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Quality Management in a Changing Organizational Environment

Looking for New Conversation Tools

by

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Introduction

Total Quality Management (TQM) has come under increasing criticism over the past decade or so because it is argued that it has failed in providing sustained competitive advantage. The dissatisfaction of corporate executives with TQM in North America and Europe has been very high. About 67% of US executives and 75% of British executives surveyed indicated that implementing TQM had adverse effects on their competitiveness (*Economist*, 1992; Mathews and Katel, 1992). An American Electronics Association survey also indicated that 63% of respondents had not seen more than 10% reduction in defects after using TQM for two-and-a-half years (Eskildson, 1994). McKinsey & Company reported that 67% of TQM programs examined had ground to halt “simply because they failed to produce expected results” (*The Wall Street Journal*, 1994). A damaging story for TQM was Wallace Company, the 1990 Malcolm Baldrige National Quality Award winner, which filed for Chapter 11 bankruptcy protection two years after winning its award (*Training and Development*, 1992).² And it is not only US firms winning quality awards that are losing their competitive advantage. Iaquinto (1999) found that some Japanese firms are experiencing similar outcomes.

Despite these stories about the ineffectiveness of TQM, some major organizations, IBM, Xerox and GE, to name a few, swear that TQM has offered them significant sustained competitive advantage. This may have led Dean and Bowen (1994) to point out that TQM has become a “sort of Rorschach test,” with people’s reactions varying according to their beliefs and experiences.

A closer look at some of the commentaries, especially those pointing to organizational failures will indicate that poor *knowledge about quality* and its management were the principal causes of the failures (Suarez, 1992). Van Allen (1994) also indicated that inadequate leadership, rather than any inherent defects in the TQM model, are the sources of the poor results achieved with TQM in many organizations. He advised that the organization’s culture and the tenets of TQM must exist if implementation problems are to be avoided.

There is no doubt that the environments confronting organizations in all industries are shifting in ways that are probably unprecedented. These shifts are testing the strategies that have helped many organizations navigate through the economic turbulence of the last few decades. Quality, it is almost universally agreed, is fundamental to success in the emerging environment confronting organizations (Grove, 1999). Indeed, consumer expectations about quality have increased to the point where it is assumed to be the primary requisite for entry into the market sphere (Schneider and Bowen, 1994).

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² Iaquinto (1999) actually suggested a negative relationship between winning quality awards and subsequent firm performance.

Therefore, it is important to seek new approaches of managing quality to enhance its ability to sustain competitive advantage in a rapidly changing environment.

The overall objective of this paper is to provide a background for conversation on quality management research and the operational management tools that would facilitate the effective implementation of new quality management processes in the changing agri-food environment. Specifically, the paper seeks to address the following:

1. Provide an overview of original quality management principles.
2. Assess the gaps between the principles espoused by the original thinkers on quality management and the practice of quality management.
3. Initiate conversations among Agri-Food Researchers on the processes that would enhance a better understanding and management of quality in a changing agri-food marketplace.

An Overview of Quality Management

This overview primarily covers the work of the three principal thinkers on the subject: W. Edward Deming, Philip B. Crosby and Joseph M. Juran.³ It presents the salient features of the philosophies of these authors about quality and its management and compares the differences between these philosophies. The limitation of the review to the principal thinkers is justified on the basis of the need to filter the great amount of literature on quality management (Teixeira, 1999). For example, some researchers believe that TQM involves fundamentally changing the very premises of the organization (Grant et al., 1994) while others believe that it involves achieving fundamental changes without changing the fundamentals (Hackman and Wageman, 1995). Without this filter, this overview of the quality management literature will be a book!

What is Quality?

Reeves and Bednar (1994) pointed out that there is little consensus about what quality is in the literature. We start our overview of quality management by reviewing the definitions of perceptions about quality that were espoused by the three principal thinkers on quality management.

To Deming (1986), the quality of any product or service can *only* be defined by the customer. This implied that there are almost as many definitions of quality as there are consumers, however, some consumers' definition of quality will coincide. To Deming, then, consistency in meeting or exceeding the customer's expectations about quality, once they have been communicated, is the essence of quality management.

