Center for Quality of Management Journal

Vol. 6, No. 2 FALL 1997

MESSAGE FROM THE CHAIR

Broadly speaking, all of the papers in this issue are concerned with what it means to satisfy a customer and how to improve the processes we use in organizations to better satisfy customers.

The first paper in this issue of the CQM Journal, "TQM in Service" by Vic Aramati and Toby Woll, is a report on a CQM study on TQM in the service industry. Several years ago it became clear that a number of CQM member companies saw TQM as taught by the CQM as being mainly aimed at manufacturing and not applying easily to service industries. In particular, there was a view that in service industries it is difficult to create step-by-step processes such as were perceived to be used in the manufacturing industry and to which it was perceived that TQM mainly applies.

The TQM in Service Study came up with an interesting result. Companies in service industries have several different types of processes:

- some processes are "operational" and can be made step-by-step, just like a process on the manufacturing floor
- some processes are "moment of truth"—face-to-face with a customer and with the imminent potential to leave a customer satisfied or unsatisfied
- some process are "creative" or "innovative," creating new knowledge.

Each of these different types of processes has some different characteristics that need to be considered when trying to improve the process, and there are ways to make each type of process more explicit (even if not exactly step-by-step) and for improving each type. Finally, the study group came to the conclusion that these three types of processes also exist in manufacturing industry organizations.

The second paper, "Quality 1 on 1" by Richard LeVitt, describes some new thinking at Hewlett-Packard about how to satisfy customers. In particular, the paper describes an approach to extending the definition of customer satisfaction to include the customer's entire experience with a product or service, including the customer's feelings or emotions resulting from the experience.

The third paper, "Emotions: at the Heart of Business Practice" by Rafael Echeverria, concentrates particularly on the importance of becoming more aware of the emotional component that is part of every business interaction, both within the organization and with people outside the organization.

The final paper, "Self-Generate Competitive Innovation with the Language-Action Approach" by Bob Dunham, concentrates on the importance of innovation in making organizations better able to satisfy customers and in particular on a language-based approach to bring more explicit methods to the process of innovation.

Although the LeVitt, Echeverria and Dunham papers were written independently of each other, they seem quite related. I suggest reading each in turn and then going back to think about them all together.

All of the concepts and methods described in the last three papers are plausible candidates for improving the three types of processes described in the first paper.

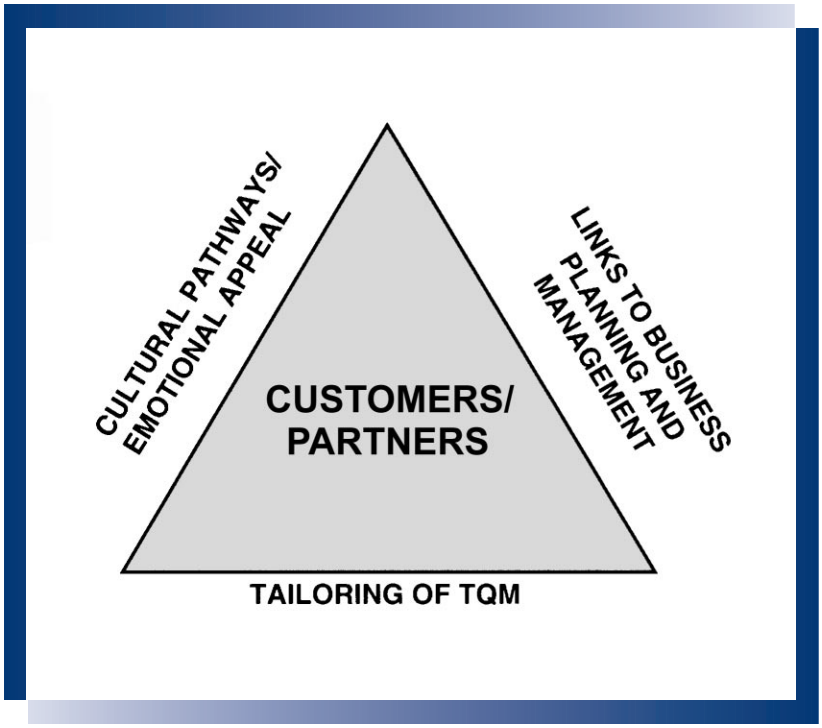
TQM IN SERVICE
A REPORT BY THE CQM STUDY GROUP

Written by Victor S. Aramati, Digital Equipment Corporation and Toby Woll, Center for Quality of Management with profound thanks to all the members of the Center for Quality of Management's TQM in Service Study Group

"Every enterprise is a service company."

The last decade has seen notable changes in quality approaches in North America. There has been a significant migration from an emphasis on error/cost reduction (i.e., quality in manufacturing) toward corporate wide, growth-enhancing approaches aimed at providing strategic advantage in the marketplace. This paper discusses the tailoring of TQM to mesh with these new approaches, specifically in businesses that are part of the service sector.

FIGURE 1: Model for Managing and Sustaining Excellence



Victor S. Aramati is the director of Customer & Partner Telephone Support at DIGITAL's Products Division and is responsible for improving the Ease-of-Doing-Business with DIGITAL through all forms of customer and partner telephone contact for sales, marketing, and pre-sale technical support worldwide.
Vic joined DIGITAL in 1984 where he has held numerous positions in Quality, Reliability, and Manufacturing Operations. Prior to joining DIGITAL, Vic spent 15 years at AT&T Bell Laboratories.

Toby Woll is a CQM fellow and the former executive director of the CQM. She has worked extensively to integrate TQM with Russell Ackoff's Interactive Planning Process, and convened the TQM in Service study group, acting as sponsor and facilitator of the group's efforts. She has been invited to present findings to CQM course participants, the United Way of America, and groups of corporate executives.

The Service Model

The objective of quality management is no longer just reducing defects, but rather increasing the value that customers receive on a sustained basis. Companies that have successfully implemented state-of-the-art quality programs beyond the confines of manufacturing have recognized this difference. They have augmented manufacturing-oriented techniques and made quality a major strategic advantage by applying its tenets to realize their business objectives.

The model for excellence shown in Figure 1 on page 5 is based on recent CQM research projects.

At the heart of this model are customers and partners. One side of the triangle establishes the vital link between quality system implementation and the company's business planning and management. In the 1996 spring *CQM Journal* (Vol. 5, No. 1) are articles describing the work of CQM companies to integrate Russell Ackoff's powerful strategic planning process, Interactive Planning, with the operational strength of TQM. The articles by Thomas Powell listed in the bibliography are also interesting on this point.

The second side of the triangle recognizes the central role of cultural pathways among employees and customers. Discovering these pathways and taking them into account helps enhance emotional commitment to desirable or necessary systemic changes. You can find discussions of different dimensions of these issues in the 1995 winter *CQM Journal* (Vol. 4, No. 4) and in articles describing the work of Clotaire Rapaille written by Bemowski and the American Quality Foundation.

The base of the triangle confirms the importance of the subject of this paper: tailoring and optimizing TQM approaches for each individual business. A "one-size-fits-all" formula never fits all.

The Journey

CQM's research project on tailoring TQM to service companies' needs got under way on March 29, 1994. The CQM Service Study Group convened in response to CQM members' wishes for better understanding of the application of TQM in the service sector.

TABLE 1: Study Group Members

Victor S. Aramati	DIGITAL
Frederick B. Cunningham	Keane, Incorporated
Joanne Dustin	Keane, Incorporated
Gerald J. Giaccai	Federal Reserve Bank of Boston
Julio Almeda Gomes	Massachusetts Institute of Technology
Sally Green	Federal Reserve Bank of Boston
Christine Maurer	Massachusetts Institute of Technology
William O'Halloran	Synetics
Linda Ridlon	Center for Quality of Management
Ted Walls	Center for Quality of Management
Toby Woll	Center for Quality of Management
Robert Wood	Writer, Boston University

The members of the study group are listed in Table 1 on page 6.

The Angst

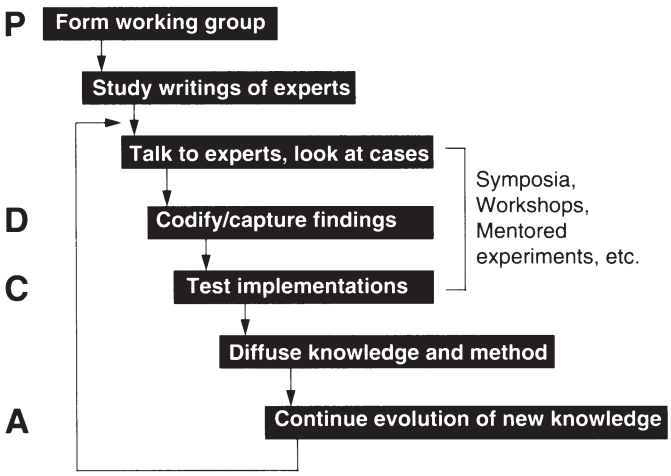
The study group members identified a range of shared concerns:

- They had all found it difficult to implement TQM programs throughout their organizations after the 6-Day Course.
- Most of the examples used in the 6-Day Course reflected experiences from manufacturing companies. These examples did not seem relevant to service organizations' needs.
- Some members had stumbled in trying to apply the 7-Step Problem Solving techniques and metrics to their environment. Their internal business processes were not clear or were hard to describe, and the processes tended to change frequently. Therefore, improvements in service processes were hard to achieve. The study group members found that if you can't map it, you can't measure it; and if you can't measure it, you can't improve it.
- Some members wanted to focus on process mapping but were unable to tie Voice of the Customer (VOC) techniques and business process management together in a scheme for added customer value.
- Study group members recognized a strong link between customer satisfaction and employee satisfaction. They wanted to understand if this link affects the service sector in some unique fashion.
- Members indicated difficulties with gathering data for measuring quality of service. They realized that performance data was lost when calls/contacts passed from hand to hand.
- Members found that their organizations, as service providers, had to understand the customers' processes in order to succeed.
- Members indicated that their service organizations (or for that matter, any unit within an organization that lay outside of manufacturing) had difficulty using the TQM tools to benefit their customers.
- They felt a general need to understand better the application of TQM in a service environment.

The Process

Following the approach used successfully by other CQM study groups, we agreed to the activities shown in Figure 2. During the initial meetings over several months, the study group researched and

FIGURE 2: Research Development Methodology



reviewed the work of thought leaders in the area of managing for service excellence. Christine Maurer did a literature search and summarized key articles. Christine's summary is available in the CQM library; a more complete bibliography is included at the end of this article.

To ground the discussion in experience, each of the participating companies presented key insights or initiatives:

- Vic Aramati described DIGITAL's work to reengineer five core processes and DIGITAL's use of the process Palettes and Six Sigma. In addition, Vic discussed the need to provide backup systems to support and empower employees so that they, in turn, can create satisfied and secure customers. Digital had recognized that to reassure the customer the employee must feel secure.

- Synetics described their initiative to develop promotion criteria to ensure that management had the appropriate skills to manage processes and people. Synetics also shared their qualitative customer survey results, which highlighted the company's need for clear processes. Finally, Synetics described one of their discoveries: What they thought was a process problem in their help desk application turned out to be a communication problem.

- One member described the internal survey they had done to identify how to promote managers who had appropriate skills.

- Keane presented their exploration of important things to consider in determining how to measure service quality; for example, they had the idea of surveying employees to find out what they liked about their customers.

Several themes began to emerge as common to all the participating companies' efforts to meet customer needs:

- Timeliness of information
- Efficiency of processes
- Link between customer and employee satisfaction
- Lack of knowledge about and use of process management

We began to think that if we could develop an effective diagnostic model, it would be easier to develop tailored solutions for achieving excellence in service delivery.

The LP

To validate the appropriateness of the issues the case studies and readings had surfaced, each company committed to doing a Language Processing (LP) session with a diverse group of employees who provided service. The question each LP group was asked was:

What are the impediments that keep you from serving your customers on a daily basis? Of particular value was an LP everyone could relate to. It was completed with employees from sales, marketing, help desk, and operations departments. Figure 3 on page 9 gives the LP report as it was presented. The insights and conclusions were the subject of intense discussion and learning. Some key themes from the LP:

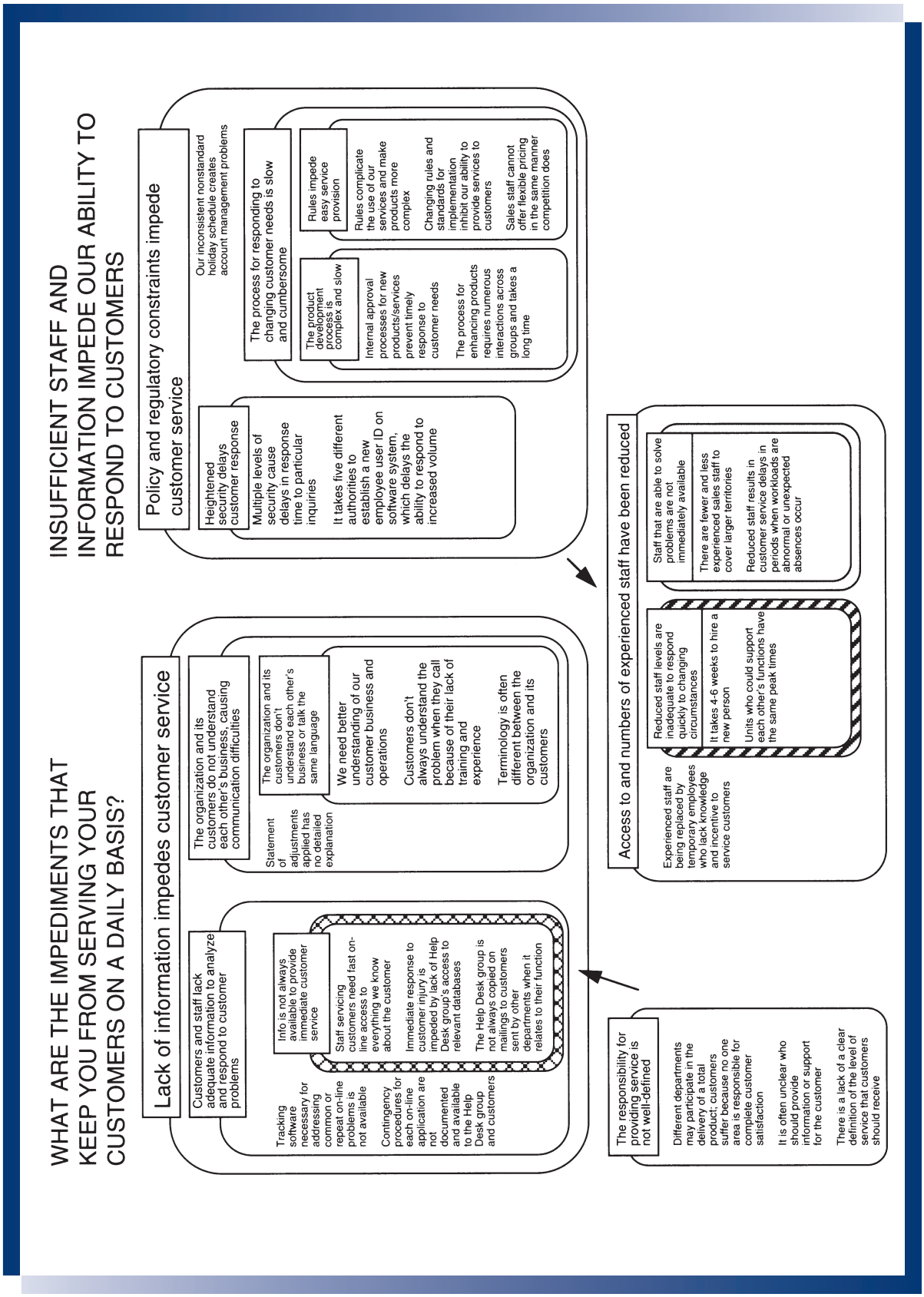
- Insufficient staff
- Insufficient data
- Communications difficulties
- Tendency for staff to learn from the customers what the company is doing before they are told by the company
- Policy and standardized process constraints
- Lack of clarity about who is responsible for customer satisfaction

Potential Solutions

At this point in the research process, the study group decided to identify the specific elements that had an impact on service delivery. Based on our current understanding, we hypothesized that the following elements were important, and that the following known quality methods could address them.

Employee Satisfaction (addresses the link between employee and customer satisfaction): We knew that there was an emotional component to be calculated both for employee satisfaction

FIGURE 3: LP Completed by a Cross-Functional Team



and for customer satisfaction. To the degree that there was data to show that there was a correlation between employee satisfaction and customer satisfaction, we hypothesized that the former could be a barometer for the latter. If this proved true, then one solution suggested would be to use surveys and other systems for testing the level of employee satisfaction as an early warning system for the levels of customer satisfaction. We also thought that it was critical to address the reward and recognition system for individuals and teams in the service environment. (Digital, Keane)

Management Skills: The ability of managers to effectively manage programs and drive change in an environment where employees are confronted with the reality of customers who are "here-and-now" seemed very important. It seemed critical that managers have a process orientation and act as shock absorbers for their direct reports. Managers needed to take responsibility for fine-tuning the system while allowing the employees to concentrate on dealing with each "unusual case." So the team theorized that program and process management training and skill were essential for managers. (Synetics, Federal Reserve Bank)

Information Access (addresses insufficient data): To the degree that up-to-date information was key to the individual employee's ability to manage the customer's needs in the "here-and-now," a reliable information infrastructure was viewed as critical by the study group. The use of a Notes-type database and the concept of a knowledge aquifer that would be available to all employees regardless of the point of customer contact were suggested as ways to invest resources for the greatest payback. (Federal Reserve Bank, Synetics, Digital)

Process Management and Improvement (addresses insufficient staffing and inadequate knowledge of processes): In the area of service processes, the group hypothesized that a variety of TQM methodologies could be applied in many different ways to good effect. For example, by using Concept Engineering as part of a service process design effort, a company could get customers to help define the service and could involve internal stakeholders who might otherwise sabotage the process. An organization could use ISO certification to enforce a process orientation and to begin process definition and documentation. Goldratt's Theory of Constraints and process modeling could help companies anticipate staffing needs and could offer ways to handle the exceptional as well as the steady state. In addition, it was suggested that companies should study new structures (e.g., roving teams or automatically reallocated resources) as a step toward creating effective and efficient processes. Finally, the group hypothesized that the ability of service processes to have real-time feedback loops and data gathering made these processes a rich ground for improvement. (Synetics, DIGITAL, Federal Reserve Bank)

Metrics and Relation to Performance (addresses lack of accountability and responsibility): Confronted by the universal experience that developing metrics in a service environment can be very difficult, the study group suggested that using ISO certification as a discipline could speed up the development of standards. We considered voice of the customer as a tool for testing the relevance of metrics that were selected. We also discussed the discipline of Hoshin management or policy deployment as a possible "solution" to service organizations' characteristic unwillingness to assign metrics. (all members)

Empowerment and Authority to Act (addresses policy and regulatory constraints): Finally, given the "here-and-now" quality of many service operations, the study group hypothesized that top management and CEO initiatives were critical to mobilizing change efforts. Employee behavior change, and training of management to inspire the new behaviors, should help create the correct mindset for service. The group saw the chartering, building, and training of teams as essential ingredients in a service environment. The goal would be to engender in employees the ability to feel–and be–empowered, in such a way that all employees

would take the authority and responsibility for satisfying the customer at the same time that they would enhance their own sense of satisfaction. K. Bemowski's interesting article about the work of Clotaire Rapaille on teams (see Bibliography) enlarges on this idea. (Federal Reserve Bank, DIGITAL)

Enterprise Model and Process Matrix

We adopted a model of an enterprise and developed a matrix for the analysis of service processes.

To test the preceding hypotheses, our enterprise model (or, for that matter, any business entity, no matter how small) can be very simply described as a closed loop system that starts and ends with customers. The enterprise consists of employees and managers who work on value-adding processes for the sake of the customers. Customer feedback and satisfaction measurements are constantly gathered, allowing a process of continuous improvement. There is also a partnership with suppliers. The glue that maintains the whole system is the information stream or "knowledge aquifer." The definitions of these individual elements are listed below, and the system as a whole is shown in Figure 4. (For simplification purposes, Figure 4 does not show the environment, competitors, regulatory agencies, etc.)

Customer: Anyone, whether internal or external to the enterprise, who is impacted by a product, service, or process.

Process: An interrelated sequence of value-adding actions performed to achieve an output. *Process Management*: Understanding, measuring, controlling, and improving a process to achieve an output desired by the customer.

Supplier: One who supplies necessary people, materials, or information to add value to the process.

Information: The collective experience and knowledge that is needed to add value to the process.

Employees: Those employed by the enterprise who provide added value to the process.

Management: The collective body of those who manage an enterprise or a collection of processes.

Metrics: Standards of measurement.

