a subjective issue requiring a practical common-sense approach relying on the facts, the law and policy considerations. Reid and Ellis cite the Halki Principle (which is applicable in the UK, but also relevant to Australia and can be summarised along the lines that a dispute does not exist until a claim has been submitted and rejected; a claim being a request for compensation for damages incurred by any party to the contract). Reid and Ellis make the point that, although the Halki Principle may appear to be clear cut, a strict application of Halki may cause a breach of natural justice in some cases "whereas a common-sense application of the Halki test, taking cognisance of time-related issues and the original intent of construction adjudication, offers scope to establish a universal policy". This is an interesting observation given that the authors are attempting to define 'dispute' from a legal standpoint.

Gebken [2006] in his doctoral thesis **'**Quantification of Transactional Dispute Resolution Costs for the U.S. Construction Industry' explores definitions of dispute in a construction industry context at some length. Gebken, for the purposes of his own thesis, adopted the following definition suggested by Diekmann and Girard's viz. "any contract question or controversy that must be settled beyond the jobsite management staff [Diekmann and Girard, 1995]. Gebken also notes that 'this definition is also similar to that adopted by the Construction Industry Institute (CII). The CII defines a dispute as, "a problem or disagreement between the parties that cannot be resolved by on-site project managers" (Construction Industry Institute, 1995). The emphasis on 'jobsite' or 'on-site' carries the inherent assumption that disputes firstly are seen as occurring on site then escalating upwards through the organisational hierarchy. Gebken, Diekmann & Girard and the CII are not alone in adopting the concept that disputes are, in the main, triggered by contractual issues. For example The New South Wales Contract Dispute Resolution Guideline states that "The most common protracted dispute arises when a Contractor makes a claim for an increase in the contract sum which is rejected by the Project Manager, and the Contractor formally notifies that it does not accept the decision by the Project Manager" [New South

Wales Department of Commerce, 2007]. This statement is also in accord with the Halki test that a dispute occurs after a claim has been submitted and rejected.

The GC21contract in attempting to introduce a less adversarial tone, has opted to use the term 'meanings' rather than 'definitions' to describe key words and phrases in the contract. (As previously mentioned, GC21 uses 'issue' in preference to 'dispute'). The GC21 meaning of an issue is "Any issue, dispute or difference raised by either party under Clause 73". Clause 73.1 states that "The Contractor may dispute an assessment, determination or instruction of the Principal, or an Unresolved Claim, by giving notice to the Principal (copied to the Principal's senior executive named in Contract Information item 7A) of an Issue within 28 days after the assessment, determination or instruction, or within 14 days as provided in clause 72.7 for an Unresolved Claim". The statement that a Contractor may dispute an issue seems to confuse rather than clarify the position, however the intention is clear in that issues under GC21 arise either from disputed assessments, determinations or instructions or unresolved claims.

In summary, accepting Reid and Ellis's argument that there is no universal definitive definition of 'dispute' there is clearly a need to agree an accepted working definition or meaning for the purposes of this project. Gebken, is critical of the definition suggested by Brown and Marriott [1993] cited in Yates [2003] that a dispute involves disagreement over issues capable of resolution by negotiation, mediation or third party adjudication because, he argues this introduces characteristics of both disputes and claims in the one definition. On the other hand, whilst Gebken's adoption of Deikmann and Girard's definition is justifiable in the context of his doctoral research, it would seem to be too narrow in the context of this project. (Although it could be argued that Deikamann and Girard and the CII's definitions do not preclude 'higher' level disputes at an inter-firm level, say between client and principal contractor, or principal and sub-contractor.) In a legal context a dispute is identified once a notice of dispute has served under the contract conditions, however conditions of contract tend to be more concerned with what has given rise to a dispute than a definition of a dispute *per se.* Despite Gebken's criticism, and in the absence of any telling argument against, it would appear that a definition along the lines proposed by Brown and Marriott would be the most apt for the purposes of this project viz. that a dispute is a disagreement that requires resolution. The omission of mechanisms for resolution from the definition provides a generic definition that is likely to fit most circumstances and is in the spirit and GC21 and similar types of conditions of contract.

2.4 Claim

The relationship between disputes and claims has been discussed by a number of authors and, as previously mentioned, there is legal precedent and ample evidence from standard forms of contract that, in a contractual sense, a dispute only comes into being after a claim has been made and been rejected [Ndekugri and Russell, 2006, Reid and Ellis, 2007]. Before proceeding further in discussing definitions and meanings of 'claim', a differentiation perhaps needs to be made between a claimed entitlement within the contract such as an extension time and a claim for breach of contract by one or several parties to the contract. Claimed entitlements which are dealt with as variations covered by the contract and which are settled and do not result in a dispute, need no further comment although many authors do not make this distinction.

Claims which result from breaches or alleged breaches of contract are however important to any study on dispute avoidance and resolution. Semple et al. [1994a] make the statement that "a claim is a request for compensation for damages incurred by any party to the contract. A claim presents the basis of the claim (causes and effects), explains the contractual and legal basis for payment (entitlement), and quantifies the resulting damages." The inference being that a claim relates to matters of compensation, remedy or relief or a failure to fulfill contractual obligations. Adrian [1988] and Richter and Mitchell [1982] both cited by Gebken give similar definitions.

An all important point on the nature of claims and the relationship of claims to disputes is the question of timing. Sheridan and Helps [2004] stress the importance of the timing of the submission of a claim and the need to determine "that a point has emerged when the process of discussion or negotiation has ended and that there is something which needs to be decided". The NSW Contract Dispute Resolution Guidelines deals with the need to avoid protracted timescales by stating that "it is in the interests of all parties to proactively work to prevent disagreements and disputes festering and to resolve them fairly at the earliest opportunity". The difficulties associated with determining the point at which a discussion becomes a disagreement which in turn leads to submission of a claim which in turn leads to a dispute is a recurring theme which is addressed by many authors and appears in a number of government guidelines [McDonald, 1984; National Alternative Dispute Resolution Advisory Council, 2006] also addresses the issue of time scale and advances the concept of a conflict zone and a dispute zone with claims occupying the conflict zone and arbitration and litigation occupying the dispute zone. In effect discussion, disagreement, the submission of a claim and the notification of a dispute are part of a fuzzy continuum rather than clearly defined stages.

Although the relationship of claims to disputes is complex and, although the underlying circumstances which may have lead to a claim may deep seated, there would appear to be reasonable agreement on what constitutes a claim in a construction context both in terms of contractual and ordinary usage. As has previously been suggested, it may be useful to differentiate between claimed entitlements under the contract and claims for breaches of contract, although drawing a line between these two states of circumstances may not always be straight forward. GC21 deals with both conditions under Clause 83 by stating the meaning of a claim to be "A claimed entitlement of the Contractor under or arising out of or connected with the Contract, in tort, in equity, under statute, or otherwise. It includes a claimed entitlement to an extension of time or for breach of Contract by the Principal".

Given that there would appear to be general agreement on what is meant by a 'claim' the simple definition as described by Semple et al [1994b] viz. "a request for compensation for damages incurred by any party to the contract", would appear to be appropriate for the purposes of this project.

3. Cost of disputes

The industry has perhaps the unenviable reputation of being highly adversarial, and as a result of this, is paradoxically a leader in both dispute occurrences and dispute resolution systems (Groton, 2005; Keil, 1999; Michel, 1998). There are numerous models, systems and strategies which have been developed over the years on how to address the potential risks of disputes and these will be discussed Section 5 Existing Solutions to Avoid and Resolve Disputes.

Perhaps as proposed by Gebken et al (2006) what is interesting to explore at this stage is to the level of seriousness of disputation in the construction industry. A common indicator of level of seriousness which attracts immediate attention is the cost of dispute and this is now considered. Interestingly there are very reliable few studies on cost of disputes and thus very little justification for implementation of these approaches in terms of quantification of costs and measured savings to be achieved.

3.1 Quantification of severity of dispute occurrences

Gebken (2006) noted that despite the construction industry being "…keenly focused on quantitative results, parties involved in the purchase or construction of capital projects frequently fail to analyse the actual costs associated with dispute occurrences through both their frequency and severity (Adrian, 1988)." It is often claimed that it is an industry which is increasingly litigious in nature and yet little quantitative data has been collected and analysed to prove such claims.

Some of the discussion concerning the cost of disputes considers rather than the cost of disputes the reverse philosophy which is the quantification of not having disputes that is, the savings in resources when there are no disputes. This is perhaps a rather difficult concept to really quantify but in broad terms such notable claims include the USA Construction Industry Institute (1996) study of partnering relationships which identified significant (typically in the range 10% to 20%) time and project cost benefits achieved on certain partnering projects, plus for example man hour reduction of 40% on identical projects and a 50% reduction in engineering rework. (Walker and Hampson's, 2003). Walker and Hampson (2003) also cite quantitative time and cost information regarding certain alliance projects as well.

These types of studies rely upon an underlying proposition that there is a cause and effect relationship between the wasted resources and the type of procurement strategy for a project. These types of procurement strategies of alliancing and partnering have been intended to provide a different environment on projects to support and nurture an underlying cultural shift. Of course these are not the only strategies which diffuse a change in behaviour by those involved on projects and this discussion is taken up again later in this literature review. However they appear to be one approach which support a reduction in disputes on projects. Perhaps this suggests that the cause and effect is much deeper than simply a "band-aid" of a particular construction contract or procurement strategy and it points to a deeper commercial problem on projects which is the way in which risk is allocated on projects.

Towards attempting to quantify the impact of destructive conflict from constructive conflict and avoidable from necessary claims Kumaraswamy (1997) examined construction claims and attempted to estimate the relative significance of claims in terms of magnitude and frequency. The study was conducted on data collected from 61 projects in Hong Kong. Claims were defined in the similar manner as we have defined a claim earlier in this literature review. The study sought to identify the type of claims that were most prevalent on projects. Claims were categorised - 19 cost type claims and 11 time type claims. Then to assess relative magnitude all cost claims in a certain category [eg CC1 ambiguity in documents, CC9 delayed possession of works; CC17 Engineer's instructions to change etc] on a certain project were added together and the total value reflected as a percentage of original contract value in respect of each project. A similar process was completed for time claims.

The real objective of the study was to go further than simply quantify the time and cost claims and was to identify and classify the causes of claims and what Kumaraswamy eventually identified as root and proximate causes. This was an attempt to unravel the cause-effect relationship of claims so that ultimately one could isolate and control the root causes. The assumption was that if the root causes were known then we would be able to begin to differentiate between the unavoidable/necessary from the avoidable/unnecessary claims and then perhaps seek ways to address these early on in projects. A further discussion on the common causes of claims and disputes arising from this study is taken up in the Section 4 Sources of Disputes.

The other interesting aspect to Kumaraswamy's (1997) study was a questionnaire which received 46 responses from 21 clients, 8 contractors and 17 consultants surveying their perceived significance of common causes of construction claims. Perhaps what is most telling about the results is that there is a high degree of disagreement between the three groups. Contractors ranked inaccurate design information as the most significant cause of claims and so did consultants however clients listed uncontrollable external events as the most significant cause and ranked inaccurate design information fourth. A summary of the findings is presented:

Table 3.1 Perceived significance of common causes of claims, as perceived by contractors, clients and consultants and listed in descending order of overall perceived significance (Source: Kumaraswamy, 1997)

Cause	Contractors	Clients	Consultants
Inaccurate design information	1	4	1
Inadequate design information	4	2	5
Inadequate site investigations	5	5	4
Slow client response [decisions]	3	11	6
Poor communications	10	12	2
Unrealistic time targets	2	7	12
Inadequate contract administration	15	3	3
Uncontrollable external events	12	1	10
Incomplete tender information	6	13	8
Unclear risk allocation	7	6	11

The quantification of costs of disputes in this study focused on examining the total cost/time impacts on a project. The "cost" of disputes is not only those costs which can be directly attributable to a claim but also transactional costs.

According to Gebken et al 92006) given that there is a movement away from litigation and towards less adversarial alternative dispute resolution techniques "… it is necessary to develop a system to analyse both the quantitative and qualitative impacts of dispute resolution options." His study examined transactional costs with the aim of providing information to practitioners to assist in their evaluation of various ADR techniques quantitatively in relation to money and time.

3.2 Quantification of costs for dispute resolution procedures

One of the most notable studies in recent years which attempted to quantify the costs arising from dispute resolution procedures was that conducted by Gebken et al (2006) in the US construction industry in 2005-2006. **Although with limitations,** this is perhaps a seminal study in the construction management literature and worthy to consider in detail as it begins to provide some powerful statistics and "hard data" to support the significance of the problem of disputation. However more importantly the study began to unravel the complexity of the costs of disputes and develop some useful information to make worthwhile comparisons between different ways that disputes are currently managed by the industry.

In this study data was collected from 46 completed construction projects which amounted to US $2billion of total project costs. This study was significant in that it quantified the transactional costs resulting from disputes on projects. It is also significant in that it has brought some clarity in the type of costs that arise and attempted to discriminate between those costs related to the type of dispute resolution system.

Transactional costs are defined as the costs that are incurred because of the presence of a dispute including direct costs (such as fees and expenses paid to lawyers, accountants, claims consultants, and other experts), indirect costs (such as salaries and associated overheads of in-house lawyers, company managers, and other employees who have to assemble the facts, serve as witnesses and otherwise process the dispute) and (to the extent that they can be measured) hidden costs (such as the inefficiencies, delays, loss of quality that disputes cause to the construction process itself, and the cost of strained business relations between the contracting parties).

As noted some sophisticated contractors and owners may track management and staff time spent managing potential disputes, the majority of organisations do not document additional time and money spent on resolving a dispute until lawyers become involved and litigation or arbitration is likely. Gebken et al (2006) attempted in an exploratory study to analyse and "… quantify the costs associated with resolving a dispute once resolution responsibility had left the project team."

The study was a collaboration between the American Arbitration Association's National Construction Dispute Resolution Committee, the American College of Construction Lawyers, the International Institute for Conflict Prevention and Resolution, the National Academy of Construction and the Centre for Construction Industry Studies. Data was collected from 57 organisations and 46 projects. Only "hard dollar" figures were used and monetary estimates of injured business relationships, tarnished reputations, and other qualitative issues are not included in this study.

Over $35M were observed in transactional costs and through observation of the aggregate data (the sum of the total costs) this equates to 15% of the settlements/award amounts, 6% of the original claims and almost 2% of entire contract amount. These figures are only from one party and so account for only "half" of the conflict resolution efforts. Gebken (2006) estimated that given that the construction industry accounts for approximately $1.1 trillion of the US economy (US Census Bureau 2005) and that this sample represented between 10-30% of all construction projects, the money spent on transactional costs for dispute resolution may total $4 to 12 billion or more each year. The estimate was based upon an extension and extrapolation of the data analysis conducted in the study however, Gebken noted that it was within the same range as that predicted by Michel (1998) some eight years earlier who estimated that the transactional costs of claims may total approximately $11billion. It is somewhat challengeable that this extrapolation is in "the same range" however if we accept that transactional costs can amount to 2% of the total contract sum of the projects in the study this clearly indicates that the sheer volume of transactional costs is staggering.

