Strategic Business Process Management for Organisational Effectiveness

Colin Armistead, Jean-Philip Pritchard and Simon Machin

Setting the Scene

Business Process Management in one form or another has become a feature in the language if not the actions of many organisations. Large organisations in particular have now had exposure to general quality improvement methodologies. Many large organisations have used the quality models proposed by the European Foundation of Quality Management (EFQM)¹ or the Malcolm Baldrige National Quality Award (MBNQA) in the States. Some may have adopted Business Process Re-engineering (BPR). Manufacturing companies or those which are part of a materials supply chain will also have used performance improvement activities, such as “lean manufacture” and “concurrent engineering” or “just-in-time”. All of these approaches are of course based mainly on a notion of process. However much of this activity has been firmly based at an operational level and we have contributed previously to the literature.^{2,3}

The purpose of this article is to explain a more strategic view of Business Process Management. We do this very much in the context of the models of the kind used by the EFQM. These espouse a broad view of quality to the extent that in some organisations it has become known as a Business Excellence model. Models of this kind incorporate (Business) Processes as an integral and important aspect. Indeed proposed developments of the EFQM model⁴ appear to highlight even more the issue of processes. Our recent research has involved mainly organisations who are members of the EFQM and who have considerable experience of Business Process Management. They would be considered by many as being exemplars of

This paper examines Business Process Management (BPM) as a strategic management tool based on case study research. It seeks to clarify some of the uncertainties and ambiguities of the subject. A number of key themes of Business Process Management are developed and discussed, based on the experience of more mature Business Process Management organisations. These themes have implications for organisations seeking to improve their organisational effectiveness. © 1999 Elsevier Science Ltd. All rights reserved

Business Process Management. Here we include Rank Xerox, BT, Hewlett Packard, TNT, Nortel, Texas Instruments and the Royal Mail. A key finding of these studies is that many organisations find it difficult to operationalise the notion of Business Process Management, even though they might have expectations of real benefits for organisational performance. We are attempting to contribute to the understanding of Business Process Management from a strategic perspective.

Strategic Overview of Business Process Management

Business Process Management presents managers in organisations with difficulties from the outset

because of the question of language and meaning. Just what is a process and sometimes, when is something not a process? Moreover if it is not a process, what is it? Is it a function? But what is a function? The purpose of these questions is not to appear flippant but to confront what we have heard from managers who say that achieving a common understanding of Business Process Management is a major problem. Hence the need is for clarity about the topic.

We recognise that the word process has different associations across many academic domains including theology, sociology, anthropology, psychology and economics. The attention to process can be seen in the original scientific management of Frederick Taylor and Henry Ford. It is also present in the more recent application of Systems Dynamics to Organisational Learning. Processes are a key feature in Total Quality Management (TQM) and Business Process Re-engineering (BPR). As a result of these and other influences individual managers carry with them concepts of process. Their view of process may be restricted to one specific functional activity and not regarded as applicable to other areas. For example, a view of operational processes may not be considered to have any relevance to other types of business processes. Conversely, the opposite view may be held: that the operational approach can be applied to all processes. There is likely to be disagreement about which of these descriptions of the business process holds true. The resulting ambiguity leads to a lack of shared understanding shown in confusion, frustration and wasted effort.

In the face of these problems we might be forgiven for asking why not forget the whole idea and go back to accepting the different views of process which managers hold because of a functional experience. This would seem not to be an option. Managers tell us Business Process Management is important for their organisations and this reinforces other accounts.⁵ So what is the answer? We assert that organisations should build on good practice that may be developing within areas of their organisations while at the same time taking a much more strategic approach for the whole organisation. Business Process Management becomes then a strategic component of managing an organisation.

The Place of Strategy

There is considerable debate about strategy. One author, Richard Whittingham⁶ poses the question in his title "What is strategy—and does it matter?" What emerges from books and others strategic management texts is that there is not one simple view of strategy. Approaches are often characterised on a number of dimensions, for example:

Prescriptive vs emergent: the view of strategy as being

prescriptive, so that future events can be determined and planned for. This contrasts with strategy emerging when there is no stated strategy or plans fail under the influence of changing circumstances.