Deming alleged that no two manufactured or service products are the same, thereby accepting that variations in quality are *natural*. Therefore, management should focus on delivering products or services that have predictable uniformity by reducing variability. Deming's writings show his

³ A.V. Feigenbaum (1983) and W.A. Shewhart (1931; 1939) are other recognized founders of Quality.

cautiousness in defining quality and recognize the difficulty of achieving it. For example, in *Out of the Crisis* (1986), he states that the difficulty in defining quality is to translate future needs of the customer into measurable characteristics so that the product or service can be designed, manufactured and delivered at a price that the customer is satisfied with.

If Deming is tentative about defining quality, then Crosby is his exact opposite. Crosby (1979) states that quality is conformance to requirements, and those requirements must be defined in measurable and clearly stated terms. Unlike Deming, Crosby believes that there are no differing levels of quality, that quality is either present or absent. Thus, while Deming looked at quality from the customer's perspective, Crosby looked at it from the operational perspective. Crosby suggested that the cost of quality is the sum of price of conformance and the price of non-conformance. Management's job is to focus on driving the price of non-conformance to zero. The price of non-conformance is the cost of wasted resources in missing or being unable to satisfy the defined requirements for the product or service. Crosby does not evaluate the marginal benefit-cost ratio of his zero defect requirements.⁴

Juran (1986) takes a different approach to defining quality. He defined quality as fitness for use, stressing a balance between product features and the products' freedom from deficiencies.⁵ Thus, Juran explicitly incorporates customer expectations into his definition of quality. He defined the customer as anyone affected by the product, thereby introducing the concept of internal and external customers, and admonishing management to focus on both of these in their quest for quality.

Despite the differences in their perceptions about quality, Deming, Crosby and Juran agree that quality is less costly to an organization than poor quality. Poor quality is reflected in inspections, rework, scraps, waste and lost customers.

Principles and Techniques of Quality Management

The fundamental principle of Deming's view on quality management is that organizations are systems and leadership is important. Deming's principle of quality management may be organized into seven groups: (1) The system of profound knowledge, (2) The Plan-Do-Check-Act Cycle, (3) Prevention by process improvement, (4) The chain reaction of quality improvement, (5) Common and Special Cause variations, (6) The fourteen points and (7) The deadly and dreadful diseases. We describe each of these groups briefly.

1. The system of profound knowledge: Without profound knowledge of processes, potential variations in products and the psychology of people, management action can cause significant ruination (Deming, 1991). The system of profound knowledge comprises four interconnected parts: (a) Theory of systems; (b) Theory of Variation; (c) Theory of knowledge; and (d)

⁴ See Starbird (1997) for a discussion of the marginal cost of zero defects.

⁵ Product features are the inherent and technological properties of the product, fuel consumption of an automobile and courtesy of service personnel being examples. Freedom from deficiencies encompasses the aspects of the product that influence the customer's satisfaction with the product – errors in invoices, late deliveries, etc.

Knowledge of psychology.

- a. Theory of systems: A system is a series of functions or activities that work together within an organization to achieve the organization's aim (Deming, 1991). To Deming, not operating from a systems perspective leads to fragmentation, lack of cohesion and the susceptibility of the organization to undue internal and external influences that affect performance.
 - b. Theory of variation: The organization experiences higher costs of operation because management is unable to isolate the cause of the variation (Deming, 1986). He emphasizes that measuring variation provides a means for predicting the behaviour of the system. Therefore, managers need to have knowledge of statistical theory to enable them to collect the appropriate data and use the appropriate techniques to measure variation from the stable system.
 - c. Theory of knowledge: Deming believes that managers should use scientific processes – explain, predict and control – to gain more knowledge about the systems and processes in the organizations. Deming entreats managers to increase their knowledge about the processes for which they are responsible by participating in such scientific activities as formulating theories, developing and testing hypotheses and designing and conducting experiments. This focusses on how knowledge is advanced in the organization. He stresses the importance of understanding the theory behind successful ideas before adopting/adapting them to one's system and processes.
 - d. Knowledge of psychology: This is Deming's language for the dynamics of people in the workplace, team performance, learning styles and organizational culture. Deming opines that managers need to know how people interact, their individual needs, their working and learning styles.
2. The Plan-Do-Check-Act (PDCA) cycle or the Shewhart cycle⁶: This is Deming's emphasis on continuous improvement.
 3. Prevention by process improvement: Deming argued that inspection at the end of the process is too late and too expensive. Rather, he stipulates process analysis, control and improvement. Thus, according to Deming, quality results from studying and changing the system, not inspecting the product. Measurements are used to monitor the processes to ensure that the possibility of producing unacceptable variability from the stable system's products or services.
 4. The Chain Reaction for Quality Improvement: This is where Deming explicitly links quality to the economics of the organization, a fundamental focus of Crosby's principles. The chain reaction is summarized as follows — improvement in quality decreases cost and improves productivity. To improve quality, Deming stipulates that managers understand the statistical