3.3 Indirect costs arising from dispute avoidance

Costs can arise on projects in relation to the dispute environment whereby the dispute/claim is resolved and so there is no eventual clear identifiable claim or dispute cost. Some of these costs are as follows:

- Costs arising from rework
- Cost arising from reduced onsite productivity
- Firm organisational costs to resource senior level management time allocated to resolving conflicts
- Cost to reputation
- Cost to due to delays and inefficiencies
- Costs arising from loss of quality

- Cost of strained business relations between the contracting parties

We have not sighted any studies which have attempted to quantify the indirect costs arising from dispute avoidance.

Although no data has been uncovered in relation to these various costs it is worthwhile to reflect upon recent findings of a 2006 survey of the Australian construction and infrastructure projects by Blake Dawson Waldron in collaboration with the Australian Constructors Association. The survey participants were contractors, developers, state and federal government employees, financiers, private sector principals and consultants who have been involved in Australian construction or infrastructure projects worth $20Million or more in the time period 2002-2005. Participants were surveyed from October 2005 till January 2006 and there were 190 respondents.

A significant finding of the survey was that the overwhelming majority of respondents said they had 'invoked a dispute resolution process in their projects' and that the project level negotiation (72%) and executive negotiation (59%) are the two most commonly used dispute resolution methods. There is an overall preference for negotiated dispute resolution methods to agree on an outcome to disputes, rather than having a third party impose a decision with considerable time and cost implications to both parties. The cost of resolving a dispute when it is decided by a third party is often seen as outweighing the benefits.

However this needs to be seen in light of two other key points; firstly although the cost of resorting to a third party is not borne during the negotiation process is there still a considerable cost to the parties involved which are somewhat 'hidden' and not quantified. Second, even though the direct cost is reduced does this ultimately lead to a satisfactory outcome?

According to the findings;

Less than half of the survey respondents are satisfied that the dispute resolution methods are used are effective in terms of cost, outcome, time and process.

'In projects surveyed 41% of disputes took up to three months to resolve. Of the most common methods of dispute resolution 72% of disputes settled by project level negotiation and 59% of disputes settled by executive negotiation are resolved in less than three months. Of the disputes not settled in less than three months 16% took over 12 months to resolve. If we consider the impact of this on a project for the best case scenario – ie for a period of three months project participants and perhaps senior executives within companies involved on projects are involved in resolving disputes. The impact upon the project performance productivity would be considerable and also the impact upon other business operations would be seriously impeded as senior executives are taken away from more productive and strategic aspects of the organisation. The impact of a dispute which took over 12 months to resolve could in many cases be crippling to the organisation.

A reason for a delay of over 12 months is the time needed to complete prescribed dispute resolution procedures which involve a third party to either facilitate a negotiated outcome or to impose a decision that resolves the dispute, for example through litigation or arbitration.

With regards to satisfactory outcomes; only 33% of respondents were happy with dispute resolution procedures in terms of time, 39% in terms of cost, 22% in terms of process and 42% in terms of outcome – largely indicating a key finding of the study; there is widespread dissatisfaction in dispute resolution outcomes. Also in projects worth $200-500million only 9% of respondents are satisfied that the dispute resolution process used is effective and in contrast for the respondents in the $20-50million range it is 25% and for the $50-200 million it is 24%. In conclusion, for this particular set of respondents, the larger the project the bigger the dispute tends to be and as a result the greater the risk, time and costs involved in seeking to resolve it. Dispute resolution regimes are typically prescribed in the project

delivery methods and in particular in the contracts – it seems that insufficient attention is being given to the dispute resolution clauses at the time of contract preparation and negotiation.

4. Sources of disputes

If we accept that there is little doubt that the costs of disputes is significant, or at least that it is wasted resources that can be allocated elsewhere, then this must be addressed in some manner. It is worthwhile at this point to consider then the studies that have explored the reasons why disputes occur and therefore this section is devoted to highlighting the key literature which discusses sources of disputes.

4.1 Root vs proximate causes

A summary of the studies of the sources of disputes was developed by Fenn et al (1997) which provides a 'snapshot' of the literature and is reproduced in Table 4.1 which is modified from Kumaraswamy (1997). This is illustrative of much of the literature which takes a very pragmatic approach to dispute identification. It seems to be highly arbitrary, highly selective and lacking any theoretical grounding. The summary table perhaps raises more questions than it answers; for example is Sykes' categorisation of dispute sources of "misunderstandings" really the same as Bristow and Vasilopoulos' "unrealistic expectations" – we would assume that it is. It also must be noted that at times the authors used the terms claim and dispute interchangeably and at times differentiated. The studies were quite diverse in their methodological approach in attempting to uncover the sources of disputes; ranging from simplistic perception surveys of the industry to analysis of 'hard' quantifiable project data on disputes to review and consideration of secondary published legal cases.

If we look more closely at the studies we can see that many of the sources of disputes are anticipated and are directly related or immediately apparent and other categories of types of causes which give rise to construction claims or disputes in general. Weather, change of scope, payment, workmanship, quality, documentation are not unexpected sources of disputes. It is also quite clear that project initiation and definition are important in projects as misunderstandings, unrealistic expectations, lack of team spirit, change of scope, communications, inadequate contract documentation are sources which have been identified which can relate to the initial starting conditions of a project and are more general in nature. Kumaraswamy (1997) attempted to differentiate causes of claims and disputes into root causes and proximate causes. He defined proximate causes as those that were immediately apparent and differentiated these from the underlying root causes; an example of a proximate cause is changes by client and a root cause as clients lack of information or decisiveness. However he did not actually trace and isolate the critical causes that give rise to significant categories of claims. He only stated that it appeared that almost all the proximate and root causes are controllable to a certain extent." However he did concede that it is "…unlikely that all potential causes can be adequately controlled simultaneously, given the multiple interacting subsystems and variables in any project".

At this stage it is probably useful to reflect upon Kumaraswamy's (1997) summary of common sources of construction claims and disputes whereby he suggested that there were root causes and proximate causes. We may not necessarily agree with the completed listing however this is a useful framework to consider the complex inter relationships between the way in which we approach projects and the flow on effect that initial set up conditions of resourcing and project constraints, shared leadership and collaborative approaches and a general problem solving culture can influence, support or negate effective strategies to prevent disputes.

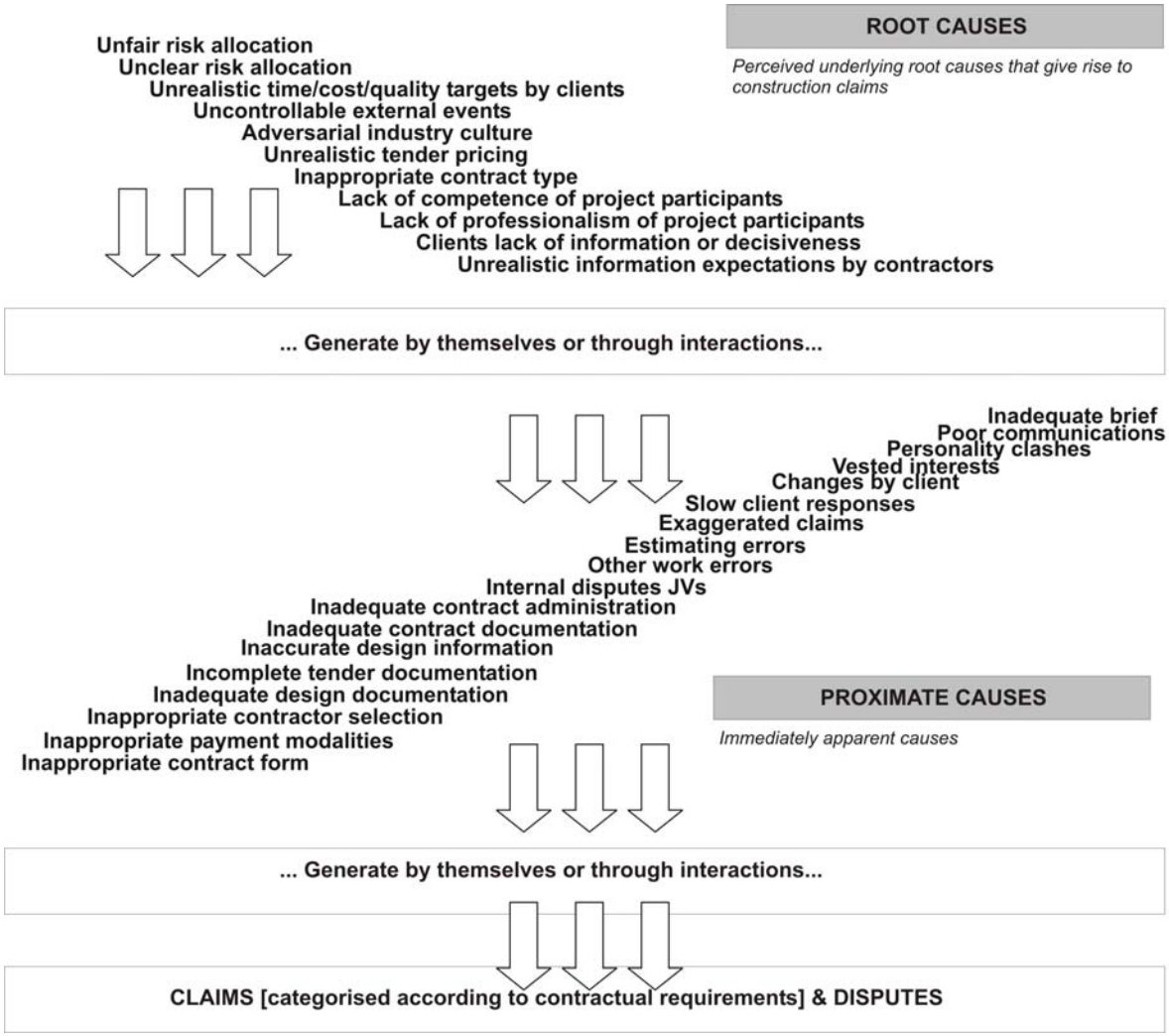


Figure 2.2 Common sources of construction claims and disputes [Source: Kumaraswamy,M. 1997, p104]

Table 4.1 Literature and the sources of disputes

Authors	Year	Sources of disputes
Blake Dawson Waldron	2006	10 key issues in disputes: 1. variations to scope 2. contract interpretation 3. EOT claims 4. Site conditions 5. Late, incomplete or substandard information 6. NA/ or didn't know 7. Obtaining approvals 8. Site access 9. Quality of design 10. Availability of resources
Cheung and Yui,	2006	Faulty Tree [fuzzy logic] model of root causes of disputes [assumption that conflict is inevitable] 3 areas: 1. Conflict: Task interdependency, differentiations, communication obstacles, tensions, personality traits 2. Triggering events: Non performance, payment, time 3. Contract Provision
Yiu and Cheung	2004	33 dispute sources identified [literature] & were ranked. 2 categories: 1. Construction related: 24 items 2. Human behaviour related: 9 items Ranked from survey data and results: Significant sources: Human behaviour parties:expectations and inter parties' problems construction related: variation and delay in work progress
Kumaraswamy 61 projects in Hong Kong	1997	11 Time claim categories and 19 cost claim categories giving rise to two main groupings of causes of disputes and claims: root causes and proximate causes
Conlin et al	1996	Six areas:

438 dispute events on 21 projects in the UK		1. payment and budget; 2. performance; 3. delay and time; 4. negligence; 5. quality; 6. administration
Sykes	1996	Two major groupings of claims and disputes: 1. misunderstandings [8 specific reasons/examples]; 2. unpredictability [with 17 specific reasons/examples]
Bristow and Vasilopoulos Ontario, Canada	1995	Five primary causes of claims: 1. unrealistic expectations by parties; 2. ambiguous contract documents; 3. poor communications between project participants; 4. lack of team spirit; 5. failure of participants to deal promptly with changes and unexpected outcomes
Diekman et al	1994	Three areas: 1. people; 2. process; 3. product
Heath et al Survey of 28 quantity surveyors and five case studies in the UK	1994	Five main categories of claims: 1. Extension of time 2. Variations in quantities 3. Variations in specifications 4. Drawing changes 5. others Seven main types of disputes: 1. contract terms 2. payments; 3. variations;

		4. extensions of time; 5. nomination 6. renomination; 7. availability of information
Rhys Jones General survey of construction industry and lawyers	1994	8. Ten factors in the development of disputes: 9. Poor management 10. Adversarial culture 11. Poor communications 12. Inadequate design 13. Economic environment 14. Unrealistic tendering 15. Influence of lawyers 16. Unrealistic client expectations 17. Inadequate contract drafting 18. Poor workmanship
Semple et al 24 projects in Western Canada	1994	Six commons categories of dispute claims: 1. Premium time 2. Equipment costs 3. Financing costs 4. Loss of revenue 5. Loss of productivity 6. Site overhead Four common causes of claims: 1. acceleration; 2. restricted access; 3. weather/cold; 4. increase in scope
Watts and Scrivener 72 judgements from 56 construction litigation	1992	59 categories of disputes and 117 ‘sources’ of disputes. Most frequent sources include claims arising from: 1. variations 2. negligence in tort

cases in Australia		3. delays
Hewitt	1991	Six areas: 1. change of scope; 2. change conditions; 3. delay; 4. disruption 5. acceleration; 6. termination
Diekmann and Nelson 427 claims on 22 [federally administered] projects in USA	1985	Most commons cause of contract claims: 1. design errors [46%] 2. discretionary or mandatory changes [26%] 3. Other specific claims types [entitlement issues] included; 4. Differing site conditions 5. Weather 6. Strikes 7. Value engineering

4.2 Root causes of disputes

It was concluded that further study was needed to establish significant claims so that management attention may be focussed on attempts to control the corresponding causes and reduce such claims. Clearly Table 4.1 highlights that there are past studies then that tend towards identifying the proximate causes of disputes and then studies that attempt to identify root causes of disputes. There are studies which are tending towards a diagnostic approach to dispute causes – ie deeper underlying structural, behavioural and cultural characteristics which pervade the industry, relationships between firms and project environments rather than the immediate proximate or apparent symptom at the core of a dispute which has resulted in litigation or undergone some form of a dispute resolution process. Root causes can also been viewed as factors influencing dispute resolution and avoidance.

The Construction Dispute Resolution Research Unit (CDRRU), City University, Hong Kong is one of the few research unit worldwide with a research focus on 'construction dispute management'. The output of publications over the last five years from the Unit is extensive and forms a comprehensive picture of the extent of the Unit's research interests. Whilst the research directions of the Unit will to some extent be driven by the research interests and research backgrounds of the individual Unit members, a brief résumé of some of the key papers provides an insight into research sophistication in the field.

There would appear to be a relatively consistent research methodology which the Unit deploys on most research questions in avoidance, disputation and resolution. This methodology is typically described by Wong and Cheung (2005) in their paper ' Structural Equation Model of Trust and Partnering Success' viz.

"To achieve the research objective, the following methodologies were developed. First metrics were developed to measure trust among project partners, then metrics for project partnering success were also developed, and subsequently a questionnaire survey was developed and administered to measure trust among project partners and partnering success".

