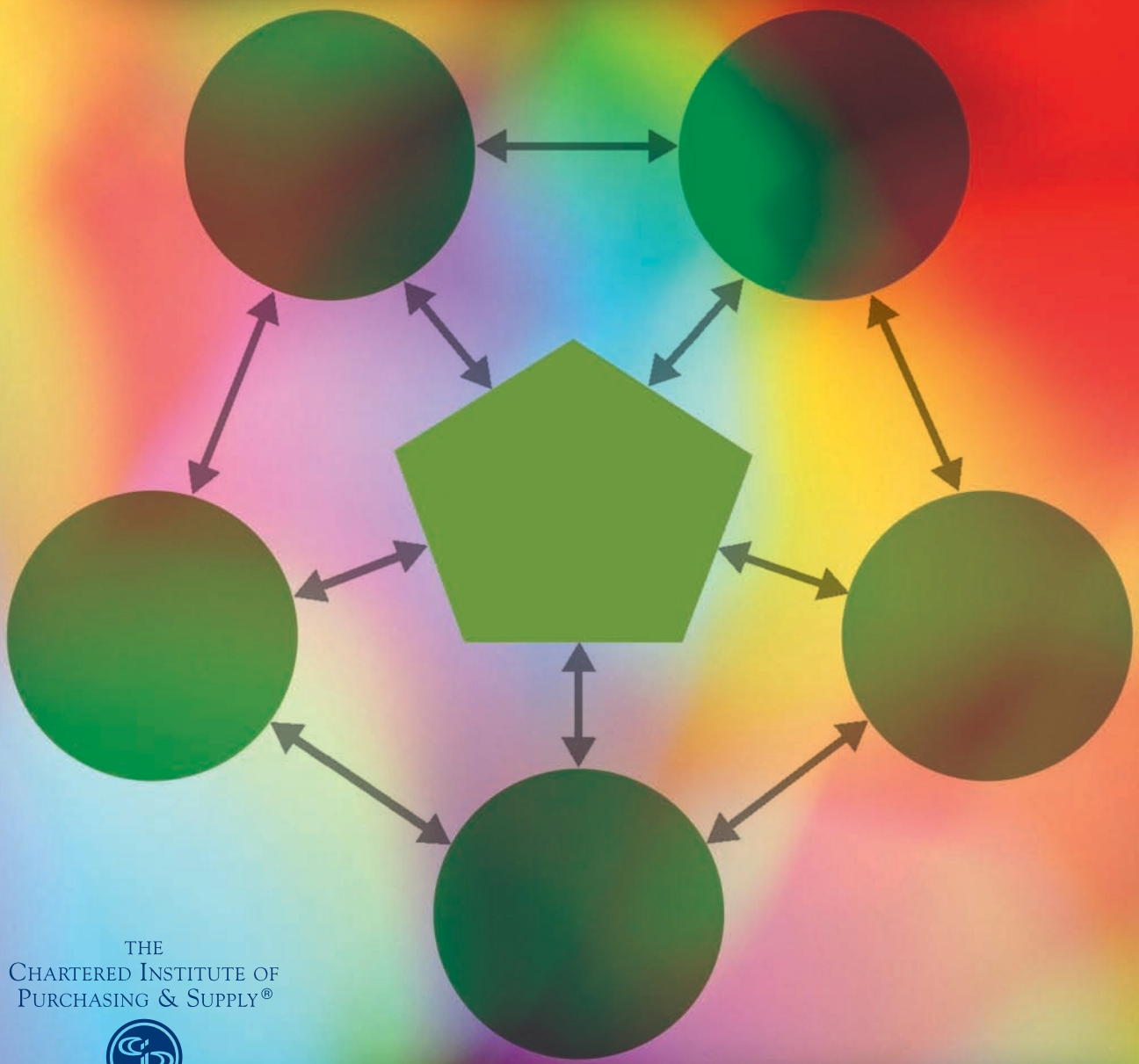
STRATEGIC SUPPLY MANAGEMENT

PRINCIPLES, THEORIES AND PRACTICE



THE CHARTERED INSTITUTE OF PURCHASING & SUPPLY®

Pearson

PAUL COUSINS • RICHARD LAMMING
BENN LAWSON • BRIAN SQUIRE

Strategic Supply Management

'Cousins et al. have drawn from their extensive experience in industry, and crafted a book that provides deep contextual insights into why supply chains are the foundation for competitive strategy, the dynamics that drive economic change, and most importantly, the importance of relationships as the glue that keeps supply chains functioning properly. Executives and students will benefit from the frameworks, examples, and discussions in this book, which should be on the bookshelves of everyone who has an interest in global competitiveness.'