Hard goals vs stakeholder aspirations: the hard goals approach focussing on traditional business results including profit and shareholder value vs attempts to satisfy the aspirations and expectations of a range of stakeholders.

Strategic content vs strategic process where the distinction is made between the "what" of strategy and the "how" it was arrived at.

Business Process Management as we have seen it applied is mainly associated with a blend of the prescriptive and the stakeholder aspirations approaches. The reasons for this claim lie in the use of the EFQM model or adaptations as a model for organisation effectiveness. Application of the model demands attention to a number of stakeholders, identified in the current model as employees, customers, society (at large) and traditional business results. The model allows assessment of organisational effectiveness either in pursuit of a prize (an external audience) or as means of taking stock by self assessment against the model (an internal audience). The model of itself is not prescriptive. Nevertheless there is an implication in its use that knowledge of performance might influence future actions. The organisations we have looked at in detail have all tended to adopt a prescriptive approach to strategy and it is in this context which we discuss Business Process Management.

It is recognised by organisations adopting Business Process Management that there are different types of processes. These are often described as *Operational*, concerned with the production and delivery of products or service. They may be seen as processes which constitute the main market value chain. *Support* processes, as the name implies, provide the support to the market value chain operational processes. *Direction setting* processes are concerned with strategy formulation and policy deployment. There are also *managerial* processes which some see as being different from the other types while others argue they are part of direction setting processes. Garvin⁵ has also argued for *change* processes to be a separate type of business process.

Our strategic view of Business Process Management has a number of themes which we will discuss using the Organisational Framework for Business Process Management shown in Fig. 1. The framework addresses a strategic level for the organisation which includes the development of strategy and strategic choices that lead to an assessment of a business process architecture for operational effectiveness. The task level of operational and support processes is where the day to day activity of the organisation takes place. The strategic and task levels are linked through

FIGURE 1. Organisational framework for BPM—generic levels of activity.

an integrator which includes aspects of planning, measurement, prioritisation of improvement actions and target setting.

We have identified from our research seven themes associated with Business Process Management.

- ❑ *Strategic choice and direction*: how strategy is developed, choices made and plans for deployment generated within goals and targets. Strategic views that consider the resource based view of the firm⁶ are particularly congruent with Business Process Management.
- ❑ *Organisational design*: how Business Process Management is incorporated into the design of an organisation which will influence the boundaries, structure and intentions of power within and around processes
- ❑ *Maximising the market value chain*: Processes are used to describe the market value chain. The linking of business processes leads to the innovation of new products and services and delivers them to customers, provides any support in their use and collects revenues and market information. The market value chain requires the interaction of processes between different organisations which make up a chain or extended network.
- ❑ *Performance management*: Business Process Management relies on the management of resources and on a series of measurement systems, these allow the setting of targets, monitoring for progress and the initiating corrective action. Application of the Balanced Score Card approach⁷ fulfils this requirement and gains in potency when combined with self assessment of effectiveness using the EFQM model which provides a breadth to the assessment.
- ❑ *Organisational co-ordination*: Business Process Management addresses organisational co-ordination both internally and with partners who are customers or suppliers. Co-ordination is particularly pertinent as the boundaries of internal processes become more ill-defined. Aspects of co-ordination are seen in the decision making processes of the organisation.
- ❑ *Organisational learning and knowledge management*: Business Process Management provides a framework for organisational learning and can incorporate the management of knowledge. Business Process Management is a vehicle for exploring a knowledge based view of an organisation.⁸
- ❑ *Organisational culture*: The organisational culture shapes the way Business Process Management works and indeed the converse is also the case. A

simple example of this would be in transformational changes in organisational structure which might emerge for a large BPR exercise. These can result in a change in culture or the intended outcomes of the exercise changing because of the strength of the prevailing culture.