⁶ Walter Shewhart was developing techniques for bringing industrial processes under statistical control when Deming worked with him at the USDA in 1927. Suarez reports that Deming studied Shewhart's theories, using them as the basis of work in later years.

approach to process improvement and adopt the fourteen principles of quality management described below.

5. Common Cause and Special Cause Variation: Deming identified two sources of variation, common cause and special cause. Common causes of variation are system-related and are beyond the reach of the chain reaction for quality improvement. To address them, the whole system must be redesigned. Special causes, on the other hand, are sources of variation due to isolated abnormalities or exceptional occurrences in the system (Houston and Dockstader, 1997). Therefore, special causes can be addressed through problem-solving.
6. The fourteen points: The fourteen points provide the basis for initiating and sustaining the transformation in an organization's culture and processes to generate customer satisfaction through quality. Management's responsibilities under these fourteen points cannot be delegated, and they require that management replaces short-term thinking with long-term systems thinking.⁷
7. The Deadly and Dreadful Diseases: Deadly diseases require a change in management style while dreadful diseases are simply management practices that are harmful but can be solved by imbibing the fourteen points.

Crosby's philosophy on quality is driven solely by *prevention*. It may be couched in a phrase he uses: Do it right the first time and every time. Crosby emphasizes zero defects, given that he believes there is only one level of quality. In other words, the presence of *any* defect in the product deprives it of quality. He believes management's perception and attitude towards quality needs to be transformed if the organization is going to succeed at delivering quality consistently. For example, Deming and many managers believe that error is inevitable and one only has to deal with it. Crosby believes it is self-defeating to plan and invest in strategies that deal with errors instead of investing in strategies and processes that prevent errors from occurring in the first place (Garvin and March, 1986).

Crosby's "four absolutes of quality" form the cornerstone of his process:

1. Quality is conformance to the requirements: Management must communicate in no uncertain terms to employees all the actions that are necessary to run an organization, produce a product or service and deal with customers and help them comply through leadership, training and cultivating a culture of cooperation in the organization.
2. Prevention is the system of quality: The only system that produces quality is prevention since eliminating errors after they occur is costly. Crosby's approach to prevention is training, leadership, discipline and example. Thus, management must commit itself to a culture that is prevention-oriented.
3. Zero defect is the performance standard: This is in line with Crosby's fundamental view about quality and its generation. Management has the duty to provide employees with the tools, skills and other resources to facilitate the production of zero-defect products and services.

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See Houston and Dockstader (1997) p. 70 for Deming's 14 obligations of leadership.

4. Price of non-conformance is the measure of quality.

Crosby believes that if management adheres to these “four absolutes of quality,” they will succeed in decreasing the costs as quality improved, leading him to state that “quality is free but not a gift” (Crosby, 1979).

Because Crosby’s view about quality is based fundamentally on his philosophy of preventing errors from occurring, his implementation process rests solely on prevention. For him, prevention is thinking, planning and analyzing processes to anticipate where errors could occur and then taking the appropriate actions to prevent them from occurring.⁸ The prevention process, then is a continuous cycle that never ceases if quality is to be maintained. Problems, according to Crosby, are like bacteria that create a disease of non-conformance. Top management must continuously administer antibodies that prevent these bacteria from causing the disease (Crosby, 1984).

