

RELATIONSHIP BASED PROCUREMENT

Peter R. Davis¹

PhD Student, Faculty of Business, Royal Melbourne Institute of Technology, Melbourne, Australia
Senior Lecturer, Faculty of the Built Environment Art and Design (BEAD), Curtin University of Technology, PERTH, Western Australia, WA 6854

Derek H. T. Walker²

Professor of Project Management, Faculty of Business, Royal Melbourne Institute of Technology, Melbourne, Australia

Relationship based procurement leads to mutual benefit in construction business-to-business dealings and provides benefits over traditionally fragmented supply chains. Research in the area of Relationship Marketing (RM) provides an insight into key variables of collaboration and cooperation. These have the ability to enhance the construction procurement value chain. Further, theory on the creation of social capital and its role in generating intellectual capital between parties engaged in collaborative project procurement is explored. For example, Nahapiet and Ghoshal (1998) have argued that social capital comprises structural, cognitive and relationship dimensions and that through combination and exchange of this social capital intellectual property is created that leads to organisational advantage. Social and intellectual capital adds an intangible benefit to participating in a relationship based procurement systems. Project alliances are a particular kind of relationship procurement system that rely on virtual organisations generating new knowledge enabling teams to solve interrelated problems in a complex environment. Utilising the theory described an insight into alliance projects recently carried out in Australia is provided drawing on contemporary construction literature. Instances are described where the RM literature together with social capital knowledge fills gaps in the construction literature.

Keywords: Relationship Marketing, Construction Procurement, Alliance

INTRODUCTION

Innovation may be introduced to construction in several ways including improved construction procurement approaches (Sidwell and Budiawan 2002). Much of the literature on procurement options such as alliancing, partnering and joint ventures stress the value of generating and building social capital (Walker 2003) and this in turn can reduce overall business generation transaction costs.

We argue in this paper that relationship based procurement strategies are closely linked to improved supply chain management through forming more satisfying longer-term business partnerships and the development of social capital that provides good will and commitment that is a more effective governance mechanism that is present in more traditional contract-based systems. Relationship based procurement approaches tend to also generate for participating organisations additional intangible assets such as learning and improved joint problem solving that focuses upon teams finding more holistic solutions that better satisfy a broader range of constituencies.

¹ p.davis@curtin.edu.au

² http://dhtw.tce.rmit.edu.au/

We have structured our paper as follows. First we discuss supply chains to set the context within a relationship based procurement approach. We then discuss the nature of relationships within relationship based procurement approaches so that it can highlight the relevance of social capital generating and maintaining improved collaboration and cooperation. We then develop the argument that this prompts the formation of projects teams becoming communities of practice (COPs) that work together to potentially deliver superior project delivery performance. We then cite the National Museum of Australia project as an example of relationship based procurement to illustrate our argument.

THE CONTEXT OF CONSTRUCTION SUPPLY CHAINS

The supply chain is a strategic network of upstream and downstream organisations that collectively process activity/ information flows and efficiently produces enhanced value products for the ultimate customer (Akintoye, Mcintosh and Fitzgerald 2000, Vrijhoef and Koskela 2000). Barker, Hong-Minh & Naim (2000: 180) simply refer to supply chain management (SCM) 'as bringing different parties together to develop shared goals and understanding'. Actors in the supply chain are interdependent, collaborative and largely configured regardless of functional or corporate boundaries (Akintoye, Mcintosh and Fitzgerald 2000, Vrijhoef and Koskela 2000). It follows that in this context they form 'virtual organisations' a term that several writers use to describe a consortia that are founded on relationship based procurement. Effectively managing a supply chain as a coherent single-team requires: an understanding of organisational drivers that are characterised differently to their traditional ways of being managed including having longer joint planning and monitoring horizons; corporate philosophies that must be compatible with key relationships—in other words actors share essentially the same strategic vision; risks and rewards are shared over a long term; a rationalised supplier base allows increased coordination and reduced transaction costs; a propensity for information sharing; and a focus on total costs and a desire to leverage technology (Vrijhoef and Koskela 2000, Spekman, Kamauff and Spear 1999: 105, 7, 9).