We do not see these themes as being discrete as there are obvious interactions and interrelationships, (Fig. 2). We will, though, consider each in turn to develop their significance within Business Process Management.

Strategic Choice and Direction

We have acknowledged there are many different approaches to strategic management. However, in the context of Business Process Management two views are relevant. First is the notion of strategic trade-offs⁹ recognising that one entity cannot do everything. An organisation positions itself in a particular market by making choices, for example whether to be in the cheap and cheerful or in the luxury parts of the market. Accepting trade-offs requires an acceptance

that it not possible to do both things. The resource based view of organisations^{6,10} suggests that organisations are made up of groups of resources which lead to the development of competences. These may be unique to one organisation and give it an advantage over competitors in the same market. The presence or absence of competences will have an obvious effect on strategic trade-offs as it can take time to change existing and embedded competences and to develop new ones.

Strategic direction we find is refined in process terms. For instance, TNT reviews the processes and competencies at an annual strategy meeting. The core process list may be modified through changes in strategic direction to take account of feedback from a range of sources: key performance indicators, customer and people surveys, self assessments and budget performance. British Telecoms Strategic Planning and Review Process (Fig. 3) has elements which bring the focus to operations. Strategic development is linked with the European Quality Assessment model through balanced score cards. This is then fed into 5-year plans and thus into quality plans and budget.

FIGURE 2. Important themes of Business Process Management.

FIGURE 3. British Telecom's Strategic Planning and Review process.

Organisation Design

When organisations adopt Business Process Management at a strategic level, they are forced to examine their form and structure. The very beginning of Business Process Management is in the conceptualisation of the organisation as a series of business processes. So change begins with a top level architecture which will now be familiar to many managers. The question raised is what do organisations do after this stage? Our findings would suggest that a number of things can happen. The processes may remain as a list of several dozen processes. They may be refined and drawn into a process map with some identification of key or core processes. They may also be linked into a systems model for the organisation. Little more development may then happen from this stage.

For Business Process Management to be central to the way in which an organisation operates we suggest issues of organisational design must be addressed.

Organisational Structure

The structure of the organisation in the context of Business Process Management is not an easy one to resolve. There is usually in most organisations a lack

of clarity about function and process. This may be difficult to resolve and is often at the heart of the lack of understanding of Business Process Management. We suggest a number of options:

- ❑ *Process*: Restructure along process lines leaving functions as fulfilling some notion of centre of expertise to support the processes. The danger is in the creation of process silos and unease for people in the processes.
- ❑ *Matrix*: Create a matrix of functions and processes with all the problems of managing a matrix for individuals as it can lead to confusion and uncertainty about roles and responsibilities between functions and processes. For a matrix structure to work well requires a sophistication of management as demonstrated by Hewlett Packard who have a long history of matrix structures. Making the change can be difficult as the Royal Mail has found in its adoption of process management within a large network organisation.
- ❑ *Profunction*: Re-design the organisations to *eliminate ambiguity of function and process*. The utility of organisation is demonstrated to all by flows

of materials, information or people within the core processes. We call this entity a *profunction* and it is typically recognised in operational processes. The profunction displays all the characteristic of a function and is embedded in a larger business process. This type of structure is often associated with a reduction in the hierarchy or the traditional organisation and an increased span of control for the remaining middle managers. Rank Xerox in their Customer Service Deliver Process display characteristics of profunctions. The international headquarters staff was reduced to 145 people from 1000. In this change the European Director reduced his central team from 24 to three. Nortel provide another example with their use of functionality within their business processes linking product development, contract acquisition, new operations, repeat operations and customer service, to operate as a profunction.

The structure of one organisation cannot be viewed in isolation from those with which it has relationships. The boundaries of organisations are less clearly defined than they were. This can apply in a large corporation for instance when a global network is created from discrete international organisations. Between organisations, the alignment of processes and interchange of people, materials and information is freer than would previously have been the case. The changes are embodied in the concept of the borderless organisation. A Business Process Management approach should in concept make it easy to make choices about the appropriateness of organisational structures to fit these changing situations.

