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Thinking About Quality and its Links with Strategic Management

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This article by Mark Pruett and Howard Thomas highlights the fact that there is a variety of perspectives on quality, but that each of those perspectives contributes to an integrative, systemic view of what it means to manage for quality. That systemic view raises certain key issues about the way we think of the strategic management process, issues which merit renewed scrutiny in the light of quality management.

Introduction

When everything would seem to be matter of price, there lies still at the root of great business success the very much more important factor of quality... After that, and a long way after, comes cost. (Carnegie, 1920)

The principles, practices, and tools that comprise quality management have become a major focus of managerial attention in the West in the last decade, in part because Japanese firms have used them with great commercial success in areas such as product quality, sales growth, and profitability. Nonetheless, it seems to us that there is still a lack of clarity about the implications of quality for the process of strategic management in particular. Too many managers still think of quality as essentially an operations' problem: a functional issue of importance only to marketing or to production. On the other hand, many managers have been subjected over the last decade to innumerable siren calls urging them to view quality as the centerpiece of business activity. However, despite the significant attention paid to quality in recent years, strategic management practice and research remain a key area for extension of the quality concept (Godfrey, 1993). In this discussion, we briefly review some perspectives on quality, offer an integrative strategic-level definition, and raise a series of issues that we believe are central to understanding the relationship between quality concepts and strategy.

What is Quality Anyway?

Goodness?

Often, people will describe quality as meaning that something is outstanding in an indefinable way: 'even though Quality cannot be defined, you know what it is' (Pirsig 1974, p. 213). This common perspective can be found even in organizations which already seem quality-orientated. For example, one of the authors recently conducted a series of workshops at a large public-sector pension system well-known for productivity, innovation, and excellent client service and relations. However, despite the organization's reputation for high quality, not a single employee, from senior manager to clerk, could provide a specific operational definition of quality that the organization used to guide its work.

A Valuable Product

Economists tend to view quality in a way familiar to many managers and consumers – as something valuable contained in a product, and hence a basis for price differences. Leffler (1982) suggests that quality is not the entire good but the amounts of an unpriced desired attribute contained in each unit of a priced attribute. For example, the cost of down comforters (duvets) depends mostly on the quantity of down, but most buyers probably are seeking a warm comforter, not a heavy one *per se*. In other words, what people want when they buy

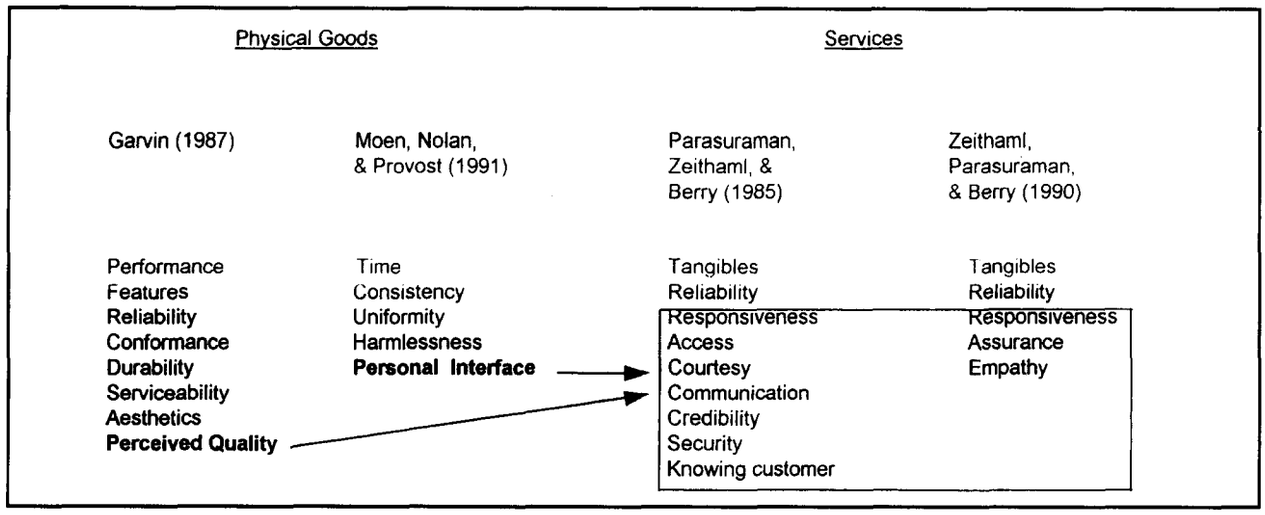

Figure 1 Customer-based Dimensions of Quality

a good or a service is not necessarily the product itself but what it does for them. Marketing experts address this problem by disaggregating product quality into generic dimensions or attributes from the user's point of view. Figure 1 summarizes some of these marketing views of quality.