In the context of this enterprise model, the study group considered the typical business

FIGURE 4: Enterprise Model

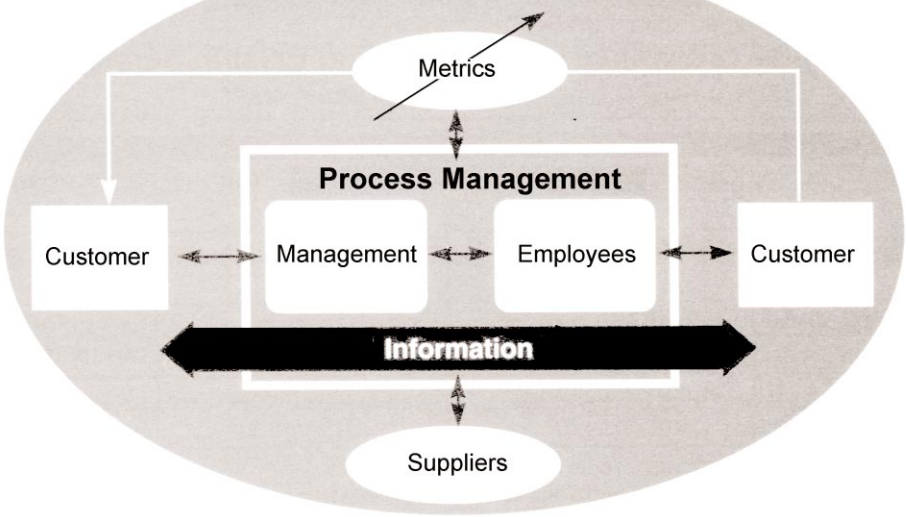


TABLE 2: The Matrix

Elements / Dimensions	Operational Process	Moment-of-Truth Process	Innovative Process
Process Management	Repetitive, measurable, easily applied statistical tools.	Repetitive process, unique situations.	Repetitive but creative to yield unique solutions.
Customer	Generally not involved in process.	Has "here-and-now" needs, is often "in-your-face."	Has longer-term working relationship, mutual understanding.
Suppliers	Ensure that right resources are available on time.	Generally not involved in process.	Partner and complement skills.
Information	Defined in advance and documented.	Must be diverse, accurate, and instantaneous; requires interpersonal skills.	Fosters communication and consolidates knowledge.
Employee Skills	Process control, teamwork, problem solving.	Presentation, empathy, and sensitivity.	Sensitivity to customers' latent needs, creativity.
Management Skills	Delegation of authority to stop the process.	Delegation of authority to satisfy customers' immediate needs.	Delegation of authority to shape outcome. Management of innovation.
Metrics	Concrete, definable.	"Perception is reality;" hard to track.	Project management, customer acceptance.

TABLE 3: Examples of Business Processes that Exist in Service Sector Companies

Business	Operational Process	Moment-of-Truth Process	Innovative Process
Hotel	Laundry	Check-in	Design of a new facility
Fast-Food Restaurant	Kitchen	Order taking	Design of a new sandwich
Insurance Corporation	Claims processing	Sales/customer service	Design of a new claim form
Consulting Firm	Accounts receivable	Customer presentations, walk-throughs	New project

processes that exist within service sector companies such as hotels, fast-food restaurants, insurance companies, and consulting firms. We identified three types of business processes common to all service companies:

- Operational processes
- Moment-of-Truth processes
- Innovative processes

Table 2 on page 12 relates these three processes to many different elements and dimensions of organizations. (Hereafter we will simply refer to this table as "the matrix.") This format was inspired by and adapted from the excellent work by A. T. Kearney (see Bibliography).

For some examples of what we mean, consider those shown in Table 3 on page 12.

Having agreed that the matrix captured most of the critical elements of the business processes, we decided to:

1. Verify whether or not the study group's observations were in fact borne out in our companies;

2. Validate the matrix as a tool for diagnosing and prescribing how to manage in a service environment; and

3. Generate additional examples of how member companies have actually implemented solutions.

The next sections describe the results of our efforts to verify and validate the three key processes and the matrix by generating case studies from our own companies. At this stage in the research, the study group also began to observe that, although we were looking through the lens of service organizations, the matrix seemed equally applicable for any enterprise in any sector. We will expand on this point in "Discussions and Dialogue."

Operational Process

Table 4 below restates important aspects of Operational processes.

Operational Process Case Study: The Federal Reserve Bank of Boston

The mission of the Federal Reserve system is to conduct monetary policy, to ensure the safety and soundness of the banking system, and to ensure the integrity and promote the efficiency of the U.S. payments system.

A TQM program has been applied to various business processes at Boston's Federal Reserve Bank in support of new product development (e.g., electronic check products) and improvements to existing processes (e.g. Fedline customer support). The 7-Step Problem Solving Method and traditional quality control (QC) tools were used widely but met with varying degrees of success. The "Check Error

TABLE 4: Important Aspects of Operational Processes

Elements/Dimensions	Manifestations
Process Management	The process is repetitive, yields tangible results, and can be measured and controlled with statistical tools.
Customer	The "customer" is the next process. External customers do not usually participate directly in the execution of the process.
Suppliers	Suppliers participate in the execution of the process by ensuring that the right resources are available on time.
Information	The needed information (data, process description, quality standards, etc.) is defined in advance and documented.
Employee Skills	Employees need to be skilled in process control, teamwork, and problem solving.
Management Skills	Managers need to give authority and capabilities to employees, to monitor the performance of the process to standards, and to stop the process as warranted.
Metrics	Metrics for Operational processes are concrete and definable.

Reduction" was selected as a test case for Operational processes.

To set the context, the Fed performs accounting functions to debit and credit the accounts of paying/receiving financial institutions. Checks are physically sorted for delivery to the paying institution. The Fed sorts dishonored checks (insufficient funds, stolen, fraudulent) sent in by paying institutions, returns such checks to the bank of first deposit, and makes the necessary accounting adjustments.

The goal of the Check Error Reduction project was to reduce the number of internal errors in the check operation.

The problem-solving approach used by the Fed involved teaming, the 7-Step Problem–Solving Method, process maps, LP diagrams, Pareto charts,

TABLE 5: Check Error Reduction Case Study Matrix

Elements/ Dimensions	Manifestations	Solutions
Process Management	• Repetitive check sorting process, yields tangible results, measurable and controllable with statistical tools. • Only management has data. Not always easy to extract needed data from system.	• Develop manual and map process. • Create feedback reports showing error data at detail level. • Use jam stamps (i.e., "inspected by. . .") • Long term: There needs to be an easier way to get to the data. • Continue to review error rates for variation.
Customers	• Customers are also our suppliers.	See below.
Suppliers	• Suppliers are also our customers.	• Improve "internal supplier" input. • Secondary outcome: initiation of partnership between the Boston Fed and customers to focus on improving incoming work.
Information	• The needed information can be defined in advance and can be documented.	• Ongoing meetings to review data.
Employee Skills	• Employees skilled in process but not in teamwork or problem solving.	• In-house sorter operator training by Unisys. • Employee performance feedback generated.
Management Skills	• Errors not known until down the line. • Strict processing and shipping deadlines dictate that jams, not people, stop the process.	• Stopping the process is not highly feasible or necessary, in this case.
Metrics	• Customer satisfaction survey metrics. • Standard Federal Reserve system and bank targets. • Customer-driven metrics not yet in place.	• Long term: Metrics must be linked more closely to customer satisfaction.

cause-and-effect diagrams, checksheets, solution and implementation matrices, and so forth.

Table 5 on page 14 helps to demonstrate the usefulness of the matrix we are proposing.

Summary

In summary, the Boston Fed's check sorting process conformed to the characteristics of the Operational process description. In terms of its process management, it responded well to the use of the 7-Steps, 7 QC tools approach to improvement. The outcome also confirmed that beneficial improvements occurred in the other elements/dimensions that the matrix identified (e.g., customer and supplier relationships, information usage, employee skill development).
The key benefits of the project: Errors were reduced; other improvement efforts were spawned; teamwork and staff involvement increased; employees were exposed to new skills; there was increased feedback and communication; recognition was given; internal/external project publications generated interest; and partnerships developed within the bank, within the industry, and with other Feds.

The key learnings:

- The 7-Step Problem Solving Method worked well here.
- Process mapping (with modifications) is an extremely helpful tool.
- The team had lots of data but lacked an easy way to get to it and manipulate it.
- There was a prevalent assumption before this project, that people with 20 years' experience at the Fed did not need training.
- Employees were surprised that they were capable of using the quality tools.
- Teams should have at least one person capable of doing analytical activities.
- Taking people off the line for extended projects, is extremely difficult; consequently, improvement efforts require quick TQM methods.

Moment-of-Truth Process

Table 6 below summarizes important aspects of Moment-of-Truth processes.

TABLE 6: Important Aspects of Moment-of-Truth Processes

Elements/Dimensions	Manifestations
Process Management	The process is repetitive, but employees must cope with unique customer situations and demands.
Customers	Customers have "here-and-now" needs and are often "in-your-face." Time is not your friend.
Suppliers	Generally, suppliers do not participate in the execution of the Moment-of-Truth processes.
Information	Diverse and accurate information is critical for employees to satisfy instantaneous customer needs.
Employee Skills	Good interpersonal skills and sensitivity to customers needs are critical.
Management Skills	Managers must ensure employees' satisfaction and skills, create a strong backup system, and delegate authority to front-line staff so they can satisfy the customers' immediate demands. Managers' role is to monitor staff's real-time performance and give coaching feedback, because employees are too engaged in delivery of the service to self-diagnose.
Metrics	"Perception is reality."

Moment-of-Truth Process Case Study: DIGITAL

Digital Equipment Corporation is a world leader in implementing and supporting networked platforms and applications in multi-vendor environments. Building on its core competencies in software, systems, networks, and services, DIGITAL, working with its business partners, provides a complete range of information-processing solutions from personal computers to integrated worldwide networks. DIGITAL develops, manufactures, and sells products and services worldwide.

The DIGITAL Call Center, serving the Americas, opened in November 1996. Customers and partners dial toll-free numbers, such as 1-800-DIGITAL, and are linked directly to Customer Care agents, or CCAs (voice response units have been eliminated) who address questions and manage calls to a complete resolution. Handling more than 100,000 calls per month, the Call Center is staffed by a diverse group of knowledgeable professionals specializing in customer care, telemarketing, telesales, order management, and finally presales technical support. In the presales process, the subject of this case study, technical support specialists interact on the telephone with customers seeking solutions in real time.

The call escalation process is worth describing here.

1. All calls are received by the Customer Care agent, who strives to understand the caller's issues and operating environment and decides, based on process documentation, where to connect the call. Meanwhile information about the call is entered in a database and forwarded along with the call; this eliminates the need for the caller to repeat the questions, a source of customer irritation.

2. Appropriate calls are directed immediately to the Technical Support specialist who is most knowledgeable in the specific product area. These specialists, in turn, provide customers and partners with configuration assistance and technical product solutions.

3. If the issue is complex, the call can be routed to Advanced Support specialists, also within the Call Center. There, consultation with the client can be done off-line; in a three-way conversation; or, if DIGITAL staff need time to research questions, during a callback session. In fact, Advanced Support personnel maintain a laboratory that allows them to simulate the caller's environment so as to experience the problematic situation directly.

4. If Advanced Support cannot resolve the caller's concerns, they have a direct link to DIGITAL engineering teams, who can provide real-time engineering information and support.

Once the caller's issues are resolved, the Advanced Support person is responsible for sharing the gained knowledge with the rest of the team. In fact, part of the compensation package is based on knowledge sharing. Advanced Support personnel enter the knowledge they acquire in a Web page for their product category. This eliminates redundant discovery and problem solving. The whole process is documented, practiced, measured, and constantly improved based on weekly customer feedback obtained by a third-party customer satisfaction survey.

The Call Center management believes that employee satisfaction is vital for high levels of customer satisfaction in the Moment-of-Truth process. Therefore, they have devoted particular attention to training and rewards. Technical and Advanced Support teams are trained in:

- Call Center processes and tools.
- Generic technology geared toward the knowledge level of the individual.
- Product-specific know-how and certification.
- Interpersonal skills: "Total Quality Relationships" and "Relationship Selling" are courses focused on conversations with customers on the telephone. Supervisors spend additional training time on techniques for auditing live conversations and providing

positive feedback and coaching. This extensive training gives Call Center personnel the ability and the tools to delight their customers.

The compensation of the Call Center personnel is also oriented toward incentives for satisfying the customers. For example, part of the bonus of Advanced Support personnel is based on:

1. Team delivery of quarterly knowledge transfer goals. The quarterly team goal is 120 knowledge transfer hours; for example,

- one hour of credit is earned for each Technical Tip published in the Technical Support WWW homepage,

- one for each hour of on-line technical consulting via WWW homepage TechTips, and

- eight for each four-hour seminar prepared and delivered to Technical Support, CCAs or telesales.

2. Individual average issue resolution time. The goal is to achieve an average escalated issue resolution time of 16 working hours.

3. Call Center Quality goal. The attainment of a Call Center quality metric of 88 percent in customer satisfaction meets this goal.

Table 7 on pages 18-19 illustrates the applied Moment-of-Truth process in the DIGITAL Call Center case. The DIGITAL Call Center's high-performance team has had exceptional success in its solutions, which are customized to the dimensions of the Moment-of-Truth. It is striking that in this case the "soft side" of the transaction is addressed with very concrete solutions. For example, the company provides specific training in telephone skills and applies metrics to knowledge transfer while monitoring and maintaining very specific productivity metrics. Management receives training in fostering morale and in coaching skills to relieve the stress of the environment. Finally, the team gathers and acts upon customer input weekly, obtaining constant (if not real-time) feedback. This case serves as an excellent example of how particularly important it is to tailor traditional quality implementations to real-time processes.

Innovative Process

The important aspects of innovative processes are described in more detail in Table 8 on page 20.

Innovative Process Case Study: Synetics

Synetics is a full-service worldwide systems integrator. The firm has earned a reputation for technical excellence and for its commitment to continuous process improvement. Its core capabilities include information systems planning and requirements analysis, network design and installation, system acquisition, software application development, help desk reengineering, training and maintenance, and support. Characteristically, consulting service providers see each customer's contract as unique and resist well-defined business processes. Yet Synetics recognized that process management, crucial to:

- Managing and meeting customer expectations;

- Making the best use of information systems;

- Mobilizing the workforce;

- Establishing and managing to metrics.

Synetics' efforts to apply the 7-Step Problem Solving Method to their business processes had proved difficult. However, the proactive TQM problem-solving tools, Concept Engineering (CE) and Quality Function Deployment (QFD), turned out to be extremely useful. These tools facilitated customer buy-in and satisfaction and helped promote a mutual understanding of customers' needs and solution technology up front. Synetics integrated the TQM tools into several programs:

- *Rapid Action Development*. RAD is a high-speed process-oriented software development methodology involving a small team of users and developers.

- *Joint requirements planning and joint application design*. JRP and JAD make use of frequent customer reviews.

TABLE 7: Applied Moment-of-Truth Process for DIGITAL's Call Center

Elements/ Dimensions	Manifestations	Solutions
Process Management	• Multiple presales calls asking how to enhance a current computing environment. These calls need to be nurtured to potential sales leads. • The process is repetitive but could lead to a variety of outcomes.	• Shift from a voice response unit to live Customer Care agents who help guide callers to the correct process/product queue. • Process mapping: Formal queuing, routing, and escalation process developed, documented, practiced, and measured. • Definition, qualification, documentation, and measurement of sales leads.
Customers	• End user (customer, partner, or a DIGITAL sales representative) has business needs for DIGITAL products and wants an answer now.	• Setting of a Call Center goal: to have customers feel, *"I am glad I called."* • Training in ability to recognize caller's specific needs and customize dialogue accordingly.
Suppliers	• Internal suppliers provide information, deliver training, manage flow of data, etc. • External consultants and suppliers provide information systems, telephone switches, etc.	• Suppliers are heavily depended upon but do not participate directly in the "here-and-now" process.
Information	• All calls must be handled to minimize the number of transfers and the need for callers to repeat information. • The needed information is diverse and technical.	Caller information, problem solving, knowledge, and tools are: • Categorized and made widely available. • Web based, with a searchable index. • Made available to partner with a password.
Employee Skills	• "Customers can be very tough; working phones can burn people out. You have to like people." • Everyone has to have ability to provide answers to technical questions that will result in customer confidence. • Excellent interpersonal skills and sensitivity are needed: "capability without the arrogance." • Personnel should be technically oriented, fast learners, resourceful, problem solvers.	• Hiring based on knowledge and potential for telephone skills. • Heavy emphasis on training, including special technical training and telephone etiquette (correct but rude answers are disastrous). • Bonus-augmented compensation that reinforces knowledge transfer. • Documented job descriptions and hiring process.

TABLE 7 (cont.)

Management Skills	• Ability to lead an engineering team. • Direct experience with the work. • Ability to create a reasonable and enjoyable atmosphere in a high-stress environment. • Understanding of the fact that employees will treat customers exactly the way they are treated.	• Standard operating procedures manual that describes required management role, style, and direction. • Open offices (no wall to ceiling) and casual dress code *for all*. • Recognition of managers–employees–customers satisfaction chain. • Challenge to managers to capture the team's enthusiasm and show that it can make a difference.
Metrics	• Metrics designed to allow the Call Center to reach the goals of: ◊ Responding within seconds, ◊ Sharing information, and ◊ Providing correct answers quickly.	• Manager audits of live conversations and regular coaching feedback. • Call Center weekly aggregation of third-party customer satisfaction survey. • Operational metrics such as: ◊ Number of calls per day ◊ Number of calls rerouted and to whom ◊ Percentage of calls mistransferred ◊ Average speed of answering the phone ◊ Number of sales generated ◊ Knowledge transfer ◊ Issue resolution time

- *Notes databases and standard project notebooks.* Development teams share information on projects and services through such tools. Parenthetically, the "Project Notebook" is a Synetics success story that emerged from an employee suggestion program; an award-winning 7-Step quality action team developed the Notebook. The Notebook was adopted widely throughout the company and is now also offered as an application for customers.

Synetics used Concept Engineering to develop an information system for a distributed help desk application.

The customer–the IRS–had conflicting ideas about what their distributed help desk should be; Synetics, for its part, believed that a preconceived solution would not meet customers' demands. CE offered a concrete and productive methodology for developing a new solution that would meet customer demands. Because of time constraints, the team experimented with shortcuts to the CE process. For example:

- The JRP was used to collect the voice of the customer (CE step 2).
- The Synetics team performed the requirements LP but not the image LP (step 3).
- The team did the importance questionnaire but not the Kano questionnaire (step 7).
- The team used QFD to correlate requirements with

TABLE 8: Important Aspects of Innovative Processes

Elements/Dimensions	Manifestations
Process Management	The process is creative and yields unique solutions.
Customer	The customer is someone whose needs require a working relationship and mutual understanding. Time is your friend in these relationships.
Suppliers	Suppliers are your partners and complement your skills, services, and abilities to execute the process and/or solution.
Information	Information systems are needed to enhance communications among all stakeholders, project information management, and consolidation of knowledge.
Employee Skills	Employees must have sensitivity to customers' latent needs, superb creative skills, and ability to share skills and knowledge.
Management Skills	Managers need abilities to develop employees' skills, monitor projects, manage innovation, retain people, and give authority to people to shape outcomes.
Metrics	Critical metrics are project management and customer acceptance data.

TABLE 9: Synetics' Innovative Process

Elements/Dimensions	Solutions
Process Management	Identify repetitive project processes; apply project management tools to measure and control.
Customers	Partner with customer to achieve mutual understanding of customer needs and solutions technology. (Concept Engineering proved useful here.)
Suppliers	Team with other firms and consultants to complement skills; need for value-added reseller (VAR) relationships to provide full service system integration solutions, pricing and mutual sales support.
Information	Share on-line databases for financial status against plan, process documentation, and Project Notebooks.
Employee Skills	Employees need communication skills, to relate with customers and understand their needs; state-of-the-art expertise on a variety of tools and techniques; a high degree of creativity, to meet customer expectations; and the ability to work in teams, an essential for sharing skills and knowledge.
Management Skills	Managers must have project management skills for complex innovative projects, the ability to mobilize and empower highly creative teams, and leadership qualities conducive to an environment that will grow and retain professional staff.
Metrics	Identify, document, and measure key processes; use project management tools to track key well-defined metrics; implement ISO9001 quality structure as a good discipline for documenting processes.

functions but not with metrics (step 7). (For a description of the CE steps referred to above, refer to the CQM Manual *Concept Engineering*.)

This is an excellent illustration of learning, using, and adapting TQM techniques in an innovative process environment. The modified CE process worked very well for Synetics despite time and customer constraints.

To test the innovative process matrix, Synetics recorded their experience. (See Table 9 on page 20.)

Summary

In the Innovative process case study, the need for a project management orientation and project metrics is clear. However, the emphasis is on tools like Concept Engineering to create mutual understanding; and the focus on managing for creativity distinguishes Innovative processes from the other two types of processes.

