Total Quality

So you think small companies can’t do benchmarking? At this Torrington, CT, plant, benchmarking takes its place alongside other improvement activities. Now in the midst of a dramatic sales turnaround, Seitz employees offer a progress report.

Did you ever wonder why one company survives a downward industry freefall in sales and profits, emerging even stronger than before? If you were Alan Seitz, you also wondered why a conglomerate like Xerox would be willing to help a small-town company like Seitz Corporation learn how to compete more effectively in global markets through benchmarking and other activities.

The same reasons provide both answers, believes Seitz, company president: quality and people. Seitz employees and their customers (Xerox and others) believe in the Torrington, CT company’s ability to compete on a global scale. “If we work together, we make an unbeatable team,” Seitz believes.

Benchmarking started on a small scale here in 1988, accompanied by training in benchmarking concepts as part of an overall TQ program. “We explained how employees can measure our products, services, processes, and practices against the best in the field,” said Verna Moran, Total Quality coordinator. “Benchmarking is one of the tools we use to measure the gap between other companies and what we are doing.” The idea is to figure out how the “best” got to first place, and then how to use TQC tools to beat the leader’s performance. Seitz wanted benchmarking “doers” who could understand and implement needed changes.

Seitz Corporation manufactures plastic (and value added metal) rotary and linear motion drive products — gears and bearings for paper moving equipment, for example. Customers include office automation OEM manufacturers and others.

Rocky Road On The Way Up, Then Down

The story of Seitz’ unprecedented growth, a steep decline in sales, and another upward swing is ongoing. Let’s back up closer to the beginning of the tale. Seitz’ struggles, eventual commitment to a total quality philosophy, and early benchmarking efforts can provide useful pointers.

Sales soared in the early 1980s, bringing new opportunities and problems. “We had reached our yearly sales goal by the third quarter of 1984,” said Seitz. “We had even more dramatic growth in the early part of the fourth quarter, and we had a new product line of accessories for high-speed impact printers called cut sheet feeders. Manufacturing was gearing up to satisfy requirements for production volumes to many OEM printer manufacturers in the United States until the last quar-
ter, when the bottom unexpectedly fell out of the office automation (OA) market. We didn’t realize that the American OA industry was being flooded with high-quality, low-cost Japanese product. We were trying to determine what was happening to our market.”

Within the next several quarters, orders were canceled and customers stretched out their payments. Meanwhile, Seitz had invested heavily in plant equipment, inventory, and new tooling. There was talk of a possible sales pick-up in the second quarter of 1985. “By then, we knew the problem was major. We were hemorrhaging. A major portion of our business had disappeared. We were losing people,” Seitz said. The company previously had about 300 full-time and 30 temporary employees. One hundred people lost their jobs. The company took on additional tooling jobs to make ends meet.

In retrospect, Seitz said, the handwriting was on the wall for a long time. Many major development projects in the OA industry were being can-

**World-Class Excellence Through Total Quality**

**Quality Principle**
- Total Quality is the key principle for a successful and competitive company.
- We will understand and meet our external and internal customer requirements.
- Employee involvement - individual and team participation through problem solving is essential to improve quality.
- “Do it right the first time” — the most effective way to improve quality.

**Tools and Measurements**
- Seitz Quality Policy
- Competitive benchmarking and quality goal setting
- Communications and recognition program
- Training, training, and continuous training necessary to achieve total quality
- A method for measuring cost of quality (or no loss)
- Quality improvement and problem solving process

**Management Action/Behavior**
- Work like you talk
- We will set quality objectives and measurement standards
- We will establish an environment so each person can be responsible for quality
  - SPC
  - Define standards
  - Dept. Quality Standards
  - Communication
  - a) it is the supplier’s response to provide quality work
  - b) Need for ongoing feedback by the internal suppliers and internal customers.
- We will provide ways of communication to help achieve our goal
  - Roundtables — Memos — Telephone — Teams
  - Operations Mgrs. — Mgmt. Mgrs. — Speeches
  - Set goals — Computers — Newsletters
- We will provide necessary training
- Management policy will communicate the importance of employees’ well being

**Figure 1.** World-Class Excellence Through Total Quality is viewed as a goal, a strategy, and a continuing process at Seitz Corporation.
Questions: Benchmarking Team — Use of Kanban

1. Production control:
   - What are the mechanisms of issuing shop orders?
   - How are the calculations for quantity worked out?