Large restructuring of organisations takes place under a description of business process re-engineering. British Telecom are good example with their successive change programmes. Project Sovereign, created customer facing divisions in 1990–91 followed by Project Breakout, launched in 1993, resulting in re-engineering of key processes with the aim of reducing costs.

Market Value Chain

The market value chain links the stages which adds value along a supply chain. For one organisation the market value chain is taken to be the conceptualisation of the core processes and activities which represent the organisation in process terms. They capture the activities which start and end in the organisation and link with other organisations in the chain (or networks as the chains become). One organisation might be a player in a number of value chains. The simplification which organisations make to the process architecture structure often leads to a small collection of processes being represented in the form

of a market value chain. British Telecom's is shown in Fig. 4 as an example.

The market value chain reinforces the resource-based view of the organisation because it forces the identification of core processes in which are embedded the core competences and in which competences should be developed.

The development of the core processes can be assisted by a view of the ideal state for the process. Examples of this approach are the Perfect Transaction for TNT and the Perfect Call for the Rank Xerox Customer Service process. The development of the ideal process is informed by several *voices*—the voice of the customer, the voice of the process and the voice of the organisation. Within the ideal state goals can be set and the competences required to meet them established. Comparison with an analysis of the existing processes in the market value chain begins the process begins to bridge gaps. The aim is to achieve competences which are robust, that add value in response to the voice of the customer and control or reduce costs in the process. Moreover they should be difficult to replicate by a competitor.

This focus on core operations is vital to the success of Business Process Management. We know that as organisations become more mature in their application of Business Process Management, the effort which is put into development of the core processes yields greater benefits.

Performance Management

We take the view that performance management is an integral part of using Business Process Management and consider a few issues are especially important.

- The deployment of strategic goals;
- Self-assessment against organisational effectiveness models such as the EFQM framework;
- The trigger for major corrective action.

A key theme is performance measurement: there is recognition that single indicators of organisational performance can be dangerous if a number of stakeholders have to be addressed. The EFQM assessment framework and the balanced score card⁷ address this issue. We support the idea that key targets and measures at a corporate level should act to drive the subset of processes. Business Process Management provides the measurement architecture for this activity. In some cases this might be envisioned as a predictive model such as the one employed by Rank Xerox with their Virtuous Circle (see Fig. 5). Here customer satisfaction and value are linked with productivity, return on assets and shareholder value.

Deployment of Strategic Goals

Detailed planning models are consistent with Business Process Management. The Hewlett Packard Busi-

FIGURE 4. British Telecom's Value Chain model.

FIGURE 5. Rank Xerox's Virtuous Circle.

ness System is one which links plans to targets and goals within the business. A range of inputs provides essential information for the planning process, from stakeholders, customer, partners, community and employees. A ten-step plan is used to capture:

1. the purpose for the plans
2. the three-year objectives
3. identification of the customers, their needs and the channels that are needed to reach them
4. what the competition are doing

5. what are the products and services that are going to be introduced and what is the strategy for introduction
6. what needs to be developed in order to introduce the products and services
7. a traditional financial analysis
8. an analysis of the competitive reaction and other problems
9. a counter attack
10. the first year plan stripped out in more detail as department plans and also as Hoshin plan.¹¹

The balanced score card approach is one to link the goals and objectives of parts of an organisation to a corporate score card. They include goals and measures in the domains of business results, customers, employees and learning/ innovation. While this approach is not novel, it has a simplicity which makes it easy to understand by different groups from within the organisation.

Self-Assessment Against Organisational Effectiveness Models Such as the EFQM Framework

Self-assessment models provide a means of examining the performance of either the whole or parts of an organisation. They are internally focused but can act to identify areas of good practice, which can be shared, or real problems, which can then be rectified. The tendency in this type of assessment is to concentrate on weakness rather than strengths. The converse is of course true if organisations are participating in assessment in order to win awards. Self-assessment will not of itself bring about improvement and the linking of the findings to other mechanisms that execute change is most important.

