RISK AND SUCCESS FACTORS IN CONSTRUCTION COLLABORATIVE RELATIONSHIPS

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ABSTRACT
Collaborative relationships including joint ventures, strategic alliances, project and strategic partnering, partnership are now used in many industries including manufacturing, retailing, construction and service sectors. This has brought many advantages to companies where a balanced collaborative relationship is achieved. This paper presents a result of investigation into the risk and success factors involved in construction collaborative relationships from construction contractors perspective. This is based on a content analysis of open-ended questions in which UK construction contractors are asked to list and rank in order of importance five major risks success factors and assessment criteria for collaborative relationships in construction development. The main risk involved in collaboration for construction development are lack of trust (abuse, breach); complacency (over familiarity, fail to honour agreement, lack of drive); dependence (lost of control, interdependence), exploitations, clash of corporate culture and poor performance of any of the partners. The critical success factors are clear objectives and vision, trust, teamwork, communication and consultation, and joint risk and reward sharing. It is postulated that if these success factors are carefully incorporated, the risk involved in construction collaborative relationships could be reduced.

KEYWORDS: risk factors, success factors, collaborative relationship, communication.

INTRODUCTION

Collaborative relationships are now used in many industries including manufacturing, retailing, construction and service sectors. In the construction industry, this has been encouraged by two major reports produced by Latham (1994) and Egan (1998). These reports do have a recurring theme in that they all suggest the industry would be improved through greater teamwork not only at site level and organisational level but also with clients and suppliers. Recommendations within these reports have led to some construction clients and companies using collaborative arrangements such as long-term/strategic arrangements, project and strategic partnering, joint venture, partnership, prime contracting and supply chain management in order to improve the construction development process.

The usage has brought many advantages to companies where a balanced collaborative relationship is achieved. Despite these benefits, the intensity of the relationship and the central philosophy of commitment embedded in such relationships can lead to a high level of pressure to perform whereby partners under pressure may be encouraged to take unnecessary

risks to prove their worth. According to Lorange and Roos (1991), it is overstatement to that that all collaborative relationships are successful. This paper therefore presents a result of investigation into the risk and success factors involved in construction collaborative relationships.

OVERVIEW OF COLLABORATIVE RELATIONSHIP

Collaboration relationship relies on co-operation and teamwork, openness and honesty, trust, equity and equality, if it is to succeed (Bennett and Jayes, 1998). Collaboration can provide a framework for the establishment of mutual objectives among the building team as well as encouraging the principle of continuous improvement. This framework encourages trust, co-operation and teamwork into a fragmented process which enables the combined effort of the participants of the industry to focus upon project objectives (Naoum, 2003). There are some authors (Green, 1999; Taylor, 1999) however, who feel that collaboration is a long way from returning tangible benefits to the contractor because clients still have a deep-rooted cost-driven agenda. As a result they expect to reduce costs, or to pass costs and risks down the supply chain, and thereby do not genuinely adopt a win-win attitude (Wood and Ellis, 2005).

One of the key elements and common feature of collaborative arrangements is a high level of commitment between parties at management level. This was founded in a study by Black et al., (2000) where organisations that had experience of partnering rated management commitment more highly than those without. Communication between stakeholders is essential whenever an organisation is dealing with change and it is equally true when introducing or managing a partnership as communication between parties is vital to understanding each party's expectations, attitudes and limitations. The study by Black et al. (2000) showed that contractors considered this a critical factor for success.

The continuous evaluation of a collaborative relationship is needed in order to ensure that it developed according to the expectations of the parties involved is essential, Bennett and Jayes (1995) highlight that continual performance improvement is necessary in order to deliver the benefits of collaboration. As advocated by Egan (1998) the use of integrated teams is a common feature of collaborative arrangements. By involving the team at the earliest stage in a project improvement can be made in quality, productivity, health and safety and cash flow, and in reducing project durations and risks (Egan, 2002).