The marketing perspective has two elements of particular importance. First, customer perceptions of the quality of *tangible* goods have much in common with the quality of *services*. Service quality may be more difficult to evaluate (Parasuraman, *et al.*, 1985), but this only highlights the importance of service perceptions.

Second, it emphasizes customer satisfaction as the core of organizational purpose. Figure 1 is from the market's point of view, not the firm's.

Obviously, a firm needs more than the customer's point of view to gauge its activities. Internal standards, ranging from process quality to financial performance, are equally necessary. However, while many of a firm's internal measures may not be of direct concern to customers, they still must be *linked* to market preferences.

The change to a marketing focus by the earth-moving equipment maker Caterpillar provides a useful example here. In conversations with the authors, Caterpillar managers noted that Caterpillar used to focus on internally-developed standards of product quality. Marketing served to communicate product superiority as defined by engineers rather than customers. The result was a marked tendency toward 'over-engineered' (and overly expensive) products.

In another instance, one manager at a large European telecommunications manufacturer noted that his firm's quality standards still remain internally focused and relatively unlinked to market preferences. The function of marketing is essentially limited to pushing product onto customers.

A Question of Process?

Frederick Taylor, the father of scientific management, wrote that our 'larger wastes of human effort, which go on every day through such of our acts as are blundering, ill-directed, or inefficient[...]are less visible, less tangible, and are but vaguely appreciated.' (Taylor, 1911). His point was that most if not all productive systems are profoundly wasteful in subtle ways. This reality underlies much of the current thinking about managing for quality. Work approaches like total quality management, certification programs like the ISO 9000 series, and conceptual frameworks like W. Edwards Deming's Fourteen Points for management all emphasize processes.

In fact, it is common for managers to recognize problems in their firms' organizational processes; however, many apparently find it easier or cheaper (in the short run) to simply live with the problems. A plant manager of a major truck equipment maker, we will call it Truckco, commented:

'I know our production and coordination are a mess, but demand is booming. When times are good, my top management is busy getting all the orders they can, and they just pressure us to work harder and faster. There's no time for investment. When times are bad, they continue to defer investment because there's no money coming in. Either way, our systems don't get any better.'

Clearly, there are costs of accepting problems or defects in organizational systems. Cycle time and work-in-process may rise for *all* activities, not just the production department. Departmental or functional parochialism and frustration also rise. Investments in non-value-added activities increase. Although management seems like firefighting (Mintzberg, 1973), it is clear that these fires often are of managers' own making, caused by flawed management processes and assumptions.

For example, at Truckco, weak links between the sales team and the factory have led each to blame the other for missed delivery schedules. The sales force promises

Analytical tools	Practices
Pareto charts (frequency of occurrence)	Quality circles
Ishikawa (fishbone) diagrams	Team-based organization with specialized roles
Run charts	Benchmarking
Histograms	Design for manufacturability
Control charts	Vendor Certification
Scatter diagrams	Customer certification
Flowcharts	Mistake-proofing (poka-yoke)
Forcefield analysis	Predictive maintenance
Process capability analysis	Design of experiments
Taguchi loss function	
Quality function deployment (House of Quality)	
Failure and effects analyses	

Figure 2 Some Quality Management Tools and Practices

highly customized products without much concern for production constraints. In turn, the factory has devoted an ever-increasing percentage of floor space to storing unused specialized components that were ordered in excess, or that remain from cancelled orders. Afraid of the financial impact of writing off this inventory, the factory's management has resorted to routing its production lines around stores of materials. The factory functions only with the aid of a dizzying myriad of materials handlers and forklifts shuttling a large volume of work-in-process back and forth through the building. Top management is concerned about high costs and marketing problems, but has not addressed the key issue of functional integration.

The process improvement view of quality is grounded in work on process control. Rooted in Shewhart's (1930) theory of variation and process improvement, it emphasizes the use of data analysis (Ishikawa 1982; 1985) and other managerial tools and practices to support a focus on data-driven, process-centered decision-making (Crosby, 1979; Deming, 1986; Juran, 1978; and Juran and Gyrna, 1988). This view has, however, moved far beyond considering just the production process. Quality is as much about design as it is about process (e.g., Susman, 1992; Taguchi 1986). Organizational links to suppliers and customers, and the use of integrative planning techniques, are efforts to build quality into product design, production, delivery, and service. A key in this perspective is the development and use of tools to guide decision-making (Figure 2).