Trigger for Improvement

The need to improve is obviously fundamental but the mechanism for both identifying improvement opportunities and managing the change may vary. Most systems are designed to measure against key indicators. The use of a "traffic lights" system is common to indicate visually where problems lie. Benchmarking performance with internal or external entities is still used. When individuals are clear about their responsibility for specific measures they have a greater chance of bringing about successful improvements. TNT provides a strong example at depot level where individual managers are responsible for the performance of one of five key performance indicators. These are deliveries on time, stop costs, line-haul on time, direct depot operating cost and stops per vehicle. Texas Instruments defines the control of operational processes on three levels. First, the *stabilisation* of operational processes through the use of statistical process control and Taguchi methods,¹² second, *continuous improvement* through the use of

the 7 Quality Control Tools¹³ and third, *radical change* involving BPR.

A more rigorous approach to major improvement is the Hoshin Kanri methodology which builds around "burning issues" for change and addresses habits and practices which need to change within a measurement framework to track progress.

Organisational Co-ordination

A central theme of Business Process Management is co-ordination of the link between strategy and task. Here process is an organising concept that pulls together everything necessary to deliver some important component of strategic value. This may be associated with the "end-to-end" nature of processes in the organisation in its market value chain. We can see this in major business processes such as material supply chains with their sequence of suppliers and customers around activities of manufacturing and distribution.

Co-ordination to make Business Process Management work begins with process ownership. We have found that many organisations we have looked at, do have nominal process owners for the top level processes. Problems can occur as the number of process owners is increased through sub-processes. Here the issue of co-ordination becomes critical.

The importance of ensuring that core operational processes perform well has been dealt with earlier. The factors which enable this to happen come with the theme of co-ordination and include:

- The effectiveness of *communication* processes and the clarity of direction. Specific targets ensure the tightness of organisational control, while allowing the empowerment of individuals within the task based processes. Communication takes various forms including briefings, intranets and news sheets. We also see we see personal or task team plans, goals and targets as a feature associated with Business Process Management.
- The roles of the *team* and the *team leader* become crucial as the span of control for more senior managers who generally fulfil the role of process owners increases. The use of ISO 9000 and work flows specify the "what" of processes rather than the "how". The softer more intangible aspects of process management are co-ordinated best through networks of individuals around processes.
- *Information systems* allow the sharing of plans and performance monitoring (as with balanced score cards). This aspect of co-ordination becomes more important as the boundaries of the organisations become fuzzier. It may involve addressing co-ordination of processes across wider geographical areas. Business Process Management

includes a method of identifying where control needs to be co-ordinated across the whole of an extensive network and where it can be left at a local level. The Royal Mail illustrate the importance to a large network organisation of the role of information systems, where conformance across the network is an important issue.

- *Partners* as customers or suppliers illustrate an aspect of co-ordination that the alignment and end to end nature of processes should facilitate. The concept of the voice of customer having easy and rapid response would be much more difficult in traditional bureaucratic organisations. A key driver of Business Process Management is often to clarify the contacts between organisations. We see this in business to business relationships where there are typically many different points of contact during the sales cycle. Business Process Management helps reduce the number of points of contact and clarify the role of each. For Nortel, a key driver for the adoption of Business Process Management was the confusion experienced by British Telecom as a major customer, dealing with them through contacts whose roles were uncertain and uncoordinated.

Organisational Learning and Knowledge Management

Business Process Management provides a framework for organisational learning and management of knowledge. The reasons for this follows from the previous discussions and are given greater weight if we take a knowledge based view of the firm.⁸ Particularly relevant are Grant's (1997) assumptions about knowledge being of paramount strategic importance as a resource for adding value. Knowledge is assumed as being comprised of explicit and tacit types. Individuals are considered the primary agents in the creation of knowledge and in the case of tacit knowledge, the holders of that knowledge.