One Company–Three Processes: The MARKEM Application

The CQM Service Study Group presented its findings to the CQM Chief Quality Officers Roundtable on June 14, 1995, a meeting graciously hosted by Energy Systems Industries in Boston, Massachusetts. The team asked the roundtable members to apply and test the model in their business environment. Participants from MARKEM, Titleist and Bose have validated the usefulness of the model. We will include here the feedback from MARKEM, authored by Richard P. Bangham, Division Manager, Customer Service.

MARKEM Corporation is a global enterprise that provides in-plant printing systems for product identification and decoration application. The corporation is headquartered in Keene, New Hampshire, with more than 1,600 employees worldwide and annual sales in excess of $200 million. The business encompasses the design and manufacture of printing systems; sale of supplies (e.g., ink for printing); and sales/service, with particular attention to the elimination of equipment downtime.

MARKEM Corporation has concentrated activities in the development of printing systems that employ a wide range of technologies. Current efforts include the application of digital-to-print technology. New generations of products will set standards for product performance in terms of image quality, resolution, speed, and reliability.

MARKEM evaluated its processes and their characteristics using the matrix for the three types of processes.

TABLE 10: MARKEM's Consolidation, Packing, and Shipping Process for Bulk Shipments

Elements/Dimensions	Manifestations
Process Management	Weekly repetitive process leads to tangible results in terms of bulk accuracy, which is measurable and controlled with data.
Customers	"Customers" are MARKEM business centers in the Netherlands, Britain, Singapore, Canada, and Mexico.
Suppliers	Three primary manufacturing centers are in Keene, NH
Information	The needed order information is defined in advance and is documented.
Employee Skills	Employees are skilled in the process, but not in teamwork and problem solving.
Management Skills	Errors are not known until discovered by the customer, the MARKEM business center that receives the shipment.
Metrics	"Bulk Accuracy Report," expresses accuracy as a percentage of items shipped, at the line level (e.g., 99.5 percentage line shipment accuracy).

TABLE 11: MARKEM's Tech Service Hot-Line

Elements/Dimensions	Manifestations
Process Management	This is a help desk–like service: Customers call and ask for their particular questions or problems.
Customers	The customer is an external MARKEM customer (end user) who has a "here-and-now" question or problem with the operation of a MARKEM printing system.
Suppliers	MARKEM's three business groups are the primary information source for hot-line staff.
Information	Tech support requires a broad, very diverse, base of technical application and knowledge.
Employee Skills	Employees need strong interpersonal customer-focused skills; Technical competence in mechanical, electrical, and software areas; and lots of MARKEM system application experience.
Management Skills	Managers delegate authority to tech service hot-line employees to satisfy customers.
Metrics	None.

Operational Process: Bulk Shipments to MARKEM Business Centers

MARKEM serves its non-U.S. customers primarily through business centers located in key areas of the world. Each MARKEM business center receives in weekly bulk shipments goods to serve its customers from Keene. The consolidating, packing, and shipping of these bulk shipments is an operational process. (See Table 10 on page 21)

Moment-of-Truth Process: The Tech Service Hot-Line

MARKEM offers a tech service hot line (an 800 number) for customers to use when they have technical questions and problems with regard to the operation of their MARKEM printing system. (See Table 11 above)

TABLE 12: MARKEM's Model 6000 Rotary Gravure System

Elements/Dimensions	Manifestations
Process Management	The purpose of the creative process is to design and develop a pad printing system that moves the art of pad printing to a reliable production process (i.e., broadens the market for MARKEM in-plant printing systems).
Customers	Customers are external industrial manufacturing companies using competitive pad printing equipment and/or silk screening.
Suppliers	Supplier is MARKEM's Science and Engineering Division
Information	ISO9001 design review procedure, Project Notebooks, Concept Engineering, and so on provide information.
Employee Skills	Needed are communication skills, interviewing skills, ability to work in teams, creativity, ability to translate customers' words into deeds.
Management Skills	Needed are project management skills, leadership abilities.
Metrics	ISO9001 design review practices serve as metrics.

Dave Walden on Moment-of-Truth Service Processes

Having attended several Service Study Group sessions, Dave Walden, CQM's director of R&D, submitted a note on "Statistical Process Control in Moment-of-Truth Service Processes." The following is an adapted excerpt; the entire note is available from the CQM library.

Moment-of-Truth processes are those processes where service workers must deal with customers in real time, such as airline ticket clerks or customer support hotline personnel. [Clotaire Rapaille has described his research showing that customers' loyalty is demonstrably higher when they have received an excellent response to a problem than when the customers have not encountered any problem at all.] People personally involved in Moment-of-Truth processes often feel that their processes are different from Operational processes such as one often finds on a manufacturing line. And indeed, some statistical process control (SPC) techniques that are typically applied to control or improve Operational processes may seem more difficult to apply to Moment-of-Truth processes.

Yet the use of SPC for Moment-of-Truth processes is an important early step people should consider as they seek customer satisfaction. Using SPC may be the only valid way to tell whether a Moment-of-Truth process is working correctly and what factors contribute to that success. Furthermore, use using SPC may be the only valid way to tell whether improvement efforts are making things better, wasting efforts, or actually making things worse. For instance, some factors that may be important to control Moment-of-Truth processes include employee satisfaction, [because employee satisfaction and customer satisfaction are correlated]; information systems [to provide the data employees need in dealing with customers]; company policies, practices, and economics; empowerment of employees to make real-time decisions to deal with customer situations; employees' expertise with regard to company policies, practices and economics; employees' interpersonal skills; and so on.

Once one has decided which factors to investigate, there are many ways to establish cause and effect. First, one might simply change one factor in a controlled way (e.g., give additional role-playing in listening skills) and see if the results metrics change. Second, one might try to develop quantitative metrics (e.g., objective or subjective "listening skill ratings" for employees) and then use statistical methods to find correlations with results metrics. Third, one might try to find correlation between the results metrics for different employees and the employees' specific characteristics – for example, their profiles, their Myers-Briggs profiles, their years of experience in Moment-of-Truth processes, and so on. In any case, SPC may be necessary to validate apparent changes in performance.

However one evaluates and measures Moment-of-Truth processes, *practice* is critical. The people best prepared to deal with unexpected Moment-of-Truth situations are those who have worked hard in advance to practice handling these situations before they occur in real life– people such as airplane pilots, top-rank tacticians on racing sailboats, successful salespeople, and surgeons. For front-line personnel the chances of successfully navigating a Moment-of-Truth are a lot better if people can apply what they know from a known, commonly successful pattern of responses, as in the DIGITAL case study.

Innovative Process: Model 6000 Rotary Gravure System Development

MARKEM continues to develop new products integrating new technology. One example is the Model 6000 rotary gravure system. (See Table 12 on p. 22)

MARKEM has embarked on a Concept Engineering project to develop a pad printing offering that is much easier to set up and operate effectively in an industrial manufacturing environment.

Summary

Richard Bangham wrote, "I found this exercise extremely useful. A light bulb went on for me when I discovered the fact that we are very light on using metrics in evaluating our [tech service hot-line] performance, the fact that we have not empowered people in our Bulk Shipping Department to problem-solve as a means of improving accuracy, and the fact that ISO9001 practices are very useful in Innovative processes."

Discussion and Dialogue

We started this paper by proposing a model that necessitates the tailoring and optimization of modern TQM approaches to various businesses--a model that avoids the reliance on a one-size-fits-all formula for quality programs. In particular, CQM members from the service sector found that they had difficulty when they tried to apply the manufacturing

companies' strategy of deploying 7-Step Problem Solving throughout the company. The CQM Service Study Group undertook to understand the unique environment of service firms and, to adapt TQM practices to fit this environment.

But the team's true discovery (the Aha!) was that a unique quality approach is not needed for the service sector. Instead, we realized that there is a natural emphasis or bias in manufacturing enterprises that is different from the emphasis in the service enterprises. In a manufacturing environment, Operational process management and improvement techniques are crucial, while an external customer focus may often take a back seat. The reverse is true in service companies, where it is difficult to recognize the added value to the customer of improving Operational processes as against the urgency of serving the customer in real-time through Moment-of-Truth and Innovative processes.

In fact, the study group came to understand that all organizations deal with each of the three types of processes in the course of doing business; and the unique characteristics of these processes in different organizations demand different strategies and methods to enhance and improve them. So, while the 7-Step Problem Solving Method may be an effective emphasis in a manufacturing enterprise, service companies may choose to limit their deployment of 7-Step Problem Solving to identifiable Operational processes. The focus in service enterprises, at least at first, may be on Concept Engineering, project management, and communication skill building in their Moment-of-Truth and Innovative processes. The challenge for every organization is to recognize and differentiate between the different processes, diagnose the strengths and weaknesses in the different elements/dimensions, and deploy the correct improvement methodology.

The matrix developed in the course of this research has been tested and has proved useful as a way to diagnose and shape quality programs based on the target audience (the business process and its workers). The matrix becomes the tool through which a company can decide how to tailor TQM methodologies for specific types of processes. The matrix presents how process management, customer and supplier relationships, information resources, skills, and measurements will vary depending upon the nature of the process. It allows us to acknowledge and recognize that methods that may be appropriate for manufacturing may not, for example, work well for teleselling.

For example, let us consider training. As a firm decides how to prioritize training dollars and resource time, should it give the same training to those involved in Operational processes as it gives to those involved in Innovative or Moment-of-Truth processes? This paper suggests not. In fact, one of the causes of the angst that existed among the study group members was that we had all been trying to implement the same tenets of TQM everywhere from the factory floor to the sales office. The study reported here, however, suggests specialization is valuable and offers a verified tool (the matrix) to facilitate customization of employee training. For the Operational process folks, firms want to emphasize statistical techniques and teamwork. The primary focus for the Moment-of-Truth folks is interpersonal skills and empathy. The Innovative folks would certainly benefit from skill in project/program methodology and Concept Engineering.

Using a customized approach, a firm can tailor its quality training program and implementation strategy to be more cost effective and to have greater appeal and relevance to the target population. Once the TQM program is tuned to the human culture and is in harmony with the firm's strategic and business management objectives, it will provide real differentiation in the marketplace.

Next Steps

We would like to test the universality and usefulness of the matrix and its approaches. We encourage our readers to apply the matrix to their business environment. We would deeply appreciate feedback on the following:

- Is the matrix a useful diagnostic tool?

TABLE 13: Feedback Matrix

Elements/Dimensions	Manifestations	Solutions
Process Management		
Customers		
Suppliers		
Information		
Employee Skills		
Management Skills		
Metrics		

- Do the Elements/ Dimensions of your processes map to the ones in the matrix?
- How appropriate are the Manifestations as described in this paper, and how should they be modified?
- Above all, what solutions or interventions that you have applied (with either good or bad outcomes) to the various elements of the three types of processes could be shared with other enterprises?

If we can generate a rich database of documented applied solutions, the study group believes that we will have a valuable tool for companies to use as they develop their own customized TQM initiatives.

Feedback Matrix

Comments, suggestions, and ideas for improvements are most welcome. Table 13 is a prototype matrix for your use. Please address your thoughts and results to: Center for Quality of Management, CQM Service Study Group, One Alewife Center, Cambridge, MA 02140. Phone: (617) 873-8950. Fax: (617) 873-8980. E-mail: CQM_Mail@cqm.org.

Reflections

There was great value in the process of research used by the CQM Service Study Group. The topic was one that was of shared concern, and its solution offered real value to the participating organizations. Companies demonstrated great cooperation and willingness to be the laboratory: to put theory into practice so as to refine and then test the value of the findings. The group members gathered support from one another, and our learning was facilitated by our having others with whom to study. In the end, however, the entire CQM community benefited–because the learnings and the use of the matrix have now been incorporated into CQM's 6-Day Course (TQM Planning and Implementation for Senior Managers) and into other courses that are used to diffuse understanding across CQM's mutual learning community.

Bibliography

American Quality Foundation. *The Stuff Americans Are Made of: An American Strategy for Quality Improvement*. American Quality Foundation Brochure, 1993.
American Quality Foundation, *The Stuff American Are Made of: The Personal Quality Improvement Process of the American Quality Foundation*. Research report, 1994.
Anthony, R. "Note on Service Mapping." Harvard Business School, N9-693-065, 11/30/92.
Aramati, V. S. *Customer Value Chain Quality--the Human Aspect*. DIGITAL presentation to R. Palmer, Maynard, Mass., 5/16/94.
Aramati, V. S., & Woll, T. *TQM in Service Team*. CQM presentation at the CQO Roundtable, 6/14/95.
Aramati, V. S. et al. "Customer Value Chain Quality Plan: Quality in the Customer Value Chain," DIGITAL internal memo, 5/25/94.
Bailey, Dandrade. "Customer Loyalty." *Center for Quality of Management Journal*, Vol.4, No.3. Fall 1995.
Bemowski, K. "What Makes American Teams Tick?" *Quality Progress*, January 1995.
Berry, L. L., et al. "A Conceptual Model of Service Quality & Its Implication for Future Research." *Journal of Marketing*, Volume 49, Autumn.
Carlzon J. *Moment-of-Truth.* Harper and Row, 1987.
Center for Quality of Management Journal, Vol. 4, No. 4, Winter 1995 (special issue on Managing the "Soft Side").
Center for Quality of Management Journal, Vol. 5, No. 1, Spring 1996 (issue on Design and Planning in Organizations).
Davidson, W. H., & Davis, S. M. "Management and Organization Principles for the Information Economy." *Human Resource Management*, Vol. 29, No. 4, Winter 1990.
Eastman Chemical Company (ed.). *Quality Management Process (QMP)*. Eastman Chemical Co. application summary, Kingsport 1994.
Fagan, J. *TQM in Services (Customization of TQM) Innovative Processes*. CQM presentation at the CQO Roundtable, 6/14/95.
Flores, F. "Management and Communication in the Office of the Future." Report printed by Hermenet Inc., San Francisco, 1982.
Fujita, S. "Employee Satisfaction - The Source of Customer Satisfaction", Union of Japanese Scientists and Engineers, Societas Qualitatis, Vol. 8 No.1 March/April 1994
Goldratt, E. *Theory of Constraints*. North River Press, Inc., Croton-on-Hudson, NY, 1990.
Hart, C. W. L. "The Power of Unconditional Service Guarantees." *Harvard Business Review*, No. 88405, July-August 1988.
Hart, C. W. L. et al. "The Profitable Art of Service Recovery." *Harvard Business Review*, No. 90407, July-August 1990.
Heskett, J. L. "Managing in the Service Economy." Boston, Mass., 1986, p. 127.
Kalus, S. Check Error Reduction Project. CQM presentation at the CQO Roundtable, 6/14/95.
Kearney , A. T. "Total Quality Management: A Business Process Perspective." *Management Report*, No. 35, 1992.
Lader, J. I. "Getting Emotional about Quality." *Quality Progress*, July 1988.
Lee, T., & Woll, T. "Reflections on the Idealized Design Planning Process." *Center for Quality of Management Journal*, Vol. 5, No. 1, Spring, 1996.
McManus, J. " Creating a Model of Quality That Works." *DIGITAL Quality Newsletter*, July-August 1994.
Pelletier, B. P., & Rahim, M. A. "TQM and Drawbacks of Incentive Systems: Facts or Fallacy?" *Industrial Management*, Vol. 35, January/February 1993.
Powell, T. "When Lemmings Learn to Sail: Turning TQM to Competitive Advantage." *Handbook of Business Strategy*, B. Voss & D. Wiley, eds. Faulkner & Gray, pp. 42-54.
Powell, T. C. "Total Quality Management As Competitive Advantage: A Review and Empirical Study." *Strategic Management Journal*, Vol. 16, 1995, pp. 15-37.

Sasser, W. E. et al. “Mobilizing People.” *The Service Management Course: Cases and Readings*. New York, Toronto, et al.: 1991.
Schlesinger, L.A. & Heskett, J. L. "Breaking the Cycle of Failure in Services." *Sloan Management Review* (reprint series), Vol. 32, No. 3, Spring 1991.
Schlesinger, L.A. & Heskett, J. L. "Enfranchisement of Service Workers." *California Management Review* (reprint series), Vol. 33, No. 4, Summer 1991.
Schlesinger, L.A. & Heskett, J. L. “The Service-Driven Service Company.” *Harvard Business Review*, September-October 1991.
Shiba, S., et al. *A New American TQM*. Cambridge, Mass.,/Productivity Press, 1993.
Soin, S. S. *Total Quality Control Essentials*. New York, St. Louis et al.: 1992.
Walden, D. “Statistical Process Control in Moment-of-Truth Service Processes.” CQM note, 9/1/95.
Wharton School. “Quality: Moving toward a New Paradigm.” The Wharton School of the University of Pennsylvania, *Wharton Impact*, Spring 1994, pp.2-3.
Woll, T. "Idealized Design and TQM: Planning by Practitioners." *Center for Quality of Management Journal*, Vol. 5, No. 1, Spring 1996.
Zuckerman, M. & Hatala, L. J. *Incredibly American*. ASQC Quality Press, Milwaukee, WI, 1992.

QUALITY 1 ON 1: BECOMING CUSTOMER-CENTERED

Richard M. LeVitt
Director, Hewlett-Packard Quality
HEWLETT-PACKARD COMPANY

Born in Placerville, California and raised in Nevada, Richard LeVitt received his BSEE degree from the University of California at Berkeley. He worked for several companies as an engineering manager developing data acquisition systems for process industries prior to joining Hewlett-Packard in 1981. At HP, he has held a number of posts in research and development before becoming the Roseville Networks Division Quality Department Manager. He then became the quality manager for HP's Analytical Products Group, a position he held before becoming the director of Corporate Quality for Hewlett-Packard Company worldwide, the post he now holds. As director, he led an initiative to "reinvent quality" to make the company's products and processes more customer-centered.

ABSTRACT

A team at Hewlett-Packard has been working to "re-invent" quality on the basis of benchmarking and related research. This paper chronicles how Hewlett-Packard came to realize that a new approach to quality is needed to move beyond today's practice of TQM. This new way has a place for intuition as well as data and analysis. It focuses on understanding each customer's unique experience with the company. By acting across organizations in the value chain, it strives for "win-win" solutions for both customers and the company.

Introduction

Hewlett-Packard has a long and successful record in quality, marked by HP Japan's winning the Deming Prize in 1982, and more recently by receiving top scores in a number of industry surveys. Yet we are very aware that we could provide better service for our customers. And we have recently discovered how to do so. The story of this discovery and the changes we have undertaken is the subject of this article.

Why Change?

HP's current reputation is an enviable asset. The company name has become a potent symbol of quality, integrity, and innovation. But since competitors are relentlessly improving everyday, complacency is dangerous. Challenges in HP's current business environment signal a need for change.

These challenges include:

- rapidly rising customer expectations
- emerging high growth markets
- increasing dependence on suppliers, partners, and third party channels
- relentlessly accelerating speed in all businesses

Rising Customer Expectations.

Increasing global competition and rapid technological change are transforming virtually every aspect of business, and raising the standard for excellence.

Customers want HP to be responsive, but some perceive us as inflexible, and unwilling to take personal ownership for resolving their problems. Customers also seek greater flexibility on a business-to-business basis. Increasingly, business relationships are built on customized, value-added services, including consulting, solution development, and on-site operations support.

Emerging Markets.

HP is moving into markets that, for us, are largely unexplored territories. The high-growth economies in Asia and elsewhere strain our capacity to localize products, deliver them, and support them at low cost. In the US and Europe, sales into the home market means satisfying customers whose expectations for dependability and ease of use have been set by television sets and microwave ovens. This sets a new performance standard, because problems in the consumer market tend to have high visibility to users and to the press.

Increasing Dependence on Suppliers, Partners, and Third-Party Channels.

Large elements of product design, manufacturing, support, and sales are being contracted out to others. Since many of these contract companies also do business with our competitors, maintaining HP's distinctive quality leadership has been problematic. In the past few years, our most significant quality issues have been traced to some aspect of a supplier relationship.

Channels have a marked effect on a quality image.

In the days when most sales were made through HP's own sales force, the integrity and professionalism of our field personnel played a primary role in shaping customer perceptions. HP's dedicated sales and support people still maintain strong customer relationships and build mutual loyalties. But mass marketing is changing the picture. Today, many customers may first hear about HP from a poorly-trained sales clerk at a retail outlet, rather than from an HP employee.

Accelerating Speed.

Customers want problems resolved more quickly, by phone, fax, modem, or an immediate on-site visit. Entire product life cycles, including design, ramp-up, maturity, and obsolescence now occur in the time it once took for design alone. Shrinking product development times require faster decisions, which allows less time for testing and evaluation before release. A traditional quality emphasis on testing, data analysis, and incremental improvement alone will not be able to keep pace.

Re-inventing Quality

In response to these pressures, our company decided to make a major change in how we manage quality and customer satisfaction. This change entails a fundamentally different way of looking at our customer relationships and our operations.

At the beginning, in 1993, we sensed that we wanted a breakthrough, a major shift in thinking, not just an incremental improvement. We set out to "re-invent" quality with a team of people drawn from field and factory organizations around the world. We also had the guidance of an advisory board of General Managers and the sponsorship of HP's Planning and Quality Committee, which is the group of senior executives who have overall responsibility for the company's quality processes.