A Strategy-based Definition

Strategic management raises several issues central to any integrative definition of quality. First, the very notion of strategic management suggests the significance of the firm's environment. Some of the significant external forces that affect a firm include the actions of other firms, technological change, customer needs and preferences, and governmental and social influences; each of these may be relevant to quality. Other firms provide both ideas and competitive standards for quality. Technological change drives and is driven by quality. The evolution of customers' expectations presents a moving target for firms, but what customers expect is partly a function of how firms choose to manage quality. Further, government and society look to business for guidance, yet they also mold firms' approaches. For example, the proliferation of government-sponsored quality awards has substantially raised firms' awareness of the significance and complexity of quality issues.

Second, strategy means little without a clearly-defined purpose (mission). Leadership and the importance of defining purpose are common themes in quality literature.

Third, if strategy is about finding better ways to pursue the mission, then *methods* of managing seem relevant to strategy. Since much of quality management research and practice is indeed centered on the basic structure and approach to work, there clearly is potential for substantial bonds between quality management and strategic management.

Last, although strategy places primary focus on the firm, it implicitly recognizes that the firm is but one element in the system leading from raw physical and human inputs to the delivery of goods and services to final customers. Since any one firm is only part of a larger process, the micro-level concepts and techniques used to manage for quality within a firm's operations also may be useful at the corporate and industry levels.

These four elements – the environment, leadership, method, and a systems view – are the contributions that a strategic management view can make to an integrative concept of quality management.

The themes discussed thus far can be integrated. Clearly, quality includes notions of the goodness and value of a product or service as experienced by the user, as well as some notion of the relative merits of the process which produced it. The process view suggests that superior, less-costly quality is possible through improvement mechanisms. Both the process and marketing perspectives provide specific tools and practices to pursue quality. Finally, the strategy perspective suggests that the firm must seek beneficial change in order to cope with changing environments, that planning matters, and that a firm is only part of a larger system. Figure 3 summarizes these themes.

Perspective	Core Message	Element of Systems Perspective
Quality as Goodness	Quality permeates the whole of a thing	Quality > sum of parts
Production	The processes to accomplish purposes can be improved	Quality can be pursued through broad methodical improvement
Marketing	Quality is in the eye of the beholder and can be defined	Quality is the purpose of serving others well
Strategy	Purposeful actions are needed in an uncertain world	Organizations "do" and "change" subject to a system of supplier-organization-user links, an environment, and guiding purpose

Figure 3 Summary of Themes

Quality is a strategic firm-level concept, but it also highlights the significance of the larger system of which the firm is a part, including suppliers and customers. Suppliers and customers have much in common in a systems perspective. Each provides needs, capabilities, and resources to the rest of the system. Finally, each can benefit from, and contribute to, the strengthening and integration of the overall system's efforts, purposes, and understanding. The quality-focused firm adopts the role of partial 'coordinator' for the system. The firm's involvement and influence may decrease further up or down the demand-supply chain of which it is a part, but it can nonetheless foster self-awareness and cooperation into the system.

This concept of systemic improvement is potentially a strategic issue of central relevance to a firm's senior management; the firm is not simply a narrow independent unit competing with suppliers, customers, and 'direct competitors'.

Thus, a strategic construct of quality which incorporates the perspectives we have raised is as follows: The strategic management of quality means that the firm, using quality, cooperation, and long-term viability as inter-related guiding themes, works to inform, educate, and motivate itself, and those with which it interacts, in order to continually improve and strengthen the human and processal inputs, interactions, dependencies, relations, and outputs which constitute the firm and the system to which it belongs. In other words, quality is the continuing pursuit of system optimization (Deming 1986; 1993).

Quality-driven changes can be characterized on at least two dimensions, *locus* and *type*, as shown in Figure 4. In terms of *locus*, firms initiate changes internal to the firm or in interactions with its environment. For clarity, Figure 4 considers only environmental interactions with upstream suppliers and downstream customers.

	LOCUS		
TYPE	Upstream interactions	Internal to "firm"	Downstream interactions
Philosophical	Less cost-bidding Move toward sole-sourcing Focus on improving supplier fit, quality, capability Acknowledge shared destiny	Systems, not people, as source of problems Acceptance of human variation Systems optimization Primacy of purpose	Commitment to customer delight Customer retention based on value, not price Acknowledge shared destiny
Technical	Shared planning and strategic information Suppliers linked with internal demand and development Training	Institutionalized mechanisms for systems analysis and change Management by fact Functional integration Training	Mechanisms to know customer Education of customer