2. Quality control:
   - What is the effect of the Kanban system on QC paperwork?

3. Manufacturing:
   - How much time is saved?
   - Need samples of kanban cards.
   - Need an explanation of the system
   - Need to be walked through the process to make sure we understand

4. Information systems:
   - Does the computer produce special reports?
   - Are there software enhancements or is this system part of the standard software package?

5. Sales:
   - Have they seen any change in the way manufacturing runs?
   - Have they seen any change in on-time delivery?

6. Inventory control:
   - What has been the impact on inventory? Lower? Higher?
   - Have they seen any areas where this system works better than others?

7. Purchasing:
   - How do the vendors like the concepts?
   - Has the company started using any type of special delivery systems (reusable totes, company truck, etc.)

"We bought into TQ heavily — training our team members, encouraging benchmarking processes, and bootstrapping, by and large, new product engineering," Seitz recalled. "We learned from others, but we were not following procedures of any one company." Calling for a disciplined TQ approach (see Figure 1, page 7), Seitz committed the company in December, 1988 to a consistent internal and external customer focus, employee empowerment and involvement, JIT, quality skills training, and improved performance measurements (including benchmarking).

Seitz knew that TQ meant a complete cultural change — new ways of working together with customers and suppliers, both internal and external. Figuring that people at Seitz would pull together when the chips were down, he called for "100 percent commitment. Some people will be skeptical... All I can say is, give the program a chance and you will see that the concept will work." He added: "Anyone trying to be a team by himself will fail."

Fast Forward

How'd they do? Employees now talk about teamwork (replacing an authoritative management style and lack of trust), continuous efforts to improve customer satisfaction, a nine-step quality process, and JIT pilots.

All employees and selected vendors are formally trained in problem solving, interactive skills, concepts of quality, and quality improvement, with on-going refresher courses. Minimum training is three hours of classes for 11 weeks, conducted on-site by Moran. The company budgeted $200,000 for this training in 1989, anticipating the cost of additional personnel while other employees were in class. "We were wrong!" Seitz said. "Outside of the supplies and the cost of our facilitator (Moran), not one extra person was required for direct or indirect labor. The team members almost immediately did what had to be done to meet production requirements, even though 33 hours times 180 people, or 5940 hours, were spent in training classes."

Customers can expect polymer bearings and molded drives fast compared to traditional delivery times. U.S. sales in 1991 of $19 million, and another $6 million+ in Japan (through an agree-
ment with Bantech Company Ltd. and Tokai Kogyo Corporation Ltd.) reflect Seitz’ rekindled competitiveness. “We’ve got a new product line — a one-way clutch,” said Seitz. “We should begin to see results in 1992.” He projects sales in the $22-24.5 million range for 1992, with a preliminary forecast of $31 million on the low side to $38 million on the high side for calendar year 1994. Product lines include tooling and Quick Drive (Q-Drive, prototype molded drives); clutches; bearings; catalog (standard products — gears, drives); and injection molded plastic components and assemblies.

The commitment to a disciplined TQ program pays big dividends, Seitz said. In 1991 alone, the company’s productivity (measured against a standard labor rate) is expected to jump 20 percent. Each year’s “standard” becomes the jumping off point for next year’s improvements. Seitz noted that benchmarking is one of the key elements in this continuous improvement process, feeding corporate and employee team goal-setting activities.

More Than Just Keeping Up

Competitors’ product quality, costs, and customer service first drew Seitz’ benchmarking attention. Their projects broadened in scope, now including many processes in competitor and non-competitor operations in the United States and overseas (primarily Japan). Seitz strongly emphasizes the value of benchmarking against a wide range of other operations to move ahead of the competition, not simply keep up.

In several Japanese plants, for example, they’d expected to be impressed by extensive automation. “But we found that they only automate when they need to, after they’ve wrung all the waste out of the product. We also felt good about reducing defects to 385 ppm on one line, until we visited a plant in Japan with 15 ppm,” Seitz said. “We’re a big job shop. What we learn on one benchmarking project can help us reduce costs or leadtime — a plan to dramatically reduce inventories that we are planning now is one example.”