Rob Handfield
Bank of America University Distinguished Professor of Supply Chain Management
North Carolina State University
Consulting Editor, *Journal of Operations Management*
Director, Supply Chain Resource Cooperative

Box 5.4 Limitations of AHP

Like any MCDM model there are several limitations that the user should be aware of. First, AHP is driven by the judgements of the decision maker. Although the process is more transparent than making arbitrary decisions, the process is still susceptible to manipulation or simple errors. AHP is also reliant on relatively consistent decisions; for example, if criterion *i is* very strongly preferred to criterion *j* but only moderately preferred to criterion *k*, then it would logically follow that criterion *k* would be strongly preferred to criterion *j*. However, the pairwise comparison matrix allows for some inconsistency in these decisions. It is important that any inconsistency is kept within reasonable limits for the technique to remain effective. Lastly, the process is not particularly parsimonious. Because all values are relative, a new matrix must be calculated each time a new criterion or alternative is added.

Based on this analysis, supplier 1 has the highest weight with a score of 0.423, supplier 2 the second highest with a score of 0.398, and supplier 3 the lowest with a score of 0.178. Based on this simplified example the buyer firm should select supplier 1.

As can be seen from this example, AHP offers the Supply Strategist a systematic and transparent means of supplier selection. The technique helps to provide a step-by-step approach where large quantities of seemingly conflicting data can be handled in manageable chunks. With the recent Sarbanes–Oxley legislation AHP data can also give transparency to what otherwise can often seem a very subjective and sometimes biased process. However, there are a number of limitations to AHP, some of which are highlighted in Box 5.4.

Summary

Selecting the 'right' supplier has never been so important. This chapter provides a structured approach to the selection process, from initial qualification through to final selection. Our experience of using this process with various organisations has shown that it can be extremely useful in bringing people together to discuss otherwise implicit issues. It raises questions about the good or service sourced. It also has substantive benefits in creating transparency in a process that can otherwise appear murky and subjective. The next chapter examines the development of suppliers after the selection decision has been made.

Seminar questions

1. Discuss the strengths and weaknesses of the following sources of information that may be used to evaluate a supplier: information from suppliers, supplier visits, supplier performance measures.
2. Using a case study, undertake an AHP.

References

Agarwal, S. (2006) 'Managing Risk in The Supply Chain', *Supply and Demand Chain Executive*, August.

Cousins, P. D. and Lawson, B. (2007) 'The Effect of Socialization Mechanisms and Performance Measurement on Supplier Integration in New Product Development', *British Journal of Management*, 17, in press.

Cousins, P. D. and Menguc, B. (2005) 'The Implications of Socialization and Integration in Supply Chain Management', *Journal of Operations Management*, Vol. 24 (5), pp. 604–20.

Dale, B. (2003) *Managing Quality*, 4th Edn, Blackwell, Oxford.

De Boer, l., Labro, E. and Morlacchi, P. (2001) 'A Review of Methods Supporting Supplier Selection', *European Journal of Purchasing & Supply Management*, Vol. 7, pp. 75–89.

Dierickx, I. and Cool, K. (1989) 'Asset Stock Accumulation and Sustainability of Competitive Advantage', *Management Science*, Vol. 35, pp. 1504–14.

Fisher, M. (1997) 'What is the right supply chain for your product?', *Harvard Business Review*, Vol. 75 (2), pp. 105–16.

Gerwin, D. (1993) 'Manufacturing Flexibility: A Strategic Perspective', *Management Science*, Vol. 39 (4), pp. 395–410.

González-Benito, J. and Dale, B. (2001) 'Supplier Quality and Reliability Assurance Practices in the Spanish Automotive Components Industry: A Study of Implemenation Patterns', *European Journal of Purchasing and Supply Management*, Vol. 7, pp. 187–96.

Reese, A. K. (2004) 'Taking Performance Management Outside the Four Walls', *Supply & Demand Chain Executive*, April/May.

Saaty, T. L. (1980) *The Analytic Hierarchy Process*, McGraw-Hill, New York.

Schmid, R. (2000) 'Ericsson Falls Victim to Single Source Supplier', www.risk-engineering.com, 13 September.

Simon, H. A. (1957) *Models of Man, Social and Rational*, John Wiley and Sons, Inc, New York.