A study by Burnes and New (1996) revealed many examples of the ways in which different industries and organisations have sought to use collaborative relationships. Examples of the benefits realised include the minimisation of waste, improvements in operational efficiency and productivity, and improved supply chain co-ordination (Hamza and Hibberd, 1999).

Collaboration encourages openness and communication as according to Cook and Hancher (1990) ‘‘neither side benefits from exploitation of the other, innovation is also encouraged and each partner is aware of the others needs, concerns, and objectives and is interested in helping their partner achieve such”. This can therefore lead to better mutual understanding on the needs of each other. Therefore, the working process becomes more efficient, which in turn will reduce wastage (McGeorge and Palmer, 1997). Collaboration can promote organisational flexibility and is beginning to be seen as a means of developing an environment supportive of innovation and learning (Bennet and Jayes 1995).

Litigation is a major problem in most construction projects. It does not help realise potential saving. In a collaborative arrangement, the problems of disputes, claims or litigations are greatly reduced through open communication and improved working relationship (Cook and Hancher, 1990). In a study conducted by Bennet and Jayes (1995) looked into the financial benefits of collaboration and commented that collaborative workshops and other related collaborative efforts can achieve savings up to about 10% of total costs.

Collaboration has potential to improve cost performance as it can reduce the risk of budget overruns through improved cost control by alleviating rework and reducing schedule time through improved communication and clear project goals (Albanese, 1994). By improving communication on projects parties are less likely to be surprised by schedule delays and additional costs, which often lead to disputes and litigation (Moore et al., 1992).

According to Arntzen et al. (1995) collaboration improves project quality by building an atmosphere that fosters a team approach and improves communication. This enables potential problems and quality issues to be recognised earlier (Albanese, 1994). Collaboration can also enhance customer satisfaction as the customer is closer to the construction process and better informed (Nielsen, 1996). There is a general consensus that collaboration has the potential to bring consistently better results than the more traditional approach. Typical benefits from partnering would be (CIIA, 1996): reduced exposure to litigation; improved project outcomes in terms of cost, time and quality; lower administrative and legal costs; increased opportunity for innovation and value engineering; and increased chances of financial success.

Obviously, collaborative relationship has brought many advantages to companies where a balanced collaborative relationship is achieved including: ability to leverage internal investments; focus on core competencies leverage core competencies of other organisations; reduce capital needs, broaden products offerings; gain access or faster entry to new markets; share scarce resources; spread risk and opportunity; improve quality and productivity; having access to alternative technologies; provide competition to in-house developers; use a larger talent pool and satisfy the customer (Crouse, 1991). Lamming, (1993) notes that despite these benefits, the intensity of the relationship and the central philosophy of commitment embedded in such relationships can lead to a high level of pressure to perform whereby partners under pressure may be encouraged to take unnecessary risks to prove their worth. In essence, in spite of the benefits and features associated with collaborative relationship which are particularly useful to address the problems currently facing the construction industry, it is generally recognised that there are associated risks. Apart from this there are success factors that need to be taken into account. It also important to identified some measures of success of collaborative relationship for benchmarking and continuous improvement. These issues (risk, success factors and measures of success in construction collaboration relationships) are addressed by this paper.

RESEARCH METHODS

A four page questionnaire, accompanied by a covering letter, was sent to managing directors of sample firms. The letter indicated the objectives of the research and requested that the questionnaire should be completed by a senior member of staff involved in construction development in the firm. The questionnaire design was based on a combination of an extensive review of literature dealing with collaboration in construction and Leverick and

Littler (1993) survey on the manufacturing industry to establish whether the use of collaboration can be used to improve the construction industry.