Understanding and Communication

Training emphasizes the need for understanding the cost of quality (cost of conformance, cost of non-conformance, and cost of lost opportunities), process measures, and problem-solving steps before a benchmarking project starts. Thus equipped, employees can more easily identify their own processes and problems, potential solutions, and customer requirements. They also learn how to communicate better among themselves in TQ classes.

“The only way we’re going to become the best is to incorporate all of these tools, working together,” Moran said.

JIT benchmarking is an example of internal and external teamwork contributing to Seitz’ performance improvement. “We were struggling to implement JIT in our company, to reduce inventory, WIP, and non-productive steps. It was all new to us,” Moran said. “We had only heard about JIT at companies in our industry, and without the people on the (shop) floor involved, we weren’t going anywhere.” When Xerox invited Alan Seitz to the 1987 program on benchmarking, partnering with other JIT-user companies (while drawing on the skills of a multi-disciplinary employee team) made good sense.

Trip Report — Benchmarking Team — Use of Kanban

In our trip to Company A, we had an opportunity to meet with representatives of all the manufacturing disciplines. Listed below are our observations.

1. Production control:
   - Basically shop paperwork is the same for Kanban systems and non-Kanban systems.
   - Quantity calculations are worked out manually and are flexible based on the needs of the warehouse and manufacturing.

2. Quality control:
   - There is no effect on QC paperwork.

3. Manufacturing:
   - Time is saved due to the accessibility of components and reduction of paperwork. Since this is a job shop, they have found that at this stage it is not practical to change to a completely Kanban system and in some areas they have reverted to their former style of issuing paperwork.

4. Information systems:
   - Although the system of data input has changed, there is no actual change to any of the requirements of information systems.

5. Sales:
   - Although an overall improvement will benefit the company generally in the long term, at this early date there is no noticeable change from a sales point of view.

6. Inventory control:
   - Since this is the first year of their effort, they are still in the beginning stages of working with their vendors to reduce inventory. However, in the lines that are repetitive, they have begun to receive boxes that meet their size requirements and in one line in particular, they have managed to cut it substantially.
   - Where Kanban is being used, they have found an obvious time saving in both data input and issuing of parts.

7. Purchasing:
   - Preliminary work with the vendors has produced some results in lot sizing and inventory reduction.

Figure 3.

“[What we learn on one benchmarking project can help us reduce costs or leadtime.”]
Xerox’s benefit from extending the benchmarking process to the supplier base: It “enables suppliers to calibrate their quality, cost, and delivery performance against world-class competition,” said Ed Williams of Xerox’s corporate materials office in Webster, NY. “The outcome is that the supplier internalizes the data and the development of an action plan focusing on continuous improvement.”

**Getting Down to Specifics**

“We needed specifics about Kanban, or JIT,” said Malcolm “Mac” Beatty, Seitz materials systems manager. “For example, on our benchmarking trips we’ve learned what kinds of information other companies put on their kanban cards, and how to identify the changes in their methods. That kind of information (which we adapted) helped us set up Kanban, and to find drastic inventory cuts on the floor.” In mid-1990, Seitz had one JIT pilot line. Now there are four (out of eight) Kanban lines in assembly, representing about one-third of plant production. The facility also has molding operations.

“In benchmarking, we found that we could deplete 90 percent of our inventory on the floor,” Beatty said. “I’d read about it, but it’s hard to believe until you see it. In one plant in Georgia where we visited, for example, a 20-ft. by 20-ft. materials storage area on the floor was reduced to 2 by 2!”

Overall WIP in Seitz’ assembly areas dropped 15-20 percent since JIT took hold. WIP on one line plunged from three weeks’ worth to about one day — “Amazing,” said Beatty. He advocates a team approach to benchmarking (including several functions) to gain the most “How can we do this? or “How can we do better than this?” mileage. For example, a warehouse employee on one JIT benchmarking trip asked how quantities to be moved to the shop floor would be calculated, and who handles this added JIT movement of material — questions unasked by other team members. The Kanban benchmarking team has visited two Connecticut plants and one Georgia facility so far, and continues to collect information about JIT implementation.

Next on the agenda: How to reduce warehouse inventory by working more effectively with vendors?