This contrasts a 'silo approach' where areas of activity are partitioned and the flow of work passes from area to area in a discrete way (Barker, Hong-Minh and Naim 2000: 188, Spekman, Kamauff and Spear 1999). All of these management characteristics can be risky as an over reliance on relationships is a concern despite the contention that a limited number of strong relationships with high quality suppliers allows fast response to market shifts and demands (Spekman, Kamauff and Spear 1999: 104). Vrijhoef & Koskela (2000) identify four major roles of SCM in construction depending on whether the focus is on the supply chain, the construction site, or both. The first focuses on the interface between the project and the supply chain activities. The goal is to reduce costs and the duration of on-site activities. A focus on the relationship between contractor and subcontractors/suppliers will achieve a dependable resources flow. This is fundamental for the continuance of benefits in the supply chain (Green et al. 2002). Araujo, Dubois & Gadde (1999: 499) list four interfaces with suppliers in this context; standardised, specified, translation and joint learning; 1) standardised interfaces are characterised as an arms length relationship based on price with low transaction costs, 2) specified interfaces retain a certain amount of interdependence as they are often subcontractors or outsourced suppliers, 3) translation interfaces are typically performance based and, 4) joint learning interfaces with suppliers are interactive in their relationship. In the above interfaces opportunities increase

incrementally as does the risk involved with the relationship. The second major role of SCM in construction provides a focus on improving the supply chain itself. This approach affords cost reductions in several areas including lead-in time, logistics, and inventory. In the third major role of SCM activities are transferred from site to the supply chain. This will avoid inferior conditions on site and benefit the supply chain through a wider concurrency between activities. The fourth major role integrates management of both the supply chain and the construction site. In other words site production is integrated within the SCM process. This is an holistic approach advocated by (Saad, Jones and James 2002). Whilst Spekman, Kamauff & Spear (1999: 103) indicate that managing every link in the supply chain is a prerequisite of success. Love (2002) bases a model for supply chain integration on TQM, learning organisations and systems thinking that is tied to alliance based (integrative) procurement.

In a survey of the 100 largest (by turnover) UK construction companies Akintoye, McIntosh & Fitzgerald (2000) found better quality service, cost benefits and simplified construction processes were the top three benefits in ascending order in downstream SCM. Whilst for upstream SCM relationships cost benefits, simplified construction processes and simplifying the tender process, were cited as the top three benefits in ascending order. In similar research of over 100 respondents in the UK Saad, Jones & James (2002: 178) found SCM to be a multi-faceted process. The research failed to differentiate between nine equally important variables defining its features. The features identified are similar to those outlined earlier in the paper and focus on; breaking down barriers, long term stable relationships, open exchange of data and information, early involvement, strong leadership in coordinating interfaces, negotiation of common objectives, sharing learning and innovation, and continuous improvement against clear targets. These factors are largely supported (Green *et al.* 2002, Akintoye, McIntosh and Fitzgerald 2000: 179, Love, Li and Mandal 1999: 10, Spekman, Kamauff and Spear 1999). It may be observed that contractors in the survey were more orientated toward clients as opposed to subcontractors/ suppliers. This may be attributed to the fact that clients will pay their bills (Akintoye, McIntosh and Fitzgerald 2000). Other research supports this and indicates 63% of respondents believe that clients or their advisors are 'significant' champions of SCM (Saad, Jones and James 2002: 181). However the large dependence on subcontractors and suppliers should require that contractors concentrate on downstream alliances that are often fairly stable but procured mainly in short term, competitive bidding at arms length (Green *et al.* 2002, Dubois and Gadde 2000, Spekman, Kamauff and Spear 1999). This research shows there is limited understanding of SCM, its prerequisites and success factors in general (Saad, Jones and James 2002: 183). These factors should make the economic system function with persuasion, negotiation, coordination and understanding whilst reducing transaction costs between the firms (Maskell 1998: 49).

Barriers to SCM include: lack of top management commitment; poor understanding; an inappropriate organisation structure to support SCM; low partner commitment; lack of common purpose; multiple or hidden goals; power imbalance, autonomy and accountability tensions; and an unwillingness to share information (Saad, Jones and James 2002: 174-74, Love *et al.* 2002, Akintoye, McIntosh and Fitzgerald 2000, Barker, Hong-Minh and Naim 2000: 190, Spekman, Kamauff and Spear 1999: 115).