The questionnaire was divided into six sections exploring collaboration in construction to address the four objectives of the study: (i) to investigate the reasons for collaboration in construction development; (ii) to identify the role of collaboration in construction development; (iii) to identify the risks of collaboration and the discriminating factors between success; and failure and (iv) to identify The use of Information Technology (IT) for communication within collaboration. Akintoye and Main (2006a and 2006b) have reported the elements of the questionnaire that with reasons, roles and success factors of collaboration in construction development based on the questionnaire's five point Likert scale. The current paper present the three open-ended questions aspect of the questionnaire that deal with risk, success factor and measures of success factors of construction collaborative relationships as follows:

i. *The risks of collaboration: In your experience, what are the five major risks of collaborative relationships in construction development? Rank in order of importance: 1 being the most important*
ii. *In the light of your experience, list five factors that contribute most to the success of collaborations in general? List in order of importance.*
iii. *Assessing collaboration success: In the light of your experience, what do you see as the major criteria for assessing the success or failure of product development collaborations?*

The questionnaires were sent to the managing director of 250 construction companies and requested that the information was provided by a senior management who has had involvement in construction collaborative relationships. Table 1 shows the designation of the staff from the 63 construction companies that completed the questionnaires. These are mainly senior management staff with extensive construction industry experience. Tables 2 and 3 show the grouping of the firms, the number in each group, the mean turnover, the mean number of employees and the standard deviation for each.

Table 1 – Position of the respondents

Respondents Position	Respondents (Total 63)	%
Area Manager	1	1.59
Bid Manager	2	3.17
CEO	2	3.23
Chairman	1	1.59
Construction Manager	9	14.29
Development Manager	1	1.59
Human Resource Manager	1	1.59
Managing Director	37	58.73
Project Manager	5	7.94
Quality Manager	1	1.59
Risk Manager	1	1.59
Supply Chain Manager	1	1.59
Company Secretary	1	1.59

Table 2 - Firms Turnover

Group	Employees	Frequency	%	Mean (£ m)	Std Dev.
SME	Less than 250	32	50.8	52.81	105.15
Large	Greater than 250	31	49.2	555.45	764.3
	Total	63	100	608.26	815.45

Table 3 - Employment

Group	Employees	Frequency	%	Mean (£ m)	Std Dev.
SME	Less than 250	32	50.8	109.53	67.28
Large	Greater than 250	31	49.2	3873.84	9473.41
	Total	63	100	3983.87	9540.69

Table 4 shows the types of collaborative relationships that the companies that the respondents have had involvement. This shows that the contractors are involved in collaborative relationships with construction clients followed by sub-contractors on long term, project and partnering collaborations.

Table 4 Types of Collaborative Relationships

	Long-term / strategic	Project	Innovation	Joint Venture	Partnering
Client	68.25%	69.84%	30.16%	25.40%	63.49%
Contractor	23.81%	38.10%	20.63%	30.16%	33.33%
Sub-contractor	41.27%	63.49%	33.33%	23.81%	55.56%
Supplier	39.70%	38.10%	20.63%	4.76%	28.57%
Consultant	28.57%	57.14%	25.40%	14.30%	49.21%

Content analysis technique was used to analysis the open-ended questions by listing the responses to each question based on the ranking provided. The factor (e.g. risk) that is ranked first is then scored 5, while factor ranked second is scored 4, third is scored three, fourth is scored 2 and fifth is scored 1. There are then added together for each factor to produce the Important Level Score for that factor as shown in Tables 3-5. Based on the importance level score, the factors are then Profiled I, and II to show the relative importance of the factors; these can be interpreted Tier 1 and Tier 2 factors. Tier 1 factors are those responsible for up to 50% of the total Importance Level scores and Tier 2 are those factors responsible the remaining 50%

RISK FACTOR IN COLLOBORATING RELATIONSHIP

Collaboration may not always achieve its original goals. Public sector procedures often work against open relationships and thus can jeopardise the project objectives originally established (Patching, 1994). According to Patching (1994) conflict and failure could be increased by a fundamental deviation in goals, especially in relation to accountability, thus hindering all cooperation that may have been attained by the collaboration process. Failure to achieve open and honest communication and to implement appropriate training and project goals can produce a win-lose attitude of stakeholders (Lendrum, 1998)

Lack of commitment and top level management support for collaboration can lead to the eventual breakdown of the collaborative arrangement. According to Larson (1997) every stakeholder must be committed to project collaboration and must be willing to support all other stakeholders. A lack of 'team approach' and comprise can also be detrimental to a collaborative arrangement where parties are unwilling to determine team solutions to problems that arise can lead to mistrust in one another and destroy the relationship.