This approach of conducting an analysis of the published data to identify key issues which then become the basis of a questionnaire which is then administered to industry players would appear to be a tried and tested approach which yields robust data sets (Yiu and Cheung, 2004, Wong and Cheung, 2005, Wong and Cheung, 2004, Cheung and Yui, 2006). The data resulting from this approach is then analysed using a variety of statistical techniques ranging from simple descriptive statistical analysis and Relative Importance Indices (RIIs) (Yiu and Cheung, 2004) to structural equation modelling (SEM) (Wong and Cheung, 2005); Principal Component Factor Analysis (PCFA) (Wong and Cheung, 2004); Analytical Heirachy Process (AHP) (Cheung and Suen, 2002) and recently the use of a fuzzy fault tree model to predict the probability of the occurrence of a construction dispute. The important contribution of this work to field of dispute resolution and avoidance literature is a deeper questioning of the root causes of disputes. The analysis used is typically a diagnostic approach and seeks to identify complex interactions taking place between variables.

5. Industry reform to improve adversarial environment

There have been two major approaches which have sought to address the problem of disputation in the construction industry. Although they tend to overlap and do not have to be categorised as distinct areas one grouping of approaches to dispute resolution can include alternative dispute resolution processes such as mediation, arbitration, negotiation or dispute review boards. The second grouping of dispute avoidance or prevention can include other strategies such as partnering, relational contracting, stakeholder management, alignment, alliancing, lean construction and supply chain management. We have seen a rise in the last decade of various approaches to manage conflict and to create project environments which would support success and this is a much far reaching field of literature that literally has no boundaries. This has developed in parallel to the other literature on dispute resolution processes. Considerable progress has been made in the area of dispute resolution and in particular in are of dispute control. Dispute control mechanisms have been extensively explored in the literature however their use if far from extensive in the industry.

5.1 Overview

In Australia there have been numerous industry initiatives since the late 1980s which have sought to investigate the problems of the industry and then develop strategies and actions to take the recommendations arising from the investigations forward. The introduction of some of the more significant strategies listed above [lean construction, partnering, supply chain management, alliancing] can be mapped to key investigations and/or initiatives aimed at industry reform.

This is an international phenomenon – for example, the United Kingdom has periodically analysed it's building and construction industry as far back as 1944 with the Simon Report, The Emmerson Report in 1962, the Banwell Report in 1964, Wood (1975) and the NEDO Report in 1988 – and more recently in 1994 The Latham Report and then in 1998 The Egan Report. For a more complete analysis of the UK studies Rogan (1999) and more recently an extensive critique of the UK government reports from 1944-98 has been published by Murray and Langford (2003). Lean construction and supply chain management became much more significant in the UK property and construction industry in comparison to the Australian construction industry where it has had less enthusiastic uptake. Egan was a champion of lean construction and supply chain management and was wholeheartedly supported by BAA and hence implementation of a theoretical management concept became a reality with the support of two such significant clients [UK federal and municipal governments and BAA largest airline and second largest client at the time].

5.2 Australian initiatives to address adversarial culture

Contemporary reform in the Australian building and construction industry can be traced back to the late 1980s (Cole, 2002). A brief history of building and construction industry reform in Australia was developed and reported in the 2002 Royal Commission into the Building and Construction Industry Cole and reported in Discussion Paper 15. This overview provided a case study of three countries, Australia, United Kingdom and Singapore and compared the reform processes underway in each of these countries from the period 1988 till 2002. Figure 5.1 builds upon the work undertaken for the Commission and updates till 2007. Reform initiatives are often an event which can trigger significant change in policy, process and/or practice. For example, it is important to note that similar to the UK reform processes and subsequent uptake of lean construction and supply chain management in Australia the introduction of partnering to the Australian construction industry is largely attributed to Cole.

The overview of the history of the various initiatives provides a useful context to understand both the performance of the industry and the attempts to assess and then improve performance at an industry level. Within the context of this literature review it is useful to understand attempts to improve the performance of the industry from both a positive and

negative viewpoint in relation to our key topic of interest: dispute avoidance and resolution; ie the identification of factors which give rise to disputation in the building and construction industry and the factors affecting or enabling successful project performance.

5.2.1 No Dispute

In the 1980's, Australia experienced a building boom subsequently associated with an immense increase in the incidence of claims and disputes within the construction industry. This shift inevitably lead to a vast increases in litigation and promoted an environment of 'aggressive and confrontational relationships'. The change in the working building environment was viewed by industry bodies as being highly inefficient with adverse effects to construction projects as a consequence.

The Research Report "Strategies for the Reduction of Claims and Disputes in the Construction Industry" published in November 1988 was the first major investigative study conducted in response to the increase in litigation. It was conducted by a team of senior representatives from the Australian Federation of Construction Contractors, the Australian Institute of Quantity Surveyors and Federal and State Government Construction Authorities. This team identified the major causes of claims and disputes in construction projects. The outcome was the identification of a number of strategies recommended for facilitating the settlement of legitimate claims "quickly and fairly" and to help minimize the occurrence of claims and disputes.

The findings in the report created major interest in the industry and were viewed as 'making a major contribution to the solution of problems' in the construction industry. This prompted the government to establish a 'Joint Working Party' with the objectives of researching how the recommendations developed in the 1988 Research Report can be implemented in the Australian construction industry. The overall aim was to develop "co-operative proposals for changes in the practices of the building and construction industry which would lead to improved practices, and better quality work, with the over-riding aim of achieving a reduction in claims and disputes.' (NPWC/NBCC 1990)

The outcomes of this investigation were compiled in a report called 'No Dispute'. No Dispute identified strategies for best practice in a range of topic areas but specifically considered the preparation and content of general conditions of contract. The report highlighted a number of issues that contribute to claims and issues involved with the resolution of claim disputes.

Specifically No Dispute identified several inefficiencies within the current provision utilized by standard forms of contract for dispute resolution. It identified that the current systems of arbitration and litigation were too formal and adversarial. Although research has established that these systems produce a satisfactory outcome this is outweighed by the excessive legal cost and time needed for such processes. This was also exacerbated by the excessive number of commercial disputes at the time, consequently causing long waiting periods for a hearing. The recommendation to alleviate the above was to impose negotiation as first step in the resolution process followed by alternative resolution processes with Arbitration and litigation being the last resort. No Dispute also recommended that contracts impose strict time limits for the above dispute resolution process to ensure delays are minimised. A key component to success for these recommendations is that the conflicting parties have a desire to resolve the issue due to the voluntary nature of alternative dispute processes.

A notable result of this report was the revising of the governments' current standard contracts such as AS 2124 -1986 in 1992 and more recently revising of AS 2124 -1992 which has lead to the new version AS 4000 - 1997. This revision provided for a dispute resolution system that included two (2) alternative provisions containing a provision for negotiation. These provisions are also constrained by strict timeframes that if not followed could time bar a party which can detriment their claim or defence.

5.2.2 Integration and collaborative cultures

The 2001 Report and Implementation on “Wealth Creation through Equitable Asset Delivery” was an important document which defined an equitable and efficient delivery which relied upon six key principles including; customer focus, optimum use of information, leadership, process improvement, people involvement and strong supplier relations. This report clearly identified that “There are already clear indications that some end-users, both government s and industrial corporations have become disillusioned with the conflict and confrontation that characterise many construction projects, and are moving to induce a cultural change in the industry” (Construction Qld, 2001). Most interesting in that particular document is the comment that cultural change is a long term process and that attitudinal and behavioural changes can take several years. A series of indicators were provided which were qualitative in nature but highlighted the attitudinal and behavioural change outcomes arising from moving the mindset of project participants from “participants constructing a project” to “participants delivering end-user services from assets.” A study described in this report which explored the characteristics of 28 successful [“excellent”] projects in Australia [of which 9 were located in Qld] - information was obtained through interviews with key project participants. The most important and widely recurring success drivers for these projects were found to be:

- Client leadership [100% of projects]
- Trusting relationships [96%]
- Project Initiation [78%]
- Team selection [74%]
- Value management [67%]
- Stakeholder involvement [37%]
- Understanding client’s business [37%]
- Open communication [29%]
- Equitable sharing of risk [26%]
- Client staff support [22%]
- Integrated supply chain [19%]

Integration has strongly figured as an important part of changing the culture and achieving project success. There is no end to the research papers and studies which have espoused the idea of integration. This was a particularly strong idea in the reform work advocated in the Rethinking Construction: The report of the Construction Task Force 1998” and the ”Accelerating Change report by the Strategic Forum for Construction chaired by Egan. A particularly interesting aspect to the UK work is the use of the Demonstration Projects program. There were claims regarding the impact of the Demonstration projects among participants including;

More than two thirds reported improved partnering, procurement or supply change management skills in their organisation

More than half reported that their organisations had made changes in eight specific area of their business as a results and

More than two thirds of participating individuals felt that they had been at the cutting edge of construction innovation and had learned new skills.

Supporting these claims were quantitative figures on performance improvement including:

- profitability performance improvements of 2% translated to £120M,
- reduced construction costs of 4% on demonstration projects translating to £240M,
- reduced costs of accidents from demonstration projects £255M,

Note: There are more Performance measures provided by the Demonstration Project projects which can be found documented in the Industry Progress Report 2002. [refer to web: www.rethinkingconstruction.org]

So what were these key drivers on the Demonstration Projects? Over time there has been an apparent level of success reported in the uptake of the key concepts initiated by Egan. Of particular interest to this project is the work resulting from the Strategic Forum for Construction provided in the report "Accelerating Change". The Strategic Forum identified three main drivers to accelerate change and secure a culture of continuous improvement:

1. The need for client leadership
2. The need for integrated teams and supply chains
3. The need to address 'people issues'

An important part of the work was the concept of supply chain integration which also included a critical role for the client in the supply chain. "An integrated supply team includes the client, as well as those involved in the delivery process who are pivotal in providing solutions that will meet client requirements. Thus those involved in asset development, designing, manufacturing, assembling, and constructing, providing, operating and maintaining will have the opportunity to add maximum value by being integrated around common objectives, processes, culture/values and reward and risk." (Egan, 2002) There was a great deal of enthusiasm for the idea of lean construction borrowed from the manufacturing industry and lean production systems [Toyota Production System] and the underpinning context of supply chain management at the time.

It is naïve to think that value and wealth creation can be achieved by simply seeking to integrate the supply chain. The Egan report spawned an intensive research activity in the UK as well as a series of Task Forces and various Forums to take the recommendations forward. At a first glance the research which emerged appeared to be grouped in the following broad categories:

1. Reduce waste, improve efficiencies and develop innovative practices leading to lean construction and supply chain management research
2. Clarity in processes, project stages and roles leading to research in client briefing/roles/capabilities and process protocols
3. Information Communication Technology innovations including virtual modelling, building information modelling, nD modelling etc

With the benefit of hindsight there has been a high level of criticism of the lean construction and supply chain management research movement. The research tended to borrow unrealistic models from other sectors without a deeper understanding of the underlying structural and behavioural characteristics of the current supply chains – which as noted previously thus lead to London's work in developing an information economic model of the

organisation of construction supply chains which resulted in supply chain product and service flow maps of 9 major sectors which underpin the Australian construction industry. The maps highlight the procurement paths and shed light on why firms behave the way they do on projects in relation to the market structure. Perhaps the most telling critique which serves as a worthwhile reminder to us is provided by Cox and Townsend (1998);

"It is our view that if the Latham report and the somewhat naïve research industry into automotive partnerships and lean and agile manufacturing processes that it has spawned, had devoted more time to analysing and understanding the properties of the unique supply chains which make up the complex reality of the UK construction industry a greater service might have been done to value improvement in construction" (Cox and Townsend, 1998).

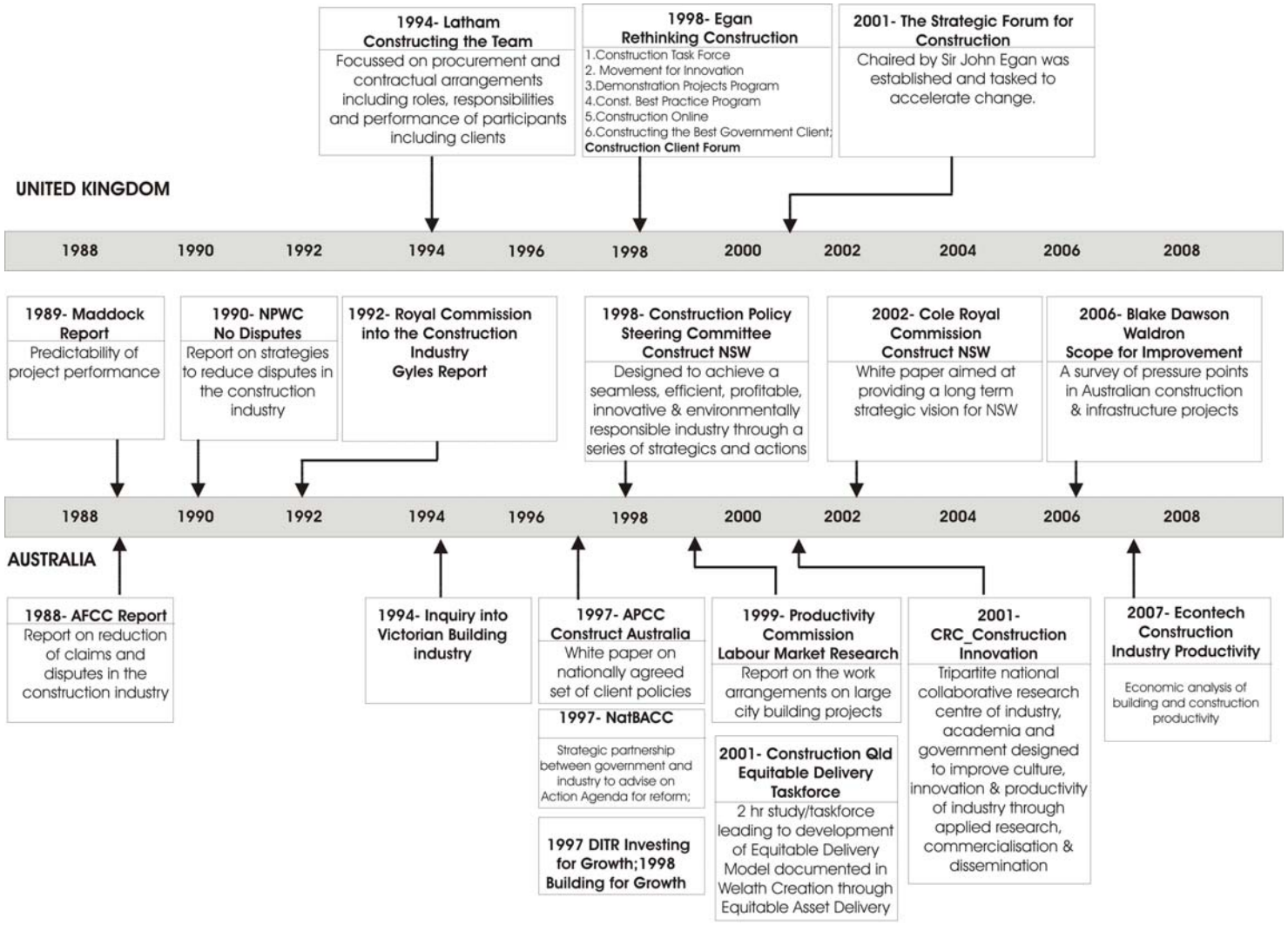
A detailed analysis of the understanding and approaches to the concept of supply chain management was conducted by London [2004]. London considered various governments approaches to the concepts of lean construction and supply chain management and mapped the Australian approach against a selected analysis of United Kingdom, Singaporean, South African and United States government led investigations and initiatives – each focussed on identifying these countries approach to, at the time, and their 'current thinking ' on supply chain management in relation to fragmentation, industry structural and behavioural characteristics, integration and specialisation concepts.