At the start, our focus was the contribution of the Quality departments within HP. This presenting problem grew out of concerns that the quality professionals were out-of-date, pushing traditional tools and methods, rather than addressing the quality issues of the contemporary business environment. It soon became clear that the task extended beyond the work of the Quality departments. In order to create a real change in the quality function, we needed to create change in the larger organization as well. This realization led to a deep re-evaluation of a number of our long-held beliefs about quality and quality management.

Initially we did an internal state assessment, to diagnose the capabilities of the quality function in HP, and to benchmark the quality methods of our best business units. In parallel, we did a world-scan, to integrate the perspectives of HP customers and third-party industry analysts. We also benchmarked leading companies in Europe, the US, and Asia, to determine what new approaches world-class companies are using in the 1990s.

The results of the benchmarking were surprising to us. HP, along with many other companies, had benchmarked quality leaders in the early 1980s. More than a decade later, we found that very little had changed: the basic tools, methods, and ideas of TQM that we saw were long familiar. In contrast with the rapid pace of technology development in elsewhere in business, the technology of quality in these leading companies seemed almost frozen.

We noted something else that was striking. Though all quality programs talk about customer satisfaction, very few seem to actually do much about it. Most are focused internally, on the tools, processes, and requirements that we have come to call "producer-centered." They are well-intentioned, to be sure. But it is rare to find a program that is truly driven by the actual experiences and preferences of customers — one that is "customer-centered."

In 1994, with benchmark results in hand, we did a gap analysis. This analysis led to series of recommendations for redefining quality in more customer-centered terms, and for creating a change in our approach to managing quality systems. The package of reforms was launched at a major internal conference in November, 1995.

It is a true paradigm shift that we call *Quality 1 on 1: Becoming Customer Centered*.

A Paradigm Shift

To explain why we see it as a paradigm shift, I'd like to begin with an example from another field, the making and appreciation of fine wines.

The quality of a wine results from skill in growing vines, crushing grapes, and fermenting their juices. As a producer, a vintner is occupied with the daily activities of the winery, and the sciences of agriculture and enology.

For a consumer, the quality of a wine is a sensory experience. Wine enthusiasts have rituals for tasting, and special terms for describing color, aroma, and flavor. These terms developed because appreciation of a wine is not part of the wine itself: it is entirely one's own reaction to the wine's character.

Of course, the sensory evaluation of wine has an ancient tradition. Successful wine makers must be expert in this tradition if they are to evaluate their wines as their customers do. So the best vintners understand both the process of creating fine wine and the nuances of experiencing wine.

A similar example can be drawn from the entertainment industry. Producing a movie entails the coordination of many skilled trades with one goal in mind: to create a stimulating product that draws large crowds. But the quality of a motion picture isn't simply in the recorded images and sounds. For the theater goer, the quality of a film lies in their personal response to those images and sounds. It lies in their own, individual experiences and the unique tastes and preferences they have developed over time.

For consumers of wines and movies, the experience is the primary thing. At HP, we have come to realize that the same is true for users of high-technology products. These products do have objective quality characteristics: those measurable parameters of reliability, performance, and ease of use that are achieved with good design and manufacturing process controls. But quality isn't complete until it makes an impression on someone. At the end of the day, it is an individual customer's impression of his or her whole experience with a product —- or a service, or a company —- that matters.

So quality isn't just something producers do for customers. It is a result of the producer's generation of a product or service and a specific customer's experience of that product or service.

In a sense, quality is co-created in the relationship of producer and customer throughout the life cycle of their interactions. To improve, we need more insight into the customer's point of view.

Points of View

In the following sections, a producer's view of quality is compared with a customer's view. This comparison reveals a huge contrast, illustrating some of the differences between the producer's world and the customer's world. The producer's world tends to be objective and rational, filled with the machinery of business life. The customer's world varies with the role of the customer, but it often contains a wealth of subjective impressions and emotions which powerfully influence decisions.

A Producer's View

This section sketches the major ideas that have come to represent quality as a goal and quality as a strategy in industry. The ideas coexist at HP today and each has important applications around the world.

Quality as a Producer Goal

Conformance to requirements is an important goal for quality assurance, dating back to the invention of interchangeable machined parts in the 1800s. While it remains important, conformance to requirements is incomplete. A vintner must attend to technical matters, such as bottle dimensions and the acidity of a wine. But attention only to these things and not to the full sensory experience of wine consumers would be foolhardy.

Another producer goal is *fitness for use*. This term was introduced by Joseph Juran in the 1950s to emphasize that a product or service should, above all, serve the purposes of the user. In his landmark *Quality Control Handbook*, Juran took a utilitarian position on fitness, believing that its subjective aspects are not under a producer's control.

Meeting customer expectations is a quality goal identified in the 1980s. It brings quality a step closer to the psychological realm of customer perceptions and preferences. Meeting customer expectations depends on understanding the subjective impressions created by advertising, brand images, product claims, and prior experiences of the customer.

Another quality goal is providing superior value. The objective is to identify a population of customers who have common needs and to develop a compelling (and profitable) value proposition that answers those needs. Wine marketers classify consumers as "gulpers, label drinkers, those with an appreciation of well-structured, simple white and red wines, and connoisseurs of the complexities of great wines as works of art." Each of these consumer segments requires a distinct value proposition.

Quality as a Producer Strategy

A search for effective quality strategies has resulted in another progression in thinking over the years.

Tests and inspections are the classic tools of quality assurance. These defect detection methods remain important for software and hardware development, and outgoing product verification in manufacturing.

Process improvement presents a more powerful strategy. Total Quality Control (TQC) is HP's most commonly used process improvement method. TQC promotes a culture of continuous improvement in which managers and workers, not inspectors, take ownership for quality. Once mastered, TQC yields benefits that accumulate over time like compound interest.

Total Quality Management (TQM) evolved from TQC to attack the large-scale issues that affect entire organizations. TQM integrates management roles, such as leadership, planning, and empowerment, with the disciplines of customer focus and process thinking. Often attributed to W. Edwards Deming (who denied authorship), TQM is a pioneering attempt to think of organizations as systems.

Over the years, TQM has become the primary quality strategy in leading companies around the world. Its principles have been incorporated in such prizes as the Malcolm Baldrige National

Quality Award and the European Quality Award. The HP President's Quality Award relies on the Quality Maturity System (QMS), which defines HP's current version of TQM. Many HP entities run their business with the philosophy and practice of TQM.

TQM has its critics who point to a lack of direct evidence that it produces business results. External studies of Baldrige winners and other leading practitioners do show some relationship between TQM and business performance. Within HP, the benefits of TQM have not been convincing to all business managers.

Because the linkage between TQM and business performance is hard to demonstrate, some managers prefer more results-oriented improvement technologies, such as supply chain management and re-engineering. Yet these too are producer-centered strategies. When used alone, they are incomplete.

A Customer's View

Customers have impressions of quality. Their impressions and goals influence their choices. As something is chosen, each customer begins a sequence of experiences over a span of time.
These experiences lead to emotional states, such as satisfaction, delight, anger, or dismay, that influence future choices. Attention to their impressions, goals, experiences, and emotional states can help producers create mutually beneficial relationships with their customers. These relationships are the foundation of Quality 1 on 1.

Impressions of Quality

The unique history of each customer influences his or her personal impressions of quality. Not all of these impressions can be verbalized, yet they affect customer behavior and the business success of producers. Emotional responses to products or situations occur in a nonverbal, mental world. Our conscious minds are allowed only glimpses into that world.

Sometimes we feel a vague disquiet, an uneasy feeling about something that we can't quite put our finger on. At other times, something feels inexpressibly right to us, but we cannot explain why. Instead, we say, "I like it!"

When emotions have labels, we think we understand them. When we ask customers how they feel about our service, we assume they can tell us. When we ask customers to score us on satisfaction surveys, we assume that the numbers measure the complexity of their experience.

We are beginning to understand that customer satisfaction measures only the surface of the customer experience. No customer chooses products in complete isolation. In both emerging and mature markets, value comes from some combination of goods and services that serves a customer's purpose. Geoffrey Moore, author of Crossing the Chasm, has identified this combination as the "whole product."

Producers commonly say that customers judge quality, as if products were guilty or innocent. But customers don't simply judge quality —- they choose things to buy. Impressions matter to producers because they influence the future choices of each customer. Quality, from the customer's point of view, is an impression of a whole-product experience.

Quality Ambiguity

Customers want to get the most value they can in any transaction. Lack of knowledge about the benefits of the alternatives they face complicates the decision. "Quality ambiguity" is a term for the uncertainty a customer may feel about the quality of a particular product or service offering. Quality is not always easy to evaluate, particularly if the customer has little prior experience with products in the category or with their various applications.

Suppose, for the moment, you have gone to the market to buy wine to drink at dinner with some friends. Arrayed on the shelves before you are rows of bottles from wineries you do not recognize. Quality ambiguity is high at this point: you do not recall tasting any of these varieties. Time is short, so all you have to aid in your decision are substitute cues for quality.

You might look at price, under the assumption that higher-priced varieties are likely to taste better. You might seek hints in the label design or check for dust as a sign of an unpopular brand.

Once you've made your selection and brought it home, the moment arrives for pulling the cork and sampling your prize. When you take the first sip, quality ambiguity is suddenly reduced. You know right away whether you like it or not — first impressions count.

Vendors generally strive to reduce quality ambiguity, especially if they have a superior product. However, quality ambiguity can be an advantage to a recognized supplier. It's been shown that when ambiguity is high, customers have less confidence in their opinions. Not knowing what to expect can lead customers to be more tolerant when problems arise.

Higher quality ambiguity is also associated with higher brand loyalty. In situations where quality is difficult to judge, customers tend to pick brands they know or go with the recommendation of a friend.

Quality as a Customer Goal

Customers seek the maximum perceived benefit they can get at the lowest available cost. Benefits can be anything — functional, experiential, or psychological — that answers a need and rewards the customer for his or her choice. Costs can include out-of-pocket expenses, as well as costs in time, effort, and other tradeoffs that are required to obtain a benefit. Perceptions about benefits and costs are very personal and individual. They change in a fluid and dynamic way, emerging moment by moment from conscious and subconscious needs.

In his book *Motivation and Personality*, Abraham Maslow presented a multi-layer model showing the relative priorities of personal needs. In his model, basic needs, such as food and security take priority — when they are unsatisfied — over other needs, such as social acceptance and prestige. Though the model is too simple to actually explain why people do what they do, it is-useful for introducing a discussion of customer needs and perceptions of value. Four factors seem relevant to the buyer-seller relationship:

- the customer's feelings about risk
- the customer's purpose at the moment
- the customer's current social or business role
- the customer's self image

Feelings about risk.

Next to biological needs, security and peace of mind rank highest in importance. Products should not cause bodily harm or injury. HP's focus on preventing product fires and electrical hazards acknowledges this important priority.

A subtle but important risk is the possibility that a product selection will harm the interests or reputation of the chooser. If someone who is known as a great authority on wines makes a selection for friends at dinner, he or she may suffer embarrassment if the choice turns out to be inferior. Customers vary greatly in their tolerance for this kind of risk.

Purpose.

Purpose defines the desired solution and provides the context for evaluating fitness. This is the customer's view of fitness for use: fitness for my use in my situation. When seen this way, fitness for use is not a producer-defined property of a product or service: it is a subjective belief a user has, a belief that reflects his or her intent.

Role.

Purpose is governed in part by the social or business role a person takes. The needs and preferences of customers change, depending on whether they are acting as parents, hobbyists, home owners, or members of a business team. Needs for acceptance or recognition can exert a strong influence on people in any role. Wine drinking is usually a social activity, accompanied by food and conversation. A person might suppress his or her personal wine preferences to go along with the group or, conversely, may demonstrate expertise by ordering a special variety.

In a business setting, the role a customer takes will shape his or her preferences. Members of a business team will collectively assess business needs, technical constraints, and cost goal; however they experience these factors differently depending on their organizational role.

Self image.

People may see themselves as wise decision-makers or as gutsy gamblers; as leaders of change or preservers of tradition; as lone rangers or as committed team players. Such self images exert a subtle influence on an individual's assessment of the value of goods and services. People tend to choose things that reinforce their self image and, consciously or not, avoid things that conflict with how they see themselves.

Good brand managers are aware of self image, and some deliberately advertise to create a "brand personality" that sets their product or service apart from its competitors. Advertisements for wine and beer often show groups of people portraying a particular self image and personality type. A successful LaserJet ad campaign once linked the appearance of printed output with sharply dressed, image-conscious professionals.

The art of brand management lies partly in communicating an image that attracts a large group of customers. This can result in widespread preference even in so-called commodity markets.

When a brand image is adroitly complemented by the design of a product or service, the psychological attraction of the brand is confirmed by the user's experience after purchase.

The Experience Life Cycle

To a greater or lesser degree, the act of buying and using goods or services requires conscious attention. The events surrounding acquisition and use become part of a customer's experience. Many things can affect this experience as it unfolds: the behavior of clerks in retail stores, the actual performance of a product, or the attitude of support personnel. Over the life cycle of interactions between customer and supplier, these events can either add to the confidence a customer has in a trusted supplier or increase the likelihood that the customer will make his or her next purchase elsewhere.

To understand the customer's experience, it helps to have a model of events that can occur from the time a customer begins seeking a product or service through the time a product is discarded or a service is discontinued. Each product or service category has its own specific life cycle, but some features are common to many. The following seven-step model provides a useful description.

A Life Cycle of Customer Experience

- Clarifying a purpose and selecting a solution
- Ordering what is chosen at an agreed upon price
- Becoming ready to use the selection
- Becoming proficient in application and use
- Receiving the intended benefits
- Keeping everything working as it should
- Letting go and moving on

Choosing.

Choosing is the process by which the customer becomes aware of a need, finds out about alternative solutions, and selects one to buy. Awareness of need comes out of what has been called "life context," the dynamic, changing mix of beliefs, attitudes, and perceptions that affect each person's response to a good or service. Awareness leads to involvement with goods or services that might satisfy the need. If a particular offering is attractive, the customer enters the stage of commitment and makes the decision to buy.

Ordering.

Once commitment is made, an order is placed. This experience can be quick and simple, as for a consumer making an off-the-shelf wine selection, or complex and time-consuming, as in an industrial setting where many intricate negotiations about technical features, price, terms, and conditions may take place.

Installation/Set Up.

This is the customer's time, effort, and expense associated with facilities preparation or any other work required to install a new product. Installation and set up bring the customer's environment, the product, and companion products to a state of readiness to fulfill the customer's purpose. Problems and frustrations at this critical stage are one of the most common causes of dissatisfaction.

Learning.

High technology products usually call for a learning period in which the customer becomes proficient in using the product. This learning process should be as easy and effortless as possible, and carry an element of surprise, to foster delight in discovery. At this point, a customer finds out whether the product merely meets expectations or contains some rewarding extras. First impressions are important.

Using.

This is the stage in the life cycle when a customer finally receives the anticipated benefits. Or should. When things go well, the customer's purpose is met, no problems arise, and the customer feels gratified by the good choice he or she has made.

However, a product may have less effect for the customer's purpose than anticipated. It may be that some other brand would have served the customer better. Perhaps, with time, the customer's purpose has begun to change. Over a product's lifetime, many events —- reliability problems, new product introductions, alternative solutions, and modified needs – can erode a customer's satisfaction. Over time, this erosion may lead to thoughts of replacing a product or service with an updated version.

Supporting.

A wine connoisseur might invest in a climate-controlled cellar to ensure that his or her wines age without bruising. In general, product support from the customer's viewpoint includes the ongoing time, effort, and expense incurred for maintenance and use. In mission-critical applications, expense can include downtime costs during the intervals the product is unavailable.

If something goes wrong, a customer will be at a peak of emotional engagement with the product. The responsiveness of a supplier is crucial at this time. If a situation is not handled well, the customer can develop long-lasting feelings of anger and hostility. Conversely, when a situation is handled flexibly and with an attitude of personal caring and concern, the customer's emotional response can be strongly positive. Field experience shows that customers often feel more positive about us after a well-handled crisis than they would if the crisis had never occurred.

Disposal/Discontinuance.

The final phase of the customer experience life cycle comes when the customer decides to discontinue use of a product or service. Some call this stage "resolution" to emphasize that disposal is not just a physical act, but entails a psychological process of letting go, whereby the customer resolves his or her feelings about the entire experience. By reflecting on their interactions with the product, service, or its supplier, customers form lasting impressions that guide their future choices. These reflections can have a major influence on brand loyalty, so attention to the customer relationship is important even at this late stage in the cycle.

Making the "letting go" easier and less painful through rebate programs or product take-back initiatives can maintain customer goodwill through the transition period.

Quality 1 on 1

At HP, people commonly think of quality as a producer does. Day by day, employees are busy managing their products and processes. Quality departments are busy too, helping to improve the fitness of products, the control of processes, and the skills of people. As a result, even customer advocates among us tend to look at quality issues as producers rather than as consumers. We don't fully understand the experiences that customers have when they do business with us. We don't always know their point of view. Though products have

their own qualities, quality isn't complete until it makes an impression on someone.

Quality 1 on 1 means knowing quality as a customer does and systematically acting on that knowledge to grow a business.

Knowing quality as a customer does means having more awareness of how customers feel about their experiences when they do business with HP. It means developing intuition through personal experiences and stories, not just relying on survey statistics. It means understanding individual customer problems and goals when we can, and collaborating on solutions. It means knowing how customers sum up their experiences and decide whether to do more business with HP.

Learning how to know in this way — and caring enough to act — is the essence of becoming customer centered.

Acting means more than fixing problems. It flows from genuine commitment to a customer's success. It means seeing our people and operations as a customer does, and creating customer-centered quality systems that span entire value chains. It means influencing not only a business unit's performance, but also the performance of partners, suppliers, and channels that have a material impact on the customer experience.

Quality 1 on 1 heralds a shift from quality as a set of beliefs and practices to quality as a purposeful game plan. Each "1" in the phrase represents an individual human being, with unique and specific needs. Understanding these needs is important, but there are barriers to such customer intimacy.

Barriers are created by a producer's preoccupation with products and processes, and by the anonymity of mass marketing through third party channels. Despite this, Quality 1 on 1 asks us to earn loyalty from each individual customer.

Each "1" also represents a whole company as a business partner. Business-to-business relationships are human relationships. In business situations, HP can become more sensitive to individual needs, with awareness of how the functional role of each individual within a customer company affects his or her goals and attitudes.

Other successful organizations cling just as tenaciously to their standard ways of doing things as we cling to ours. HP can be more sensitive to the culture and operating practices of customer companies, and still be able to stand firm and protect our own interests. To customers, our company could appear not just as one company, but as their company too — their favorite company to do business with.

Quality from the customer's viewpoint is not just a matter of facts and figures, or cold-blooded judgments about fitness and cost. While the rational mind plays an important role in choosing goods and services, the influence of emotion is often under-appreciated. Emotions can become involved at any time during the process of buying or using a product.

Quality 1 on 1 can help improve personal understanding at both the level of reason and the level of emotion. More understanding can lead to better decisions and opportunities to take action and grow a business relationship.

A Roadmap for Change

With these ideas in mind, we set about the actual process of creating change in HP. As I mentioned earlier, HP has strong values. We are a value-driven company, not a policy-driven company. This means that our individual business units have enormous freedom of operation, as long as they operate within the values. So, even though our CEO Lew Platt is a proponent of Quality 1 on 1, he will not demand, top down, that each business adopt it. Instead he expresses his support and his desire for change, and encourages each business to decide its best course. The job of Quality is to provide a practical path for businesses to take, and help them through the change process.

There is an overall implementation plan we recommend to businesses. It is a broad framework for action — more a picture of the territory than a specific procedure. We want to leave lots of room for experimentation and discovery. Quality 1 on 1 is so new that no single organization has done

all of it. Thus this change process must also be a learning process, where organizations can profit from the discoveries of others. We must revise things as we go, and be willing to discard what doesn't work.

The first step is building the case for change. This means creating a picture of what is possible and how customers and the business might benefit from a more customer-centered approach to quality. Visions for change will vary from business to business, since they have different customers and competitive issues.

The start of this process was HP's Worldwide Quality Conference in November 1995. Lew Platt and the chairman of the Planning and Quality Committee, Ned Barnholt, each shared their hopes and expectations for the change effort. We conducted a number of tutorial and "best practice" sessions at the conference to stir interest and build knowledge among the attendees. After the conference, a number of people in Asia, Europe, and the Americas spread the word in their own organizations. Lew has followed up with messages to General Managers, and we've sent out multimedia information packages to help in communications.

The second step is revising the role and value-added contribution of the quality function itself. There are about 2000 quality professionals in HP today. Over the years, HP has benefited from the focus, expertise, and support of quality departments around the world. The quality function introduced Hoshin planning, TQM, and modern process management to the company. Quality departments were also instrumental in achieving a tenfold improvement in reliability during the 1980s.