Useful sites

Dun & Bradsheet www.dnb.com

ISO 9000 www.iso.org

ISO 14000 www.iso.org

Endnotes

1. http://usa.visa.com
2. For a complete review of various models see de Boer et al. (2001).
3. See page 47 for a review of the Kraljic matrix.
4. AHP was developed by Saaty (1980) in the book *The Analytic Hierarchy Process*.

Chapter 6

Supplier development

Aim of chapter

The aim of this chapter is to discuss the development of a world-class supply base.

Learning outcomes

At the end of this chapter, readers will:

- appreciate the strategic importance of supplier development;
- have an understanding of best practices in supplier development;
- understand the supplier development process.

Introduction

We have discussed previously how outsourcing and supply base reduction have led to close relationships with fewer suppliers. This increased dependence makes these strategic suppliers ever more important to the buyer for cost reduction, quality, on-time delivery and new product development. For example, 80 per cent of Honda's manufacturing costs and 70 per cent of Chrysler's costs can be assigned from purchased components (Hartley & Choi, 1996). Suppliers may also have been awarded long-term contracts, often for the life of the product, which makes supplier development attractive to both parties. In addition, many buyers have 'cost give-back' clauses with their suppliers, often amounting to 2 to 5 per cent annually. Supplier development is one means of helping suppliers meet these cost reduction goals.

Defining supplier development

The unit of competition has increasingly become about the supply network, rather than the individual firm or dyad. To compete, buying firms are increasingly focusing on the performance, capabilities and responsiveness of their supply base.

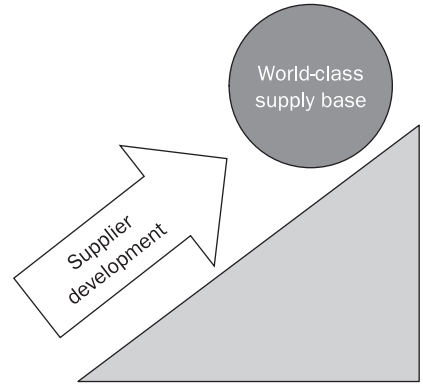
Rather than electing to in-source the component or switch to another supplier, many buyers are now actively intervening in the activities of their suppliers in order to generate the required performance improvements. This process of supplier development is most easily described as:

> any effort of a buying firm with a supplier to increase its performance and/or capabilities and meet the buying firm's short and/or long-term supply needs. (Krause, 1999)

These efforts may range from limited to extensive. Limited efforts include informal supplier evaluation and performance improvement requests, while extensive efforts often include training the supplier's personnel and investment in the supplier's operations. For example, the buyer may send their own engineers to the supplier's shop floor to help solve a specific problem, or to meet a particular launch date. They may also run training courses for suppliers' employees in techniques such as lean production, quality circles, value analysis and value engineering, and TQM. Within the auto industry, the vast majority of manufacturers have some sort of formal supplier development programme in place. Ford has '*kaizen*[1] engineers' who run one-week workshops at supplier facilities, while Toyota has a Supplier Support Centre which helps their suppliers adopt lean manufacturing principles. Each of these automakers employs between 50 and 80 engineers whose sole task is to help improve supplier performance. John Deere, as a further example, has over 100 employees responsible for supplier development. Figure 6.1 illustrates the belief of these firms that supplier development can help build a world-class supply base with suppliers who are higher performing and more responsive to the buyer's needs. By providing a fresh outside perspective, buyers are able to question suppliers' underlying assumptions and provide the incentive for organisational change, thereby pushing suppliers up the slope to improved performance.

One of the advantages of a supplier development programme is that buyer pressure can act as a catalyst for process change within suppliers. Buyer involvement

Figure 6.1 Supplier development and a world-class supply base



can provide a fresh perspective, challenging the underlying assumptions of the supplier, but also act as an external pressure point which legitimises the need for change, helping to overcome organisational inertia. The impact of supplier development can be immense. One study reported that as a result of a one-week workshop, General Motors were, on average, able to gain a 50 per cent improvement in supplier productivity, up to 75 per cent reduction in lead-time, and 70 per cent inventory reduction (Hartley and Choi, 1996). By changing the layout of a welding process, Honda of America's Best Practices team were able to reduce supplier costs by $200,000 per year. Another example is of a world-class customer and supplier who have had a close relationship for over nine years. During this time, the partners implemented integrated customer/supplier teams who worked within both companies to improve business and technical processes. Over the past four years the supplier has produced over 500 million items for the customer without a single item rejected, and attributes this perfect quality to the effectiveness of the integrated teams. Similar improvements have been recorded by numerous firms. The experiences of one such firm, John Deere, are described in Box 6.1.