Crosby emphasizes the importance of what has been termed the six C’s – comprehension, commitment, competence, communication, correction and continuance. Comprehension involves understanding what is meant by quality and begins at the top of the organization’s hierarchy to the last person. Commitment to the quality policy by management and by all employees is the organization is fundamental to creating to a “prevention-oriented” culture. People must be competent in what they do if they are going to succeed at it and competence is achieved through education and training. Documentation of all efforts undertaken to prevent quality is a must and should be communicated to enhance and create a complete understanding of the processes supporting quality. Thus, communication supports the enhancement of competence of the organization’s people. Correction involves preventing errors and enhancing performance while continuance is turning the process into a way of life in the organization.

Juran adopted a strategic and structured approach to quality. The concepts supporting this philosophy are as follows:

1. Spiral of progress in quality: This concept formalizes the importance of cross-functional teams in the production of quality. Quality results from the interrelationships among the different spirals (Juran and Gryna, 1988).
2. Breakthrough sequence: According to Juran (1964), a breakthrough is a dynamic, decisive movement to new and higher level of performance. His breakthrough sequence involves activities that, if carried out properly, will lead to improvements in quality that accelerates the organization’s innovation abilities. Breakthroughs follow the same sequence (Juran 1964), which involves policy making, setting objectives for a breakthrough, gaining breakthroughs in attitudes, use of the Pareto Principle, organizing breakthroughs in knowledge, creating steering and diagnostic arms for managing breakthroughs, gaining a breakthrough in cultural pattern and transition to a new level of performance.
3. Project-by-project approach: Juran’s quality improvement methodology relies on a project-by-project implementation process where team members find the symptoms, causes and remedies

⁸ This is similar to the HACCP processes that are being applied in food industries.

for quality problems confronting them. Therefore, Juran's approach requires team members to have problem-solving skills. He breaks the problem-solving process into two *journeys*: (1) Diagnostic journey (from symptom to cause), and (2) Remedial journey (from cause to remedy) (Juran and Gryna, 1988). Outcomes of these *journeys* are documented and presented for annual audits.

4. The Juran trilogy: The trilogy states that management for quality consists of (a) quality planning, (b) quality control and (c) quality improvement (Juran, 1986). Quality planning involves developing processes that will achieve the defined goals. Since quality is related to customers, the customers and their needs and expectations should be identified. Quality control is ensuring that gains made are not dissipated. Quality improvement, then, is lowering the cost of poor quality and using lessons learned to achieve higher levels of performance.
5. The principle of the Vital Few and the Trivial Many: According to Juran, most of the problems with poor quality can be attributed to a small number of causes he christened the Vital Few. The other causes, trivial many, can be ignored for a time. Using the Pareto Principle, one prioritizes problems and focusses first on those with the highest payoff.

Thus, it observed that each of these thinkers on quality management has a distinct philosophy about quality and a unique language for implementing it, and an idiosyncratic approach or process for achieving and managing it. In so doing, they created their own following among management and quality consultants. Some observers of the quality management outcomes suggest that these differences in the major thinking about quality and its processes have contributed to the variability in outcomes (Reeves and Bednar, 1994). However, it is important to note that there are some fundamental assumptions that run through all the works of Deming, Juran and Crosby. Hackman and Wageman (1995) summarize these as follows:

1. Quality products and services are less costly than shabby products and services. Cosby is more explicit in this respect. Although Deming and Juran do not explicitly state this in their works, it is implied as a justification for consistently meeting customer expectations and providing products or services that are "fit to use." Indeed, Deming (1993) suggests that quality ensures the long-term survival of the organization.
2. Employees naturally care about their work. As long as employees are provided the necessary tools – equipment, training, etc. – to facilitate initiatives to improve their own work, they will do their work effectively. This assumption is the foundation of "empowerment programs" as if they are part of TQM (Lawler et al., 1992) in many organizations. It has also led observers such as Drucker (1999) to describe "employee empowerment" as an unfortunate escape for management.
3. Quality is ultimately the responsibility of top management. Deming, Juran and Crosby all emphasize the importance of top management leadership in implementing a quality program. Deming states that this job cannot be delegated while Juran (1974) points out that employees' effectiveness at their work is directly related to the quality of the systems that managers create.