**Learning to Question, Analyze Better**

Studying your own key processes and then asking others about the means to reach higher performance levels help benchmarking decision-makers improve more rapidly than lone-eagle efforts, said Beatty. “Why reinvent the wheel? You can go to another company, and if they’re not your competitor, they’ll probably talk your ear off about improvements — it’s great,” he said. “They’re rightfully proud of what they’re doing and you’re scribbling notes so you don’t lose anything they’re saying. That’s Yankee ingenuity — thinking and improving.” Beatty added that the JIT benchmarking team, over time, has learned how to get better results by asking better questions of selected companies.

“When we first started benchmarking efforts, our teams went off, sometimes without spending enough time developing and defining questions,” added Moran. “We got some information, but it didn’t necessarily tell us how we could learn from another company. Now we spend more time on questions, not just looking for particular measures, but also for processes and how they work together. We’re not just looking at how much they reduced inventory, for example, but how did they achieve it? If they are better than us, what did they do?”

Among the steps recommended in the Seitz training program:

1. **Plan.** What will be benchmarked? Who should be involved in the process (various functions) and in what capacity? What process will be used to gather data (phone, plant visit, other)?

2. **Select benchmarking targets and follow through.** “We look at who we know to be the best,” Moran said. “Competitors may not let us in, and they may not be best. Maybe we should look at other companies, and also consider companies the same size as ours, to compare oranges and oranges.” Plan and conduct contacts with benchmarking targets.

3. **Analyze data and take action, if needed.** Benchmarking team members discuss whether another company is better in a particular area, and why. Team summaries are presented to management, along with recommendations for
change and related goals. Once an action plan is accepted, team members communicate with others in their functional areas about actual implementation strategies.

**Leadtime Reduced in Molded Drives**

Going for a bigger chunk of the prototype market in molded drives, Seitz' Q-Drive (Quick Drive) team incorporated these benchmarking steps in an overall improvement effort. Leadtimes have been trimmed from eight-16 weeks to the two-four week range, drawing an average 220 new projects (new components) in annually. Single and compound spur gears, single and compound timing pulleys, chain sprockets, and ratchets are among the Q-Drive components.

- Office automation customers need prototypes — in a hurry — for testing and evaluation. OEM's may place several orders for such “soft” tooling before production (longer run) tooling is ordered. “We saw increasing need for this type of work in 1989 — when a customer may only want, say, 50 pieces,” said Paul Dubreuil, product design supervisor and Q-Drive department manager. “Benchmarking was part of our thinking from the beginning — how our competitors were doing in time and cost. Time in particular was important.” Seitz' eight-16 week leadtimes compared to competitors' six-eight week leadtimes. They set their goal at two-four weeks.

Q-Drive employees sought leads and information from sales people about competitors' leadtimes, and talked directly to customers about problems they were facing. They contacted competitors — even visited some and shared some of their own leadtime detail with other firms. A variety of domestic companies (including non-competitors) and one plant in Japan were identified for benchmarking studies or visits. “From all these sources, we found how they were able to reduce leadtime,” Dubreuil said.

To move ahead of the competition they found, Q-Drive employees worked with department heads from sales, quality control, engineering, production control, and other functions to set up a Quality Improvement Process (QIP). A senior manager was involved in all of their brainstorming sessions, where they first identified customer requirements and then looked for answers to, “How do we get there?”

Better data analysis, less paperwork, and more effective integration of different functions are among their solutions. One of the most important was standardized tooling, a key factor they'd noted in benchmarking studies. “It's important to have blanks available (a round or rectangular piece of steel, for example) which we can produce at our leisure,” Dubreuil said. “We can add more detail later, when we know the customer's requirements.”

Among the activities observed during benchmarking visits, now adapted to meet Q-Drives' customer requirements: more intimate communication between engineering and manufacturing, toolmakers' accountability for particular jobs from start to finish, and posting performance results (on-time shipments, for example) by department. Toolmakers doing their own designs from the product designs, rather than depending on an engineer and an engineering checker, saves several weeks' time.

Q-Drive continued improvement is critical: more leadtime reductions, and decreased runner size and weight. (A runner system supplies plastic to a mold.) “We want to reduce the weight by 50 percent or more,” Dubreuil said. “That way we can reduce scrap, which is ground up and can only be reused so many times.

“We learn something on each benchmarking trip, and even one small idea can help us,” Dubreuil said. “We continue to refine the process.” He believes benchmarking, brainstorming, and other TQ activities will help Q-Drive learn how to develop better project checklists, standardized procedures, and more consistent communications.