Figure 4 Representative Changes Suggested by the Quality Paradigm

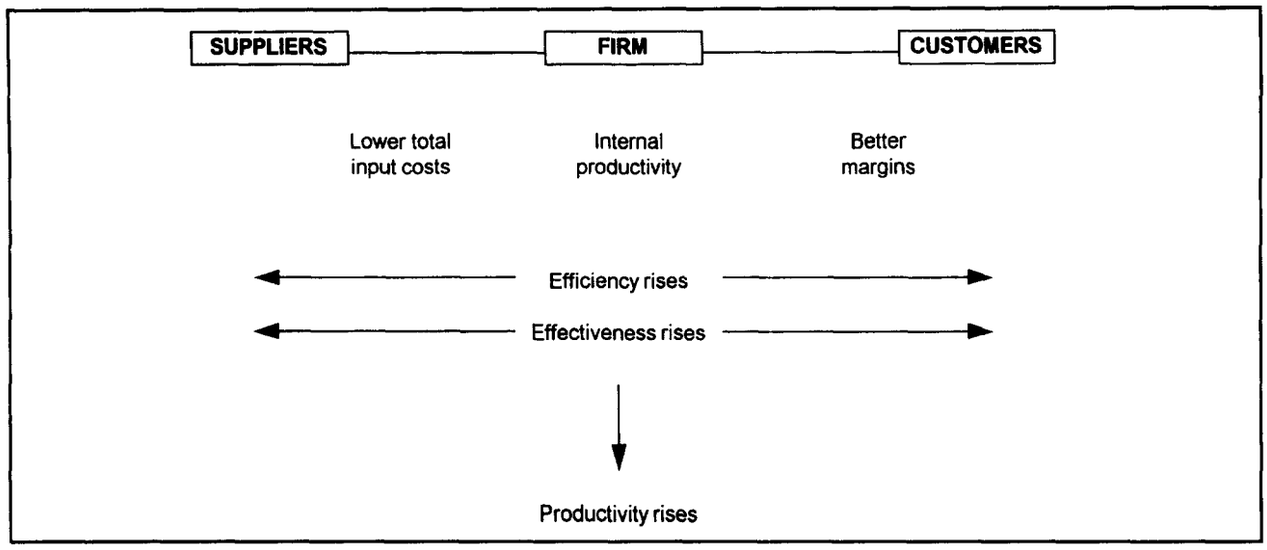

Figure 5 Effects of the Quality Paradigm

In terms of *type*, since techniques managers employ depend in part on the assumptions underlying their approach to management, the philosophical changes required by the quality approach must at least partly precede the technical ones. Quality 'problems' can be traced to either lack of information/knowledge or lack of motivation, both of which are problems of management, not of quality (Crosby, 1979). A predominant theme in quality management literature is that the only members of a system who can intentionally and fundamentally change its philosophical underpinnings are those who manage it (Deming, 1986; Hayes and Abernathy, 1980; Ishikawa, 1985; Taylor, 1911). Of course, the dynamics between and within type and locus are more interactive than Figure 4 suggests.

Figure 5 provides another way of understanding this systemic impact on productivity. On the upstream or input side, the firm which pursues systemic improvement may enjoy lower negotiating costs for inputs, less cumbersome relations, better inputs and, in some cases, lower direct input costs over time, all of which can reduce total input costs. Inside the firm, outputs may improve and direct costs decline due to reductions in system waste and re-worked or discarded output. Note that the concept of productivity improvement includes elements that, although hard to assess, are known to have substantial impact on a firm's productivity – morale, absenteeism and turnover, decision processes, planning, and so on. On the downstream or output side, stronger ties with buyers improve the firm's ability to satisfy them, may allow higher prices, and reduce total selling costs (including costs of poor quality such as reputation cost, lost customers, and warranty support).

Further, as quality performance improves, the types of problems change (Garvin, 1986). By identifying increasingly subtle problems and opportunities, technological changes, and systemic and environmental changes, which in turn lead to new problems and