NETWORK RELATIONSHIPS—A KNOWLEDGE FOCUS

Relationships within networks may be distinguished in three ways (Dubois and Gadde 2000). The first, resources adaptation may be represented in the content of products to ensure a perfect fit (Maskell 1998). Logistics or material flows are cited as examples. The second, administrative routines are represented in business transactions concerning tenders, inquiries, invoicing etc. Integration of information systems is cited as an example (Dubois and Gadde 2000). The third, knowledge based adaptations and coordination of activities are represented by well developed partnerships sharing and amassing knowledge (Love *et al.* 2002: 6, Dubois and Gadde 2000, Gadde and Snehota 2000: 309). Maskell (1998) refers to this as the codification of tacit knowledge, in as much as it may remain tacit whilst it is available only to an individual. It is only when information is shared with others having facilities to understand an idea and grasp its significance, that it becomes codified—codification is an *unpremeditated consequence* of knowledge use (Maskell 1998: 46). Due to the fact that it remains embedded in the relationship business culture, it remains difficult for those outside the relationship boundary to imitate it (Maskell 1998: 50). Maskell (1998) notes that over an extended period only 10% of a firms innovative activities were from in-house activities, the balance involved between 4 and 7 independent organisations. Other surveys have shown the benefit to firms through enhanced competencies from informal cooperation (Maskell 1998). Inter-activeness is a basic building block for network relationships (Maskell 1998).

. In a study of alliance/ partnering networks, Love (2002: 4) describes alliances as a tool that facilitates learning in supply chains. One of the key elements of this is that effective supply chains share information and knowledge that affect their delivery capacity because they are communicating more as teams addressing a joint enterprise through joint problem-solving that is the case in more traditional construction procurement arrangements (Spekman, Kamauff and Spear 1999: 110). The capacity and willingness to jointly solve delivery problems permits improved understanding of each participant's constraints, potential contribution and potential synergies. This means that the focus shifts from that of a silo-mentality that frequently leads to bottlenecks or shortages in resource supply to the supply chain working as a network (possibly a knowledge network).

COLLABORATION AND COOPERATION

Research in the area of Relationship Marketing (RM) provides an insight into key variables of collaboration and cooperation including various forms of capital.

Janine Nahapiet and Sumantra Ghoshal (1998) developed a useful model to explain how to create intellectual capital from its sustaining base of social capital. We also discuss the work of other leading writers in this area to illustrate how communities of practice best deploy social capital assets to enhance collaboration and cooperation.

Intellectual capital has been defined as “the knowledge and knowing capacity of a social collective, such as an organisation, intellectual community, or professional practice” (Nahapiet and Ghoshal 1998: 245). This definition assumes intellectual capital is a dynamic and practical concept. In fact practice, particularly when reflected upon to actively build knowledge, becomes important in re-casting our view of project and organisational success. Rarely, other than on the National Museum of Australia project, has innovation and learning formed part of a success measure (Walker, Hampson and Peters 2002, Walker and Keniger 2002) and (Keniger and Walker 2003,

Chapter 8) in (Walker and Hampson 2003a). Therefore one useful way of looking at knowledge is as an intellectual capital asset. Three types of intellectual capital assets were identified by Stewart (2000) *human capital*, *structural capital*, and *customer capital*. A fourth was identified as *social capital* (Nahapiet and Ghoshal 1998). This asset encapsulates elements of both human, and customer capital as well as the human capital elements of a project's supply-chain.

Human capital embodies the energy, talent, experience, and behaviour of people who create an organisational culture to deliver products and services that attract customers to an organisation rather than its competitor (Stewart 2000, adapted from p91). When viewed in this light, human capital forms the core of a relationship asset that as we have argued earlier can deliver longer-term reduced transaction costs.

Structural capital is the means by which people deliver products and services that attract customers to an organisation rather than its competitor through connection to a physical, information and knowledge infrastructure (Stewart 2000, adapted from p91). When seen in this light, it can be argued that much that appears on a traditional balance sheet is not an asset but a liability; it is merely a facilitation device rather than a core asset. This may explain the current corporate strategy concern with outsourcing and forming alliances with those best able to deliver this infrastructure in many industries. An effective supply chain configuration therefore can deliver valuable structural capital.