Many people in quality departments are strong advocates of customer satisfaction and have worked hard to help others around them see the customer's perspective. However, their actual results have been uneven.

One reason is that quality methods were exported across cultural boundaries without consideration of national differences. The export of Japanese TQC tools in the 1980s met some resistance in the US and elsewhere because the cultural issues were more or less unrecognized at the time.

Another reason is that, for some people, quality became identified with specific tools and programs, and not with their ultimate impact on the customer. Some quality departments — including the corporate department — became known for introducing tools and rigidly insisting they be used a certain way.

So a fundamental element of this change effort is the quality function itself. We have developed new job descriptions, self-assessment tools, and training for people in the function to use. We are encouraging quality organizations to critically examine their current work and move toward more customer-centered contributions.

In particular, we want to see Quality Managers in each business unit step forth to take leadership as change agents. This means working closely with their General Managers, who act as necessary change sponsors in their business units.

In the third step of our roadmap, expectations and accountability for results need to be made explicit between a General Manager and Quality Manager. In our benchmarking studies, we saw that leadership from both is essential. Strong, personal leadership from the General Manager is necessary. They tend to attract strong, committed Quality Managers who galvanize cross-functional change and stimulate an attitude that empowers people to act on behalf of customers. The end result is an enterprise that thinks and acts in a customer-centered way.

Becoming Customer-Centered

Next in the process is a cultural shift from one too often preoccupied with internal issues and actions, that is producer-centered, to one that puts equal emphasis on the whole product experience of the customer. We have identified three essential elements for customer-centered organizations.

One is developing a true passion, a genuine enthusiasm,

for customers. In our benchmarking visits, a very strong pattern became evident in all the leading companies and HP entities we surveyed. Every organization with noteworthy quality and customer satisfaction was also noteworthy for its style of leadership.

There is something special about these organizations, something about the attitude and energy of the people that makes customer satisfaction urgent and personal, not long-term and abstract. Leaders of these organizations convey, through their personal values and actions, the importance of paying close attention to the outside world. They understand and reinforce the need for a customer's viewpoint to create an *outside-in* rather than inside-out perspective on the organization's performance.

Another is organizing around customers. This includes fundamental organizational structure, commitment to problem resolution, robust performance measurement, recognition and rewards, and communications.

An effective customer-centered organization maximizes the opportunity for direct, personal contact between employees and customers. In our company, this has meant creating opportunities for contact, even where such contact is not a natural occurrence. For example, a printer organization sponsors "dealer days" to engage design engineers with customers at the point of sale. Another has sponsored "Day in the Life at Home" and "Day in the Life at Small Offices" studies to capture how products are actually used by people in real life. Other organizations encourage all employees, regardless of their regular assignment, to spend time doing telephone support. This way, they hear first-hand about customer issues.

Last is deep understanding of customers. This goes beyond market research studies and customer satisfaction surveys. In some of the best organizations, an approach called Customer Value Management * is enabling decision makers to integrate all sources of customer data, both analytic and anecdotal, to develop long-term customer loyalty. This is the kind of loyalty that creates repeat business and referrals to friends and business associates.

Next in the roadmap comes the quality system. A quality system is the aspect of a business system that most directly affects the experiences of customers. It includes the human resources, processes, and measurement systems that are essential for ensuring that a value chain meets the expectations of its external customers. A customer centered quality system goes beyond meeting expectations to anticipate and serve a customer's "whole product" needs at each stage of the experience life cycle.

Many businesses today are outsourcing many operations not believed to be a core competence. In HP's case, outsourcing is widespread where we believe an advantage exists in a third party. Depending on the organization, one can find examples of outsourced design, manufacturing, distribution, sales, and even support.

However, traditional models of process management and quality systems don't adequately cover such dispersed activity. In particular, an integrated view of the supply chain's performance as seen by customers is missing. Customers have different needs, depending on whether they are a technical "chooser," an economic buyer, or an end user. We are just beginning to understand and manage value chains in a customer-centered way, as value delivery systems that provide a superior whole product experience.

Having a design for a quality system isn't enough. It must be given life through people. There can be an enormous amount of flexibility in organizational placement of resources, so long as the overall system is supported. In HP and other companies, we have seen large differences in whether these resources are placed within the quality function or within line functions. Companies we benchmarked ranged from a high of 7% in the quality function to a low of 2%. The number doesn't seem to matter, as long as quality is made part of everyone's work and the system as a whole is supported with skilled specialists wherever they are needed.

*This approach builds on the work of Bradley T. Gale, described in his book, *Managing Customer Value*.

The last stage of the roadmap is ongoing operations and renewal. This entails establishing an ongoing measurement and management process that will endure beyond the change effort itself.

A review of HP measurement systems revealed several factors that are common among systems that no longer met the needs of the organization. Three of the most common factors are:

1) The measurement system did not monitor the aspects of organizational performance that create value from a customer perspective. This often leads to a situation in which organizational goals are achieved, but customer satisfaction and loyalty are unaffected.

2) Metrics did not relate to business objectives. In such instances, the metrics failed to link performance to what the organization has needed to achieve its business goals.

3) Metrics did not explain what is happening. Performance results did not adequately identify performance issues or enable analysis to explain the underlying causes.

In HP, high-performing organizations use a balanced score card approach to address these issues. The best of these systems contains both customer-centered and traditional internal measures. They monitor performance to critical objectives, and integrate with the organization's management processes. In addition, they measure cross-functional performance with historical and predictive metrics that provide value at all organizational levels.

Conclusion

"To achieve greatness, start where you are, use what you have, and do what you can."

– *Arthur Ashe*

Arthur Ashe's quotation is wise advice. Huge changes cannot happen overnight, nor can any change manager neglect the very real constraints that exist in any organization. Yet a vision for change, applied with persistence and the sweat of hard labor, can indeed lead to greatness.

Quality 1 on 1 has had a notable affect on many HP organizations. It has affected how they think about their customer relationships, their quality systems, and their quality organizations. Since it is a voluntary program, businesses vary in their approach and rate of progress. But it is clear that "becoming customer-centered" is a theme that has caught the imagination of many in HP. Attention to the whole customer experience and to quality systems that span value chains has never been higher. As a result, I believe this company with its strong customer reputation will become even better in the future.

EMOTIONS: AT THE HEART OF BUSINESS PRACTICE

Rafael Echeverría
Newfield Associates (USA), Newfield Consulting (Latin America & Europe)1997

Rafael Echeverria is the co-founder and president of Newfield Consulting. Since 1985, Dr. Echeverria has been committed to the development of an understanding of human beings and organizations based on the role played by conversations, language, and emotions. He has developed programs and been consultant to a wide variety of organizations, from multi-national corporations to governmental agencies, and has served as a consultant to the United Nations International Labor Office for 14 years. A scholar, consultant, and writer, he is a member of the World Academy of Art and Science, and has published works on the philosophical traditions that have led to our current understanding of the role of language in human life.
Dr. Echeverria has also been the key designer of CQM's Conversational Competence workshop.

Some years ago, a friend of mine who is a successful business consultant in Europe asked me, "What do you do when you consult that is significantly different from what I do?" "Many things," I said; "but the most important of them all is dealing with emotions. When I go to a company, one of the key things that I pay attention to, and where I intervene later, is the realm of emotions." "Emotions?" he said. "What do they have to do with business practices?" "They are at the heart," I answered.

Why should we care about emotions in business?

A common belief is that business should be emotion-free. When we examine business performance, we tend to concentrate on a company's strategic choices, its functional and political structure, individual and group competencies, work and business processes, technological support and information systems, and so on. There seems to be no place for emotions here. Or is there? When we assess results, we look at productivity indicators, profitability, market share, and other hard, quantifiable facts. There's not much place for emotions here, either. Or is there? When we speak about management, we often say (as a participant in one of my programs recently claimed) that "a good manager must never show his emotions!" But is that valid?

Some of the bad reputation that emotions have had in business is well deserved. Emotions have often been featured in what is regarded as the "soft" approach in business consulting, usually in relation to the field of organizational development. People may be asked to express themselves, to vent their emotions, and to engage in interactions that allow them to "feel better." The underlying assumption is that if people are able to "feel better," the company will end up "doing better." Unfortunately, this is not the case. Usually, the "feeling better" approach produces little difference in terms of the group's or the company's performance–the "soft" approach has very often produced "soft" results.

But does it need to be this way? One of the aims of this paper is precisely to challenge this assumption. I am committed to "hard" results–the same kind of results aimed at by process reengineering, TQM, and many other "hard"-side approaches to consulting. But I want to identify the factors that have often prevented these "hard"-side approaches from living up to their promises. I suspect that at least some of these factors may be found right where the "hardsiders" dared not search: inside the very tool bag of the "softsiders." That is to say, in emotions.

Many people have now come to recognize that factors such as intellectual intelligence, level of competence, design of standard procedures, and levels of technological support are not enough to predict the success of individual or organizational performance. Apparently we have been missing something important in our attempts to explain and anticipate better the way people and groups perform. And there is growing suspicion that emotions may have something to do with what has been missing.

For example, consider the kind of "hard" consulting approaches that, seen on the design table, seem failure-proof. These approaches often come backed by scientific research, sound statistical methods, and technological support. Process reengineering is a case in point. It was designed to address fundamental business concerns by improving business performance. If people would only put reengineering correctly into practice, the assumption was, the company's performance would almost certainly, go up. As it turned out, this was a big "if." People very often turned down process reengineering, or at least did not take full advantage of it. Not only did process reengineering, aimed at increasing effectiveness, prove widely ineffectual; it was not even able to efficiently engineer the process of its own implementation.

This left the main proponents of process reengineering wondering, what went wrong. What was missing? And what was blocking people from fully putting this approach into use? In frustration, those who claimed they had the key to business effectiveness claimed that managers, particularly middle managers, were resisting process reengineering, fearful of consequences its implementation might produce.

Frustration? Fear? Perhaps acknowledgment and allowance for the key role emotions play may be what has been missing from the very beginning. And in fact we have recently witnessed a revival of interest in the topic of emotions, crowned by the success less than two years ago of Daniel Goleman's book, *Emotional Intelligence.*

The issue is not emotions in business practice for the sake of emotions themselves; I am not advocating a more (or less) emotional organization. What I am interested in is the organization's effectiveness and its business success. In this paper I will suggest how emotions in the business environment can be and need to be managed; next I will look at emotions in business practices in general; then I will focus more closely on the role of the "observer" on how emotional states influence action, and on the role of the manager in fostering emotional environments that support productivity.

Managing the emotional environment: A matter of placing and removing snakes

To illustrate my argument that a business's emotional environment can in fact be managed, let me tell you two stories, told to me by two different friends.

One friend got up early on a recent Sunday to go hiking. He was in very good spirits as he took the winding path up a hill. It was bright and sunny; he enjoyed the view, the breeze touching his face, and the birds singing all around him. He began anticipating what he would do the following day. Life seemed to smile at him and he experienced a strong sense of optimism. He even thought to himself, "No doubt about it; I'm in a good mood." Suddenly, however, he noticed a snake a few yards ahead, blocking his way. He stopped. The snake was large, and my friend didn't know whether or not it was poisonous. Instantly he forgot about the breeze, the birds, the following day. His concern was now totally different. He was worried

about his survival. Would it be safe to continue ahead? Would it be better to turn around and retrace his steps? He could feel his heart beating. He was immobilized. Now, instead of feeling optimistic and joyful, he was afraid.

A few days after we heard this story, another friend told me that she felt the story was very powerful, particularly the snake. "Can't you see," she told me, "to change existing emotional conditions is a matter of placing and removing snakes? I just tested it and it works." "What do you mean?" I asked her. "Let me tell you," she said. "During the last month or so, I have been puzzled by the fact that my six-year-old daughter seemed to be in a very happy mood every morning when I went to her room to wake her up. She smiled and kissed me. But then, twenty minutes later, when we got together for breakfast, she'd be upset and wouldn't speak to anyone. I couldn't understand this shift in mood. What was happening? After I listened to the snake story, I said to myself, 'There must be a snake somewhere. There must be something that changes her mood in the same way the snake did in the story.' So I began to follow everything my daughter did during those twenty minutes. What I found out was that everything went all right until the moment she had to decide what clothes to wear to school. At that instant, her mood changed, and she became very upset. That's the way she always appeared when she came to breakfast. I decided to remove the snake. So now, before she goes to sleep at night, we get together and decide what she will wear to school the next day. We put everything out on her chair. Now she arrives at breakfast in the same good mood she wakes up in."

By watching her daughter carefully, tracking her morning routine, the mother in this story was able to pinpoint the moment the little girl's mood shifted. She was able to discover the snake. And once she discovered the snake, she was able to intervene, restructure her daughter's routine, and transform her daughter's mood from a sullen one to one of joy.

It is my contention that a manager in business, like this mother, must study people's emotions and discern which are conducive to the goals set by the organization and which obstruct those goals. If the manager assesses that counterproductive emotions prevail, he or she must be able to remove the triggers that produce the negative emotions, just as the parent in the story removed the clothes dilemma for her daughter. Thus, to change emotional conditions is a matter of placing and removing positive and negative snakes. I maintain that managers can be trained to monitor emotions, design emotional environments, and intervene in emotions that are not conducive to the organization's goals.

Emotions and business practices

There is no business practice that does not involve a particular emotional content. Human beings always live in an emotional environment; everything they do comes from an emotional context and carries with it an emotional content. Moreover, the emotional content of each business practice is a pivotal factor in its effectiveness and success–or lack of success. Some examples:

- **Customer satisfaction.** We all know that business success is tied to customer satisfaction: Satisfying customers drives a company toward achieving its goals. This is so widely accepted that the declared goal of many companies has become, quite simply, to produce customer satisfaction. I contend that a fundamental difference between a "satisfied" and an "unsatisfied" customer is the customer's emotions. To produce a satisfied customer implies the production of an emotional state that the customer associates with being satisfied. The production of that emotional state, then, is the goal of business today.

- **Leadership and management.** A key difference between good and poor leadership lies in the emotions each generates. People often refer to these emotions as "motivation" or "morale." Good leaders and managers motivate people to

perform better and to go willingly beyond what they themselves are accustomed to doing. These managers allow people to see possibilities that they could not see before and to take actions that they were not otherwise able to take. Napoleon once said that "in war, three quarters turns on moral matters; the balance of manpower and material counts for the remaining quarter." I would say the same about business.

- **Strategic planning.** Emotions are related to strategic planning because emotions actually predispose us differently toward the future. If we find ourselves in a depressed emotional state, the future will look grim; if we feel optimistic, our future can look bright. Therefore, every vision of the future entails an emotional component. A good way to assess a company's emotional state would be to examine its vision and its mission, then to ask how the company's members' feel about both.

- **Sales.** The salesperson's capacity to elicit from the potential customer some emotional response associated with the possibility of owning a given product or obtaining a given service is a key factor in the sale. In fact, there will be no sale if the sales conversation does not generate the necessary emotional reaction. Highly effective salespeople not only bring the right emotional mix to the sales conversation, but manage the emotional climate and improve upon it continuously. Martin Seligman[1] has shown us that there may be no better predictor of sales effectiveness than the emotional competence and repertoire of the salesperson.

- **Team Work.** Without some basic emotions team work is impossible. Trust is vital; when distrust reigns, coordination of action is highly inefficient because people's commitment doesn't mean much.

  Trust is only one emotional component of team work, however. We have many other positive and negative emotions that also have decisive impacts on the way a team performs. On the positive side, for instance, we can point to the sense of ambition, commitment, belonging and ownership that can and should be developed among team members. On the negative side, we can identify emotions such as apathy, resentment, fear, or even panic or despair, all of which may affect team members. The key question is: Can these emotions be managed? I claim they can. Moreover, I claim that managing emotions is actually the most important ingredient of effective team leadership. A good team manager should know how to identify emotions, figure out their sources, assess their impact, and intervene to dilute the negative ones and to regenerate the positive ones. In a good team the team as a whole–its members as well as its manager–know how to effectively manage the emotions that result from working together and to cultivate the right emotional mix to support and enhance everyone's performance.

- **Marketing.** Evoking the right emotions in the customer is a basic aspect of marketing. This is why images that elicit different emotions play such an important role in advertising. Emotional responses to our marketing efforts can ultimately determine the success or failure of our brand, our product, our service, even our company.

- **Innovation and creativity.** Some emotions are conducive to innovation and creativity; others are not. For example, it is very difficult to innovate and create when fear, apathy, or resentment rules. Innovation and creativity often benefit from an emotional climate of openness–a climate that fosters willingness to let go of long-held values and beliefs in order to step out into the unknown. There are risks that need to be taken beyond applying TQM techniques or redesigning work processes. Innovation and creativity require readiness to make mistakes, to go down the wrong alley, even to fail. They may benefit from an emotional mix that includes playfulness and lightness.

[1] Seligman, Martin. *Learned Optimism*. Alfred P. Knopf: New York, 1990.

But this mix is not what we get when we are afraid. No matter how strongly a company may want to be more innovative and creative, if our emotional mix is not conducive to freedom and openness of innovation and creativity, innovation and creativity will be impaired.

- **Learning.** Closely related to innovation is the connection between learning and emotions. We know already how important learning is for business organizations today. Many of us feel that in order to move successfully into the future, companies must transform themselves into learning organizations.[2] Learning is what allows a business to keep its viability in a changing environment and to respond to the demands of expanded competition. A company that is not prepared to transform itself permanently–and this is what learning is about–may not survive. Again, emotions are important preconditions for learning. The opening or closing of learning possibilities for the organization as a whole and for its individual members will depend upon the emotions that prevail in a company. Under certain emotional conditions (such as fear of exposing lack of skills), learning becomes impossible. Yet under another set of emotions (Such as curiosity and enthusiasm), learning becomes a natural everyday process.

The role of the "observer"

The results that we as individuals or organizations get in life depend substantially upon the actions that we take or do not take. If we are not satisfied with the results we are producing, we should change the way we are acting. Sometimes, though, turning our attention to our actions proves to be insufficient. We realize that we are not satisfied with the results we are getting, but we simply don't know how to change the situation. We find ourselves up a blind alley. Therefore, we may need to ask ourselves about the kind of *observer* of the world we are. (This point has been developed by Chris Argyris, Robert Putnam, and Humberto Maturana, among others.) The role of the observer is important to our understanding of emotions in business.

Our competitors are different from us not only because of the actions they take, but because they are different from us as observers. That is, they perceive things that we cannot, and we perceive things that they cannot. And, two different observers have different capacities for action–because every action arises from a particular perception of reality. In a given situation, then, one observer may be better able to cope than another and therefore may have more power than the other.

A key point is that we are not condemned to be forever the observer that we currently are. We can learn, and we can change the way we observe things. We can even make ourselves a more powerful observer than we were before. But, if we don't recognize that we are in fact observers of reality, we may limit our ability to engage in the kind of learning that will transform us into more powerful observers.

Observing does not mean mere dispassionate viewing. We human beings have a particular way of observing. First, we care; things matter to us. Caring is basic to the way human beings stand in the world. And because we care, we bring *concerns* to our way of being. Our concerns, in turn, affect how we relate to time, particularly to *the future*. We take care of our concerns in the present in order to create a different future, even though the future may only be moments away. It is difficult to separate these three factors–care, concerns, and the importance of the future–because they all form an integrated whole from which we act.

The emotional component in the role of the observer is critical to the nature of leadership. Depending on the emotions leaders find themselves in, they will observe different problems, possibilities, and solutions. What may seem to one person to be a problem may seem a great opportunity to another. What may look to one person like a solution may present a big problem for another. People in a company where frustration and passivity prevail may not see as many

[2] De Geus, A.P. "Planning as Learning," *Harvard Business Review* 66, no.2 (1988): pp. 70-74.

possibilities as people in another company with a different, more positive mix of emotions.

Our perceptions of problems, possibilities, and solutions, even though influenced by our emotions, are not necessarily a direct result of them. We may be discouraged and still be able to observe possibilities and solutions; and being in a good mood does not necessarily blind us to problems. This happens because our perceptions of problems, possibilities, and solutions are affected not only by our emotions but by the assessments we make about what is going on. Emotions and assessments are not the same. This produces an interesting dynamic between emotions and assessments. When we assess that there are problems, possibilities, or solutions that we may have not seen before, our emotions change accordingly. Problems may take us to more negative emotions, while possibilities and solutions may generate more positive emotions.

There are as many worlds as there are observers. Depending partly on the emotions we experience, we will observe different worlds and, consequently, take different courses of action.

That is, depending on the kind of observer a person is and on the world that that observer generates for him- or herself, the person will choose to act in one way or another–and different results will follow. If we want to change the results we get, we may want to assess and change the kind of observer that we are. To do so, we have to understand our own emotions and where they come from.

Emotions and action

Emotions predispose us for actions, and no human action is devoid of emotions. If I feel afraid, I may run away. If I feel resentful, I may be predisposed to sabotage what is being done or to take revenge. If I feel enthusiastic, I may try to move ahead, engaging in doing what I see as possible. By knowing an organization's emotional configuration or climate, we know to what actions its members will be predisposed or not. The relationship between emotion and action is so direct that without being able to feel what others feel, we actually can observe their emotions by observing how they act.