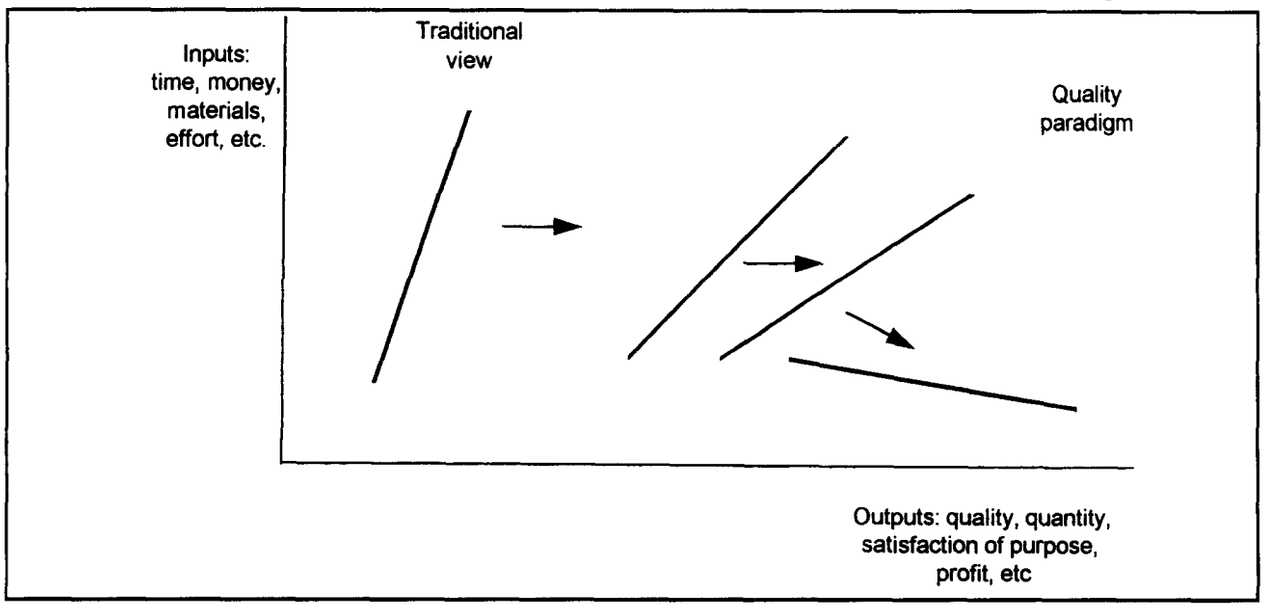

Figure 6 Alternative Productivity Horizons

opportunities, the firm shifts its productivity horizon, as illustrated in Figure 6.

Adding value is the salient feature of Figure 6. Widening the gap between quality (expressed as a broad set of desirable outputs) and cost (expressed as a broad set of inputs) means adding value. Although higher quality may mean lower cost, investments in quality are not entirely free. There may be significant direct and indirect expenses associated with change, and the most important ones may be the ones that cannot be quantified (Deming, 1986).

Some Implications for Strategic Management

European and American attempts beginning in the early 1980s to explore the ill-understood quality paradigm emerging from Japan, had a fairly narrow emphasis on tools and techniques. Although understanding in many firms has moved beyond this narrow view, we believe that there still are strategic issues which merit increased attention, from both senior management and strategy researchers.

How Strong is Self-interest?

A variety of traditional management practices and concepts rest on the subtle assumption that human behavior is *dominated* by self-interest and that people (and firms) often will cheat if conditions permit.

Transaction costs and *agency* theories are often seen in strategy research and are used to provide insight into basic strategic issues faced by firms. Transaction cost theory is concerned with the efficiency of organizational forms – given alternative ways to structure economic activity, what is the most efficient way to do so? It is applied most often to the traditional 'make-or-buy' question (Williamson, 1985). Agency theory asks how non-owners (agents) charged with managing resources will treat those resources and their outputs, and how owners (principals) can select, motivate, and control agents to get the most productive, equitable resource employment (Eisenhardt, 1985, 1989). Both of these perspectives emphasize that a firm risks being cheated by people and other firms.

The quality paradigm does not argue against self-interest. It does, however, argue that opportunistic (unfair) behavior may be largely an outcome, the *result* of a system of beliefs and practices, not a dominant genetic element in human behavior. In other words, many people and firms cheat when taught to cheat and when they do not perceive themselves as part of an interdependent system. The potential problem with efforts to control cheating is that the systems devised to prevent problems may also have a substantial, adverse impact on non-cheaters. Just as surveillance cameras breed mistrust, so too can adversarial, control-orientated management practices. The American retailer WalMart had a reputation of subjecting suppliers to a particularly difficult bargaining process. However, in order to fully exploit the potential of the tightly-integrated distribution system it was building, WalMart discovered that its semi-adversarial, 'arm's-length' relations with suppliers could not provide the cooperation and commitment it needed.

On the other hand, consider the popularity of vendor certification programs. In the certification process, a firm's probing and participation may extend deep into its suppliers' fundamental planning and management practices. Even relying on third-party certification like ISO 9000 means that a firm cares how its suppliers conduct their operations. On the downstream side, if a firm's marketing efforts include managing inventory for its customers, then the firm must become tightly linked with the customer's production system. Such activities internalize upstream and downstream elements beyond the formal boundaries of the firm, and help to overcome the failure for cooperative learning which can be found in a more competitive supplier-buyer market relationship. In other words, 'arm's-length' business relationships make it more difficult for firms to learn together.