By collaborating organisations need to change their ways of working to share basic goals. However, it is well established that it is difficult enough effecting cultural transformation

within organisations, let alone between them (Beer et al., 1990). The selection of a competent, experienced partner can significantly affect the effectiveness and performance of collaboration although selecting the wrong partner or one with little experience can be detrimental (Chan et al., 2003).

A study by Black et al. (2000) found that contractor's rated mutual trust as a crucial element for success in a collaborative relationship, therefore without trust there is a risk that the relationship will fail. A study by Chan et al., (2003) also found that commercial pressures, risks and rewards not being shared equally and dealing with large bureaucratic organisations are risks that can impede the effectiveness of collaboration.

Table 5 shows that a list and ranking of the risks that the respondents identified as being involved in construction collaborative relationships. The most important risks involved in construction collaboration are those Profiled I and embraces: lack of trust (abuse, breach); complacency (over familiarity, fail to honour agreement, lack of drive); dependence (lost of control, interdependence), exploitations, clash of corporate culture and poor performance of any of the partners. These six factors represent 50% of the risks from construction collaborative relationships. The risks identified in the open-ended question are similar to those identified in the long term supplier-manufacturer relationships and interdependency which include the risk that sensitive information is abused by a trusted partner, the loss of control over product development programmes and corresponding slippage in timescales; possibility of missing out on new technologies developed by organisations outside the partnership (Leverick and Cooper, 1998)

Table 5: Risk Factors in Collaborating Relationships

	Risk Factors	**RANKING**					**Imp**	**% /**	**Total**
		1	**2**	**3**	**4**	**5**	**Lev**	**Tier**	
1	Lack of Trust: abuse, breach	10	3	4			74	50.15	17
2	Complacency: over familiarity, fail to honour agreement, lack of drive	6	4	3	3	2	63		18
3	Dependence: lost of control, interdependence	2	5	5	3		51		15
4	Exploitations	3	4	3	1	3	45	Tier 1	14
5	Increase cost: overhead, transaction, capital	2	2	3	3	1	34		11
6	Clash of corporate cultures, interference	2	3	1	2		29		8
7	Poor performance: time, cost, profit, reward,	1	3	2	1	3	28		10
8	Different/Shift objectives and business emphasis	3	2		1	1	26	49..85	7
9	Poor Management: lack of senior management/team support, poor decision making		3	1	3	1	22		8
10	Focus: taken off the primary skills, becomes uncompetitive, unprofitable	2		2	2	2	22	Tier 2	8
11	Unfair/Different reward: withdrawn of funding	2	2		1	1	21		6
12	Human factor: staff politics, lack of teamwork, staff changes, loss of key staff	2		2	1	3	21		8
13	Breaking relationship with JV partner /collaboration dissolving	1	1	3		2	20		7
14	Lack of understanding of roles parties involved	1	1	2	2		19		6

15	Poor overall risk management: inappropriate risk sharing/allocation, many eggs in one basket	2		1	2		17	5
16	Exposure/Disclosure: corporate advantages, sensitive information	1	1	2			15	4
17	Choice of partner: inequality of experience and skills, wrong partner	1	2		1		15	4
18	Additional resources: more personnel, meetings, overhead, cost, etc		2	2			14	4
19	Insolvency of a partner company/change in ownership	2		1			13	3
20	Financial: Inability to reach agreement on financial matters, control	1	1	1		1	13	4
21	Lack of innovation: no fresh idea, poor expertise		2	1		1	12	4
22	Corporate identity: change, loss of company individuality / control	1	1			3	12	5
23	Competitive advantage: reduction of opportunities, erosion, uncompetitive	1			3	1	12	5
24	Loss of reputation: error by partner, complications	1		2			11	3
25	Lack of communication: information control and interface management		1	1	2		11	4
26	Health and Safety record of some collaborators	1		1	1		10	3
27	Partners support: buy-in by clients, suppliers			2	1		8	3
28	Dispute: contractual dispute, no remedy if relationship failed			1	1	1	6	3
29	Inflexibility approach - unwilling to change established procures					2	2	