Other threads in the principles espoused by the three principal authors include their focus the fact that

deviations from specifications must be minimized (Deming and Juran) or eliminated (Crosby). They also call for the use of factual information in the management of quality in spite of the fact that they differ in the tools they suggest must be used in gathering and analyzing the factual information. Finally, Deming, Crosby and Juran emphasize the need for continuous improvement of the quality processes that are implemented.

Although Deming, Crosby and Juran recognize the importance of inter-organizational relationships by pointing out the need to select suppliers on quality, instead of on cost basis, they do not go beyond that recognition. The focus in their writing is on the **organization** and its management of the quality of **its** products and services. This focus on the boundary of the organization is a strong assumption of management, theory and practice, in the twentieth century but will not be helpful in the twenty-first century (Drucker, 1999).

The Gaps in TQM Results

Some aspects of TQM practice dilute or redirect the core ideas put forward by Deming, Juran and Crosby (Hackman and Wageman, 1995). For example, researchers evaluating the implementation processes of various organizations found that the scientific methods stipulated by Deming, Crosby and Juran have been replaced by emphasis on group-process techniques and interpersonal skills (Hackman and Wageman, 1995). They contend that there is a “greater adherence to the TQM philosophy at the espoused than at the operational level, as seen, for example, by the diminished role of scientific methods and statistical tools in many TQM programs.” Zbaracki (1994) reports that the original thinkers’ emphasis on statistics and experimentation have been stripped away, leaving only “management by fact.” To this end, it becomes clear that much of what many organizations have implemented and called TQM may not be TQM at all (Choi and Behling, 1997).

Research suggests many reasons for the divergence between the results from TQM initiatives and the underlying principles. For example, Choi and Behling (1997) quote research indicating that unrealistic expectation is a major problem because “people expect to do in a year or two what it took some of the leading Japanese companies 30 years to achieve.” It is obvious from the comment that many managers did not see TQM as the “way of life” that Deming, Juran and Crosby proposed. The perception that productivity increases associated with TQM led to downsizing led others to point to labour’s resistance to TQM as explanations for its failures in certain cases (Doyle, 1992). Others point to the inadequate training management provided employees and a failure to recognize the complexity of the changes that were required to achieve the results envisaged by the progenitors of TQM (Strebel, 1996).

The leadership role of management in successful TQM initiatives is another explanation that has been advanced for the poor perception about the results of TQM. The importance of leadership is central to both Deming and Juran’s work. Observers point to the strong leadership in the organizations that have been successful at TQM practices – Jack Welch at GE, David Kearns at Xerox and Allied Signal’s Larry Bossidy – and the Malcolm Baldrige National Quality Award stresses top management in its evaluation criteria. Since TQM is a top-down program, it is understandable that management attitude towards the principal variables of time, goals and customers will be defining in organizations’

approach to and results of TQM initiatives (Choi and Behling, 1997). In the end, Reed and Lemak (1996) suggested that most of the problems with TQM have resulted from overemphasis on the *process* of TQM instead of its *content*.

It has also been pointed out that measuring the effects of TQM is difficult given the behavioural changes that often accompany TQM implementations as well as the temporal effects and exogenous disturbances that occur simultaneously with TQM (Kaplan and Norton, 1992; Wruck and Jensen, 1994; Whetton and Cameron, 1994). These difficulties associated with the measurement of the effects of TQM suggest that it is possible to overestimate the outcomes of TQM. It is the opinion of Hackman and Wageman (1995) that these problems exist because organizational and strategy researchers have not been particularly interested in developing the tools for measuring the effect of TQM, leaving the job to practitioners.⁹

Quality Management Research in a Shifting Environment

The foregoing paints a sordid picture for the ability of organizations to effectively implement quality and manage it the way the original thinkers perceived it. Evaluation methodologies have been found wanting in many respects and organizational researchers have been criticised for not taking a keener interest in quality management research (Hackman and Wageman, 1995; Cicmil, 1999). There is strong evidence that quality is still a very important determinant of success (Reichheld, 1996; Schneider and Bowen, 1994). This will confirm the need to organization and strategy researchers to enhance their interest in quality management research, developing new operational management approaches to achieving the objectives of TQM.