Customer capital is the value of loyalty customers share with an organisation that enables it to continue delivering products and services that attract customers to it rather than its competitor (Stewart 2000, adapted from p91). This loyalty can be envisaged as repeat business, co-development of products and services through development of a mutually beneficial relationship, providing feedback to an organisation, dissemination of customer opinion about an organisation and the development of its reputation. When seen in this light, investment by an organisation in customer capital can be viewed as primarily a relationship building exercise using the enabling capacities of both structural and human capital. Customer capital is enhanced through a series of value adding stages from a transaction, to a product solution, to a business solution to an alliance in which customer and organisational goals and objectives are mutually met. In a supply chain upstream and downstream customers possess considerable customer capital.

Social Capital can be seen as “the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit” (Nahapiet and Ghoshal 1998: 243). This view in which the employee, customer and supply chain network is seen as capital and an asset is in stark contrast to traditional construction procurement views of employees and the supply chain as being costs and not significant generators of wealth and not capital in this wider context.

In a construction context if business success included an improvement of the quality of its social capital then at least two areas of improvements in the industry would be better served. Firstly there would be an enhanced environment created for project constituent teams to recognise the incentive of sharing knowledge by exchanging and combining their knowledge. This point has been argued convincingly in the literature that discusses improved innovation and productivity. Secondly, by recognising social capital as an asset, clients and supply-chain partners together with construction

industry investors might become better informed about leading indicators of success rather than lagging indicators such as declared profits.

Social capital and communities of practice (COPs)

COPs are groups of people linked together through their interests in an environment in which sharing and exchanging knowledge is the principal goal. The literature on COPs has been growing with seminal works by (Wenger and Snyder 2000, Wenger 1999) being cited as an authoritative explanation of their existence and how they function. One of the first cases of a COP to be widely cited is the work undertaken by Orr in his ethnographic PhD study of service technicians working on photocopiers. For more in this area see Brown and Duguid (1991). One of the most common texts that discusses this case is Davenport and Prusak (2000). While all these authors effectively discuss the concept of a COP and how Xerox encouraged the development of one through its exposure to their benefits, there is little available literature that specifically goes beyond their nature and describe how they may be developed. The engine of COPs is goodwill and not only a perceived need but a desire to share knowledge and to volunteer to help others in a problem solving environment. In one sense COPs can be highly transactional in that there is an implicit assumption that each member can call for help when needed to get a response from other COP members. In another sense they are transformational in their attitude towards work. They engender enthusiasm to be involved and keep up to date and to commitment to excellence in their COP skills and knowledge base. It is this inner motivation that makes COPs so powerful and so valuable.

Social capital is categorised into three dimensions. Structurally, social capital comprises network ties, network configurations and appropriate organisation for these networks. It is worth reiterating Nahapiet and Ghoshal's (1998) definition that relates to potential as well as realised benefits of social networks. When considering financial assets we accept that cash and cheque account bank deposits represent assets even though they are inactive in generating immediate wealth. Similarly, we should recognise the intrinsic value of 'contacts' through clients, employees, professional associations and more informal COPs such as colleagues that have built up a trusting long-term relationship from past/ present employment encounters. This latent asset is as potentially useful and potent as cash in the bank. The structural dimension of social capital infers that to develop and fully leverage social capital we need to understand, perhaps through mapping, network ties their nature, characteristics and configuration. If this is effectively done, then there is an opportunity to adapt the business organization to best avail itself of the benefits to be derived from social capital with respect to knowledge and intellectual capital. A second dimension of social capital identified by Nahapiet and Ghoshal (1998) is cognitive. This comprises firstly, shared codes and language and secondly, shared narratives. Shared codes and language is an easy concept to grasp. We all have felt at some time excluded by jargon or forms of expression that seem to include some but not others. This is a natural part of forming cultures and sub-cultures. Such language contains subtle forms of communication, fine distinctions that mean something special to those using the words or terms. Often this subtlety is valuable as it embeds elements of tacit knowledge and/ or powerful concepts. Networks also share codes. Many COPs have a code that requires anyone with specific knowledge about a particular problem that they share it when asked. Shared narrative have been also termed 'war-stories', however, shared narratives are more than empty boasting or bragging; they are shared examples of a particular problem under discussion so that the context as well as the story is explored. Often

these narratives provide a deeper perspective for those concerned. The third dimension of social capital is relational. This represents four elements.