SUCCESS FACTOR IN COLLABORATIVE RELATIONSHIP

Anslinger and Jenk (2004) produced six guidelines that to creating successful alliances as follows: (i) develop clear, common objectives and definition of success; (ii) ensure proper alliance form; (iii) determine appropriate governance model with clear decision making; (iv) anticipates the most likely conflicts; (v) plan for evolution and establish clear metrics to track and measure success. Hoffman and Schlosser (2001) identified the success factors for strategic alliances at the five stages involved in the alliances from strategic analysis *vis a vis* decisions to co-operate; search for a partner and partner selection; designing the partnership, implementation and management of the partnership and termination of the partnership stages. They identified 'Precise definition of rights and duties', 'Contributing specific strengths and looking for complementary resources', 'Establishing required resources', 'Awareness of time requirements' and 'Equal contributions from all partners' as the most significant critical factors that determine the success or failure of an alliance. They concluded from their study that careful strategic planning and good partnership preparation are essential for alliance success. Lorange and Roos (1991) identified two broad factors which are responsible for the success or failure of strategic alliances; these are political considerations (stakeholder blessing and internal support) and analytical considerations (strategic match and delineation of strategic plan). Leverick and Cooper (1998) emphasised how good management practice has a major part to play in increasing the chances of a successful relationship and lessen the risks involved. To this end they identified partner selection, communication, information sharing

and external monitoring as four of the issues that need to be placed on agenda in order to develop effective partnering strategies.

Table 6 shows the results of content analysis on the success factors for construction collaboration. The first tier success factors are: clear objectives and vision, trust, teamwork, communication and consultation, and joint risk and reward sharing. These factors are responsible for almost 50% of the success factors for construction collaboration.

Table 6: Success factors for construction collaborative relationship

		RANKING					Imp	% /	
	Success Factor	**1**	**2**	**3**	**4**	**5**	**Lev**	**Tier**	**Sum**
1	Objectives and vision: clear, aligned, achievable, mutual, win-win	6	10	4	2	4	90	46.8	26
2	Trust: honesty, integrity , frankness and openness	6	3	4	3	7	67	Tier 1	23
3	Teamwork: behaviour of key player/ cohesion/ working with like minded people	3	6	2	5	1	56		17
4	Communication and consultation: clear dialogue between parties	4		6	3	1	45		14
5	Joint risk and reward sharing: shared problem		5	3	7		43		15
6	Management style: clear planning/target/milestones and definition of responsibilities	2	4	1	3	1	36	53.2	11
7	Relationship: personal, good, ongoing, long term, strategic	2	4	1	1	3	34		11
8	Financial success: profitability/fair returns/reduced cost, budget control, vfm	1	1	5	2	4	32		13
9	Corporate cultures (and technical) compatible	3	3	1		2	32		9
10	High level commitment (senior management)	3	2	1	1		28	Tier 2	7
11	Commitment (inch .Personal from individuals)	2	1	1	2	1	22		7
12	Programme: , predictable, measurable, result oriented, project focused	2		2	1	3	21		8
13	People: professionalism, right people/team selection, experience	1	2	1	2		20		6
14	Innovation: knowledge transfer, look outside the box, special knowledge	1		3	1		16		5
15	Benchmarking: reliable, predictable, reviewed and appraised regularly	1			5		15		6
16	Timing of collaboration: early involvement and adequate	1	1	1		2	14		5
17	Resources and efforts: joint use, compatible		1	2	1	1	13		5
18	Flexible approach (design/methods/structure/)			3	2		13		5
19	Equality of benefits/Equal split of responsibilities	1	1		1		11		3
20	Leadership: decisive, single point of contact	1			2	1	10		4
21	Management structure: joint, well defined, joint decision			1	1	1	6		3
22	Dispute: lack of claims, resolution procedure		1			2	6		3
23	Quality of end product			1		2	5		3
24	Information Management system: IT resources				1	2	4		3
25	Contract arrangement: simple, sensible				2		4		2