But not only is human action influenced by emotional predispositions; action can also transform the emotions we find ourselves in. Emotions and action are mutually dependent. Emotions always accompany and often specify human action, and also predispose us to act in different ways–but it is also valid to say that action has the power to change our emotions.

This new relationship between emotions and action is seen better through a distinction I learned when I worked with Fernando Flores. This distinction draws a line within the domain of emotional states, separating "moods" from "emotions." Moods are emotional states that are the background of human action. Although transient, moods have deeper and more lasting presence than do emotions. We often enter into moods without knowing exactly how we arrived there, like the man in the first story, setting out for a hike in a joyful mood without knowing precisely why. Additionally, all human institutions and organizations tend to have long-term emotional climates–what might be thought of as semipermanent moods. We see this from one family to another, from one school to another, one sports team to another, and also from one company to another. Apple and IBM have two different moods as emotional climates; so do Colgate-Palmolive and Procter and Gamble, and General Motors and Ford. Even within a single company, the climates of individual divisions, departments, and branches can be quite different. We don't usually find the same climate prevailing across accounting, manufacturing, and sales.

With moods and emotional climates, the emotional state comes first, then action follows. Even when a climate has been triggered by an event, it often becomes autonomous; the event may be long past, but the climate endures. For example, because of Watergate and Nixon, we still, as individuals and as a nation, tend to distrust our president. If someone were to ask us why we feel this way, we might not know the answer. Even if we were to point to some recent event, we might be doing so based on the underlying climate of distrust,

and not the other way around. In other words, we might be mistaking cause and effect.

On the other hand, what we commonly call emotions are those responses directly triggered by specific events, like the snake in the story–responses that persist as long as the consequence of the events are still present. When the consequences disappear (for example, if the snake slithers away, or if another hiker appears and identifies the snake as a garter snake), the emotions often change into new emotions. Or they may persist and transform themselves into moods. Often, our responses to one single event may move from hilarity to sadness to frustration, as in a basketball or football game. This happens because emotions have distinct causes, while moods do not. For instance, I may be sad because Michael Jordan missed the last-minute lay-up that would have won the game. Action comes first, then emotion follows.

Emotions as a domain of design: The role of conversations

Let's return to the manager. In business, I see one role of the manager as that of a well-trained watcher and evaluator. One of his or her jobs is to assess the emotional climate of his organization and to decide what is missing. Perhaps the business is already performing well, but that manager believes that the company could move up to an even higher level of productivity. Emotional states are vital ingredients in high productivity. Thus, the manager needs to remove any negative snakes that may be in the way of his organization and replace them with positive ones. One way to do this is through conversations.

For a very long time, people have felt that a conversation was a way of speaking about things without actually changing anything. "Don't just talk," they would say. "Act." Conversations, they thought, were fundamentally passive or descriptive.

We now know better. We know that through conversations we also get things done and make things happen. Conversations are generative. They change what is possible. Through conversations, we change our identities and transform our lives. Moreover, we can change other people's lives and identities as well. People who excel at doing this, we often call leaders.

I claim that business leaders and managers are conversational agents: They accomplish what is expected from them through conversations. Most of their time is spent speaking and listening to people. Good business leaders and managers are great conversational agents. Through conversations they coordinate action, generate possibilities, and develop relationships. They evaluate what has been done in the past, what is missing in the present, and what may need to be done to create a different future. And they create the emotional space in which other people can find meaning at work and in their lives, developing an important part of their identities. Every conversation has two basic components: a *language component* and an *emotional component*. Both help in how effective or productive our conversations are. People often pay lots of attention to what they say but very little to how they say it. When they get unexpected reactions, they may exclaim, "What did I say? Did I say something wrong?" As it often turns out, it was not what was said but how it was said that produced the unwanted reaction. The language may have been right, but the emotion was wrong. The *emotional content* of a conversation is critical in determining the outcome of that conversation. Good business leaders and managers know this.

Another important factor is the *emotional context* of the conversation. Sometimes there are conversations we cannot have because the needed context has not yet been created. Context determines the pertinence of a conversation. Good salespeople know this: They will not make a sales pitch before setting an emotional context in which their offer will have a chance of acceptance.

And conversations also have *emotional consequences*. They can transform the current emotional context and modify the existing emotional climate of a group, a department, a division, or the entire organization. By changing the existing emotional configuration, conversations can change what is possible for

a group. They can change people's predisposition for action, setting the stage for different actions and results. We have all gone through the experience of leaving a conversation with emotions we did not previously have–and with a sense of having entered into a different world, where we could see new possibilities and anticipate new results that we had not imagined before.

Through conversations we are often able to dissolve negative emotions that may interfere with a company's attaining its goals. We can also evoke emotions that are conducive to achieving them. We can actually remove the negative snakes, replacing them with more positive ones.

Conclusion

I am not saying that a manager can fully control people's emotions. Nor am I arguing that all negative emotions are necessarily bad. For example, if we were not able to feel unsatisfied, we would not learn, nor could we develop or make progress. Conversely, if we can feel satisfied, it is because we have experienced dissatisfaction.

What I do urge is that leaders at every level of business create environments in which emotions can surface, so that management can address whatever generated them. Emotions are seldom arbitrary or inconsequential. So we should recognize and, when necessary, deal with them.

As I have pointed out, emotions affect how we observe the world, and our observations can lead us to make different assessments about what is going on. However, there is a loop: Our assessments about what is going on also create different emotions. While it is hard to be sure which is the bigger driver of which, it seems clear to me that the easier place for a manager to intervene is with the assessments. The assessments people make often provide windows into their current emotions–and changing the assessments can often provide a lever to change the emotions. I will be working in this area next.

Emotions will always be an important part of working and living together. At the same time, we don't need to let our existing emotions determine our perceptions of reality or our judgments about what we are able to do. Good leadership, through conversations, can change the emotional conditions that limit what is possible in a business. In essence, I am saying that it is possible to change what is possible.

SELF-GENERATED COMPETITIVE INNOVATION WITH THE LANGUAGE-ACTION APPROACH

Robert Dunham
Enterprise Design

Robert Dunham, founder of Enterprise Design, works closely with executives to design competitive enterprises. Enterprise Design focuses on improving organizational performance through a coordinated approach of innovation and design, the redesign of business processes, and the improvement of management practices. Robert is co-holder of a patent for the ActionWorkflow technology developed at Action Technologies, Inc., and has worked with the language-action approach in business and management for sixteen years. Enterprise Design is located in Pleasanton, California.

Introduction

Companies that do not competitively innovate are on the way to extinction. The changing marketplace, and innovation leaders, will leave them behind. Industry leaders are innovation leaders over the long run. Our choices are to be drivers, passengers, or road kill on the highway of business.[1] Drivers, the industry leaders, make the rules of the game: they lead in innovation. Passengers follow the rules of the game. Road kill get run over by the rest. Our concern with innovation is to avoid becoming road kill, and to build the capabilities to generate, or maintain, industry leadership.

Being number one in an industry does not insulate you from the necessity of being an innovation leader. At one time, Sears, K-mart, GM, CBS, and RCA all had stronger reputations, deeper pockets, greater technological assets, bigger market shares, and more powerful distribution channels than their competitors. Each was surpassed by competitors with fewer resources, but with innovations in how they competed for customers. Wal-mart displaced Sears and K-mart with innovations in distribution, customer relations, inventory control, systems, and targeting markets. Toyota took major market share from General Motors with higher quality and style for lower costs. CNN made major inroads on CBS with a new type of broadcasting. And Sony took the market from RCA.[2] Even after years of competition, the companies with greater resources could not formulate an effective response to the new ways of doing business of their challengers. They could not meet the innovation challenge.

Yet this challenge creates a serious problem. A common understanding of innovation is that it is a mysterious and lucky phenomenon. It's synonymous with inspiration and for most of us, either we are fortunate enough to have a moment of blinding insight, or we only hear about those rare few who seem to have some special knack for innovation. In this common sense, innovation is not something we can learn to do, and it is unlikely to happen for us. It is not something we can improve at. The action of

innovation looks like someone in the posture of Rodin's "Thinker," chin on fist, thinking. At some spontaneous, but not predictable, moment, a light bulb turns on over their head. It's a mysterious gift.

In a new approach to communication, language, and action, which we will call the language-action approach, innovation is not mysterious. It can be seen as listening to the concerns of customers, engaging in practices for specifying new possibilities, and having specific types of conversations that generate new action. In this approach, innovation is a result of practices. It can be learned, and is a skill that can be developed both individually and organizationally. It can be designed into the procedures of an organization. To see how this can be done, we must look first at human communication and action for the roots of innovation.

In this paper we make the claim that innovation is fundamental to long-term business success, and will further claim that, based on the language-action approach: innovation can be developed into a body of self-generated and continuing effective practices; that many such practices have been developed and applied in a number of companies, and have produced significant results; and that the approach allows us not only to innovate, but also to innovate in the practices of innovation. To support these claims we will introduce a new paradigm of action as generated from language, the language-action approach. We will show how coordination of action is the foundation for all work and business. We will also show that innovation is a phenomenon that is rooted in conversational practices that generate new coordinations of action resulting in new value for customers, and that these practices of innovation can be designed, learned, improved, and made part of an organization's culture.

To help the reader follow the underlying logic of our thinking, we provide below a section-by-section abstract of the paper.

- *Emergence of the Language-Action Approach* — Here we will explain where this new paradigm of action comes from.

- *Types of Innovation* — Here we list and discuss various types of innovation. The rest of the paper will provide the foundations to understand how we can develop practices for these types of innovation.

- *Example of Establishing Commitment-Based Manufacturing Processes at a Semiconductor Gas-System Supplier* — This is the first of three examples we will present of work that has been done with language-action based innovation. Our focus will be on the results achieved, to demonstrate that the framework that is going to be presented is practical and valuable.

- *Overview of the Language-Action Approach* — Here we introduce the language-action approach itself, how we generate action from language, and how coordinating action is fundamental to accomplishment in business. This gives us the building blocks for innovation practices.

- *Example of Business Process Redesign at Leading Computer Manufacturer* – we present an example of a specific type of innovation practice based on the language-action approach, and the results it achieved.

- *Language, Action, and Designing Innovation* — In this section we introduce the notion that the language-action approach gives us a new foundation for design, and identifies design questions for innovation.

- *Designing Our Practices and Processes Into Effective Action Conversations* — With a new foundation for design, we show how we can design and redesign the practices and processes that structure our work and action.

- *Self-Generating New Competitive Capabilities* – In a short note, we address how to take innovations into action, once they are designed, based on the key commitments that have to be made for a successful deployment of an innovation.

- Example of Developing *Management Practices at Knowledge Transfer International* – This is the final example of innovation in introducing commitment and language-action based management practice into a company.

- *Innovation as Action and Practice, and the Practices for Self-Generated Innovation* — In these sections we come back to innovation, and with the background we have developed on the linguistic structure of innovation, identify the types of conversations and practices that establish on going innovation, and provide a brief outline for the actions that make these practices self-generating.

Emergence of the Language-Action Approach

People and their communication have long been identified as essential elements of management and business, although the rigor with which we can deal with these elements of human behavior and interaction has led most people to call these "softside" issues.[3] It is widely recognized that the performance of an organization, as well as its ability to change, are founded in the behaviors and abilities of its people.[4] From the perspective of language and conversation, an organization's actions and changes occur in and come from the language and conversations that it is able to have. An organization's current actions and future prospects are bounded by the limits of these conversations. Innovation is limited by, or generated by, the conversations people can have.

The Center for Quality of Management found that "skill in conversation is a critical void in the management methods that the CQM companies have been applying,"[5] and in 1995 established a study group to investigate methods relating to language and conversation. The synthesis that this study group has developed has drawn from the work of the business philosopher Fernando Flores and the biologist Humberto Maturana, among others.

That human life, and action, is rooted in language has been a topic of concern in philosophy and biology for many decades. The role of language as part of the living system that we are as humans is also being scientifically better understood and is well presented in Fritjof Capra's recent book, *The Web of Life*. Significant in Capra's review of the science of living systems is the work of Maturana, who developed with Francisco Varela a theory of language as a form of "coordination about coordination for living."[6] In the eighties, Fernando Flores integrated into this insight the work of Martin Heidegger and other philosophers who see language as the way we produce ourselves historically, and further integrated the work of John Austin and John Searle, philosophers of language who developed speech act theory.[7] What he produced is a powerful approach to seeing how we coordinate action in language, specifically revealing the structure of effective coordination of human action as speech acts which produce shared commitments of participants in conversations for action. We'll call this approach the **language-action approach**. It is indeed a new foundation for design, which is the subtitle of his book with Terry Winograd, *Understanding Computers and Cognition.*

Flores is also an entrepreneur and businessman, concerned with the practical application and market value of this approach. He founded companies, in which I worked for a number of years on teams applying the language-action approach, that produced practical applications in the development of business design, management practice, workflow software technology, and in major consulting initiatives. Based on the language-action approach he has developed a practical and operational new discipline of design based on human communication and coordination. Others have integrated the language-action approach into fields such as medicine, sales, education, and design.

The approach has been applied in dozens of companies to produce more effective communication, coordination, and significant improvements in organizational and business performance, including increased sales, decreased costs, improved customer satisfaction, and new innovations. My colleagues and I have been working in

business and management with approaches based on the work of Flores and Maturana over the last sixteen years. This approach is a potent new way to understand and produce customer satisfaction, value, improved organizational action, and results. We will introduce a framework of how to increase the competitive value produced by the actions we take, design practices for producing these innovations, and organize to bring these innovations to realization. This framework for innovation is part of a larger framework that produces what we can call the Self-Generating Competitive Enterprise.

Types of Innovation

First we will distinguish the types of innovation we can make. We will begin by producing a preliminary articulation of what innovation is: *innovation in business is the generation of new value for customers. Competitive innovation is the generation of new value for customers that leads them to accept your offers rather than those of your competitors*.

Each type of innovation is produced by certain kinds of conversations. An organization can develop competence at each type of innovation by developing competence in the kinds of conversations, the kinds of thinking, that produce them. These competencies can become organizational capabilities by designing and establishing regular practices for these conversations of innovation.

We distinguish types of innovation based on the degree of possible new value they generate, the degree of change in current practices required, the kind of generating conversations that must be altered, and the kind of organizational commitment that is required to produce them. The types of innovation we will distinguish are:

- **Improvisation to Fulfill Commitments** — taking unplanned or non-standard action as part of navigating to produce customer satisfaction
- **Shifting Standard Practices and Processes** — doing what we already do better with new value
- **New Offers** — making new offers (products, services, results) of new competitive value
- **New Strategies or Changing the Game** — building power in the game or building new interpretations of the purpose and kinds of actions in the game
- **Shifting the Common Sense** — shift the background of possibilities and understanding.

A body of theory and practice has been developed for each of these types of innovation based on the language-action approach. The most powerful lever for innovating value is to shift the background of common sense, because it opens up new possibilities in all the other types of innovation. For example, the TQM movement is successful not just when the new quality activities are begun, but when the background of common sense (that which we deem obvious and appropriate) is shifted to see quality as a strategic necessity that everyone must be concerned and in action about. People then begin to see their world in a new way, and see new possibilities for action. The language-action approach is a shift in our common sense about action, communication, and coordination. Because it opens up a new perspective on producing effective action that satisfies customers, it opens up new possibilities for all the other types of innovation: new improvisations, standard actions, offers, strategies and games. We'll briefly describe each of these types of innovation:

Improvisation to Fulfill Commitments: In work we almost always have some standard actions we take to fulfill commitments, to get things done. In the background of this, we also have a readiness for improvisations which we will do in order to fulfill the commitments of the work. For example, someone might get in their car to deliver a package if the delivery service doesn't pick up on time. We all do this to some extent: we "navigate" in our actions to avoid breakdowns and barriers and generate necessary new actions to get the job done. The opinion we have of the skill of people is often heavily influenced by their ability to

improvise. In the language-action approach, we will see that this type of innovation is greatly enhanced by showing people the structure of effective coordination, and how they can generate new action through making effective requests. Improvisations are not sustained as new standard practices, which is the next type of innovation.

Shifting Standard Practices and Processes: Here we generate new possibilities for doing what we already do better. This type of innovation is what we are doing in practices of learning, continuous improvement, and in incremental improvement in process redesign. With the language-action perspective, we can interpret dissatisfied customers and operational breakdowns as miscoordination or missing conversations for producing action. We then look to put in place the missing conversations, or modify the ones we already participate in so that they produce a different result. We can redesign processes and practices, and establish new standards for coordinating action and satisfying customers. Projects are designed to produce new processes, practices, and teamwork with accountability assigned for new results.

New Offers: Here we generate new products, services, and or modify internal processes in a way that it produces new value for external customers. Practices and competencies can be strengthened for listening to customer concerns, making assessments of value, and formulating new offers. There is some overlap between shifting practices and processes with innovating new offers, since shifting practices will often show up as new value to customers as well. The distinction between the types of innovation is whether the objective for the innovation is to shift the value of what is offered to the external customer or to produce new value.

New Strategies or Changing the Game: In this type of innovation we review the current strategies, or lack of them, and assess what is not effective or missing to build power into the future. New strategies can be built by reformulating what is not working, or by developing new possibilities. New possibilities can be stimulated by looking at strategies and practices from other companies, industries, and fields. To change the game we are looking not just to perform better or build power in the current game, but to look at possibilities of the consequences of playing a different game. For example, shifting the focus for product development from conformance to requirements to customer satisfaction will lead to a different game being played by many of the people involved in the process. This means that we have to shift our understanding and interpretation of the purpose and allowed types of actions we can take. Our question here is "Can we replace what we are doing, its purpose, or the possibilities we see?"

Shift the Common Sense[8]: This type of innovation increases the space of possibilities for the other types of innovation. It begins with looking for and adopting a framework that allows us to think "outside of the box." The development of new practices of hygiene following Pasteur's discovery of germs, and the development of the computer, are examples not just of innovations, but of a shift in the common sense. These shifts change the assumptions and accepted interpretations about the world that people live in, leading to new possibilities for action and opening up new horizons for innovation. Flores and his colleagues, in their book *Disclosing New Worlds*,[9] describe how this happens as a process in which practices that are marginal, as the computer was in its first years, are recognized as an opportunity to produce new value, and over time are moved into mainstream application. They see the entrepreneur in the role of moving marginal practices into the center of common practice by developing offers of value, innovations, to the common practice.

The language-action approach has two substantial forces moving it from being an interesting, but marginal, approach to becoming a foundation for mainstream practice. First, it produces possible actions and results that have been missing in the past – the capability of producing increased effectiveness and designable results from human communication and

coordination. Second, it provides a powerful foundation for looking, seeing, and acting to produce innovation from other marginal practices. To illustrate the first opportunity afforded by the language-action approach, the power of the framework to produce new business results and capability, we'll review the results produced in a project at a manufacturer of semiconductor gas systems.

Example of Establishing Commitment-Based Manufacturing Processes at a Semiconductor Gas Systems Supplier

The redesign of coordination processes of a manufacturer of gas system components for semiconductor manufacturing equipment was undertaken in May of 1994. This project implemented coordination-based business process redesign, and is an example of producing four of the types of innovation. Bringing the language-action approach as a framework for understanding the coordinations and miscoordinations in the company was producing the innovation of changing the common sense. This common sense led to innovation in new ways to improvise to fulfill commitments, because people now saw more clearly how to start new action when it was needed by making requests (this will be further explained in the next section). New standard practices and processes were innovated with a language-action based analysis and redesign of the current practices and processes. And finally, the strategy of the company was shifted to rely on being able to fulfill more valuable promises in the manufacturing area due to new processes.

At the time the project was initiated, the company was operating at a run rate of only eight million dollars a year. The semiconductor industry was entering a period of significant growth in the construction of new manufacturing facilities. The owners assessed that they needed to improve the operational processes of the company in order to grow further. In fact, they saw themselves at a point where they were already working all the time and falling behind. They and their team were getting exhausted and struggling. They had to innovate in how they worked or they were going to cease being able to grow.

In a project contracted with the consulting firm Kairos, Inc., a Philadelphia-based consulting firm, I worked as the lead business process designer. We agreed to put in place new manufacturing processes and promised to reduce the cost of manufacturing by five percentage points of the company's revenue, which was fully accomplished in twelve months. This amounted to a cost savings of over two million dollars a year in the subsequent year. Working with the owners, managers and staff as a combined team we redesigned the manufacturing process and organized the manufacturing teams to enable growth to a forty million dollar a year run rate twelve months later. This growth rate was much faster than the growth of the market or of the company's competitors. The first skills that were developed were those of the two owners in operational roles, where they learned to be more effective customers of their teams, and improved performance while reducing the number of hours they were working.

In carrying out the project the press of growing demand outstripped the abilities of the manufacturing management team after our first six months. I temporarily took the role of manager of their primary manufacturing plant for the subsequent six months, established the manufacturing processes, and developed the manufacturing team and their management practices. Two experienced manufacturing managers, for materials and operations, were hired during this time, and a number of people on the team developed their skills in team leading and coordinating action.