This review was aimed at identifying the key underlying trends in the approaches to government intervention in the construction industry in relation to market structural and firm and industry behavioural characteristics. The review identified two ends of the spectrum to the approaches and it is worthwhile repeating those findings here. The first approach seeks to underpin reform through the development of normative management models which ultimately attempt to *integrate* projects and reduce project fragmentation and thus assume that this will reduce industry wide supply chain fragmentation. This supports a homogenous view of the industry – one size fits all. The second approach seeks to underpin reform through the development of wider industry level positive economic models which ultimately attempt to understand market *specialisation* throughout the supply chain and identify key structural changes which would be required for behavioural change to occur. This supports a heterogenous view of the industry with diverse market structures, firm conduct and supply chain performance. This work relates to disputes in the building and construction industry because the understanding of the construction supply chain economics; ie the relationship between the markets at each tier in the supply chain provides a much greater holistic background to understanding the context with which firm procurement is undertaken at each tier and then ultimately the nature of the ensuing firm-firm relationships between firms in the supply chain. This is actually not contrary to the good intentions of espousing supply chain integration which was one of the fundamental tenets of the Egan era but we must not forget that Egan also identified tracking, mapping, measuring, targets and benchmarking to support and accelerate change – something that perhaps is too oft forgotten. This reflection upon reform approaches arose from a number of observations the most important of which was the observation of the response of the UK academic research community combined with the various Industry Forums/Task Forces to the 1998 UK Egan report and its various recommendations – particularly those in relation to the supply chain management concept.

Perhaps what is most interesting to reflect upon is that there is a plethora of initiatives which attempt to develop models and implementation guides. The work in the UK perhaps has the most dedicated approach to following through the impact on the entire industry of the various approaches and in particular in relation to trying to fundamentally change systemic problems in the industry and provide whole of industry rather than a piecemeal state by state or individual project approach and measure the impact of the changes in industry performance. Although there were individual demonstration projects they were across regions and involved whole supply chains and whole supply networks thus affecting the underlying structural and behavioural characteristics of the construction economy.

Figure 5.1 Historical Timeline of Key Government Reform Towards Industry Performance Improvement [Australia and the United Kingdom] provides a summary of the key investigations. Section 6 shall pick up some of these in discussing some broader management approaches which have been implemented in the anticipation that a cultural shift would prevail across the industry and thus reduce on a wide scale the level of disputation and improve the inherent adversarial culture.

Figure 5.1 Historical Timeline of Key Reform Initiatives Towards Industry Performance Improvement [Australia and the United Kingdom]



6. History and Development of Dispute Resolution processes

The historical development of the various strategies in relation to alternative dispute resolution processes such as mediation, arbitration, negotiation or dispute review boards is now discussed. In Section 6 we discuss alternative and more broader ways of thinking about creating the "right" environment to support the creative management of conflict, support innovation, reduce judiciable issues and non legitimate claims, improve productivity and reduce wasted resources.

As clearly presented in the earlier discussion conflict is an inevitable part of human behaviour (Maher 1994). However significant developments have occurred in Australia and internationally in dispute resolution processes in the last decade and this section provides a brief overview of those developments.

Court processes by means of litigation is traditionally the primary means of dispute resolution in the construction industry. Australia inherited the common law of England and Wales including the English court systems. Of importance is the English Arbitration Act 1697. This Act formalised arbitration in England by providing a procedure which enabled parties to a civil action to refer their matter to arbitration to be resolved as a judgement of the court (Astor & Chinkin 2002). Over time Australia has adapted to suit the needs of Australian industry and developed specialised courts and tribunal systems for resolving disputes (Fenn *et al* 1998).

The evolution of modern dispute resolution techniques is mainly accredited to the various techniques developed and implemented by institutions in the United States. The Arbitration Society of America was founded in 1922 by Francis Kellor as the first formal organisation to implement dispute resolution services. Two years later another organisation, the Arbitration Foundation was formed. With the backing and collaboration of the Arbitration Society the United States Arbitration Act was enacted in 1925. The Act provided the first legally enforceable framework for agreements to arbitrate over any 'controversy'. In 1926 the Arbitration Society and the Arbitration Foundation amalgamated to form the American Arbitration Association (AAA) which has become the prominent driving force for the development of dispute resolution services and guidelines. It is the AAA which provides guidance rules for arbitration clauses and procedures that the American Institute of Architects (AIA) has used arbitration in standard forms of contracts for over the past century.

Despite litigations and arbitrations ability to produce a final and binding decision, the construction industry has sought the establishment of informal processes for the quick and effective resolution of disputes. Alternative Dispute Resolution is providing various possibilities in lieu of the costly and time-consuming litigation. ADR is broadly defined as "…any method by which conflicts and disputes are resolved privately and other than through litigation in the public courts [Kovach, 2004]. ADR can include both binding and non binding procedures. The development of a sliding scale of ADR techniques has evolved over the years including a progression from self-deterministic to third part impose methods including negotiation , mediation, conciliation, neutral evaluation, expert determination, adjudication, arbitration and others [eg Cheeks, 2003; Cheung et al, 2000, International, 2001; Kellog, 1999; Office of Government Commerce, 2002; Vorster, 1993]."

The following figure 52 illustrates a continuum of dispute resolution procedures with control of the outcome compared to an assumed escalating degree of resolution costs and hostilities.

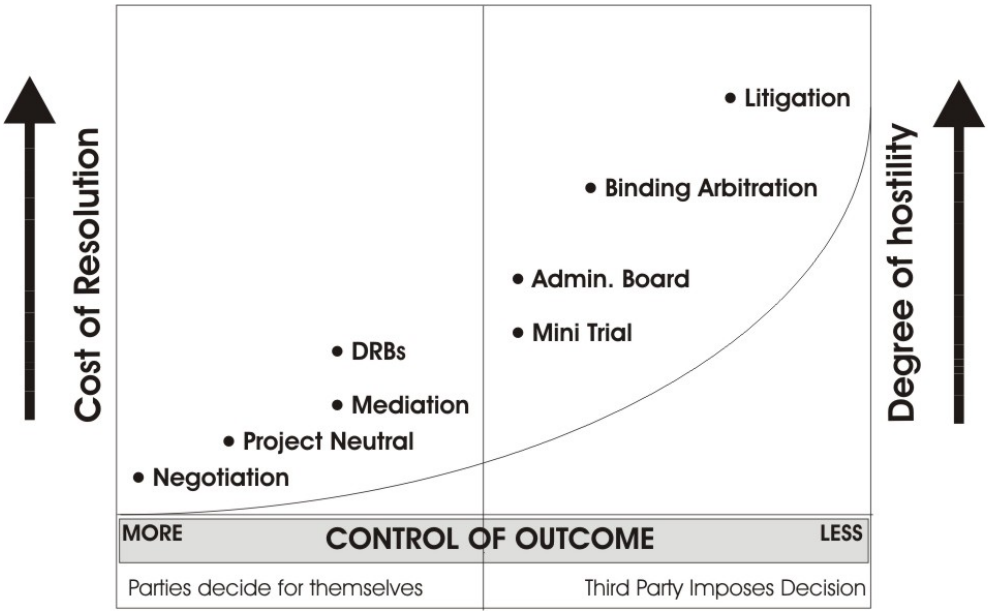


Figure 5.2: Dispute Resolution Continuum

The shift in focus towards processes outside the courts is mainly due to the adversarial nature of the litigation process. It's a process which has long been identified as being too costly, time consuming, disputing parties having little to no control over the process and extensive delays in court. Arbitration is the most widely accepted form of alternative dispute resolution outside the courts (Eilenberg, 2003). Recent discussion by many commentators has argued that arbitration should not be considered as alternative because arbitration has become too much like litigation (Jones 1995). This is due to the judicial processes and control by strict legislation which usually involves the representation by legal council.

Condliffe (2000) identified that the process of arbitration has been practiced in Australia since colonial times, however these early developments did not fully identify the full potential of ADR and it was not until late in the 70's that the renewed focus on the use of ADR processes began. This focus lead to the establishment of the Institute Arbitrators Australia (IAA) in 1975, after the success of the UK equivalent, the Chartered Institute of Arbitrators. The IAA brings people from various profession and industries to exchange views and information to promote the settlement of disputes by arbitration, mediation and conciliation. The IAA can be attributed for much of the developments associated with the growth of ADR in Australia. Since the formation of the IAA various other professional organizations have been established to facilitate the development of ADR, such organizations include: –

- Australian Commercial Dispute Centre
- Lawyers Engaged in Alternative Dispute Resolution
- Australian Dispute Resolution Association
- Building Dispute Practitioners Society
- National Dispute Centre

The evolution of ADR techniques and their impact on construction developments has been significant in recent years. Evidence of this evolvement can be observed through the creation and revision of dispute resolution clauses in standard forms of contract. Many professional bodies and major building companies are involved in the drafting of standard forms of

contract with the aim of providing a recognizable, equitable and flexible contract that can be applied to a wide range of projects. What confronts the industry in recent times is a multitude of ADR systems and hybrid techniques. One of the challenges now facing the industry is to give more attention to dispute resolution clauses at the time of contract preparation and negotiation as best exemplified by Blake Dawson Waldron (2006).

6.1 Methods of Dispute Resolution

There is an extensive range of dispute resolution techniques and processes available to a disputing party. Most frequently contracting parties will identify at the commencement of the contract the system or process for the resolution of any disputes. A disputing party has access to a myriad of procedures and resources for the resolution of a dispute. These procedures range from traditional court processes to alternative dispute resolution. As discussed earlier the evolution of dispute resolution processes has lead to the development of a range of Alternative Dispute Resolution processes.

"The success and general acceptance of these alternative methods have been so great that the courts themselves are now modifying there rules to allow such methods to be incorporated into their range of resolution options" (Fenn, et al, 1998)

Most dispute processes are user pays. As expressed in Figure 5.1, as the continuum moves into increasing levels of intervention and force it is generally assumed so does the associated costs. An advantageous dispute resolution process will ideally seek to settle a dispute with an acceptable outcome within the least amount of time, as cost effective as possible, with the least amount of resources and hopefully the preservation of the working relationship between both parties.

As noted previously, generally a dispute resolution process can fall into two main categories non-binding and binding. There are variations where a traditionally non-binding process can be contractually required to have a binding resolution. Finality of a resolution is critical for a successful outcome. The ability of a process to provide an agreed result or have a decision enforced by a third party can be considered futile if one party defaults by either non-compliance with the resolution or proceeds with separate action (This does not include the subject of appeal). Although this is not to say that non-binding mechanisms cannot provide an effective resolution method. On the contrary, literature suggests that these types of processes produce successful outcomes with methods such as mediation known to produce 85% success rates in construction disputes (Madden 2001). Furthermore Finlay (1998) suggests that non-binding processes are beneficial for the disputing participant and the industry because they produce "*acceptable results in a cost efficient and timely manner*"

Although a binding decision is advantageous in that the participants have certainty of outcome, the features associated with such process are typically non-flexible and reliant on third parties. The latter can also be advantageous for some participants as the responsibility is removed from the parties resulting in less emotional energy.

The key to establishing whether to proceed with non-binding process is dependent on the characteristics of the participants and the nature of the dispute. Jones (1998) states that the aim in selecting, structuring and conduction a non-binding resolution process is to first determine what barriers are applicable and employ strategies to overcome them.

The diverse range of methods of dispute resolution practised makes it difficult to discuss the universal applications. Not only are the traditional processes constantly evolving but there are also hybrid processes being utilised by various organisations and industries.

6.1.1 Negotiation

Negotiation is one of the most common form of dispute resolution. Finlay (1998) states that direct negotiation is the original, most cost effective and most reliable form of dispute resolution. Additionally, No Dispute recommended that negotiation is the most appropriate

method for resolving disputes and in more recent times it has been established that this is perhaps the more preferred dispute resolution systems (Blake et al, 2006). Most standard forms of contract include negotiation as the first step in the dispute resolution process. AS 2124 - 1992 requires the parties, following a notice of dispute, to confer at least once to attempt to obtain a resolution or settle on alternate methods to resolve. The process is non-binding unless the participants produce a legally binding contract at the conclusion of the negotiation.

Fisher & Ury (1981) define negotiation as "…a basic means of getting what you want from others. It is a back and forth communication designed to reach an agreement when you and the other side have some interest that are shared and others that are opposed"

The actual process of negotiation is not defined by any strict system. It can either be through direct discussion between the disputing parties or with assistance by a third party negotiator. However, typically negotiation needs no intervention unless the dispute is escalated to other dispute resolution processes. Direct negotiation between parties without third party assistance allows the disputants to retain their privacy and independence. Fenn *et al* (1998) describes negotiation as a consensual process requiring a willingness of both parties to understand the others standpoint and readiness to resolve. Despite the lack of a defined negotiation system, Eilenberg (2003) suggests a fixed set of rules and structure should be established before the commencement of negotiations.

Negotiation has the best potential to succeed where factors such as, the parties have a commitment to settle, the failure to settle may have severe consequences, the parties have their commercial interests at stake or the parties seek to remain in control of the process.

One view made by Tyrill (1996) identifies the possible disadvantages of negotiation due to the relative lack of negotiating skills in the construction industry particularly at a lower level. Additionally, negotiation may not be the ideal process where parties are displaying hostility between each other as it has the ability to amplify differences and confrontation.

One variation to direct negotiation is the system of elevation or stepped negotiation. This system encourages minor dispute to be settled at the lowest level with minimal delay. If the problem cannot be solved it is escalated to the next level of management. This process must be performed quickly with each level attempting to resolve or escalate. This system is useful where lower level employees are reluctant to decide, concede or make concessions for concern of there respective superior. Vertical and lateral authority or management levels must be identified to ensure rapid escalation of issues. Stepped negotiation is a system utilised in standard forms of contract where various levels of superintendent are nominated for escalation and in other forms of dispute avoidance systems such as partnering.

6.1.2 Conciliation, Facilitation and mediation

Conciliation, Facilitation and Mediation are terms used to describe dispute resolution processes that involve assisted negotiation through the use of a third party neutral. These processes are usually employed once the dispute has passed through the administrative procedures and negotiations have proved unsuccessful. Each process traditionally relies on a voluntary or genuine desire to resolve as any determination from these processes is made by the disputing parties themselves and any advisory or assistance by the third party neutral being totally non-binding. Consequently any unsettled dispute can be escalated to more formally binding processes including litigation.