Box 6.1 Supplier development at John Deere

John Deere, a Fortune 500 company that manufactures agricultural, consumer and commercial equipment such as tractors and lawnmowers, began a process of supply base rationalisation in the 1980s. As suppliers were reduced in number, the capabilities of those that remained became ever more important to John Deere, increasing pressure on suppliers. In the early 1990s, as suppliers were adjusting to the changes in Deere's manufacturing strategy, Deere found there was a sudden growth in demand for its portfolio of golf-course mowers, cranking the pressure up further on remaining suppliers. This led Deere to realise that if its suppliers were to improve, ultimately John Deere would benefit.

Fisher-Barton, who produced high-grade mower blades known as bed knives, was one such supplier. Deere offered to analyse and improve Fisher-Barton's operations to increase flexibility and efficiency of order fulfilment, but at first was greeted with scepticism. The president of Fisher-Barton stated that 'When someone mentions "partnership" I get nervous; I know its going to cost us money'. Despite these initial reservations, Deere convinced Fisher-Barton that they would not concentrate solely on their own needs, but would evaluate and improve the whole manufacturing operation.

The Deere supplier development programme worked successfully for Fisher-Barton, increasing quality, shortening order fulfilment times and improving margins and understanding of manufacturing operations. Deere does not rest on its laurels though; they claim to have been practising continuous improvement since the mid-1800s! Rating methods are reviewed annually and the emphasis changed as suppliers approach world-class standard, helping both firms achieve long-term success. Deere now pursues this strategy with its 'Achieving Excellence' programme, focusing on suppliers with a long-term business impact, particularly those with a unique capability or patent. This attitude is summed up by Deere's Supplier Development manager, who views supplier development as 'a standalone supply management strategy, not just one of many supply management tools'.

Sources: www.**deere**.com; Golden (1999); Aquent Consulting (n.d.)

Objectives of supplier development

Supplier development efforts typically have two main goals, either improving the supplier's operational performance or improving the supplier's *capability* to improve. In the first situation, development programmes tend to be relatively short-term and focused on working side-by-side with the supplier to directly *improve supplier performance* along dimensions such as cost, quality and delivery performance. This is a narrow perspective focused on bringing supplier performance up to the buyer firm's requirements. For direct improvement activities, the development team will often select one of the supplier's production lines for improvement. Typical changes include workflow simplification, layout changes and set-up time reduction. By applying these standard techniques across multiple suppliers and numerous factories, the buyer team becomes highly competent in its application. This approach may also be used as a form of pre-production emergency assistance where the development team helps the supplier meet deadlines or quality levels for a specific component. The disadvantages of this approach include the limited input of the supplier and the subsequent narrow understanding of the underlying problem-solving techniques. It also ignores the many socio-technical elements of the production system which also stand in the way of improvement.

The second type of supplier development effort is referred to as *supplier capability development*. Many supplier development programmes have moved beyond these short-term, standardised approaches and focus instead on building the supplier's capability for improvement from *within* the organisation. In essence, it is the buyer's attempts to transfer its own in-house capabilities across firm boundaries and into the supplier. The difficulty with replicating and then sustaining these practices within suppliers means that the second approach to supplier development is much more problematic to achieve, though the performance improvements are usually greater over time. Co-opting the supplier into the process helps build commitment to change, reduces resistance and facilitates the transfer of knowledge from buyer to supplier. In effect the buyer should be the trainer and facilitator, rather than driver of change. One of the key challenges is managing the transition out of the supplier's organisation. Change needs to be institutionalised, with continued feedback, rewards and monitoring on the part of the buyer. Without this follow-up support the supplier may slip back into old patterns or develop dysfunctional counter-reactions. This approach also has disadvantages. Large commitments of time and resources are required by the buyer, so potential candidates for capability development should be selected carefully. Results also may not come quickly. This approach has a slower pace of change than direct improvement efforts, so there is a danger of frustration on the part of the supplier.

Illustrating these issues, Sako (2004) examined the factors facilitating and constraining the development, and replication, of supplier capabilities. In a series of historical case studies of Toyota, Nissan and Honda she showed that supplier capability development occurred most effectively where companies share the practice, rather than the representation, of tacit knowledge. The rule of 'learning by doing', rather than observation, appears to apply. Despite the existence of manuals (which codify how the process should work), the most effective transfer occurs