Open cooperation is a matter of degree, of course, but firms are becoming increasingly focused on the benefits of building knowledge ties with suppliers and customers, and with other firms, than with the possibility that 'outsiders' will exploit their openness. For example, although winners of the US's Baldrige Award for quality are *required* to share their experiences, many well-known firms have pursued the award. Further, the increasingly popular practice of benchmarking cannot take place without an attitude of openness regarding information and knowledge. (Interestingly, some of these knowledge-sharing ties, in the United States at least, could be interpreted as anti-trust violations. This inability of anti-trust law to cope with cooperative learning systems may pose a growing problem as more firms move toward the quality paradigm.)

Motorola, for example, is famous for its efforts to educate not only employees but also suppliers, customers, and interested firms and parties. Motorola actively seeks to improve the generation, processing, and dissemination of knowledge both within and *beyond* the firm's formal boundaries. The sharing of ideas and data is seen as the key to creativity and prosperity, as opposed to the presumption that knowledge is to be hoarded and kept secret from others in the pursuit of competitive advantage. Motorola considers the relevant members and beneficiaries of the firm's creative effort and concern to extend far beyond the firm itself. It is a strong voice for the sharing of knowledge across firms and industries, and pushes strongly for quality-orientated changes in the content, method, and assumptions of management education (Bales, 1992). Motorola's efforts extend to unusual places – a limousine

driver, working for Motorola's headquarters, recently explained to one of the authors how his limousine business had become a sole supplier, and what Motorola's Six Sigma quality focus had to do with livery service.

Is Management the Crucial Resource and Competence?

Two other common strategy perspectives, the *resource-based view* of the firm and *core competence* highlight the importance of inputs and specialized skills. The resource-based view describes firms as bundles of resources and suggests that the most crucial resources may also be the most difficult to develop, acquire, or change (Barney, 1986; Dierickx and Cool, 1989; Ghemawat, 1991; Mahoney and Pandian, 1992; Wernerfelt, 1984).

Often, however, a firm may recognize a valuable resource only in hindsight, for example after it has gained valuable experience in a particular skill or area. Resources matter, but perhaps the key to business success is not resources *per se*, but the firm's ability to manage systems. After all, merely identifying resources may give little clue about how to use them. An over-emphasis on resources obscures the critical issue of a firm's basic managerial approach and systems. Resources are not much use without a system which makes good use of them. How a firm mobilizes its resources determines what activities it becomes good at. Moreover, the capacity to achieve high quality is difficult to develop, hard to buy, and provides a substantial benefit, which sounds much like the definition of a valuable resource. Clearly, a management system which manages for quality is an abstract form of a resource.

Core competence, a variation on the resource theme, suggests that a firm may be particularly good at some fundamental activity which can be leveraged in pursuit of success (Prahalad and Hamel, 1990). Again, however, it seems to us that, from a strategic perspective, fundamental competence may lie not in the type of functional activity (such as engineering, marketing, or research) but in *how* the activity is carried out. This is the distinction between competence building and competence leveraging. For example, possessing skilled mechanical engineers as does Mercedes-Benz, or chemical expertise as does ICI, does not lead to competence *per se*. Competence arises from the managerial assumptions and practices which provide the structure for productive activity. Superior assumptions and practices are those which integrate a firm's activities and leverage the firm's value equation.

Does Competition Hinder Systemic Improvement?

One controversial thought is the idea that some aspects of competition may be quite destructive. Kohn (1986), for example, argues that logic and evidence do not support the widespread belief that competition between individuals is beneficial. Deming (1986, 1993) believes that such competition conflicts with human psychology and hinders a systemic perspective.

Business competition takes many forms:

- with suppliers: holding bidding wars, arbitrary price reduction targets, multiple sourcing;
- internally: competitive resource allocation processes, meritocracies, profit centers;
- with customers: 'shaving' product quality or quantity, price increases to customers with no alternative supply, withholding needed information;
- with other firms and government: opportunism within consortia and cartels, industrial espionage, tax fraud, shedding of costly consequences of strategic and operating decisions.

A firm can never be fully independent of other parties (including suppliers, customers, and direct competitors) in the productive system, but it can choose win-win or win-lose approaches to the interdependencies it must manage (the age-old issue of the individual versus the group). The quality paradigm does not deny the existence of conflicting interests, but suggests that conflict and competition are partly the result of a failure to think on a system level. Indeed, a glaring shortcoming of traditional microeconomic and strategic thought is that they primarily offer theories in which firms are independent competitors attempting to maximize their share of economic wealth. Both microeconomics and strategy have been relatively silent on the issue of interdependent firms cooperating to enlarge the aggregate economic wealth. Figure 7 illustrates the interdependence between members of productive chains, and between the chains themselves. As firms strengthen relations in their respective chains, competition is narrowed to some, but not all, facets of the inter-system level.