Such processes have gained much acceptance and widespread utilization in many industries including the construction industry. The NSW government has made alternative dispute resolution processes mandatory for all government contracts. Mediation is also particularly useful for local government disputes such as development issues and customer complaints.

It is a little more difficult to define conciliation. The process is likened to mediation and in some instances the definitions of both can be used comparably with each other. Bailey (1998) and Holtham *et al* (1999) both state that the conventional distinction is that a conciliator will take on a more active role than a mediator and will attempt to talk the parties into an agreement by proposing solutions. However as with both process the third party (conciliator) does not make a binding decision. The scope of conciliation is also much broader than mediation as the conciliator does not necessarily meet together with the disputing parties, and can provide the likely solution or advice through private conferencing (Fenn, et al, 1998).

Facilitation, like conciliation is a process which is also hard to define due to the varying range of functions that this process can be applied. Jones (1996) suggests Facilitation can be considered a more active process than conciliation or negotiation. The role of the facilitator is to provide an impartial third party advisory service or recommend a resolution rather than merely letting them work it out for themselves. However NADRAC define the facilitators' role as a neutral third party who identifies issues to be solved and provides alternatives to reach an agreement. This description states that the facilitator has no advisory or determinative role.

Folberg and Taylor define mediation as

"the process by which the participants, together with the assistance of a neutral person or persons, systematically isolate disputed issues in order to develop options, consider alternatives, and reach a consensual settlement that will accommodate their needs"

A mediator takes on more active role in assisting negotiations than a conciliator would take on, however the mediator should have no advisory function. Ultimately the mediator does not impose any decision upon the parties but encourages identification of the issues and assists the parties to seek a resolution. Eilenberg (2003) makes the resemblance of a mediator as a circuit breaker, in that the mediator will intervene and suppress should the situation become aggressive. It is for this reason that it is not essential for a mediator to be an expert in the relevant field. Mediators are commonly trained in communications and negotiation skills and can commonly come from law or social working industries.

The resolution process is more confidential and private than negotiation due to the ability to provide evidence in separate meetings with the mediator. A party may not wish for certain commercial or personal facts being made public to the disputing party

In recent years the process of mediation has become more formalised and regulated with the introduction of guidelines and codes of practice for the use of mediation.

The actual mediation process is not strictly defined to any given system. Many of the above mentioned associations attempt in either there guidelines or training courses to provide an informal structure. A standard mediation process developed by the AAA shown in figure 3.

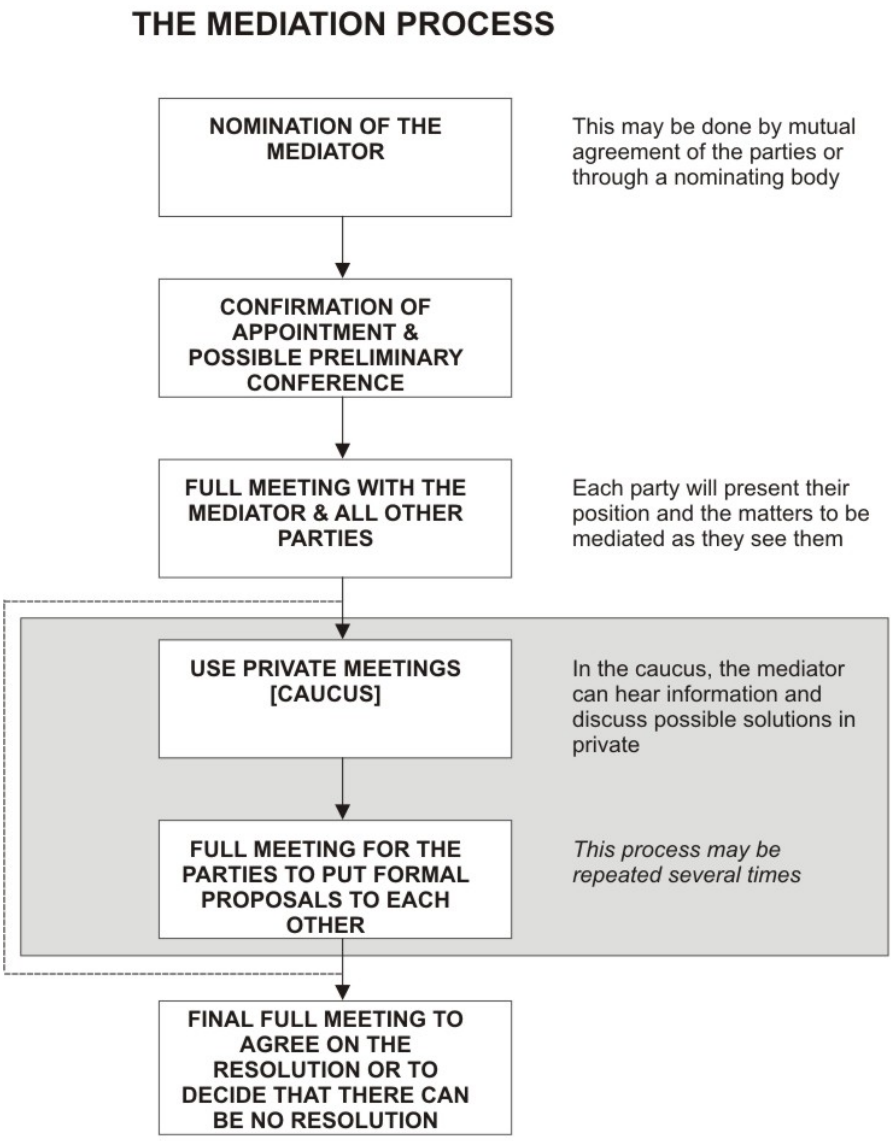


Figure 5.3: Model for the Mediation Process

The inherent risk with any of the above non-binding process is that the parties may not reach an agreement. The reasons for such failures are many and varied but the additional costs for non-binding processes must be considered before forcing or agreeing to participate where court procedures are likely to follow. Additionally being non-binding and considerably informal (i.e. outside the courts or tribunal systems) the processes may lack ethics and standards. Although this has been greatly addressed in recent times through the enforcement of standard codes of practice by industry associations.

The prevalence of dispute resolution clauses in construction contracts containing mediation has become common in recent times. The provision where participants are obliged to act in good faith and carryout the mediation process before being able to advance to arbitration or litigation.

The inclusion of various ADR clauses that involve voluntary, informal and self-determinative resolution procedures such as negotiation and mediation are evident in many of the standard forms of contract. However the inclusion of provisions containing such techniques is

argumentative. The main criterion for the successful resolution of issues through the application of techniques such as negotiation and mediation is a voluntary approach with an environment of cooperation and a willingness to resolve the problem. If provisions for dispute resolution techniques are included in the contract, unwilling parties can be forced into these procedures with no expectation of resolving the matter until a binding process. Tyrril (1996) highlighted this perception, "*Any unwilling party, participating in a mediation by presence only for the sake of form or procedure to comply with a contractually pre-agreed and required mediation, or court directed mediation, is unlikely to be conducive to a mediation worth the time and effort. Coerced mediations are often productive of failed mediations*". A conflicting opinion is identified by Jones (1998) that, if the parties are forced to execute the process of negotiation or mediation for a period of time before they can proceed with binding processes, they are likely to attempt to resolve the issue within that time.

With regard to the above it is also interesting to that Australian courts have embraced ADR and is now part of the courts infrastructure (Dearlove, 2000). The Supreme Court amendment Act 2000 provides the Supreme Court with the power to order disputing parties to mediation without their consent. Many other statues require mediation before other processes can proceed (Astor & Chinkin, 2002). Court-Annexed ADR as it known has become a widely debated topic. When describing or providing a definition of current ADR systems and even dispute avoidance techniques, all literature provide wording such as cooperation, voluntary, non-adversarial, goodwill, willingness to resolve, mutual aid, jointly acceptable. With these terms of positive mind-set, the outcomes of these voluntary, informal and self-determinative resolution processes are dependent on the attitudes of the parties when entering. Bering this in mind, having a pre-describe condition or judgment forcing a party into a voluntary/ non-binding processes can be considered futile and a delay. Parties who are unwilling to participate are usually unwilling to look for possible solutions and settle.

If a party is not willing to participate then they are not acting in good faith. The NSW Government have tried to legislate against this view by stating in the Supreme Court Amendment Act 2000:

"It is the duty of each party to the proceedings the subject of referral s.110k to participate, in good faith, in mediation or neutral evaluation."

Acting in Good Faith is also a weakness that can be exploited in mediation. Dearlove (2000) identifies that many litigators use these processes as an adversarial tool to identify flaws or weakness in the opponents' case.

The benefits for court Annexed ADR have also been highlighted including the courts ability to establish that forcing parties to mediation serves the best interest of the parties. Spencer (2000) gives the example where the court established that the continuance of the relationship is beneficial both personally and commercially. Overall the main benefits can be derived from the actual positives of mediation. The honourable Chief Justice Black (1996) suggested that despite initial opposition of one or more parties that the face-to-face opportunities that mediation present can be a valuable tool for the resolution of the dispute. Spencer acknowledged that "anecdotal evidence suggests that the ADR milieu itself can have a therapeutic effect on parties hell-bent for litigation"

6.1.3 Expert Determination

NADRAC define Expert determination as "a process in which the parties to a dispute present arguments and evidence to neutral third party chosen on the basis of their specialist qualification or experience on the subject matter of the dispute (the expert who makes the determination."

The task of the expert is to provide an objective independent and impartial assessment of the dispute through the investigation of facts or issues presented by the disputing parties. The judgement provided is a decision based on fact and not the personal opinion of the expert.

The process by which the expert structures the investigation is primarily governed by the expert and usually conditional on the type of dispute in question. The expert may meet privately with each party, together with both parties or determine the merits of the dispute purely through assessment of facts and statements.

This process is normally binding however dependent on the contractual situation of the parties. Most construction contracts requires the nomination of an independent expert or the nomination of a recognised organisation that will appoint a qualified expert. For a decision to be final the parties must agree whether expressed in the contract or prior the actual process. In recent years the process has gone through much development and such nominating organisations such as ACDC and the Institute of Arbitrators and Mediators have developed codes of conduct to regulate and define the process.

This process is advantageous where the dispute is technical in nature, contractual, valuation of work or a specialist area of work. This process can also be beneficial where the communication between the disputing participants has deteriorated and direct negotiation impractical.

Expert determination has certain advantages over mediation in that it satisfies the participants' needs for an impartial assessment consequently giving the process a more equitable appeal. There may be a power imbalance with more informal process leading to a reluctant resolution should a party be forced. However, Fenn *et al* (1998) states that expert determination can be a much more tedious and time consuming process due to the investigation and production of the independent report. Consequently the process has greater associated costs.

The process of having an independent third party determine the case on the merits of fact can be likened to arbitration. Jones (1996) provides the explanation that parties wish to exclude the operation of the Commercial Arbitration Act and the associated judicial procedures associated with the process. Consequently the parties still have control over the timing and to a certain extent over the cost of the process.

Expert Appraisal is a non-binding process which applies the same methods as expert determination however the expert does not make a binding judgement on the participants. The expert's role is to provide an advisory service to provide an impartial judgement on the facts which does not affect their rights to proceed with other forms of dispute resolution.

Expert appraisal can provide a key indication to what result may be obtained should the parties proceed to more formal processes such as arbitration or litigation. The outcome may encourage the parties to attempt to negotiate subsequent to establishing the strengths and weaknesses of each others case. Jones (1995) likens the process of expert appraisal to a form of 'reality check' for the disputing parties which may persuade them to re-evaluate their position should there case not be as strong as first thought.

6.2 Dispute Resolution Boards

Another form of ADR is the Dispute Resolution Board. From a practical perspective Dispute Boards must be established at the project outset. According to Gould (2006) this is a major challenge and one that is key to success as opposed to waiting for a dispute to arise. Potential candidates for the Board must be identified and appointed. Contractors and clients tend not to focus on disputes at the start of the project and when a dispute does arise they tend to take considerable time reaching agreement on the members and establishment of the Board. Ideally the Board should be established weeks before the project starts on site to enable them to follow and deal with arising issues. Establishing the Board can take some considerable time and therefore cannot be left until the project is underway. Board members must be impartial and have wide ranging expertise with excellent communication and management skills. It is also imperative that Board Members are available for the duration of the project to deal with matters promptly.

According to Menassa and Pena Mora [2007 in print] the "…DRB is a panel of three standing neutral advisors chosen by both the owner and the contractor prior to initiation of construction. Usually, the panel conducts routine site visits to monitor construction progress, as well as assist the owner and the contractor to resolve any outstanding issues and avoid their escalation to a dispute that might have adverse effects on the project schedule, budget and quality."

Dispute Resolution Boards are characterised by Gaitskell (2005) who identifies the following issues that differentiate the board procedure from other dispute resolution processes:

The conclusion given by the Dispute Board is only temporarily binding. If one or both parties wish to challenge the Board's determination then the dispute must be taken to arbitration or litigation. A Board's determination is not enforceable in the way arbitration is.

A Dispute Board should be appointed at the commencement of a project and stay in place until its conclusion.

The Board should meet at least 3 times a year.

The function of the Board should be to 'nip in the bud' problems before they develop into disputes.

If a dispute does arise then the Board should deal with it by making a recommendation.

The International Chamber of Commerce (ICC) published its 'Dispute Board Rules' in 2004 and according to Gaitskell (2005) they not only embody a statement of best practice for the conduct of Dispute Boards but they also have the added advantage for disputes that go beyond the Board's jurisdiction as there is a facility of ICC arbitration.

Peck and Dalland (2007) review the development history of Dispute Resolution Boards (DRBs) and highlight a number of key factors for success. They chart the beginnings of DRBs to the US and the Boundary Dam project in Washington in the 1960's. Initially, the use of DRBs in the 1970's and '80's focused on major infrastructure projects such as the Eisenhower Tunnel in Colorado and the El Cajon Dam in Honduras. More recently the World Bank published 'Procurement of Works' in 1990 which comprised a modified FIDIC contract with provisions for DRBs to publish non-binding recommendations. In 1995 FIDIC introduced a new version of the Design and Build Contract which incorporated the of Dispute Adjudication Boards (DAB) as a contract option.

Other notable milestones include:

The establishment of the DRB Foundation in 1996;

FIDIC revisions of its various contracts in 1999 with the DAB presented as the principle means of dispute resolution within the contract;

Revision of the 'Procurement of the Works' by the World Bank in 1999 which reinforced the recommendations of the DRB mandatory.

2000 American Arbitration Association (AAA) issued a Dispute Review Board Guidance Specification.

ICC issued its Dispute Board Rules.

2005 set of contract conditions known as FIDIC Harmonised Edition of the Construction Contract that utilised DRBs.

With regards to the likes of DRBs, Australia would certainly appear to lag behind the US. The Association of Consulting Engineers (ACEA) act as the representative organization for FIDIC in Australia and the Dispute Resolution Board Australasia (DRBA) represent the international Dispute Resolution Board Foundation (DRBF). These two organizations have jointly agreed to promote the DRB concept within Australia. According to Gaitskell (2005) the level of documentation now available should lead to an increase in the use of Dispute Boards.