The environment – consumers, technology, policies – for which Deming, Juran and Crosby developed their quality management processes has undergone significant change over the years. The rate of change in customer expectations has been increasing as technology and marketplace competition fuel these expectations.¹⁰ Consumer concerns about quality seem to have increased significantly and this is showing for agri-food industries in the areas of food safety, health, animal welfare and environmental concerns. Therefore, organizations are not being evaluated on the prices of their products but on their *passport* as they move from input supply to the retail shelf. These identity preservation and special trait characteristics of food products would become increasingly important in the consumers' quality definitions (Herrman, 1999). For example, 41% of 100 grain elevators surveyed by the Ames, IA firm E-Markets expect specialty identity preserved grains to account for 25% of their business in five years while 94% of respondents think grain will increasingly be priced on quality traits such as protein, oil and starch (Feedstuffs, 1997).

Thus, it seems more important than ever for organizations to know what their customers' definition

⁹ Reed and Lemak (1996) provide some rigorous approach to measuring performance by focussing on content and assuming off process. They accounted for temporal effects by including time lags and used unidimensional ranges to address uncertainty and orientation between customer and operations.

¹⁰ See Grove (1999) for a good example of this in the home computer industry.

of quality is, i.e., what different parameters does the customer consider as critical for a quality product or service. It would seem that the customer's role in the definition of quality is critical for the organization that is seeking to enhance loyalty and hence competitiveness in the emerging environment (Reichheld, 1996). The foregoing would also suggest that organizations have to develop more sophisticated processes for soliciting their customers' definitions of quality, find approaches of turning customers into participants in the product or service development, production and delivery processes, and using their feedbacks to enhance product/service quality and consequently loyalty.

To succeed at this, a fundamental management theory and practice assumption which runs through the writings of Deming, Juran and Crosby (and almost all management literature) has to be discarded. This is the assumption about the boundary of the organization (Drucker, 1999). This challenges the fundamental tenets of TQM to the extent that management now has to think beyond selecting quality suppliers (which is as far as the TQM philosophers went) to managing quality along their supply chains. To maintain the competitiveness of organizations, it is imperative that the ability to meet the quality expectations of ultimate customers is not left to the actions of the ultimate supplier.

The skills and other resources required to manage such relationships are significantly different from those that organizations have so far used. For example, organizations are increasingly dependent on knowledge workers who require to be managed differently. How do we define quality in knowledge work and link this to customers' needs in a manner that enhances competitiveness? Fundamentally, what are the theoretical and operational processes that have to be developed to facilitate the effective management of quality across traditional organizational boundaries when knowledge workers are the principal resources?

The foregoing seems to suggest that while the original intent of the TQM fathers is relevant in the emerging environment, their processes seem to have outlived their operational usefulness. In other words, success at managing quality within one's organization is becoming a prerequisite in the emerging environment confronting many organizations. This is exemplified by the significant increase (270%) in ISO 9000 registrations between 1994 and 1997 (Saarelainen, 1999). What tools are available for helping organizations undertake the operational tasks of managing inter-organizational quality and what research initiatives are available or can be developed to facilitate the orientation of managers to these quality management tools?

If organizations are going to move beyond processes and develop a balance between process and content to enhance the potential success from quality management initiatives, the tools for managing the processes and conceiving the contents should be available (Ho, 1999). If content, more than processes, drives results, then the sense-making in organizations' frameworks (Weick, 1995) must to be expanded to encompass inter-organizational sense-making. This is easier said than done since sense-making among organizational levels still poses significant research difficulties (Lissack, 1999). This may require developing conversational bridges between many disciplines. For example, the concepts of recursive networks, or holons, within organizations can be extended across organizations that are interconnected to satisfy the quality expectations of particular customers.¹¹ In this case, the autopoietic goals of the different holons coincide as maintaining their identity (independence) as well

¹¹ Holons are entities which are simultaneously parts and wholes when viewed from different "levels."

as coherence within and across the whole become a management objective in achieving the overall quality strategy of the “whole” (Lissack, 1999). The ability of enacting similar ontologies across the different holons in the partner-organizations is critical for the system’s ability to ensure its survival in the changing environment.