1. Trust as discussed in Walker and Hampson (Walker and Hampson 2003b) is vital for alliances and partnership whether this be a COP or more formal arrangement. Trust means an expectancy that promises will be delivered as well as a measure of knowing what any person within the social group may be expected to deliver.
2. Norms are the rules and degree of consensus about some important matters that concerns the social group. For example, the norm that when a group member sends out a general call for help on a specific matter that anyone in a position to help will volunteer to assist.
3. Obligations operate as a credit transfer system. Having been helped or been in a position to expect help one puts COP members in position of being obliged to offer help to other COP members. Obligation thus binds members into mutual dependency that is a very powerful force for maintaining and developing social networks.
4. Identification is a process whereby members of a group both feel and believe that they truly belong to their group.

Having described what social capital is comprised of and is characterised by; we need to know how it can be leveraged to generate new intellectual capital. Four conditions for exchange and combination of knowledge are describe by Nahapiet and Ghoshal (1998) that draw upon earlier work on value creation Moran and Ghoshal (1996). They state that first there must be an opportunity existing for combination or exchange of knowledge through *access to a social network* with that knowledge and/ or access in terms of appropriate information and communication technology to do so. Second, there must be an *anticipation of the value* to be derived from the exchange or combining of knowledge. When you go to a project start up meeting or tender briefing you are much more likely to gain benefit from that experience if you started out with the goal of achieving something. There must also be a *motivation* to share knowledge or to combine knowledge and create new knowledge. The fourth condition identified by Nahapiet and Ghoshal (1998), combination *capability*, is an interesting condition. In a very insightful paper by Cohen and Levinthal (1990) they discuss a term they use 'absorptive capacity'. This is the capacity of an organisation (or individual) to absorb new knowledge. They discuss in their paper some of the precursors to innovation take-up and identify many of the (cultural) organisational factors that indicate the capacity of organisations to absorb new ideas. These include openness, tolerance of mistakes, having boundary-spanners (people that bridge several disciplines or areas of expertise) that they can 'see' the potential of one idea transferred to another context or use of cross-disciplinary teams that truly interact, diversity of participants in terms of their world-view, and also interestingly, past experience in having experimented and toyed with new ideas. These four conditions are highly challenging for the traditional construction industry organisation in particular.

Social and intellectual capital adds an intangible benefit to participating in a relationship based procurement systems.

A PROJECT ALLIANCE EXAMPLE

Insights into how one form of relationship based procurement, a project alliance recently carried out in Australia, provides an example drawn from contemporary construction literature. This demonstrates where a relationship based procurement and RM approach together with its social capital knowledge underpinning fills the gaps in the construction literature. Project alliances are a particular kind of relationship procurement system that rely on virtual organisations generating new knowledge enabling teams to solve interrelated problems in a complex environment.

The National Museum Project in Canberra Australia—One Example

The National Museum project opened on 11 March 2001. Its scope was total design and construction delivery using a project alliance arrangement. The Commonwealth Government sought quality of performance in the project delivery as opposed to lowest price in a project that shares a unique setting in a large lakeside precinct that includes the Australian Parliament House, the National Gallery and the High Court of Australia. The National Museum is a landmark project that houses many thousand items and priceless documents that relate to three Australian and Cultural heritage themes. The design was required to be distinctive and unique, reflecting the cultural heritage of approximately 50,000 years of indigenous peoples. The budget for the project was just over A\$155 million and considered to be a cornerstone for Australia's centenary of federation celebrations in 2001 (Walker and Hampson 2003c: 84).

The National Museum of Australia project was characterised by high levels of project management delivery success from a number of dimensions including quality measures for design, construction delivery, customer satisfaction, user feedback and team satisfaction measures measured at three intervals during the construction phase (Peters *et al.* 2001). The data gathered during the development of this project provides useful examples of the strength of the relationship based procurement experiment in this instance. For example there is considerable and strong evidence that the alliance managed and interacted with the supply chain in a far more constructive manner than for the business as usual (BAU) situation for traditional projects. Data gathered and presented in the project research report (Peters *et al.* 2001) and its subsequent analysis in Walker and Hampson (2003a) clearly indicates that the experience and team performance satisfaction ratings were generally twice as good as the BAU experience. Many of these measures were effective social capital measures and effective COPs being formed to share knowledge and solve problems these facilitated the considerable collaboration and cooperation that took place on this project. Thus, this form of relationship based procurement provides a useful RM model to be emulated.