Interestingly a very recent study by Menassa and Pena Mora [2007 in print] presents a comprehensive analysis of the trends of DRB applications in the US over the past three decades since their inception. According to Menass and Pena Mora DRBs have gained popularity as a standing neutral alternative dispute resolution technique and have been successfully implemented on a number of high profile construction projects worldwide. “Data obtained from the Dispute Review Board Foundation indicate that DRB’s have been implemented on a total of 1434 projects in the United States and internationally to a total construction volume of $97.65 billion. Of these construction projects, 1355 projects are in the United States with total construction volume of $60.42 billion while the remaining 79 projects having a total construction volume of $37.24 billion are undertaken in other international countries.” [Menass and Pena Mora, 2007].

They analysed DRB applications in the 1355 construction projects in the United States between the years 1975 and 2006 and the empirical evidence presented includes data related to the type of construction projects that had DRB’s as part of their contract documents. In this respect, the project types are divided between the three construction sectors, namely: building, highway and tunnel; as well as, project construction value. In addition, the effectiveness of DRB’s in resolving construction disputes and preventing their escalation to other more protracted dispute resolution methods like arbitration and litigation is determined and correlated with the construction type. Thus, the DRB Effectiveness Ratio is calculated as the ratio between the number of disputes settled in a given DRB hearing and the original number of disputes heard or brought forward to the DRB for recommendation. The results of the study indicate that dispute review boards have been successfully implemented in all of the three construction sectors in the United States with DRB effectiveness ratios in excess of 0.9 being observed in a significant number of projects.

The paper also discussed the current costs associated with DRBs. In general the costs of a DRB will “vary depending on how often the Board is asked to resolve disputes” but in general does not exceed 0.25 percent of the total project value for project with complex disputes (DRBF 2006). A study of 156 construction projects from the California Department of Transportation (Caltrans) having a total construction value (original bid amount) between $430 million and $1,045 million indicates that DRB implementation total costs range between 0.01 and 0.72 percent of the original construction value or bid estimate. It is claimed by Menass and Pena Mora that these cost estimates of having a DRB on the project are significantly lower than the cost of incorporating other alternative dispute resolution techniques and they cite Zucherman [2007] in support of their argument. “For example, Zucherman (2007) reports that if a blue ribbon panel of arbitrators is chosen to assist in the resolution of a dispute, then each member of the panel will be paid between $7,000 and $8,000 per day (Zucherman 2007). ”

In addition to the direct costs of the DRB, both the owner and contractor will incur indirect costs of having their employees prepare for and participate in DRB progress meetings as well as dispute hearings (DRBF 2007 and 2006). Again, these indirect costs will vary depending on the level of the employees appointed to review disputes in the company, and the time required to review these disputes.

It is interesting to consider this research in comparison to that of Gebken’s which was cited and discussed earlier in this literature review. Gebken’s underlying premise was that we are still spending too much on dispute resolution procedures and that more attention should be made on preventative measures and that we if we truly understood the direct, indirect and

hidden costs we would work more diligently towards establishing dispute resolution management systems. Menassa and Pena Mora however assumed the underlying premise that conflicts are inevitable [similar to Gebken] but that the DRB offers to most cost effective approach.

6.2.1 Arbitration

The process of arbitration has existed for hundreds of years (Hinds, 1998). It's a process which is still discussed as an ADR method despite the growing dissatisfaction with the process which has been discussed previously. However arbitration is a widely accepted form of alternative dispute resolution outside the courts (Eilenberg, 2003). It is also commonly the final process in lieu of litigation, found in most general conditions of contract.

Astor and Chinkin describe arbitration as

"an adversary process whereby an independent third party (or parties) chosen by the parties makes an award binding upon the parties having heard submissions from them."

In Australia, the process of arbitration was governed by the inherited English legislation named the English Arbitration Act 1697. During the 1980's, Australian states reviewed their own legislation to adopt a uniform legislation named the Commercial Arbitration Act. Although not identical in each state this act has allowed the process of arbitration to be enforced by the courts ensuring a final and binding process

Arbitration is a private determinative process conducted through a semi-judicial process. The process is initiated by the parties either directly following notice of the dispute, through the requirements of the dispute resolution clause in their contract or by the courts known as court annexed arbitration. To a certain extent the parties still maintain a large degree of control in the process. The parties have control over the appointment of an arbitrator, specify the location

The terms of procedure are generally pursuant to the standard clauses in contracts. Otherwise the process is bounded by the terms expressed in an arbitration agreement. However such agreements or clauses are governed by procedural rules though may vary depending on the nature of the dispute or determined by the arbitrator.

The process of arbitration came under harsh criticism in the No Dispute report. Although conceding that the outcomes of arbitration provide a satisfactory outcome, this is outweighed by the excessive costs, adversarial process and long waiting periods for hearings. The growing disenchantment (Lunch, 1991) has lead to much discussion between commentators of the effectiveness of arbitration. The main criticism of arbitration is the process is regulated by strict legislation and follows similar formal court hearing procedures requiring rules of evidence and the process of discovery. This in addition to the adversarial nature aligns it with litigation (Bailey 1998).

However there are definite advantages to using arbitration. Hollands (1996) identified that successful arbitration can offer advantages over court action such as confidentiality as the hearings are a private determinative process and the findings are not published, flexibility and convenience. The process is also final and binding and is heard by a single or panel of experts in the relevant field.

During recent years much development has lead to the creation of allied arbitration systems. Expedited Arbitration is a streamlined process aimed at fast-tracking the process creating time and cost savings. The method modifies the process to minimise court style procedures while still operating within the terms of the Commercial Arbitration Act. IAA publishes Rules and Notes for Expedited Commercial Arbitrations which arbitrators are bound to abide by. Another system is the use of a private judge. This process can be binding or non-binding and is not required to comply with the Commercial Arbitrations Act. A private judge determines

the case through submission of arguments and evidence and provide the likely decision should the case proceed to litigation.

6.2.2 Litigation

Much distinction can be made between the process of litigation and arbitration. No Dispute commented that there is little procedural difference between the two processes. Litigation is often the final resolution step should previous procedures have failed in achieving a desirable outcome. Although, where either party believe that the law will provide the best form of defence, they may choose to expedite informal/non-binding mechanisms and elect to proceed directly to formal court proceedings should the contract allow.

Litigation involves the determination of the dispute in a court before a judge and involves a complex process requiring the use of significant resources generally including the use of legal representation (Jones 1996). The court of law in which the dispute is heard depends on the size of the dispute in monetary terms. Additionally the jurisdiction and procedures of each court is governed by a strict set of court rules. The Australian court has various levels of jurisdiction at Federal and state level and numerous courts.

Of particular importance for construction disputes is the introduction of Building Case lists in a number of states. This system is designed to allow building cases to be isolated and assigned by a specialist list of judges. Once the case is entered by application, the particular judge that administers that list will give directions for the further management of a proceeding. Fenn *et al* (1998) states that the appointment to a building list happens during the preliminary stages of litigation. This allows the judge to identify at the earliest possible stage the key issues in the dispute and attempt to resolve those issues which may determine the case (Shnookal & Whitten, 2004). The advantages of using building lists are (Fenn *et al* , 1998)

1. Removes unnecessary legal technicalities in documentation and presentation
2. Ensures issues are clearly defined between parties
3. Establishes procedures for the hearing of particular issues
4. Allows technical issues to be assessed by a technical expert and confines proceedings in court to the determination of legal and non-technical issues

Much commentary has been focused on the negatives of litigation. Steen & MacPherson (2000) stating that “Litigation is simply too time consuming, costly and acrimonious for most industry participants” and if commenced such a process should be used as a last resort. Due to delays for court hearings and time required to carry out the formal processes creates excessive time disadvantages over other dispute resolution techniques. Lathlaen (1991) stated that litigation requires “*too much law, too little justice, too many rules, too few results*”.

However it must be recognised that litigation can still be considered as the most effective form of dispute resolution where one party does not wish to resolve the dispute, there are substantial legal implications, the proceedings are difficult to control or there are substantial allegations of dishonesty. Another distinct advantage is that the process is determined by fact and law ensuring that emotion is not a factor in the decision.

6.3 Development of Payment Disputes and Security of Payment

Another aspect of the disputation environment is that concerned with security of payments legislation. The losses occurred from withheld, reduced or non-payment within the construction industry or any industry is impossible to quantify. The diverse and dynamic nature of the construction industry makes it difficult to obtain a clear monetary figure. The abundant rationale for disputes, non payment and the subsequent reluctance to purse the payment more often leaves the issue unresolved and not identified. A report compiled in

1994 by the Construction Industry Development Agency attempted to assess the extent of payment dispute problems in the construction industry and stated

“We believe it is an almost impossible task to meaningfully quantify the magnitude of the problem given the complexity of its interacting forces.” and Price Waterhouse (1996) supported this assertion with “ there is no empirical data available which quantifies or analyses the extent of the problems with security of payment as suggested by anecdotal evidence.”

Despite the above inability to quantify the extent of the problem it did not diminish the enormity of the problem and the consequent actions of the industry to remedy security of payment through legislation. The actions are the result of the industry’s and both NSW and Commonwealth Governments rigorous efforts to investigate the incidence of security of payment and draft possible initiatives to address the problem. A substantial amount of work has been undertaken over the past ten years. These include:-

- The Anderson Consulting Report, 1993
- The Construction Industry Development Agency (CIDA) Report, 1994
- The Law reform Commission of Western Australia Discussion Paper, 1995
- National Public Works Council Position Paper, 1996
- Price Water House Report, 1996
- NSW Government Green Paper 1996
- Joint Standing Committee on small business discussion paper, 1998
- Australian Procurement Construction Council

The above reports reinforced that common law, corporate law and traditional remedies currently available, were not sufficient to address the security of payment issue. Consequently detailed within each report is a discussion based on several proposals aimed at “*ensuring that a subcontractor is paid on a timely basis and his entitlement to payment is secured*” Price Waterhouse (1996). The consistent views among each report are:

- no single solution to the issue will resolve the problems associated to the payment
- The actions must address the underlying causes and not the consequences
- The solution must be cost effective

Consequently, when investigating solutions for payment disputes and security of payment we must consider not only the processes involved in the resolution of the dispute but also the measures which aim to minimise disputes or ensure payment. By ensuring payment the option of resorting to litigation in order to recover debts owed is reduced or eliminated.

In recent years there has been considerable research on the effectiveness of not only the Australian security of payments legislation but also the UK and New Zealand systems – outlining the various differences and advantages and disadvantages. These have not been dealt with in detail in this literature review at this stage and although an important issue is not considered part of this research project.

7. Dispute avoidance

The avoidance of disputes has, over a number of years, been addressed both at an industry wide level and at a project specific level. At an industry level considerable attention has been given to encouraging a cultural shift so that the industry moves from being adversarial to being dispute averse. There have been numerous initiatives both in Australia and in the UK to with the objective of minimising the perceived adversarial nature of the industry (this is illustrated in Figure 5.1). For example Commissioner Gyles introduced the Partnering concept into Australia through the aegis of a Royal Commission in 1991.

With respect to dispute avoidance and resolution, the basic maxim which is frequently expressed is, that 'prevention is better than cure'. The industry has been repeatedly admonished and encouraged to embrace modern management concepts such as partnering and alliancing with an emphasis being placed on an early involvement in the decision making process by the key stakeholders including clients, contractors and building users. The relatively recent emergence and rapid uptake of alliancing is testament to the movement towards the creation of dispute-averse relationships. The fundamental premise with respect to dispute avoidance being that the likelihood of disputes occurring will be significantly reduced if a pro-active project environment can be created in which change management is an accepted tool. Whilst procurement methods such as alliancing are seen as being conducive to a creating a non-adversarial environment that is not to say that co-operative relationships cannot be achieved in more traditional forms of contracting such as lump sum and design and construct.

Figure 6.2 illustrates a raft of modern management concepts all of which can contribute to creating an environment which is likely be non-adversarial and which may assist in the avoidance of disputes. Many of these concepts take into account the roles of stakeholders and the alignment of organisational and individual goals.

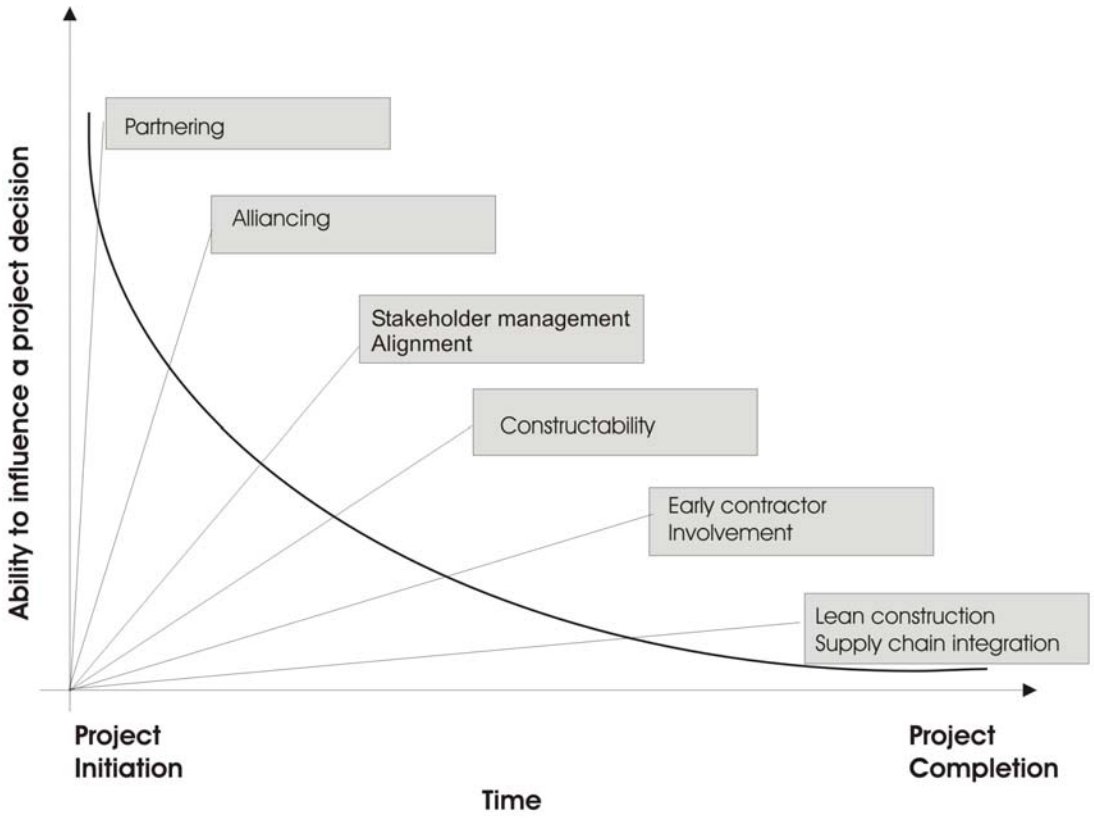


Figure 6.1 Pareto influence curve with management concepts superimposed (after McGeorge and Palmer)

By way of explanation of the above Figure McGeorge and Palmer (2002) make the statement that:

'The probability is that the relatively slow and patchy uptake of modern construction management concepts is due not so much to the lack of diligence or a reluctance on the part of construction industry practitioners to adopt new ideas, but to the fact that these concepts need firstly to be understood and studied in total. Secondly, although government agencies are encouraging and, in some cases attempting to enforce the adoption of the concepts, no advice is being given on how these concepts can be applied concurrently and in combination. What is need is a *weltanschauung* or 'world view' based on a solid knowledge of the individual concepts.'