As a simple example, the 'Big three' US automakers – General Motors, Ford, and Chrysler – once were highly financially vertically integrated, particularly GM. Having de-integrated to some extent (particularly Chrysler and Ford), they now have worked in various ways to strengthen ties with suppliers and customers. The three firms do compete vigorously in the retail market, but they also share suppliers and produce parts for each other. They may compete in component and retail markets, but they are highly interdependent. For example, if GM were to close all of its in-house suppliers tomorrow, automobile production at Ford and Chrysler would be substantially disrupted, at least temporarily. Another perspective on close interaction can be found in the contrast between the tight supply links in the relatively healthy Japanese auto industry (Cusumano and Takeishi, 1991) and the more arm's-length links in the fairly troubled British one (Turnbull, Oliver, and Wilkinson, 1992).

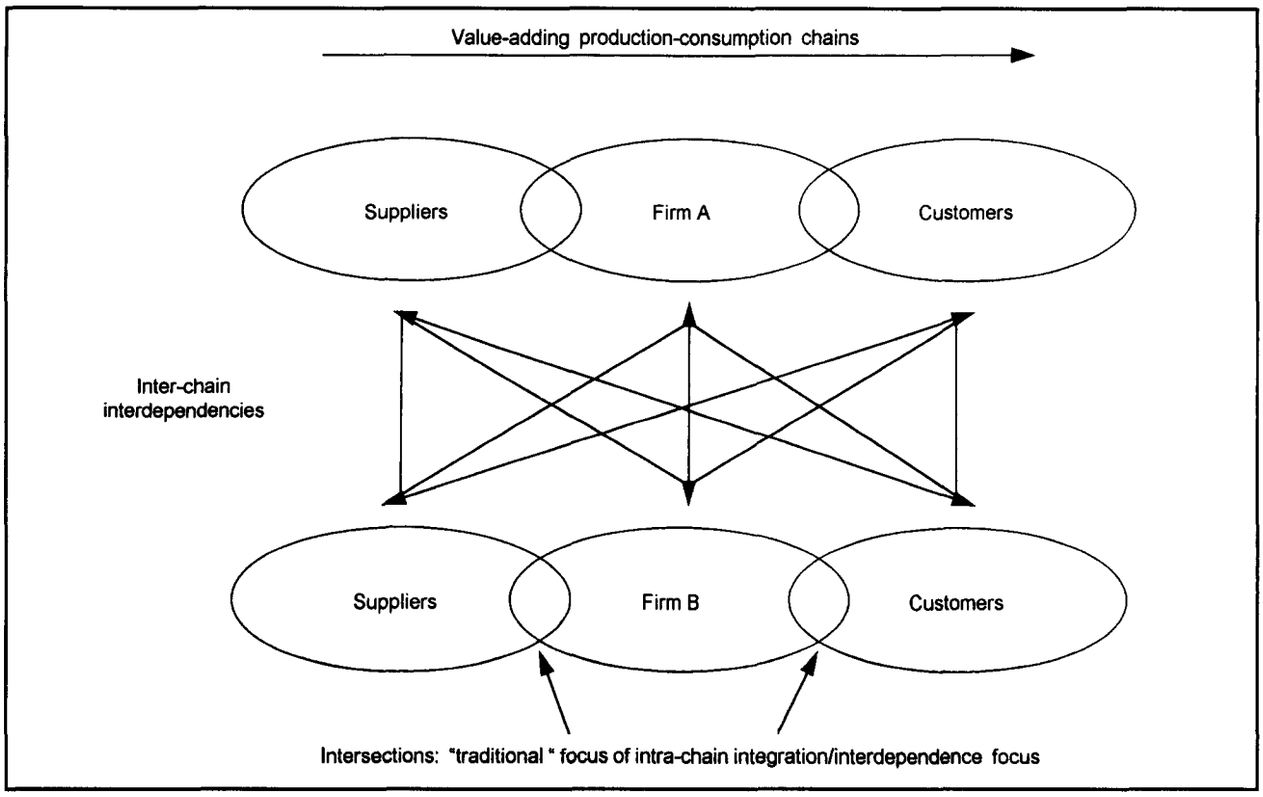

Figure 7 Interdependencies

The competition-cooperation issue also sheds light on the question of vertical integration. From a system level, the question of the formal boundaries of a firm appears relatively trivial in comparison to how the broader productive system is managed. In other words, down-sizing and out-sourcing in integrated firms, and acquisition in the opposite case, are not solutions to the need for a productive way to operationally manage interdependence between steps in the value chain which leads from raw materials to final customers. Whether owned or not, productive activities are interdependent and their links must be managed.

The standard view is that markets will mesh demand with supply. However, it can be difficult to integrate demand with supply in a competitive environment, since the capacity for cooperation is quite limited. This limited cooperation also hinders the firm's ability to change and learn. Indeed, in some cases fiercely competitive markets create market failures for cooperative learning and system improvement.