**More to Learn**

The benchmarking path has been challenging for employees in the molding department. They'd selected several companies as potential partners. Some turned them down, and the one company they visited was so much larger and further advanced than the Seitz operation that they were a bit taken aback by the other firm's reported capital investments. Plan B: Visits to other companies with similar molding departments will target setup reduction times and inspection of raw materials.
About Seitz Corporation: Quality Is a Way of Life

Ignite employee enthusiasm by defining your company’s mission, advises Alan Seitz, president of Seitz Corporation, Torrington, CT. His company’s mission: “Seitz Corporation is a designer and a precision manufacturer of paper handling equipment and drive components for the business equipment and instrumentation marketplace worldwide. Seitz will set the standards of excellence required by the industries we serve to enhance our employees’ standard of living and make a fair return for our efforts.”

“Seitz Corporation recognizes quality is a way of life and never ending challenge. It is our goal to achieve ‘World-Class Excellence Through Total Quality.’ Our greatest resource in achieving this goal lies in the talent, experience, and dedication of our people. Only through the Seitz team involvement and commitment will our goal be realized.”

The company won the state Blue Chip Enterprise Initiative award from Connecticut Mutual, as “the best example of a small business that effectively used resources to overcome adversity and emerge stronger.”

Customer Service: Do You Want To Become Better?

For the past two years, Seitz’ sales force has benchmarked the company against others in customer service. “It doesn’t necessarily have to be a competitor that we approach,” said Wayne Sisko, regional sales manager of the Southeast U.S. territory. Among the benchmarking “partners:” a local food retailer.

“Ultimately, the customer is king or queen. You have to be flexible to meet their delivery schedules,” said Sisko. He said questions about customer service became more specific after two benchmarking studies were completed. Now they look at pricing, quality, on-time delivery, and other measures. So far, service benchmarking studies have been regional or local.

Quarterly customer surveys and a Problem Solving Process (PSP) complement these studies. A PSP customer satisfaction team works with the customer to determine the root cause(s) of a problem, interim action, permanent problem prevention action, and verification of actions. The customer satisfaction team worked with one copier manufacturer for 18 weeks to bring a former on-time delivery rate of 34-67 percent to 100 percent for two months straight. “You need to be competitive in more than just price,” Sisko said. “Whether you are an IBM or a small company, the question is, ‘Do you want to become better?’”

More Opportunities

“We are in a learning process, about the need to plan and refine our benchmarking activities,” Verna Moran said. Among the benchmarking projects which may continue: JIT (WIP, inventory flow, other measures), Q-Drive (design and production leadtime reduction), human resources (wages for direct and indirect labor, benefits), the total quality approach to training, computer systems (capturing data more accurately and planning for future purchases), bar coding (studied but not yet used at Seitz — some customers are requesting it), products and product improvements.

Coming up: Seitz employees, encouraged by Xerox, have contacted several competitors to discuss benchmarking “processes about which we all feel comfortable,” said Verna Moran. Some of the items on the tentative list are utilization of quality measures, wages, benefits, leadtimes in different areas, procedures and time for closing out the books at the end of the month, days required to fill customer orders (days on time, days late), etc. It’s not clear that competitors for Xerox’ business will exchange such information. Seitz teams also are planning updates of earlier studies, looking for added JIT performance measures, for example.

Learning more — not just about keeping up with other companies — about important and new processes needed for future market leaders will remain an important benchmarking goal, according to Alan Seitz. About TQ and benchmarking, he echoed the sentiments of all the other Seitz employees interviewed: “We’re just beginning.”

Editor’s note:
The contributions of many individuals to this article and AME’s benchmarking educational events are appreciated. Thanks to Ron Brookbank, AME; Pierre “Pete” Landry, Pittsford, NY; Michael Spendolini, Laguna Beach, CA; Stanley Gratt, Chicago; Jack Grayson, American Productivity and Quality Center; Michael Micklewright, Seaquist Valve, Cary, IL; Xerox personnel; James Pullin, University of Central Florida; Stanley Sword, Arthur Andersen; and others.

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AME will continue to sponsor benchmarking seminars in 1992. For more information about these sessions, contact AME headquarters at 708/520-3282.

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