7.1 Background

The management concepts in Figure 2 are illustrative of a range of concepts which may produce a non-adversarial culture and hence avoid disputation. Although there is an inherent risk in attempting to link the concepts through a single theme there is obvious evidence of systems thinking in a number, if not all, of the concepts, with emphasis being placed on a holistic approach (Checkland & Scholes, 1999) Systems thinking carries with it an undercurrent of stakeholder involvement which is clearly evident in concepts such as alliancing, and partnering. Recent approaches to improving both inter and intra organisational relationships would seem to be very much focused on stakeholder involvement as demonstrated in publications such as 'The stakeholder theory of the corporation: concepts, evidence, and implications' (Donaldson & Preston, 1995), 'Value Alignment for Project Delivery' (Sidwell, 2001) and 'Stakeholder impact analysis in construction project management' (Olander, 2006). The underlying premise being that the more engagement that stakeholders have in the construction process, then more harmonious will be working relationships and hence the levels of disputation will be reduced. As an example of the counterpoint to pro-active engagement Sidwell cites Eggleton (2001) in illustrating adversarial relationships in the construction industry. Eggleton describes a conventional situation with the client being intent on obtaining the maximum amount of scope for the cheapest possible cost, within the time frame. The contractor's attitude being the converse to that of the client. Olander cites Bourne and Walker (2005) in making the argument that unless the construction project manager pays attention to the needs and expectations of a diverse range of stakeholders, a project will probably not be regarded as successful even if the project manager was able to stay within time, cost and budget.

7.2 Partnering

McGeorge and Palmer (2002) make the following comments on the philosophy of partnering:

'Partnering is difficult to define. It means many things to many people. Partnering has to do with human relationships, with stakeholders interests, with the balance of power. In other words partnering has to do with human interaction and as an inevitable consequence of this, it is a complex subject which is difficult to pin down and analyse. Partnering is more than simply formalising old fashioned values, or a nostalgic return to the good old days when a 'gentleman's word was his bond', (although moral responsibility and fair dealing is an essential underpinning of any partnership) (Hellard, 1995). It is more than a building procurement technique (although building procurement techniques can be used to operationalise good practice, bring about cultural change and thus create a more cohesive team (Hinks et al., 1996)). The use of partnering in the construction industry has had many advocates and many claims of success. The titles of journal articles on partnering positively exude confidence and self assurance. Titles such as 'Partnering means making friends not foes' (Dubbs, 1993), 'Partnering pays off' (Wright, 1993), 'Partnering makes sense' (Kliment, 1991) and more forcefully 'Partnering - the only approach for the 90's' (Stasiowsk, 1993), abound in the professional journals'.

For the purposes of this project the distinction which was made in the mid '80's between formal and informal partnering ('Partnering without Partnering' – (Kubal, 1994)) is useful in that it represents the first attempt at developing a formalised procedure for dealing with human relationships and stakeholders interests.

There are a number of definitions in circulation on the goals of partnering. Some of these are very broad, for example 'partnering is a process for improving relationships among those involved on a construction project to the benefit of all' (New South Wales Department of Public Works and Services, 1995). Others are much more detailed but share the same philosophy, for example:

'Partnering is not a contract but a recognition that every contract includes a covenant of good faith. Partnering attempts to establish working relationships among stakeholders through a mutually developed formal strategy of commitment and communication. It attempts to create an environment where trust and teamwork prevent disputes, foster a co-operative bond to everyone's benefit and facilitate the completion of a successful project' (Stevens, 1993). Cowan, (1992) one of the principal architects of the modern partnering movement stresses that 'Partnering is more than a set of goals and procedures; it is a state a mind, a philosophy. Partnering represents a commitment of respect, trust, co-operation, and excellence for all stakeholders in both partners' organisations.'

Partnering attempts to create a win-win situation for stakeholders by creating an environment of mutual trust. There is no guarantee however that all signatories to a partnering charter will be winners.

7.3 Alliancing

The lack of a guarantee of being a winner has lead to the development of alliancing contracting which might be described as 'partnering underpinned by economic rationalism'. Alliancing adheres to the basic philosophy of partnering whilst at the same time attempting to guarantee a win-win situation for stakeholders by the creation of a virtual corporation with an independent management structure and board (Woods, 1997). Howarth et al. (1995) express the view that 'the inculcation of an attitudinal shift from adversarial to one of mutual trust and harmony can only be achieved through full co-operation and alliancing between the key participants in the industry'.

The scope and nature of alliances is reflected in the range of definitions which are in common currency:

These definitions can be extremely broad such as "A relationship between two entities, large or small, domestic or foreign, with shared goals and economic interests." (United States Trade Centre, 1998) or "…organisations with capabilities and needs come together to do business and add value to the other partner, at the same time working to provide a product which enhances society and the capability of the ultimate client" (Nicholson, 1996). .Other authors are more specific for example:"…a cooperative arrangement between two or more organisations that forms part of their overall strategy, and contributes to achieving their major goals and objectives." (Kwok and Hampson, 1996) or "…a commercial collaboration between two or more unrelated parties whereby they pool, exchange or integrate certain of their respective resources for mutual gain while remaining independent. Perhaps the clearest and most specific definition of the alliance process is given by Gerybadze (1995) who describes the project alliance process as "…the client and associated firms will join forces for a specific project, but will remain legally independent organisations. Ownership and management of the cooperating firms will not be fully integrated although the risk of the project is shared by all participants."

7.4 Stakeholder Management/ alignment

Blake Dawson Waldron make the point that a more cooperative approach is required in the construction industry and that "All participants should get the right people involved: key stakeholders with an understanding of the issues and the authority to make decisions" (Blake Dawson Waldron, 2006). These sentiments are very similar to those expressed by Labovitz and Rosansky (1997) in describing alignment as 'a state of being and a set of actions'. Sidwell (2001) quotes Senge (1992) to the effect that ' when a team becomes aligned, there is a commonality of purpose, a shared vision, and an understanding of how to complement one another's efforts. By contrast, the fundamental characteristic of the relatively unaligned team is wasted energy because individuals may work extraordinarily hard, but their efforts do not efficiently translate into team effort. When a team is aligned, the relationships between parts of a team become as important as the parts themselves'. This philosophy is very much in line with systems thinking and is also in line with the Capability Maturity Model which measures the maturity of an organisation on a five point scale with the lowest point being the immature organisation whose goals are unaligned and which survives on the heroic efforts of individual members of the organisation (Sarshar et al., 1999).

Whilst stakeholder involvement and the alignment of goals is clearly a concept to which most would subscribe, the translation of stakeholder theory into practice is challenging. Olander tackles this problem in a recent paper 'Stakeholder impact analysis in construction project management'. This paper has merit in not only tackling the underlying problems associated with stakeholder theory but also in proposing a methodology in the form of a stakeholder impact analysis. With respect to stakeholder theory, definitional difficulties emerge with definitions ranging from the very broad, for example any group or individual who can affect, or is affected by, achievement of a corporation's purpose (Freeman, 1984, Olander, 2006). Or at the other end of the spectrum, there is the Stanford Research Institute unpublished memo (1963) that states that 'stakeholders are those groups without whose support the organisation would cease to exists'. The differentiation of stakeholders into groupings is a key part of the stakeholder management approach. A range of suggestions have been have been made as to how to group stakeholders. Post et al (2002) cited in Olander (2006) take the view that stakeholders can be defined 'as those that contribute voluntarily or involuntarily to the organisation's wealth-creating activities; they are therefore potential beneficiaries and/ or risk takers'. It is difficult, although not impossible, to conceive of a construction project which has voluntary stakeholders Perhaps a more productive approach, in terms of this literature review, is to adopt that of Donaldson and Preston (1995) cited in Olander in drawing a distinction between 'influencers' and stakeholders. An influencer being an individual who does not have a stake in the organisation e.g. the media as opposed to a stakeholder who is a beneficiary and or risk taker in the organisation. In other words has a vested interest. In Donaldson and Preston's ideology it is also possible to be both an influencer and a stakeholder.

In tracing the development of his stakeholder impact index (SII) Olander refers to a concept developed by Bourne and Walker (2005) of a vested interest-impact index (ViII) where the vested interest level and influence impact level describe the level and probability of stakeholder impact on project execution. Olander has incorporated the nature of the impact by adding a further two concepts viz. the attribute value based on classes of stakeholders (Mitchell et al., 1997) and the level of the stakeholder's position (McElroy & Mills, 2000). Olander demonstrates the use of the SII in a large scale housing project at the planning stage. He accepts that the concept has yet to be tested at the level of construction project management. It is however an interesting and contemporary approach to the use of qualitative and quantitative methodology in stakeholder management and hence conflict management.

7.5 Constructability

Constructability has been defined by the Construction Industry Institute Australia (CIIA) as "a system for achieving optimum integration of construction knowledge in the building process

and balancing the various project and environmental constraints to achieve maximisation of project goals and building performance."

Reflecting on this definition McGeorge and Palmer (2001) express the view that "it may be thought that the virtues of constructability are self evident and that the principles of constructability are indistinguishable from the principles of good multi-disciplinary team working. This is a reasonable assumption, and one which is difficult to dispute. Constructability is about managing the deployment of resources to their optimum effect. To do so means establishing seamless communication between members of the team. This, in turn, means breaking down of traditional barriers and altering professional mindsets. Builders must be empathetic to the views of architects and vice versa. Clients must be prepared to play their part in responsible decision making. All members of the project team must be prepared to play a pro-active role and address the complete building cycle from inception through to occupation."

A basic tenet of constructability is that the earlier in the process that constructability thinking is incorporated, then the greater will be the impact and the greater will be the potential for time and cost savings and quality improvements. It is claimed that the implementation of constructability management can lead to significant quantifiable improvements in project performance in terms of time, cost and quality. In addition to these quantifiable measures, constructability management can also lead to qualitative improvements in the project process as well as the building product. Commentators cite benefits such as:

- better project team work
- improved industrial relations
- better forward training
- higher productivity and smoother site operations

7.6 Early Contractor Involvement (ECI)

Early Contractor involvement can be interpreted in a generic sense or can be a specific form of contract delivery. In a generic context Cunningham and Pomfret, in describing the use of partnering by the Blackpool Council (UK) over the last decade, state that "One of the key benefits of partnering is the early involvement of contractors at the design stage. In a traditional form of contract designers produce a detailed design that is sent out to tender for a suitable contractor. This method may not always lead to the optimum end product in terms of design, buildability and commissioning. Issues raised at the construction stage will often result in significant delays and associated costs while designs are review accordingly *(and increase the potential for disputation: our insert)*. Early contractor involvement (ECI) helps to ensure that optimum buildability is inherent in the design." This quotation is interesting in that it raises issues relating to partnering, buildabilty (constructability) and early contractor involvement in a single statement.

ECI as form of project delivery is described by Swainston as "An innovative contract delivery method pioneered by Main Roads (Queensland)". Swainston states that "ECI is a new, two-staged approach similar to a project alliance during the first stage and a D&C contract during the second. It essentially involves putting additional resources into the crucial early planning phase in order to maximise the benefits and cost savings that can be achieved during construction. Its innovation comes from the selection process, the interaction between the client, contractor and designer during stage one, and the strong relationship-based interaction between the parties." This quotation is also interesting in that it alludes to alliancing during stage one of the process. The two quotations collectively illustrate the strong connections between partnering, alliancing and constructability.

7.7 Lean construction/supply chain integration

Lean Construction is a production management-based approach to project delivery. Lean production management has caused a revolution in manufacturing design, supply and assembly (IGLC, 2007). Although it originated from the Japanese Toyota Production System the innovation of lean thinking has now diffused internationally throughout the automotive and electronics sectors and more recently the mining sector. It has had uptake in the UK, US and Danish construction by both government and industry.

The most ardent supporters of the Lean movement in construction is the US Lean Construction Institute founded in 1997 [http://www.leanconstruction.org] and the academic research group International Group for Lean Construction [http://www.iglc.net/].

According to proponents of the concept, Lean changes the way work is done throughout the delivery process. Lean Construction relies upon two key objectives: maximize value and minimize waste and for more than a decade various specific techniques and tools have been developed to achieve these two objectives. Waste minimisation relates to waste of all types of resources. Workflow improvements requires flexible work practices and a whole industry has grown up around the idea of lean construction. It is ultimately a philosophy originating in the concept of structured work planning which has evolved to support lean design, lean supply and lean assembly and for effective results requires a focussed approach to lean thinking at project initiation by clients and project team members. It challenges the belief that there must always be a tradeoff between time, cost, and quality

It has been widely recognized that the distinctive strategy of lean construction has produced continuous quality improvement, cost reduction through joint problem solving commitments by client, consultants, contractors, subcontractors and suppliers, flexibility in delivery strategies and most importantly a reduction in wasted resources. However it is also now widely recognized that lean construction and lean production can not be achieved by an individual organization and that it is supported by a systematic and structured approach to the management of inter-firm relationships; that is the supply chain (London, 2004).

One of the most significant developments in the area of supply chain integration and lean construction was the implementation of these concepts by the airport company, BAA. In 1996 they revolutionized the delivery of their capital projects and became a highly innovative client leader in lean construction and supply chain management.

“Since 1996, our approach to construction has continually been evolving. However, the five principles established in 1995 are just as relevant today. These principles fundamentally moved our approach away from the traditional client/contractor relationship and towards a far more integrated partnership.

These principles were:

- defining the product – striving to be clear about what is required before starting to build it
- long-term relationships – working with the same preferred suppliers, learning from project to project and improving performance over time
- integrated project teams – our own staff working together with our suppliers focused on the delivery of the specific construction products relevant to BAA
- following a defined process – bringing the right people together at the right time with the right information, so that they make the right decisions
- measuring performance

Learning from these initiatives enabled BAA to participate in the Government's Construction Task Force (chaired by BAA's former chief executive Sir John Egan). This culminated in a report, Rethinking Construction, published in 1998. This document continues to shape thinking in both government and industry with groups such as the Construction Clients Forum and Constructing Excellence still actively developing improvements for the benefit of both the construction industry and its clients." [BAA, 2007].

Supply chain integration requires clusters of firms organized to work productively towards some agreed common goals in long term relationships within which projects are embedded.

Supply chain procurement is the strategic identification, creation and management of resources critical project supply chains within the context of the construction supply and demand system to achieve value for clients [London, 2002]. Perhaps the most significant aspect to supply chain integration is the acceptance that performance on projects by firms rarely is achieved by an individual organization and that it is the alignment through strategic alliances of key firms which ensures improved performance in workflow. Critical to the success of supply chain integration is an industrial organization economic analysis of the existing institutional arrangements. Such an approach is not taken upon lightly as the self analysis of the level of spend in particular markets highlights the level of risk and expenditure in relation to suppliers establishes the degree of power by customers.