CONCLUSION

We have argued that relationship based procurement systems are based upon the development of effective use of social capital. We also argued that supply chain management provides a useful framework for applying relationship based procurement systems in practice with collaboration and cooperation being a core feature, again reliant upon social capital. We also indicated how relationship based procurement is dependent upon and is reinforced by joint learning from joint problem-solving activities.

We used evidence from a prominent example of a relationship based procurement project case study available from the literature to illustrate how relationship based

procurement can deliver a win-win situation for project participants throughout the project supply chain. While a single successful example naturally does not validate our arguments it does provide a framework for understanding the underlying process that lead to project success using a relationship based procurement approach. Clearly, social capital and its positive impact upon supply chain management did influence the outcome of the National Museum of Australia project and our argument that this lies at the core of understanding how this may occur has value to consider how this success may be replicated on other projects.

REFERENCES

- Akintoye, A, McIntosh, G and Fitzgerald, E (2000) A survey of supply chain collaboration and management in the UK construction industry. *European Journal of Purchasing & Supply Management*, **6**(3-4), 159-68.
- Araujo, L, Dubois, A and Gadde, L-E (1999) Managing Interfaces with Suppliers. *Industrial marketing Management*, **28**(5), 497-506.
- Barker, R, Hong-Minh, S and Naim, M M (2000) The terrain scanning methodology, Assessing and improving construction supply chains. *European Journal of Purchasing & Supply Management*, **6**(3-4), 179-93.
- Brown, J S and Duguid, P (1991) Organisational Learning and Communities of Practice: Towards a Unified View of Working, Learning, and Innovation. *Organisational Science*, **2**(1), 40-57.
- Cohen, W M and Levinthal, D (1990) Absorptive Capacity: A New Perspective on Learning and Innovation. *Administrative Science Quarterly*, **35**(1), 128-52.
- Davenport, T H and Prusak, L (2000) *Working Knowledge - How Organizations Manage What They Know*. Boston: Harvard Business School Press.
- Dubois, A and Gadde, L-E (2000) Supply strategy and network effects -- purchasing behaviour in the construction industry. *European Journal of Purchasing & Supply Management*, **6**(3-4), 207-15.
- Gadde, L-E and Snehota, I (2000) Making the Most of Supplier Relationships. *Industrial marketing Management*, **29**(4), 305-16.
- Green, S, Newcombe, R, Williams, M, Fernie, S and Weller, S (2002) Supply Chain Management: A Contextual Analysis of Aerospace and Construction. In: Lewis, T M (Ed.), *Procurement systems & technology transfer : CIBW92 Procurement Systems Symposium*, pp. xiii, 779. St. Augustine, Trinidad and Tobago: Dept. of Civil Engineering University of the West Indies.
- Keniger, M and Walker, D H T (2003) Developing a Quality Culture - Project Alliancing Versus Business as Usual. In: Walker, D H T and Hampson, K D (Eds.), *Procurement Strategies: A Relationship Based Approach*, pp. Chapter 8, 204-35. Oxford: Blackwell Publishing.
- Love, P E D, Li, H and Mandal, P (1999) Rework: a symptom of a dysfunctional supply-chain. *European Journal of Purchasing & Supply Management*, **5**(1), 1-11.
- Love, P E D, Irani, Z, Cheng, E and Li, H (2002) A model for supporting inter-organizational relations in the supply chain. *Engineering Construction and Architectural Management*, **9**(1), 2-15.