The issues raised for knowledge management and organisational learning from these assumptions are congruent with the Business Process Management approach. Decision making and knowledge management are facilitated by changes in organisational design that reduce the hierarchy and place responsibility closer to the process task team if not within it. Performance measurement and self assessment may act as instruments to surfacing and capturing knowledge. When structured creatively they can act to surface tacit knowledge and capture explicit knowledge. It has been a criticism of down-sizing that knowledge is lost to organisations as people leave. Incorporating organisational learning and knowledge management into Business Process Management can make the use

of explicit knowledge about possibilities for the future, a key to innovation. It can also help to identify aspects of tacit knowledge that contribute to competences that still meet strategic needs.

Another aspect of knowledge is the issue of reach and richness of information and knowledge.¹⁴ The sharing of knowledge and access to data bases change the dimension of its use in time and space. Where at one time a field engineer would have to return to base to discuss a tricky problem, the same engineer can now access data bases and transfer information, receive e-mails and talk simultaneously to anyone who might help with a problem. Solutions can be recorded at the same time for future reference. Richness of shared knowledge and the geographic reach are all enhanced and enabled through a Business Process Management architecture and management approach.

An example in practice is from Rank Xerox and their Perfect Call process. Here there is major emphasis on "closing the loop", that is, capturing and using information relevant to the delivery of the operation. For instance, engineers feed information about all the jobs they complete into networked computers. This allows others to access the data. Customer support operators on a telephone to customers can provide rapid solutions. Information flows into the design and manufacture of new or existing products (particularly in the case of persistent problems). Engineers can also have access to the knowledge base through portable computers and as importantly gain information on performance. The management of knowledge is integral to service strategy. It supports the drive on productivity by reducing rework, time lost in reducing broken calls, accelerating cycle time and facilitating the empowered group working.

Business Process Management Culture

Organisational culture is an ambiguous concept that is hard to define. However all organisations have some notion of their culture and whether it is changing. Hewlett-Packard talk simply of the "H-P Way" that captures aspects such as open door policy, management by walking about, and use of first names. British Telecom use the term "Plan Do" as an indication of attempting to change the way front line people work within the tight framework of procedure which is demanded by consistency and safety. The use of networks of individuals from across these large organisations is one which may help to break the rigidity of attitudes and behaviours. The Royal Mail has recognised the need for consistency in approaches. They have a clear definition of purpose and direction for the business with associated value, an espoused culture.

We think the approach to Business Process Management should fit with the culture of the organisation. Involvement with TQM approach over a period of time will have helped many organisations to move from an internal to an external prospective that assists in adopting a holistic approach to Business Process Management.

Implications for Managers

The story of the practical use of Business Process Management in different organisations is one of diversity and of effective outcomes. The response managers give to the question “What does business process management mean for your organisation?” has many different emphases. In British Telecom BPM emerged out of TQM and BPR to arrive at an integrated process-based model of the business. TNT developed Business Process Management by using the EFQM Business Excellence Model to identify clearly key processes and the cycle of activities in each of those processes. This enabled TNT to rationalise process ownership and minimise interface issues. Nortel implemented Business Process Management from a core process map incorporating the important steps from the customers’ viewpoint. Detailed mapping using the ICL tool, “Process Wise”, enables a focus on value steps and key decision points with key questions posed: what value do we create, who is involved, what are the decision points? Value steps help to focus on outcomes. Decision points help manage boundaries within the organisation. Business Process Management in Hewlett–Packard plays a prominent role in co-ordinating the deployment of goals and of planning and measurement systems.

When each organisation is questioned further, a broader pattern emerges for BPM with a number of distinguishing characteristics. These provide guidelines for managers:

- ❑ The organisation conducts an analysis of its external market value chain and identifies its key business processes in relation to this. It is important to have a strong and well articulated direction for the organisation.
- ❑ A process architecture is developed as a means of understanding the organisation; this may involve the mapping of business processes.