Many have tended to espouse the virtues of supply chain integration within the construction industry but the uptake has been adhoc. It requires a large client to champion the initiative. More recently strategic procurement or targeted procurement initiatives by government clients have been viewed as a means to achieve specific objectives - socio economic, sustainability, OH&S etc.

7.8 Summary

The some of the approaches described in this section such as partnering and alliancing are clearly aimed at creating a non-adversarial culture between the various stakeholders. Other approaches such as early contractor involvement, lean construction and constructability may not have such an explicitly stated purpose, however all of the approaches have a recurring theme of creating an environment which encourages good communications and good relationships between the project stakeholders which in turn should have the effect of avoiding or minimising the impact of disputes. It is not possible to guarantee the avoidance of disputes by means of a specific technique, given that projects comprise a multi-criteria set of goals and objectives, however a project environment where stakeholders are empathetic to one another's goals and where the principles espoused in this section have been adopted would appear to be the best method of inoculating a project from the likelihood of dispute occurrence.

8. Conclusion and Recommendations

There is a general worldwide acceptance that the severity of disputation is higher in the construction industry than in other major sectors of the economy. There is also widespread recognition that because of the high incidence of disputes, the industry is an accepted leader in the development of dispute resolution systems and processes. Australia is seen to be at the forefront dispute resolution techniques. It is a mute point as to whether being a leader in the resolution of disputes deserves praise or opprobrium. Not withstanding, the cost to the economy of construction industry disputes is considerable. Unfortunately there are few, if any, comprehensive studies on the costs of construction industry disputes that are applicable to Australia. The cost of disputes can be categorised into direct costs (such as fees and expenses paid to lawyers, accountants, claims consultants, and other experts), indirect costs (such as salaries and associated overheads of in-house lawyers, company managers, and other employees who have to assemble the facts, serve as witnesses and otherwise process the dispute) and (to the extent that they can be measured) hidden costs (such as the inefficiencies, delays, loss of quality that disputes cause to the construction process itself, and the cost of strained business relations between the contracting parties). Estimating the cost of disputes in the Australian construction sector should be possible by using existing data bases to collate data on direct costs and indirect costs together with the distillation of expert opinion to obtain indicative hidden costs. To date however, no one has undertaken this exercise. Hence the magnitude of the costs of disputes in Australia can only be made by inference to studies conducted overseas, in particular the U.S.

With respect to dispute avoidance and resolution, the basic maxim which is frequently expressed is, that 'prevention is better than cure'. In terms of dispute avoidance there have been numerous industry initiatives in Australia since the late 1980s which have sought to identify the problems of the industry and then develop strategies and actions to achieve a cultural shift away from an adversarial culture. The industry has been repeatedly admonished and encouraged to embrace modern management concepts such as partnering and alliancing with an emphasis being placed on an early involvement in the decision making process by the key stakeholders including clients, contractors and building users. The relatively recent emergence and rapid uptake of alliancing is testament to the movement towards the creation of dispute-averse relationships. The fundamental premise with respect to dispute avoidance being that the likelihood of disputes occurring will be significantly reduced if a pro-active project environment can be created in which change management is an accepted tool. Whilst procurement methods such as alliancing are seen as being conducive to a creating a non-adversarial environment that is not to say that co-operative relationships cannot be achieved in more traditional forms of contracting such as lump sum and design and construct.

Whilst there is a paucity of research on the cost of disputes there is an abundance of research on the causes of disputes. Research studies in this field are quite diverse in their methodological approach ranging from surveys of expert opinion to analysis of 'hard' quantifiable project data on disputes using secondary data from published legal cases. Differentiating disputes into proximate causes and root causes is a useful analytical exercise which helps to distinguish between apparent causes such as changes by client (proximate) and client's indecision (root).

When a dispute does occur there is an extensive range of dispute resolution procedures available to a disputing party. These procedures range from traditional court processes to alternative dispute resolution. The evolution of dispute resolution processes has lead to the development of a range of alternative dispute resolution opportunities. Most dispute processes are user pays. As the procedure moves into increasing levels of intervention and force so does the associated costs. An advantageous dispute resolution process will ideally seek to settle a dispute with an acceptable outcome within the least amount of time, as cost effectively as possible, with the least amount of resources and hopefully the preservation of the working relationship between both parties.

8.1 Recommendations

This extensive literature review has revealed a number of research gaps which might be fruitfully pursued. The following topics, most of which are interrelated, would appear to be of particular interest:

8.1.1 Determination of the costs of disputes.

There would appear to be little or no published data on the costs of disputes in Australia. Estimating the cost of disputes in the Australian construction sector should be possible by using existing data bases to collate data on direct costs and indirect costs together with the distillation of expert opinion to obtain indicative hidden costs.

8.1.2 Identification of root causes of disputes

Although there are a range of published studies in this field there is a need to conduct a meta analysis of these studies to determine to clustering of the variables adopted by the various researchers, to determine the level of importance of the variables and to explore the combinatorial interaction of the variables. The following table illustrates how the various strategies to prevent disputes can be mapped against the root causes. This is a qualitative approach to providing some structure to the various key dispute avoidance strategies discussed in this section.

Key

Partnering PAR

Alliancing ALL

Stakeholder management/ Alignment STM

Constructability CON

Early Contractor Involvement ECI

Lean Construction/Supply Chain Management SCM

ROOT CAUSES OF DISPUTES	Strategies to Prevent disputes					
	PAR	**ALL**	**STM**	**CON**	**ECI**	**SCM**
1.0 RESOURCES & CONSTRAINTS						
1.1 Inadequate initial scoping	√√	√√	√√		√	
1.2 Unrealistic time/cost/quality targets	√√	√√	√√	√√	√√	
1.3 Unrealistic tendering	√	√		√√	√√	
1.4 Ambiguous contract documentation	√	√		√√	√√	
1.5 Economic environment	√	√				
2.0 SHARED LEADERSHIP & COLLABORATION						
2.1 Unfair risk allocation	√√	√√	√			√
2.2 Unclear risk allocation	√√	√√				√
2.3 Poor communication between project team			√√	√√		√√
2.4 Clients lack of information or decisiveness						
2.5 Inappropriate contract type						
2.6 Low trust	√√	√√	√√			√
2.7 Lack of empathy	√√	√√				
3.0 PROBLEM SOLVING CULTURE						
3.1 inflexible project team member behaviour						√
3.2 Lack of competence						√
3.3 Lack of team spirit						√√
3.4 Lack of culture of continuous improvement			√√			√√
3.5 Failure of participants to deal promptly with changes and unexpected outcomes	√√	√√	√√			√√
3.6 Lack of long term inter-firm relationship						√√

8.1.3 Encouragement of a cultural shift

There have been a large number of initiatives, particularly in the UK, aimed at producing a cultural shift in the industry. There is also a precedent in Australia with the introduction by the Gyles Royal Commission of Partnering as a pilot study in 1991. The case could be made that a contemporary 'light house' type project could be undertaken to showcase current good practice in Australia in risk avoidance

8.1.4 Develop a conceptual framework for dispute avoidance and control

Gebken and Gibson put forward the proposition that in their view the classical approach to risk management viz. identification; assessment and control could also be applied to dispute resolution management. This proposition was made in 2006 and is as yet untested and there may be merit in further exploration. The Risk Management Process model according to the Australian/New Zealand Standard 4360 2004 Risk Management proposes a 5 Stage process (refer to figure 7.1):

1. Establish the context
2. Identify risks
3. Analyse risks
4. Evaluate risks
5. Treat risks

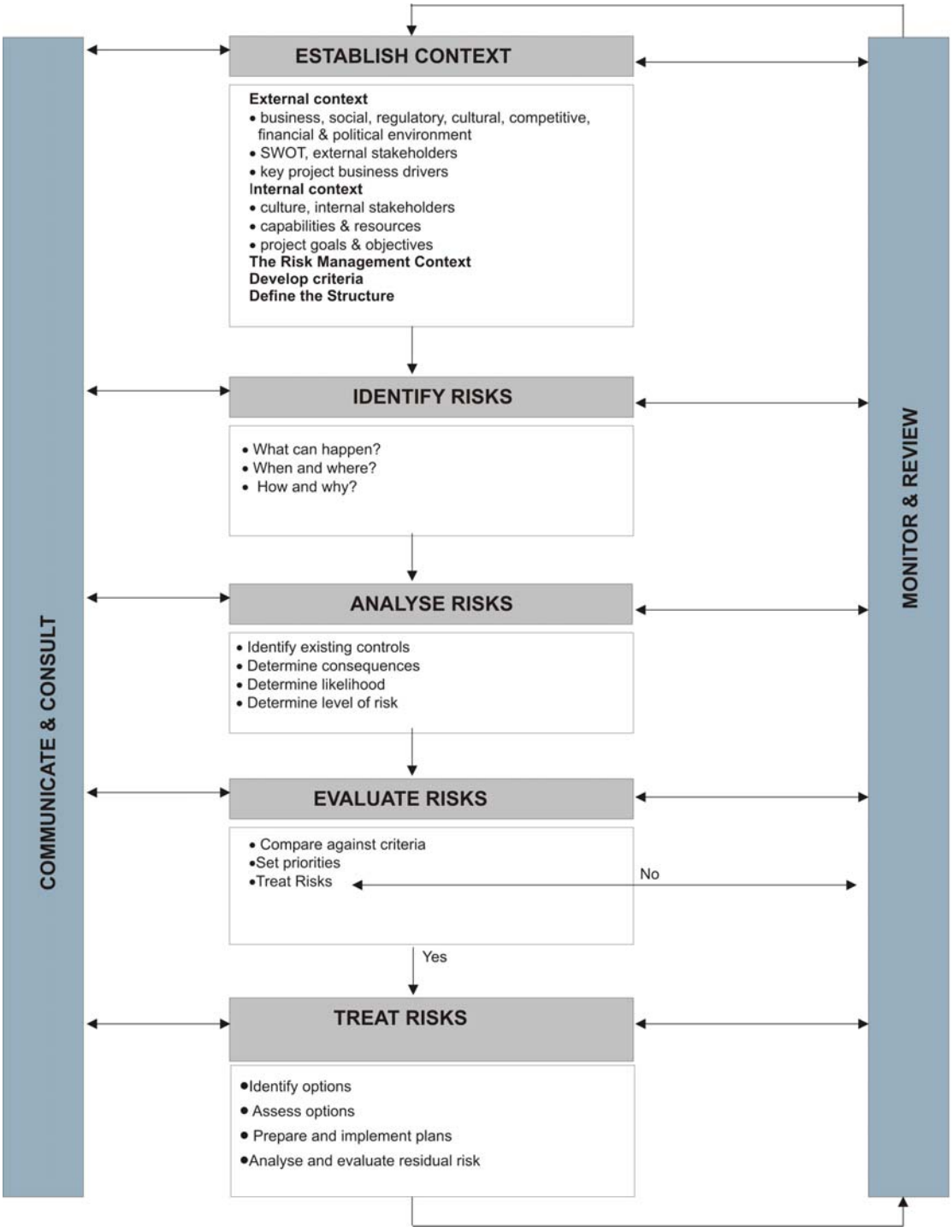


Figure 7.1 Risk Management Process – in detail (source: AS NZS 4360 2004)

A conceptual model is reproduced below together with an indication of how this model could be adapted to an Australian construction industry environment loosely based upon Gebken's rationale. The model extends that proposed by Gebken by introducing the idea of a *dispute health check.*

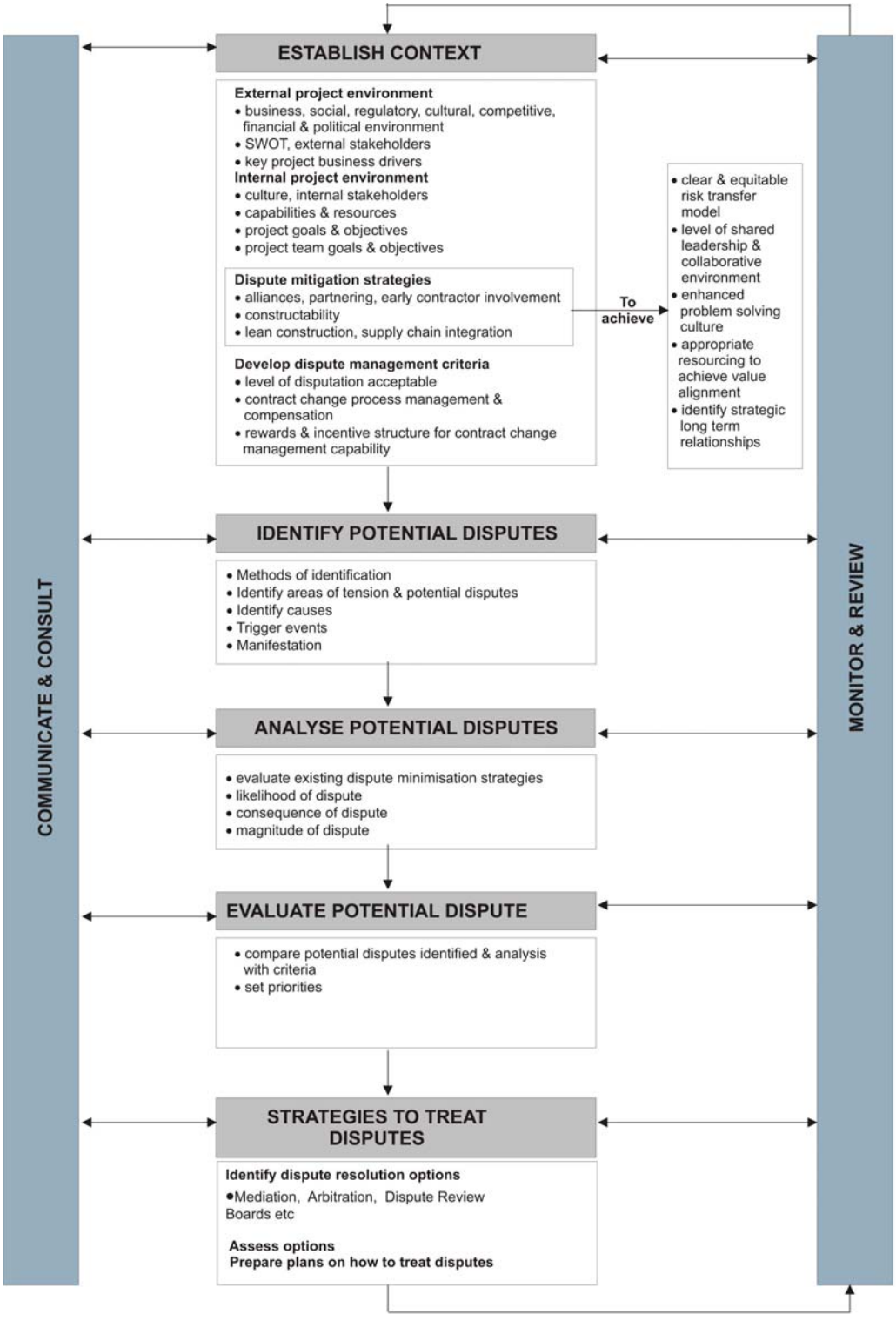


Figure 7.2 Dispute health Check

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