- Maskell, P (1998) Globalisation and Industrial Competitiveness: The Process and Consequences of Ubiquitification. *In: Malecki, E J and Oinas, P (Eds.), Making connections : technological learning and regional economic change*, pp. 35-59. Aldershot, Hants, England ; Brookfield, VT: Ashgate.
- Moran, P and Ghoshal, S (1996) Value Creation by Firms. *In: Keys, J B and Dosier, L N (Eds.), Academy of Management Best Paper Proceedings*, pp. 41-5.
- Nahapiet, J and Ghoshal, S (1998) Social Capital, Intellectual Capital, and the Organizational Advantage. *Academy of Management Review*, **23**(2), 242-66.
- Peters, R. J., Hampson, K. D., Walker, D. H. T., Tucker, S., Mohammed, S., Ambrose, M. and Johnston, D. (2001). Case Study of the Acton Peninsula Development, Government Research Report. Canberra, Department of Industry, Science and Resources, Commonwealth of Australia Government: 515.
- Saad, M, Jones, M and James, P (2002) A review of the progress towards the adoption of supply chain management (SCM) relationships in construction. *European Journal of Purchasing & Supply Management*, **8**(3), 173-83.
- Sidwell, T and Budiawan, D (2002) The impact of the tendering contract on the opportunities for contractor innovation. *In: Lewis, T M (Ed.), Procurement systems & technology transfer : CIBW92 Procurement Systems Symposium*. St. Augustine, Trinidad and Tobago: Dept. of Civil Engineering University of the West Indies.
- Spekman, R E, Kamauff, J and Spear, J (1999) Towards more effective sourcing and supplier management. *European Journal of Purchasing & Supply Management*, **5**(2), 103-16.
- Stewart, T A (2000) *Intellectual Capital - The New Wealth of Organizations*. London: Nicholas Brealey Publishing.
- Vrijhoef, R and Koskela, L (2000) The four roles of supply chain management in construction. *European Journal of Purchasing & Supply Management*, **6**(3-4), 169-78.
- Walker, D H T and Keniger, M (2002) Quality Management in Construction: An Innovation Advance Using Project Alliancing in Australia. *TQM, MCB University Press, UK*, **14**(5), 307-17.
- Walker, D H T and Hampson, K D (2003a) *Procurement Strategies: A Relationship Based Approach*. Oxford: Blackwell Publishing.
- Walker, D H T and Hampson, K D (2003b) Developing Cross-Team Relationships. *In: Walker, D H T and Hampson, K D (Eds.), Procurement Strategies: A Relationship Based Approach*, pp. Chapter 7,169-203. Oxford: Blackwell Publishing.
- Walker, D H T and Hampson, K (2003c) Project Alliance Member Organisation Selection. *In: Walker, D H T and Hampson, K (Eds.), Procurement strategies : a relationship based approach*, pp. 297. Oxford, UK: Blackwell Science.
- Akintoye, A, McIntosh, G and Fitzgerald, E (2000) A survey of supply chain collaboration and management in the UK construction industry. *European Journal of Purchasing & Supply Management*, **6**(3-4), 159-68.
- Araujo, L, Dubois, A and Gadde, L-E (1999) Managing Interfaces with Suppliers. *Industrial marketing Management*, **28**(5), 497-506.
- Barker, R, Hong-Minh, S and Naim, M M (2000) The terrain scanning methodology, Assessing and improving construction supply chains. *European Journal of Purchasing & Supply Management*, **6**(3-4), 179-93.