We focused on establishing reliable scheduling, reliable materials supply workflow, and managing the workflow hour by hour. The whole process was designed on the basis of making promises to customers both internally and externally, managing the fulfillment of these promises, and making the state of the whole process observable at any moment. Roles were established and clarified, and regular practices of coordination and process improvement were put in place. Computer tools were

created and modified to provide for visibility of key data.

As a result of this effort, not only was the company able to grow five-fold in one year, but at the end of the time period they also had a manufacturing management team that could continue to grow the company's capacity and continue to improve manufacturing performance. They have since grown to over one hundred million dollars a year. In addition, the team improved on-time performance to consistently less than two percent late (from peaks of over twenty percent late), and quality reject rates were improved by an order of magnitude.

In this case what made the difference was to clarify who was responsible for what, who was the team leader and customer for the work of the manufacturing teams, how to measure the fulfillment of each of the key promises in the manufacturing process, and how the prior commitments in the process were enabled and managed. The managers and supervisors also established ongoing process improvement projects.

Several key changes were made to business processes and management focus of the company during this period: 1) the sales team's attention to managing customer relationships and customer satisfaction; 2) establishing the ethic and practices in manufacturing to commit to only what they could deliver — otherwise declining or making counteroffers; 3) establishing measures and metrics for observing and managing the process; 4) clarifying roles and actions in the processes themselves; and; 5) the necessity of establishing recurrent practices of coordination, review and assessment, and taking new actions. These competencies, new core processes, and management practices were stable and flexible enough to support the company's subsequent growth. We can better understand how the language-action approach led to these changes by reviewing the language-action approach in the next section.

Overview of the Language - Action Approach

Conversational Competencies

Now that we have an example of what can be produced with innovation based on the language-action approach, we are going to clarify how action is produced in language and conversations, and how this leads to producing the coordination of action that makes up how we work. The power of the language-action approach has led CQM to develop "conversational competencies" training that introduces participants to the distinctions of how action is produced and coordinated in our language. This training draws from the field of linguistics called "speech act theory" and the work of Flores and others to develop this into personal skills and practices.[10]

My own first encounter with this approach was sixteen years ago in a communication workshop developed by Dr. Flores. I found the clarification of how we produce action in language to be so powerful that it shifted most of my work practices, as well as my framework for thinking about and producing action. I was working in Motorola Computer Systems at the time as a program manager for software development, managing the work of two hundred fifty programmers. Organizing my work largely around this approach, we were able to improve our software quality by a measurable factor of ten and reduce our time-to-market by a factor of four in a year.

Producing Effective Action - The Conversation for Action

How do we produce more effective action in conversation? What is this structure of language that we can observe, execute, and improve in our conversations?[11] The answer to these questions can be found in the basic structure of action shown in Figure 1, *The Basic ActionWorkflow/Conversation for Action** . This is the structure of communication and commitment that produces agreements for action between people, and is the underlying unit of work for coordinated action. This structure has the two names it has been given in applications over the years. To see how action is produced in conversation, this structure is viewed as *The Conversation for Action*.[12] It was renamed *The ActionWorkflow* when the

* Editor's note: the CQM often calls this model an "Atom of Work"

structure was used as the unit of process for a human coordination-based approach to business process and workflow design, which was developed into the ActionWorkflow™ software system by Action Technologies, Inc. In the following description I'll use the term "conversation for action" to denote this structure, which can also be interpreted as an "ActionWorkflow."

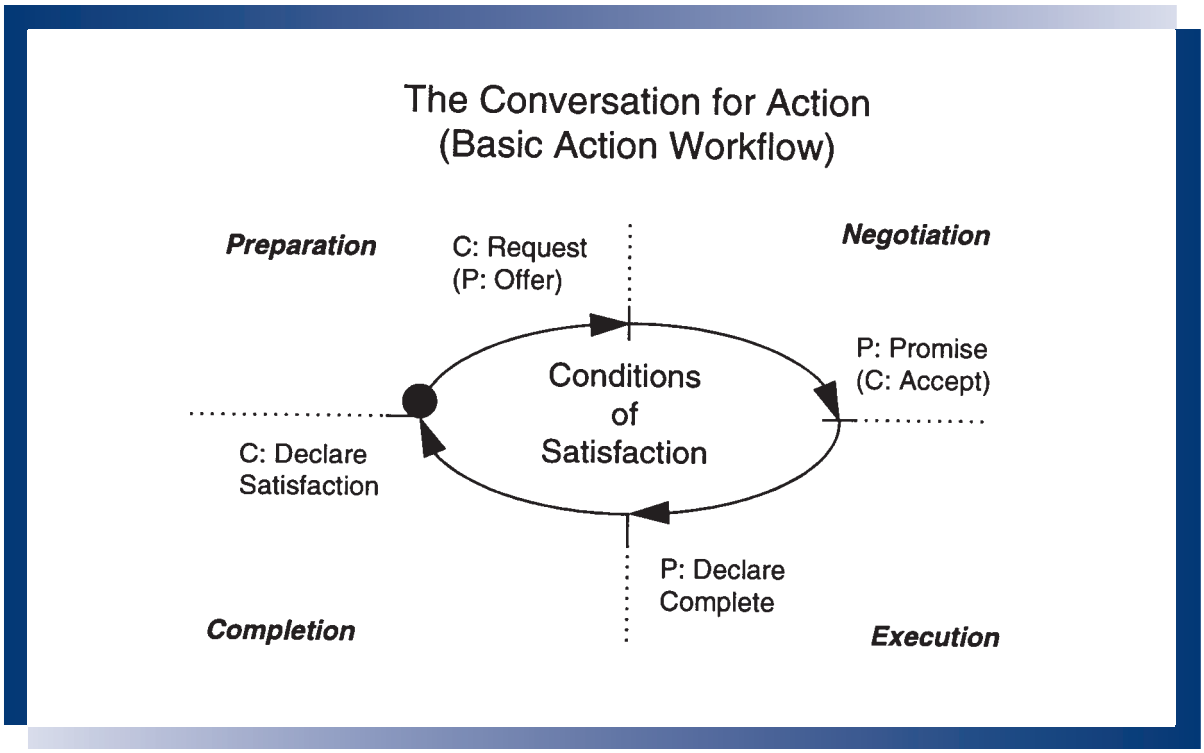
In the conversation for action the roles of people in any transaction can be distinguished as a *customer* for satisfaction, and the *performer* of action to produce satisfaction (see Figure 1). In this loop, opening the transaction and following through to customer satisfaction takes place in four phases.[13] Each phase is completed by an act. The first phase is completed when the Customer makes a request. The second phase is completed when the customer and performer agree to "conditions of satisfaction" that the Performer is promising to provide the customer. The third phase is completed when the Performer "declares complete" with the actions he or she has taken to fulfill the agreement. The fourth and final phase is completed with a "declaration of satisfaction" by the Customer.

Figure 1: The Basic ActionWorkflow/ Conversation for Action14

This structure is not just a novel idea, but reveals the innate structure of how we already coordinate in communication. The acts that make up the conversation are the speech acts that keep two or more people in the same interpretation of what future action is to be produced, what is agreed upon, and who is going to do what. The acts of requesting and promising are acts we are doing all the time. The structure of the loop shows what happens when coordination is successful.

These acts are not mechanical, such as a specific way to talk. A request can show up with over six hundred different verbs in English that signify different kinds, intensities or moods of requests (such as ask, demand, beg, petition, etc.), and each can be articulated with varying shades of urgency, authority, and implied relationship. Requests are made with writing, with gestures, and even assumed with unspoken understandings of how to move in certain situations. This shows the

Figure 1: The Basic ActionWorkflow/Conversation for Action



flexibility and richness of variety with which we can and do make requests.

However, this variety is one of the reasons we have historically been blind to the understanding that these are all acts of the same type, a *request*, and that this is part of a fundamental structure of coordination. Another aspect of these acts that has kept them from being fully explicit for us is that the acts are not acts of just speaking, but are acts that have to be *listened*. By this we mean that if I say "I promise," it is not a promise for the listener regardless of what I say if my listener does not interpret what I say as a promise. And usually this "interpretation" is automatic and immediate, not something we figure out. It's just the impression someone's speaking produces for us as a listener. What produces future action is the interpretations that are made in the conversation from what is listened, not from the words that are spoken in the conversation. Producing effective action is not just saying the "right" words, but interacting with the listening of other people and our own listening to create shared commitments for the future.

If these acts of coordination are missing, or we don't produce them well in our conversations for action, we will have miscoordinations and dissatisfaction. The conversation for action gives us a powerful way of observing what is working and not working, and moreover, what is *missing* in terms of human coordination. We can then identify and move to correct the substantial waste that arises from the miscoordination we are blind to.

Our cultural blindness to human coordination produces tremendous waste. The waste in organizations due to miscoordination is due mostly to not being competent observers of coordination. In other words, people don't have the distinctions to observe with. Once the waste and missed opportunities are made evident, then improvements can be made in the design of roles, recurrent actions, and the competence of performers to satisfy their customers. Then information systems can be built around designs of action to enable and support better processes. But the quality of coordination is fundamentally based on the competence of the participants as effective customers and performers in conversations for action. As in sports, new equipment for the team can help, but the team's performance relies most fundamentally on the capability of the team to perform together competitively.

Our lack of distinctions for human coordination can be seen in our conceptions of what "process" is. Our language for processes has come from two historical traditions that have dealt with processes: mechanical and material engineering (material processes), and computer engineering (information processes). We model processes with the vocabulary and distinctions from these traditions. We use terms such as: "transport, inspect, assemble" for material processes, and "compute, compare, store, transfer" for data in information processes. These distinctions, however, don't highlight the acts of human coordination.

Human coordination has a different set of distinctions that are usually poorly represented in the language of material and information processes. People coordinate with acts of "request, promise, agree, judge, assert" and so forth. Just as the language of information is not effective to understand material processes, the language of material and information processes is not effective to understand human coordination processes.[15]
Effective redesign of work processes must include coordination processes as well as material and information processes.[16]

In Figure 2 we see the kind of workflow map that is generated using the ActionWorkflow view of coordination processes. These maps can be used to show a "before and after" map, where the "before" map shows the process with all of its breakdowns, dissatisfactions, and missing components. This provides a starting point for a redesign and the development of a well-designed process where roles are clear, conditions of satisfaction are clear, and the actions and tools for effective coordination are specified. We can eliminate waste due to miscoordination, and design new more effective structures of coordination.

In the language-action approach we also demystify customer satisfaction and organizational behavior. Customer satisfaction is a judgment by the customer that we produce when we fulfill or exceed agreed-upon standards of fulfillment. *Organizations are a network of commitments*[17] *that shape the actions that are taken that produce the results that are occurring*. Coordinated action is produced through acts that people perform and can learn to do better. To innovate is to produce new configurations of action that deliver new competitive customer satisfaction and value. In the following case study we will see how substantial financial and other measurable performance improvements were achieved by analyzing miscoordination and redesigning their recurrent actions of coordination.

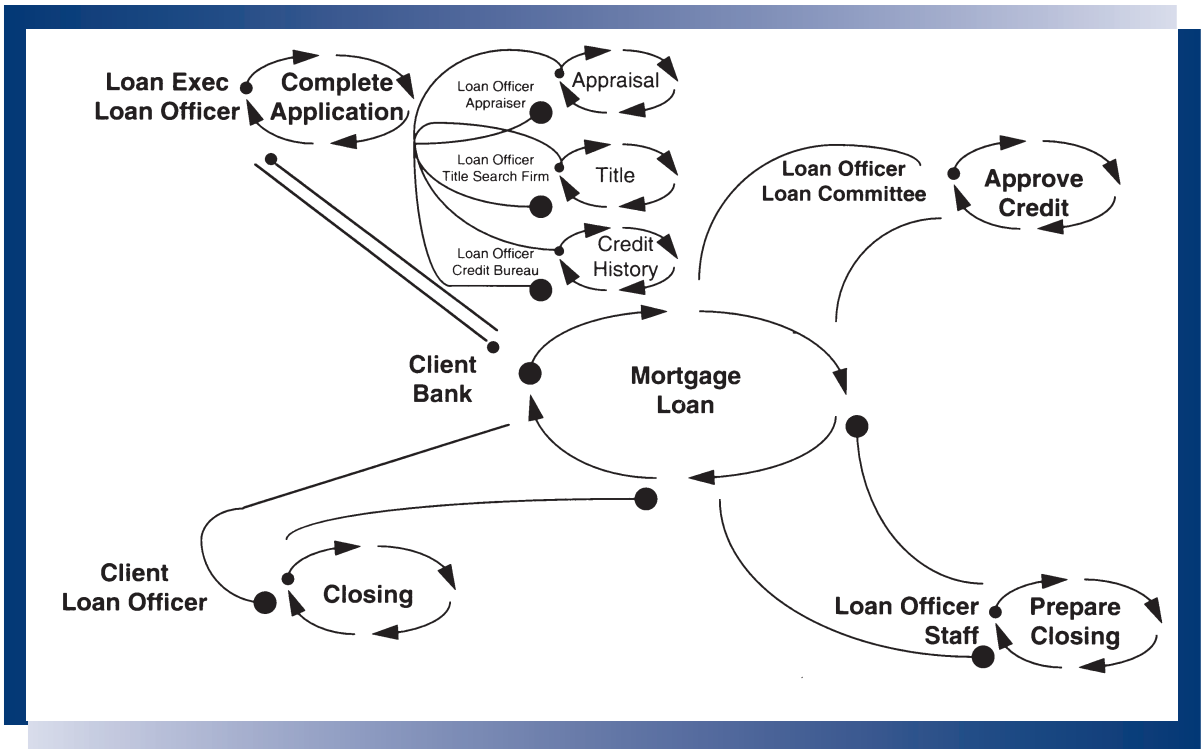
Example of Business Process Redesign at a Leading Computer Manufacturer

Now that we see the structure of action, how it is produced in language, and how this makes improved coordination possible, we will review an example of innovation using this approach in a business process redesign project done at one of the world's leading computer manufacturers. Remember, business process improvement is one kind of innovation.

This project was mounted by Action Technologies in cooperation with Business Design Associates. Both companies were founded by Dr. Flores and base their work on the language-action approach. I was working at Action Technologies as head of operations. The ActionWorkflow approach had been introduced to the president of the computer manufacturer, and he asked that it be applied to a process that had already undergone significant improvement as part of the company's own quality program.

The process to be addressed was the engineering change and new product introduction process at a major PC manufacturing facility. The challenge was to further reduce the cycle time for implementing engineering changes on the manufacturing line. The company staff had calculated that the financial impact of delays in the engineering change process, due to the large volumes they manufactured, averaged eight hundred thousand dollars per day. The process had

Figure 2: Example of a Business Process Map with ActionWorkflows [18]

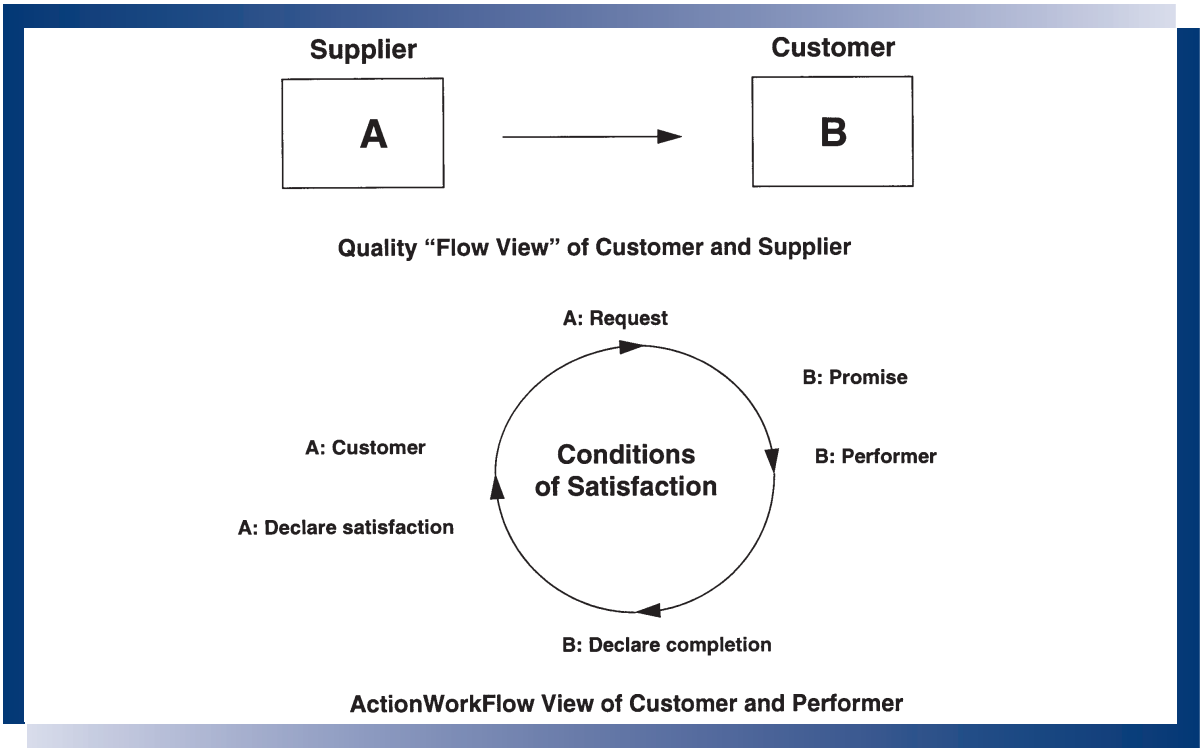


previously undergone a cycle time reduction from an average of thirty-two days down to fourteen days. Within a few weeks the cycle time was reduced further with the ActionWorkflow approach to only seven days. In later projects, the staff was trained and a workflow software application was developed that enabled the process to be further improved until it reached a one-day cycle time.

What provoked the immediate improvement was people seeing the difference in who is identified as a customer in the ActionWorkflow approach versus the company's quality process flow approach. In the quality process the customer was identified as the next person or organization in line to receive the flow of the process. For example, if the hardware design organization generates a hardware design change, in this approach the customer is the next organization in line who receives the change. However, in the ActionWorkflow approach, the customer is the one who makes a request and to whom a commitment is made. From the language-action perspective, the customer was being ignored in the quality process approach (see Figure 3), with no commitment being made to provide a response. The hardware design organization did not insist on, nor did the manufacturing organization see that it was necessary, to respond quickly to the design change request, because the customer was seen to be the manufacturing organization, who organized around its own priorities. In this case, both the hardware design organization and the manufacturing organization were operating with an interpretation of who was the customer, who was to be responded to, that resulted in delays. A similar shift in perspective allowed the company's staff to see a number of process reconfigurations that became possible from the ActionWorkflow perspective in the first several days after its being introduced.

This project provides an example of the innovation of shifting the common sense – produced through this project was a shift of what people could see that previously they could not see. They became different kinds of observers, enabling them to design different actions. The

Figure 3: Comparison of Who is the Customer in the Quality and ActionWorkflow processes



language-action perspective allowed them to see acts of coordination of action, or what acts were missing or ineffective. Then, using the ActionWorkflow business process tools they began to produce innovation in processes by reconfiguring how they coordinated action, clarified roles, and eliminated miscoordination with new and more effective structures of recurrent action.

Language, Action, and Designing Innovation

Our examples have shown that the shift in the common sense to the language-action approach is a move of innovation that opens up new innovation possibilities in all the other types of innovation, e.g., new standard practices and processes. We will now describe how we develop these new innovations by engaging in practices of design: seeing what is missing in a new way, and seeing what is possible in a new way.

The conversation for action shows how we produce action in language. This connection between language and action gives us a new framework for design, and this gives us a basis for developing practices for innovation. One of the great powers of this linguistic perspective is to see that all organizational, in fact all human, action is produced with and in language. Thus, to produce new possibilities and action, we can "move in language." That is, make an act in language that provokes a responding act in language. By "language" here we do not mean only "words," because communication occurs in many ways besides words. We can only coordinate many tasks without speaking, by performing acts of coordination that produce interpretations in each other. For example, we might beckon someone with a wave of the hand, and they have an interpretation that this means "come here."

With this understanding of how language and conversations produce action, we can observe the actions, or missing actions, around us differently. We can ask two questions that are key for designing new action:

"What conversations (interpretations, practices and speech acts) are producing the actions of my organization?"

and

"What are the missing conversations (interpretations, practices and speech acts) that if they were present, would produce more effective action than we are producing now?"

We now have a way to interpret both how we are producing action and what is missing to produce more effective action. This is the foundation for innovating the redesign of coordination. When we can see breakdowns and limitations as missing conversations, we are immediately oriented to begin new action by designing or initiating the missing conversations. CQM's "conversational competencies" training, for example, deals with the personal ways to listen, interpret, and speak to produce more effective action – to produce conversations that are more effective at producing action.