Overall there are 25 factors that the parties should take into account to achieve a successful construction collaboration. The success factors embrace the ten principles of a solid partnership identified by Sonnenbery (1992): both partners gain from the relationship; each party should be treated with respect; promise only what cab be delivered; specific objectives should be defined before the relationship is firmly established; striving for a long-term commitment is important to both parties; each side should take the time to understand the other's culture; each side should develop champions of the relationship; lines of communication should be kept open; the best decision is one made together; and preserve the continuity of the relationship.

CONCLUSIONS

The construction industry has been generally regarded underachieving, both in terms of meeting its own needs and those of its clients. Collaboration has been advocated as a way of improving performance and reducing confrontation within construction development. Collaboration has been used in many other industries in order to reduce the risks and costs of product development. Current research has been undertaken into the risks and rewards of collaboration in construction development. In particular this paper has presented the risks, success factors and assessment criteria for success of collaboration in construction development.

The results of the survey indicate that certain requirements must be met if construction collaboration is to succeed; in particular good communication, commitment, trust, a clear understanding of roles, and flexibility. It can be postulated that if partners in collaborative relationship incorporate these requirements they can benefit from a less adversarial environment, increased client satisfaction and an improved understanding of the difficulties faced by other parties.

Commitment to the relationship by the partners is important. If clients or any other member of the team were unwilling to unconditionally commit themselves to the collaborative arrangement, this can negatively affect the reciprocated commitment of the collaborative partners. In order for collaboration to be a success ever stakeholder must be committed to project collaboration and must be willing to support all other stakeholders. Although it is obvious from the study that there are risks and barriers to collaboration in construction development, these risks can be managed. If all parties in the collaborative relationship work together to control risk events and prevent barriers occurring, then the collaboration relationship should succeed.

In order to ensure that the project goals are met and collaborative arrangements are successful some requirements are imperative. It is important that all collaborative relationship stakeholders are fully committed to the collaboration process. The stakeholders should have a complete understanding of their requirements within the team and there must be clear defined roles for each stakeholder within the arrangement. Organisations must be flexible for the benefit of the collaborative relationship and overall efficiency of the project while there must be must be clear lines of communication. All stakeholders must communicate effectively especially at senior management level. It is important that senior management are seen to be involved in the process; and facilitate and implement a clear problem resolution process and ensure that they are willing to commit to jointly solve problems that arise in the collaborative arrangement.

REFERENCES

Akintoye A and Main J (2006a) Collaborative advantages in construction development. In Andrew Baldwin, Eddie Hui and Francis Wong (Edt) *Construction Sustainability and Innovation*. Proceedings of CIB W89 International Conference on Building Education and Research (BEAR), 10-13 April 2006, Department of Building and Real Estate, Hong Kong Polytechnic University

Akintoye A and Main J (2006b) Perception on success and failure factors for construction collaborative relationships. In Mohammed Dulaimi (Edt) *Sustainable Development through Culture and Innovation*. Proceedings of the Joint International Conference of Construction Culture, Innovation and Management, 26-29 November, The British University of Dubai, 143.

Anslinger P and Jenk J (2004) Creating successful alliances. *Journal of Business Strategy*, Vol. **25**(2), 18-23.

Albanese, R. (1994) *Team-building process: key to better project results*. *Journal of Management in Engineering*, ASCE, **10**(6), 36–44.

Arntzen, B. C., Brown, G. G., Harrison, T. P., & Trafton, L. L. (1995). Global supply chain management at Digital Equipment Corporation. *Interfaces*, 25(1), 69-93.

Beer, M., Eisenstat, R.A. and Spector, B. (1990) Why change programs don't produce change. *Harvard Business Review*, November± December, 158-66.

Bennett, J. and Jayes, S. (1995) *Trusting the Team: the Best Practice Guide to Partnering in Construction*, Centre for Strategic Studies in Construction/Reading Construction Forum, Reading.