- Brown, J S and Duguid, P (1991) Organisational Learning and Communities of Practice: Towards a Unified View of Working, Learning, and Innovation. *Organisational Science*, **2**(1), 40-57.
- Cohen, W M and Levinthal, D (1990) Absorptive Capacity: A New Perspective on Learning and Innovation. *Administrative Science Quarterly*, **35**(1), 128-52.
- Davenport, T H and Prusak, L (2000) *Working Knowledge - How Organizations Manage What They Know*. Boston: Harvard Business School Press.
- Dubois, A and Gadde, L-E (2000) Supply strategy and network effects -- purchasing behaviour in the construction industry. *European Journal of Purchasing & Supply Management*, **6**(3-4), 207-15.
- Gadde, L-E and Snehota, I (2000) Making the Most of Supplier Relationships. *Industrial marketing Management*, **29**(4), 305-16.
- Green, S, Newcombe, R, Williams, M, Fernie, S and Weller, S (2002) Supply Chain Management: A Contextual Analysis of Aerospace and Construction. In: Lewis, T M (Ed.), *Procurement systems & technology transfer : CIBW92 Procurement Systems Symposium*, pp. xiii, 779. St. Augustine, Trinidad and Tobago: Dept. of Civil Engineering University of the West Indies.
- Keniger, M and Walker, D H T (2003) Developing a Quality Culture - Project Alliancing Versus Business as Usual. In: Walker, D H T and Hampson, K D (Eds.), *Procurement Strategies: A Relationship Based Approach*, pp. Chapter 8, 204-35. Oxford: Blackwell Publishing.
- Love, P E D, Li, H and Mandal, P (1999) Rework: a symptom of a dysfunctional supply-chain. *European Journal of Purchasing & Supply Management*, **5**(1), 1-11.
- Love, P E D, Irani, Z, Cheng, E and Li, H (2002) A model for supporting inter-organizational relations in the supply chain. *Engineering Construction and Architectural Management*, **9**(1), 2-15.
- Maskell, P (1998) Globalisation and Industrial Competitiveness: The Process and Consequences of Ubiquitification. In: Malecki, E J and Oinas, P (Eds.), *Making connections : technological learning and regional economic change*, pp. 35-59. Aldershot, Hants, England ; Brookfield, VT: Ashgate.
- Moran, P and Ghoshal, S (1996) Value Creation by Firms. In: Keys, J B and Dosier, L N (Eds.), *Academy of Management Best Paper Proceedings*, pp. 41-5.
- Nahapiet, J and Ghoshal, S (1998) Social Capital, Intellectual Capital, and the Organizational Advantage. *Academy of Management Review*, **23**(2), 242-66.
- Peters, R J, Hampson, K D, Walker, D H T, Tucker, S, Mohammed, S, Ambrose, M and Johnston, D (2001) *Case Study of the Acton Peninsula Development*. Government Research Report, Canberra: Department of Industry, Science and Resources, Commonwealth of Australia Government.
- Saad, M, Jones, M and James, P (2002) A review of the progress towards the adoption of supply chain management (SCM) relationships in construction. *European Journal of Purchasing & Supply Management*, **8**(3), 173-83.
- Sidwell, T and Budiawan, D (2002) The impact of the tendering contract on the opportunities for contractor innovation. In: Lewis, T M (Ed.), *Procurement systems & technology transfer : CIBW92 Procurement Systems Symposium*. St. Augustine, Trinidad and Tobago: Dept. of Civil Engineering University of the West Indies.
- Spekman, R E, Kamauff, J and Spear, J (1999) Towards more effective sourcing and supplier management. *European Journal of Purchasing & Supply Management*, **5**(2), 103-16.

- Stewart, T A (2000) *Intellectual Capital - The New Wealth of Organizations*. London: Nicholas Brealey Publishing.
- Vrijhoef, R and Koskela, L (2000) The four roles of supply chain management in construction. *European Journal of Purchasing & Supply Management*, **6**(3-4), 169-78.
- Walker, D H T (2003) Implications of Human Capital Issues. In: Walker, D H T and Hampson, K D (Eds.), *Procurement Strategies: A Relationship Based Approach*, pp. 258-95. Oxford: Blackwell Publishing.
- Walker, D H T and Keniger, M (2002) Quality Management in Construction: An Innovation Advance Using Project Alliancing in Australia. *TQM, MCB University Press, UK*, **14**(5), 307-17.
- Walker, D H T and Hampson, K D (2003a) *Procurement Strategies: A Relationship Based Approach*. Oxford: Blackwell Publishing.
- Walker, D H T and Hampson, K D (2003b) Developing Cross-Team Relationships. In: Walker, D H T and Hampson, K D (Eds.), *Procurement Strategies: A Relationship Based Approach*, pp. Chapter 7, 169-203. Oxford: Blackwell Publishing.
- Walker, D H T and Hampson, K (2003c) Project Alliance Member Organisation Selection. In: Walker, D H T and Hampson, K (Eds.), *Procurement strategies : a relationship based approach*, pp. 297. Oxford, UK: Blackwell Science.
- Walker, D H T, Hampson, K and Peters, R (2002) Project Alliancing vs Project Partnering: A Case Study of the Australian National Museum Project. *Supply Chain Management*, **7**(2), 83-91.
- Wenger, E C (1999) Communities of Practice: The Key to Knowledge Strategy. *The Journal of the Institute for Knowledge Management*, **1**(Fall), 48-63.
- Wenger, E C and Snyder, W M (2000) Communities of Practice: The Organizational Frontier. *Harvard Business Review*, **78**(1), 139-45.
- Walker, D H T, Hampson, K and Peters, R (2002) Project Alliancing vs Project Partnering: A Case Study of the Australian National Museum Project. *Supply Chain Management*, **7**(2), 83-91.
- Wenger, E C (1999) Communities of Practice: The Key to Knowledge Strategy. *The Journal of the Institute for Knowledge Management*, **1**(Fall), 48-63.
- Wenger, E C and Snyder, W M (2000) Communities of Practice: The Organizational Frontier. *Harvard Business Review*, **78**(1), 139-45.