- ❑ Process owners are appointed with responsibility for the overall process. The point is an obvious one. Someone needs to take responsibility and control. BPM provides the visibility for this to happen. Technology provides the power.
- ❑ A “perfect” process may be visioned, a simple but valuable technique particularly for operational processes. The voice of the customer can be used to inform on capabilities and targets.
- ❑ Process metrics and effectiveness criteria are established and cascaded down to front-line teams. A mechanism of deployment of policy through planning is consolidated.
- ❑ Performance monitoring is tailored to address the process dimension. Review of performance can be captured at process level.
- ❑ Improvement opportunities are identified and actioned.
- ❑ The organisation plans, communicates and trains around the process model.
- ❑ In some cases the organisation’s structure changes to reflect the concentration on processes. This does not mean the loss of function but that it is subsumed by process.

Some people might argue that there is nothing new within this experience. The question to ask then is whether the organisation which existed before the adoption of BPM, had been able to meet the performance demanded by its various stakeholders—customers, shareholders, employees and suppliers? The existence of BPM characteristics tends to lead to improvement in the key factors identified earlier: speed, cost, flexibility, reliability and satisfied relationships.

There is no doubt in our minds that attention to managing business processes is the key to organisational effectiveness. Organisations may not acknowledge BPM or the language of processes but if you examine their management, characteristics emerge which point to the guiding principles of BPM. Perhaps then, the language does not matter. What matters is that you understand that processes are a generic factor in all organisations. They are the way things get done; they are the essence of change. Within them lies the complexity and the challenge for organisations in the 21st century.

References

1. C. Hakes, *The Corporate Self-assessment Handbook for Measuring Business Excellence*. Chapman Hall (1995).
2. C. G. Armistead, P. Rowland, *Managing Business Processes: BPR and Beyond*. Wiley ISBN 0-471-95490-X (1996).

3. C. G. Armistead, *Business Process Management*. Self Assessment, pp. 9–14, ISSN 1356-9627 October (1996).
4. T. Conti, *Organizational Self Assessment*. Chapman Hall, ISBN 0 412 78880 2 (1997).
5. D. A. Garvin, *Leveraging Process for Strategic Advantage*. Harvard Business Review, September–October pp. 77–90 (1995).
6. R. M. Grant, *The Resource-based Theory of Competitive Advantage: Implications for Strategy Formulation*. California Management Review, Spring, 114–35 (1991).
7. R. S. Kaplan, and D. P. Norton, *The Balanced Score Card—Measures that Drive Performance*. Harvard Business Review, January–February pp. 71–79 (1992).
8. R. M. Grant, *The Knowledge-based View of the Firm: Implications for Management Practice*. Long Range Planning **30** (3), 450–454 (1997).
9. M. Porter, *What is Strategy?* Harvard Business Review, November–December, pp. 61–78 (1996).
10. C. K. Prahalad, and G. Hamel, *The Core Competence of the Corporation*. Harvard Business Review, May–June, p. 71, 091 (1990).
11. Y. Akao, *Hoshin Kanri: Policy Deployment for Successful TQM*. Portland, OR: Productivity Press (1991).
12. G. Taguchi, and Y. Wu, *Introduction to Off-line Quality Control*. Central Japan Quality Control Association, Nagoya, Japan (1980).
13. K. Ishikawa, *Guide to Quality Control*. Asian Productivity Organisation, Tokyo (1972).
14. P. B. Evans and T. S. Wurster, *Strategy and the New Economics of Information*. Harvard Business Review, September–October, pp. 71–82 (1997).
15. J.-P. Pritchard and C. G. Armistead, *Business Process Management—Lessons from European Business*. To be published International Journal of Business Process Management (1999).
16. R. Whittingham, *What is Strategy—and Does it Matter?* Routledge, ISBN 0-415-05942-9 (1993).

Dr Colin Armistead is the Royal Mail Chair of Business Performance Improvement, Professor of Operations Strategy and Management, Head of the Department of Strategic Management and Head of Research in The Business School at Bournemouth University, U.K.

Jean-Philip Pritchard currently works as a Planning Process Analyst within Royal Mail's Business Strategy Department.

Simon Machin is a Business Development Manager with Autoglass and was previously a management development adviser with The Post Office.