For example, Homescape is a regional real estate development company in the US which finances, plans, and builds residential subdivisions. In a pattern typical for the industry, the firm has only two employees on direct payroll. They coordinate numerous independent contractors including engineers, roadwork firms, realtors, and a builder. The builder then coordinates the numerous subcontractors who build a house – masons, carpenters, etc. Homescape explains the tradition of independent contractors as the result of the cyclical nature of housing demand. When demand is strong, construction occurs at a frenzied pace, with multiple developers competing for contractors and subcontractors. Developers and builders have been known to walk onto competitors' job sites and offer contractors cash to leave for another project. Homescape possesses more sophisticated management and much greater capital than most of its competitors. Many developers are not particularly wealthy and, with high debt loads, tend to avoid integrating forward into the activities of their contractor network because they fear high fixed personnel costs and carrying costs for unsold properties which could occur in times of low demand. Although informal relationships certainly continue, low demand typically leads to the laying off of contractors. It is interesting to consider, however, that this response to market cyclicality also makes the cycle *worse*. Rising demand for houses tends to lead to overbuilding, and falling demand often leads to a wave of deferred projects. Given the substantial leadtime in project development, these responses simply widen the market swings. Further, despite the importance of technical skills in construction, developers typically do not invest in training for contractors and subcontractors, since many of the relationships are fairly arms-length and short-term. Contrast this with Motorola, which requires forty hours per year of formal training for each of its employees (Bales, 1992).

The Complexity of Performance

Financial profit is often stressed as the central goal of firms, but a systemic view of quality suggests a more complex set of purposes, acknowledging customer satisfaction, the interests of employees, the system's

capacity for continued existence, and benefits to others contributing to the organization (including, certainly, profit for the owners of capital). This is basically the stakeholder argument (e.g., Freeman, 1984) with a dynamic emphasis on system improvement. It echoes changes in accounting research and practice, such as activity-based costing (Kaplan, 1990) and the balanced scorecard approach to top management reporting practices (Kaplan and Norton, 1993).

The Operations Basis of Strategy

Despite longstanding calls (Skinner, 1969) an understanding of production and systems views is still infrequent in the strategic planning of many firms, particularly those in which finance or marketing have been the traditional path into senior management. Recall the truck equipment maker Truckco. Top management clearly felt driven by marketing and financial concerns, and manufacturing issues literally took the back seat. An under-appreciation of the complexities of production also seems to be lacking in some management researchers. For instance, a recent academic seminar discussed a study of changes in workforce management practices due to advanced manufacturing technologies. The audience, consisting mostly of organizational change researchers, seemed fundamentally surprised to learn that many firms in the study fully recognized the importance of changing employees' attitudes and skills to remain in step with new technology. The 'dark Satanic mills' stereotype of manufacturing still has true believers, even among management scholars.

Quality management includes the use of very specific tools developed mostly in the production arena, but this does not limit it to only a narrow functional relevance. For instance, quality and finance both have many tools and methods, but most firms do not keep finance isolated – they train and expect a variety of managers to understand relevant financial concepts (Juran, 1981). It seems difficult to develop or study strategy without an elementary understanding of what a firm actually does, and how it does it. This requires basic knowledge of production and operations management issues and concepts.

For example, Porter's (1980) three generic strategies – cost reduction, differentiation, and focus – are popular themes for firms. However, in a systems view of quality they are not strategies but mutually reinforcing *elements* of strategy. This suggests that a firm can simultaneously reduce costs by improving processes and relations with suppliers *and* focus on improving service to a well-understood customer set *and* differentiate itself through both perceived and actual quality. Researchers have demonstrated that these elements can move together (Cho and Lee, 1993). The success of a firm like Toyota suggests the value of using quality as a strategic concept to help integrate specific production (cost-reduction) and marketing (differentiation) skills developed over time.

There is a very substantial body of strategy literature typified by the Porter generic strategies. However, it is worth noting that this literature often seems associated with a particular view of production, one in which long standardized runs in dedicated, inflexible production systems lead to efficiency and in which high quality is a high-cost craftsman approach. That perspective (see Abernathy, 1978) is increasingly outmoded by technological changes and new thinking about management.

Conclusions

The central theme of this paper, which stresses an integrative, strategic-level view of quality, is to raise issues that merit scrutiny. Some of these issues are long-standing ones, but none has been resolved. Do our organizations actually foster problems while trying to solve them? Does a focus on competition, rather than on a balance between competition and cooperation, create a market failure for learning? Would a firm do better to develop strategies that seek improved performance for the value-chain as a whole, rather than pursuing its success alone? Finally, would a greater appreciation of operations and production modify the way we conceive of and implement strategy?

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