Bennett, J. and Jayes, S. (1998) *The Seven Pillars of Partnering*, Reading Construction Forum, Reading.

Black C, Akintoye A, Fitzgerald E. (2000) An analysis of the success factors and benefits of partnering in construction. *International Journal Project Management*, 18(6), 423–34.

Bresnen, M. and Marshall, N. (2000) Partnering in construction: a critical review of issues, problems and dilemmas. *Construction Management and Economics*, 18, 229–37.

Burnes B, New S. (1996) *Strategic advantage and supply chain collaboration.* London: Manchester School of Management, UMIST, AT Kearney; 1996.

Chan A P C, Chan D W M and Ho KSK. (2003) Partnering in construction: critical study of problems for implementation. *Journal of Management in Engineering*, ASCE 2003;19(3):126–35.

Construction Industry Institute Australia (CIIA) (1996): *Partnering: Models for Success.* Research Report No. 8. Sydney

Cook, E.L., and Hancher, D.E. (1990) Partnering: contracting for the future. Journal of Management in Engineering, ASCE, 6(4), 431–47.

Crouse H J (1991) The power of partnerships. *The Journal of Business Strategy*, November/December, 4-8

Egan, Sir J (1998) *Rethinking Construction*. Department of the Environment, London.

Egan J. (2002) *Accelerating change*. Strategic Forum for Construction, Rethinking Construction; London.

Green, S.D. (1999) Partnering: the propaganda of corporatism*?,* in Ogunlana, S.O. (ed.) *Profitable Partnering in Construction Procurement*, CIB W92 and CIB TG23 Joint Symposium, E&FN Spon, London, 3–14.

Hamza A, Djebarnu R, Hibberd P. (1999) The implications of partnership success within the UK construction industry supply chain. In*?,* in Ogunlana, S.O. (ed.): *Profitable partnering in construction procurement* S.O., CIB W92 and CIB TG23 joint symposium, 39–46.

Hoffman and Schlosser (2001) Success factors of strategic alliances in small and medium-sized enterprises – An empirical survey. *Long Range Planning*, 34, 357-381

Lamming (1993) *Beyond Partnership: Strategies for Innovation and Lean Supply*, Prentice Hall International (UK) Limited, pp. 168-175

Leverick F and Littler D (1993) *Risks and rewards of collaboration*. Manchester School of Management, UMIST, ISBN 1-871782-63-5

Leverick F and Cooper R (1998) Partnerships in the motor industry: opportunities and risks for suppliers. *Long Range Planning*, 31(1), 72-81

Larson E (1997). Partnering on construction projects: a study of the relationship between partnering activities and project success*. IEEE Transactions on Engineering Management* 44(2), 188– 95.

Latham, M (1994) *Constructing the Team: Joint review of procurement and contractual arrangements in the United Kingdom construction industry*. HMSO, London.

Lendrum T (1998) . *The strategic partnering handbook*. 2nd ed. Sydney: McGraw and Hill.

Lorange P and Roos J (1991) Why some strategic alliances succeed and others fail. The Journal of Business Strategy. January/February, 25-30.

McGeorge, D., Palmer, A. (1997), *Construction management: new directions*, Oxford, UK: Blackwell Science Ltd.

Moore, C. Mosley, D. and Slagle, M. (1992) Partnering guidelines for win–win project management. *Project Management Journal*, 22(1), 18–21.

Naoum, S. (2003) An overview into the concept of partnering*. International Journal of Project Management*, 21, 71–76

Patching A (1994). *Partnering and personal skills for project management mastery*. Alan Patching and Associates Pty Ltd.

Sonnenbery F K (1992) Partnering: entering the age of cooperation. *Journal of Business Strategy*, 13(3), 49-52.

Taylor, S. (1999) Can partnering work for you*? Contract Journal*, 13 January, 18–19.

Wood, G & Ellis, R. (2005) Main contractor experiences of partnering relationships on UK construction projects*. Construction Management and Economics,* 23, 317–325