To see how we can build more complex configurations of coordination and commitment, we'll use a metaphor. We will regard the conversation for action as our basic unit of action, an "atom" of coordination. Now we can observe and, indeed, invent more complex structures of coordination, "molecules" and higher orders of coordination. Figure 2 is an example of such a higher order of coordination. Using the "atom" of the conversation for action, the "particles" of speech acts of assertions, judgments, and declarations, and another "atom" of conversation in which we speculate possibilities, we can begin to distinguish, design and improve the effectiveness of sophisticated conversational practices.

In the history of many disciplines, the uncovering of a set of simple, stable recurrences such as these opens the door to a rush of innovations. Chemistry is an example, with its development of the table of elements, and biochemistry with its discovery of the structure of DNA.[19] The recurrences of structure in language give us such a foundation for design and innovation. We can distinguish, for example, the fundamental structure of conversations that produce effective teams, planning, projects, management and strategy; and we can innovate in our practices of performing them.

Designing Our Practices and Processes Into Effective Action Conversations

Let's discuss further the practices of how we can generate more effective actions through design. These are fundamental practices for innovation. One way we can innovate in our common practices of action is by what we call "reconstruction."[20] From the linguistic structure of action we can make new interpretations of our standard practices and processes — we can reconstruct them — into the structures of conversations, judgments, and actions that will better produce their intended result. In fact, we can reinterpret what the intended result is. For example, "teams" are a common topic in the current discourse of business. What is a team? If we look at what a team is in terms of producing commitments and actions, we see that *a team is a group of people who have a shared commitment to fulfill a mission to satisfy some customer*. However, this interpretation does not insure that the team will be effective. To be effective, we must understand what are the additional conversations that produce an effective team.

Over the last nine years my colleagues and I have identified ten such constitutive conversations of effective teams. For example, team members must accept the invitation of a team leader to join the team, accept the standards of the team, and participate in the conversations that generate an effective team. Other essential conversations include coordinating action to satisfy the customer of the team and conversation to build and maintain trust among the team members. Each of these generative conversations can be outlined as specific conversations for action and specific kinds of judgments.

With this kind of reconstruction we can outline the conversations that generate and constitute the actions of our standard practices. We can understand and more effectively produce the conversations and structures of action that generate not only effective teams, but also other regular practices such as planning, projects, managing people, strategy, designing new offers, designing an effective enterprise, and so on. These reconstructions of practices are *executable*. You can perform the conversations, you can make the requests and promises, and you can observe the structures of conversation you are in and check to see if you are effective in them.

This specification of the necessary structures of action to produce our practices is an astounding clarification for producing effective action. Much of our language of business and management is not action-based, but is, instead, metaphorical. What I mean by this is that the distinctions that are used are not executable, but are left to vague interpretation. For example, some writing about teams will refer to motivating people. But "motivate" is never clearly specified as a set of actions. The text will give some examples, but the executable structure of motivation is never made clear. This leaves us with a wide range of differing interpretations of what actions are involved, with a sense that this is something we are all familiar with, but just can't quite make operationally crisp — it always retains some sense of magic or mystery to it. The language-action approach to innovation gives us a basis for clarifying the actions that will constitute an effective practice, for example a team, and then clarify the conversations and conversational skills that are needed by people to produce those actions.

Self-Generating New Competitive Capabilities

Once we see that we can design new actions and the conversations that generate them, and by doing so improve even our standard practices of action, we will encounter the issues of how to get these new practices adopted, integrated, and effective in an organization. We have to be able to successfully deploy new, effective practices in an organization to be able to produce new competitive capabilities. Innovation without the structure and practices to move them into becoming new competitive capabilities is waste and lost opportunity. Many Japanese companies, for example, don't just focus on producing new patents, but have a process for reviewing American patents and buying rights to those that are relevant to their competitive developments. The process of managing innovation into competitive capability has its own

fundamental ordered language-action structure. This structure includes shifting the capabilities of a company's people to coordinate and to reinvent their structures of coordination. Attempts to shift competitive capabilities often fail when this structure is not included in the design and implementation. To develop new competitive capabilities requires: the commitment of those who can direct the organization and its resources as well as the members of the organization; a clear design of actions for innovation; and the competencies to carry out the actions. In our work we have developed an interpretation of the essential structure for developing new competitive capabilities that includes the following elements:

- Shift the common sense to a more effective framework for action - the language-action approach,
- Design more effective practices and processes as structures of action,
- Produce embodied learning and competence in new practices,
- Declare the responsibilities for new practices and processes,
- Get commitments for their results, and
- Produce new results as a managed commitment.

We have already addressed the introduction of the language-action approach. Then we can design more effective practices and processes, which we'll say more about in a moment. Embodied learning and competence refers to the necessity that we must not only understand, but be able to perform in action — embody — the new practices and processes. The educational practices of our culture are oriented to produce understanding, but are weak in producing embodied competence. Practices for producing embodied competence are an important area of innovation in itself. My colleagues and I have done substantial development of new practices for developing embodied learning and competence based on the work of Dr. Richard Heckler, and the insights of George Leonard and others.[21] We will present this more fully in a future publication.

The last three points-to declare responsibilities, get commitments, and to manage the commitments-are crucial but often are not done well. The reason given is often being busy "with the real work," or because accountability is left to someone outside the organization. To use the language of the conversation for action, we don't have either an effective customer or an effective performer. We must have clear accountability for innovation, and for making innovation into competitive capability. The future must have a priority in the present, or it will be a product of drift, not design.

This structure of organizing to produce and deploy innovations in work is shown by the following example. In this example a company's business performance was improved from initial attention on redesigning processes to an ongoing redesign of management practice. Here the reconstruction of standard practices and deploying them to produce new competitive capabilities was carried out.

Example of Developing Management Practices at Knowledge Transfer International

Knowledge Transfer International, Inc. (KTI) is a New York City-based company that provides services in documentation, training, knowledge management, and supplementary staffing. They provide ready-made teams to assist in the design and roll-out of new systems and the documentation and implementation of new processes. KTI is a small company, with revenues of twelve million dollars a year, but is a good example of a common experience with companies undergoing change initiatives – the changes show the need for and eventually require a shift in management practice and capability. The language-action approach has proven to be particularly well suited to design effective management practices since it is based on the customer-performer action structure. Managers are customers for requests that will produce satisfaction for their team's customers.

The initial project at KTI, a "reengineering effort" (we thought of it as a redesign of

coordination) was contracted with Kairos, Inc., in 1994. At that time KTI was an eight million dollar a year company, and the management team requested a redesign of their business processes because they were concerned that they would not be able to take the company beyond this revenue level, having failed to do so in prior attempts in their thirteen-year history. An intense effort was mounted over a five-month period to reorient the company, particularly the management team and the sales staff, to coordinating action and producing customer satisfaction for both internal and external customers. Coordination was improved in the management team and new processes addressed interdepartmental waste and supported sales. Commitment-based email was also installed.[22]

The result of this effort was that sales rose by 25% in the following twelve-month period. However, increasingly we found that the practices of the management team were the opportunity to leverage the performance of the company. The company had been a classical entrepreneurial startup by the owners, and the management team had a history of being top producers in the sales-oriented firm, not of being managers. The approach of organizing around promises, customers, and performers gave the management team a framework for producing organized action. The management team went from being unable to mount new projects or have productive meetings to producing more effective conversations and actions.

The company also developed an action-based interpretation of knowledge that is orienting development of new offers in Knowledge Management. After reviewing the ambitions of the company partners and the management team's skills a new strategy was developed, now underway, to bring in new key executives and develop a plan to significantly grow the company in the next several years. The owners have taken roles in the company that are not in day-to-day operations, and have been developing their skills as customers and leaders for growing the business.

The highlights of this example are the shift in the management practices, the shift of the roles of the central players of the company, and the reinvention of the game of the business while sustaining growth. This was made possible by the partners and managers learning to have new conversations of design and coordinating action, of designing roles, and of developing strategy. They are developing their practices for innovation of action, innovation of practices, and innovation of the strategy and game of the business.

Innovation As Action and Practice

With what we have discussed so far, we can now come back to innovation itself and say more about the practices of innovation. Since we have distinguished types of innovation and shown that practices for innovation can be constructed in linguistic recurrences, we'll now say more about these recurrences and how to develop them into executable practices. We want to see what the kinds of conversations are: the kinds of moves we make in thinking and language that generate innovation.

As an update to our articulation of innovation in the beginning of the paper, we can now say:

Innovation in business is producing new value for customers, *by engaging in practices that bring one to make requests, promises, and offers of new action*.

Competitive innovation is the generation of new value for customers that leads them to accept your offers rather than those of your competitors.

The new value produced in innovation has to be competitive value — it must produce in customers the judgment that the new value you produce is at least equal to or better than offers from competitors. Competition in the marketplace is the competition to provoke the judgments in customers that you have produced an edge in comparative value.

The Practices for Self-Generated Innovation

The practices of innovation are then practices for seeing new possibilities for satisfaction and value and then for producing

effective action — conversations for action — to realize these possibilities. We have now articulated innovation as practices that lead to new offers.[23] In summary, the practices we have introduced that lead to new offers include:

- Identifying waste and eliminating it,
- Seeing the value of marginal practices and bringing them to the center of standard practice,
- Designing the fundamental generative linguistic structure of specific kinds of action,
- Listening to the concerns, standards of value, and shifting standards of value of customers,
- Shifting standard practices and processes, shifting strategies and games, and shifting the common sense in which we interpret future possibilities and action.

All of these practices are built around listening for new value, designing new actions to produce the value, and generating the competence and commitment to fulfill conditions of satisfaction of the actions. In our approach, the essential elements of an effective practice for innovation must include producing new offers to some category of customers, listening for their judgments, interpreting their future standards of value, taking actions to produce new offers and their value, and acting to generate commitment to the new offers from both customers and the offering organization.

To produce an organization that is producing innovation, self-generated innovation, means that we must establish permanent recurrent practices to increase the value of the actions of the organization. This means shifting an organizational culture from an operational style of "getting the work done today," to produce the margin for continuous conversations of "how do we increase the value of what we are doing." This is not only continuous improvement in the tradition of the quality movement, aimed at doing what we are already doing better, but also includes practices for more radical innovation.

The kinds of practices we have discussed are elements for building a pervasive network of practices for innovation. The basic unifying foundation for this network of innovation practices is the language-action approach, taking action to produce customer satisfaction. The following table is a general, orienting summary of the conversations and practices in a company, and who is accountable for them, that will produce self-generated competitive innovation.

Since innovation is the invention of new possibilities and value by people, the practices for innovation must be centered around building new capabilities in people. This means new competencies in conversations, the conversations that generate possibility and action.

By saying that these practices can be self-generated we are saying innovation can be produced intentionally, through practices for innovation – not haphazardly or by luck. There will always be the occurrence of unforeseen and unexpected insight, and of invention. But what we are after is to establish the criteria for a garden in which innovation can be cultivated and regularly harvested.

To summarize our claims about producing self-generating innovation practices: 1) Innovation is producing new conditions of satisfaction for actions and new value in the judgment of customers, 2) the capability to innovate is built on conversational and linguistic competencies, 3) design of innovation conversations and the development of competency in them will increase the value of the results achieved, 4) innovation conversations can be strengthened and made more productive by establishing regular practices for them, 5) there must be a customer for the innovation practices and their results, and 6) there must be a commitment to the practices and accountability for the results.

A basic move in shifting our capability for innovation is to see that action and human coordination is produced in language, and innovation arises in linguistic and conversational practices.[24] To produce something new of value, to innovate, we must produce new language, a

TABLE 1: Table of Innovation Practices

Type of Innovation	Accountable Roles	Conversations and Practices
Improvising to Fulfill Commitments	Everyone	Set New Standards (Shifting the Common Sense opens new ranges of possible action)
Shifting Standard Practices and Processes	Managers and Staff, Everyone	Continuous Improvement, Business Process Redesign, Management Practices –Teams, Planning, Projects
New Offers	Executives, Marketing and Sales	Listening to Customers and the Market, Formulating the Value of Offers
New Strategies or Changing the Game	Executives with their teams	Reinterpret the Future and Preferred Configurations of Actions, or Reinterpret the Purpose and Range of Possible Actions
Shift the Common Sense	Organization head, Executives, Management team and HR	Look for New Paradigms, Inflection Points Practices from Other Fields that Can Increase Value

language of new conditions of satisfaction. In the language-action approach we can see how our language generates new action and value, instead of just being a describer of it afterwards. This is why the approach is a powerful perspective for producing competitive change in business, and cultural change in organizations. Other approaches may not explicitly distinguish the shifting language, common sense, and practices implicit in organizational change, but still must produce it.

Our key claim here is that innovation is constituted by taking action in language: producing new interpretations and new conversations that produce value through generating new actions and practices. To do this we must first shift our common sense in order to produce an awareness of how action and value are generated in language. Then we can develop in our organizations a culture of self-generated competitive innovation if we can develop competencies and standard practices for listening for the value we produce and don't produce, for inventing new possibilities, and for taking action to realize these possibilities.

Conclusion

Over the last eight years the language-action approach has been producing significant benefits in companies. The approach has the advantage of making observable a dimension of human action that was previously not explicit — the relationship between language and action. This new perspective provides a whole new source of opportunities for innovation, reducing waste, and increasing customer satisfaction. The approach is not just a new technique, but is built on a foundation that provides a new executable framework for design and innovation. This foundation for design is a fresh opening for producing competitive advantage. As we have discussed in this paper, it is making possible the design of and practices for self-generated competitive innovation.

Bibliography

Capra, Fritjof, *The Web of Life*, (New York: Anchor Books), 1996.
Dreyfus, Hubert L., and Stuart E. Dreyfus, *Mind over Machine*, (New York: The Free Press), 1986.
Dunham, Robert, "Business Design Technology: Software Development for Customer Satisfaction," *Proceedings of the IEEE Annual Hawaii International Conference on System Sciences*, 1991.
Dunham, Robert, "Notes on the Strategy Conversation," 1996.
Echeverria, Rafael, *Ontologia del Lenguaje*, (Santiago: Dolmen Ediciones), 1994.
Flores, Carlos F., "Management and Communication in the Office of the Future," Ph.D. diss., University of California at Berkeley, 1982.
Flores, Fernando, "The Leaders of the Future," in *Beyond Calculation*, edited by Peter J. Denning and Robert W. Metcalfe (New York: Copernicus), 1997, pp. 175-192.
Hamel Gary, and C.K. Prahalad, *Competing for the Future*, (Boston: Harvard Business School Press), 1994.
Heckler, Richard, *The Anatomy of Change*, (Berkeley: North Atlantic Books), 1984, 1993.
Leonard, George, *Mastery*, (New York: Penguin Books), 1991.
Maturana, Humberto, and Francisco Varela, *The Tree of Knowledge*, (Boston: Shambhala Publications), 1987.
Searle, John R., *Speech Acts*, (London: Cambridge University Press), 1969.
Spinosa, Charles, Fernando Flores, Hubert L. Dreyfus, *Disclosing New Worlds*, (Cambridge: The MIT Press), 1997.
Varela, Francisco, Evan Thompson, and Eleanor Rosch, *The Embodied Mind*, (Cambridge: The MIT Press), 1991.
Walden, David, "Designing Effective and Efficient Action," internal paper of the CQM Study Group on Conversation, 1997, available from the CQM.
Winograd, Terry and Fernando Flores, *Understanding Computers and Cognition*, (New York: Addison-Wesley), 1991.

Notes

[1]This metaphor of the highway of business is from Hamel and Prahalad, *Competing for the Future*, p.28.
[2]These examples are from Hamel and Prahalad, *Competing for the Future*.
[3]Walden, David, "Designing Effective and Efficient Action," internal paper of the CQM Study Group on Conversation, available from the CQM.
[4]TQM's focus on continuous improvement and its Hoshin Management approach are examples. Note the shift by Michael Hammer and James Champy from the themes of *Reengineering the Corporation* to addressing the people issues as fundamental in their more recent books of *Reengineering Management* (Champy) and *Beyond Reengineering* (Hammer).
[5]Walden, David, ibid.
[6]See Maturana and Varela, *The Tree of Knowledge*.
[7]See Winograd and Flores, *Understanding Computers and Cognition*.
[8]Flores and his colleagues have a more precise distinction for this called shifting a "disclosive space," where a disclosive space is a "self-contained web of meanings," including roles, equipment, and how we coordinate in this set of meanings. For example, chemistry is a disclosive space. See *Disclosing New Worlds*.
[9]See *Disclosing New Worlds*, by Spinosa, Flores, and Dreyfus, MIT Press, 1997.
[10]Flores developed this approach in his work and workshops in the 1980's.

[11]See also "Employing Groupware in Business Process Redesign: Action Technology's ActionWorkflow," Richard M. Kesner, *Center for Quality of Management Journal*, Vol. 5, No. 2, Fall 1996, and "Reengineering in Health Care: Chain Hand-Offs and the Four-Phase Work Cycle," Edward Chaplin, *Quality Progress*, October 1996.
[12]See Winograd and Flores, *Understanding Computers and Cognition*.
[13]This four-phase loop representation of the conversation for action is a copyrighted invention of Action Technologies, Inc.
[14]Graphic of the ActionWorkflow from Flores, Fernando, "The Leaders of the Future" in *Beyond Calculation*, edited by Peter J. Denning and Robert M. Metcalfe (New York: Copernicus), 1997, pp. 175-176.
[15]We sometimes use the term "Business Process" to indicate the coordination that happens through the conversation for action, even though this is a different usage of the term than is generally used, to indicate that it is the foundation of the processes between customers and performers (or providers).
[16]We have found that coordination processes carried out by machines are also subject to the structure of the ActionWorkflow in that it is designed to keep two or more parties up to date on the progress of action to completion and satisfaction.
[17]From Flores's Ph.D. thesis, "Management and Communication in the Office of the Future."
[18]Graphic of the business process map from Flores, Fernando, "The Leaders of the Future," in *Beyond Calculation*, edited by Peter J. Denning and Robert M. Metcalfe (New York: Copernicus), 1997, pp. 175-176.
[19]From Flores, Fernando, ibid.
[20]Flores developed a comprehensive approach called "Ontological Reconstruction." Here we are doing a more limited type of reconstruction which we can call "Conversational Reconstruction."
[21]See Richard Heckler's *The Anatomy of Change*, George Leonard's Mastery, Varela, et al., *The Embodied Mind*, and Maturana and Varela, *The Tree of Knowledge*.
[22]Flores, Fernando, Michael Graves, Bradley Hartfield, and Terry Winograd. "Computer Systems and the Design of Organizational Interaction," *ACM Transactions on Office Information Systems* 6:2 (April 1988), pp. 153-172.
[23]Flores has developed a body of work around innovation and the practices for producing it. Also see Tony Schwartz and his discussions of creativity in his book *What Really Matters*.
[24]Flores clarified this application of speech act theory in the 1980's, which is discussed in Winograd and Flores, *Understanding Computers and Cognition*, and in Flores's Ph.D. thesis, "Management and Communication in the Office of the Future," unpublished, and in numerous papers in his companies.

The Center for Quality of Management Journal is a forum for disseminating the experience of organizations learning to implement modern management practices. It seeks to capture experiences and ideas that may be useful to others working to create customer-driven, continuously improving organizations.

The CQM Journal is refereed. However, it is not an academic publication. Experiences and ideas will be published if they seem likely to be useful to others seeking to improve their organizations.

Send to:

The Center for Quality of Management Journal
Editorial Department
One Alewife Center, Suite 450
Cambridge, MA 02140
Tel. 617-873-8950 Fax 617-873-8980
E-mail: publications@cqm.org

If you have thoughts for a paper and you would like to discuss it with us, please write, call or submit an outline. We welcome your ideas.

Final Manuscript Requirements:

Entire manuscript should be double-spaced, including footnotes, references, etc. Text should include all the elements listed below. Generally, The CQM Journal follows the editorial principles of The Chicago Manual of Style. We strongly prefer submissions in eletronic format for all text and as many of the figures as possible. IBM-based software (particularly Microsoft Word for Windows) is preferable to Macintosh-based software if you have a choice, but is by no means a requirement.

Please include:

1. Title page, stating the type of article (e.g., 7-Step case study, research paper, short communication, letter to the editor, etc.), main title, subtitle, and authors' full name(s), affiliation(s), and the address/phone/fax of the submitting author;

2. All needed figures, tables, and photographs (see below);

3. Footnotes (if appropriate), numbered consecutively from the beginning to the end of the article;

4. Reference list, if appropriate.

Figures, Tables and Photographs:

If you can, insert each figure or table into the text where you would like it to fall. Figures should be composed to conform to one of two widths: 3 1/8 or 6 1/2 inches. The maximum height for any figure is 9 3/8 inches. Text within figures should not be smaller than 5 points and lines not less than 1/4 point at the figure's final size. Figures should labeled with the figure number underneath and title on top. Be sure that the text mentions each figure or table.

Please retain separate PICT or TIFF files of figures generated in drawing programs and a file with the text only for final submission.