At the same time, organizational researchers should be seeking to understand the cognitive self-concept theories as they relate to complex and unstable environments. At the minimum, organizational identity theory, personal construct theory and self-discrepancy theory become critical for both management and employees’ perspectives on the shifts confronting them, the strategic initiatives that they have to undertake to maintain or enhance competitiveness and how these interact to affect the success of inter-organizational quality management. For as Reger et al. (1994) indicate, programs that are perceived “as radical departures from an organization’s past tend to fail because the cognitive structures of members, whose cooperation is necessary for successful implementation, constrain their understanding and support for the new initiatives.” In the inter-organizational change environment, core identity constructs take on added complexity as the effects of the partner-organizations are mixed into the traditional intra-organizational change effects. Williamson’s (1975) guileful self-interest as well as Pfeffer’s (1981) political concerns can provide interesting input into understanding the management processes as well as potential sources of resistance and conflicts and how these can be managed. In other words, we need to seek theories and processes for managing cross-organizational mental models, shared visions and learning (Senge, 1990).

Therefore, agri-food strategy researchers interested in developing theories and processes for quality management (in both content and operational dimensions) in a changing environment have to develop a cohesive thought on the changing agri-food consumers’ definition of quality, the players along the supply chain who influence the realization of the consumers’ expectation and the inter-organizational issues that confront these players. This implies that conversations about supply chains need to expand beyond logistics and implementation software to managing social capital within and across organizations.¹² We need to develop metrics that are appropriate for the agri-food quality system, recognizing the idiosyncrasies of its industries and markets. For example, what processes should be developed to track quality across the supply chain? What worker-interactions are required to facilitate effective management of quality along the supply chain? What should be the role of management in the different organizations in fostering the required resources – both tangible and intangible – to ensure performance? What boundary management skills need to be developed in the leadership of supply chain partners as they position themselves to take advantage of their changing environments?

There are also questions relating to the effect of competition policies and antitrust laws on these inter-organizational relationships. These questions lead us to consider the definitions of competition,

¹² Social capital refers to the depth and quality of relationships between people in a community (Coleman, 1988). Unlike human or financial capital, social capital is not possessed but adheres in the set of relationships among people. The productivity of these relationships is only to the extent that they are based on common set of expectations a set of shared values and a sense of trust among the people involved in the relationship (Wehlage, 1999; Brown, 1998). Where social capital is weak, values tend to conflict and trust levels are low.

relevant market boundaries and the role of government in addressing market failures in a rapidly changing information-based economy. They also point to the need to study the relationships at the government-firm interface in a new light, a movement away from regulation or command-and-control processes to facilitation and cooperative approaches based on the single objective that both firms and governments seek the same objective in some sense – for example, enhancing the standard of living of citizens. This congruence of objectives becomes clearer when viewed in an increasingly globalized marketplace.

Additionally, we need to assess the possibility of amalgamating different processes to achieve operational objectives in agri-food organizations. For example, what are the theoretical and procedural congruencies between the TQM and, say, HACCP, and are these congruencies strong enough to facilitate their joint application in a cost-effective manner? How do we develop training and education programs for students, employees and management to capture the economics of such joint implementations?

Looking for New Conversation Tools

Thus far, we have reviewed the thoughts of the de facto progenitors of TQM and identified where we have found discrepancies between the theory of the principles and the implemented programs. We have also indicated that the changing environment confronting organizations requires a new approach to managing quality. We have raised some questions from the literature on quality management in the emerging economy, calling for theoretical and process insights into cross-organizational quality management.

This is the beginning of the conversation. For, we need to now explore operational tools being used or emerging in other fields or disciplines which may be applicable or adaptable to the agri-food sector. We need to assess the limitations of these adaptations and determine the new theories that may be developed to minimize these limitations, or indeed enhance their performance, in agri-food operations. We need new conversation tools to facilitate new ways of looking at familiar ideas in ways that open new windows on current and emerging questions that affect the competitiveness of agri-food organizations within a changing environment.

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