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## Malcolm Baldridge National Quality Award 1991 Recipient Zytec Corporation



From its beginning in 1984, the Zytec Corp. fixed its sights on quality, service, and value. By continuously improving these product and service attributes and working to establish a close partnership with customers, the Minnesota firm has risen to the top tier of the hundreds of manufacturers of power supplies for electronic equipment.

Organizing its quality improvement efforts around the concepts of W. Edwards Deming, Zytec has achieved double-digit annual growth in productivity over the last 3 years. New revenues have increased severalfold since 1984, making Zytec the fifth largest U.S. manufacturer of AC to DC power supplies. Sales per employee are approaching \$100,000, as compared with an industry average of less than \$80,000. Underlying these gains are, since 1988, a 50-percent improvement in manufacturing yields, a 26-percent reduction in manufacturing cycle time, a 50-percent reduction in the design cycle, and a 30- to 40-percent decrease in product costs – savings that are passed on to customers.

Building on these accomplishments and using the Baldridge Award principles, Zytec is now realigning its continuous-improvement system, investing in computer-integrated manufacturing technology, and furthering employee training, all with the aim of advancing to a new threshold of quality performance – Six Sigma quality in most facets of its operations by 1995.

### ZYTEC: A SNAPSHOT

Formerly a unit of Magnetic Peripherals, Inc., a joint venture subsidiary of four electronics firms, Zytec makes power supplies for original equipment manufacturers (OEMs) of computers as well as electronic office, medical, and testing equipment. Sales of the customized power supplies account for 90 percent of revenues. Zytec also repairs cathode-ray tube monitors and power supplies, including those of its manufacturing competitors. The company is headquartered in

Eden Prairie, Minn., about 96 miles from its manufacturing and repair facilities, which employ 654 of its 748 workers.

When it began operating independently in 1984 following a leveraged buy out, Zytec depended almost entirely on orders from one of its former owners, which now account for less than 1.5 percent of revenues. In 1990, product sales to 20 customers – 18 of which have made Zytec a sole-source supplier – totaled \$50 million. The repair business, the largest of its kind in the United States, generated \$5.8 million in additional revenues.

### "TOTAL QUALITY COMMITMENT"

As the foundation for continuous improvement, Zytec senior executives chose Deming's "14 points" for managing productivity and quality. Followed by many Japanese firms, the concepts defined the core values of quality improvement that executives sought to instill throughout the organization. Progress in achieving this cultural transformation is monitored through an annual survey of employees – one of several methods for assessing the quality commitment and the satisfaction of workers.

To foster a common quality focus and to ensure that all 33 of its departments move in step to meet ever more demanding customer requirements, Zytec has adopted an interactive "Management By Planning" (MBP) process that involves employees in setting long-term and annual improvement goals.



At an annual 2-day meeting, about 150 employees, representing all types of personnel, shifts, and departments, review and critique 5-year plans prepared by six cross-functional teams. Zytec executives then finalize the long-term strategic plan and set broad corporate objectives to guide quality planning in the departments, where teams develop annual goals to support each corporate objective. In face-to-face meetings with teams or representatives, Zytec CEO Ronald D. Schmidt first reviews departmental goals and, subsequently, action plans, including performance measures and monthly progress targets.

Concurrent with the internal process, the company invites selected customers and suppliers to scrutinize the long-range plan, leading to further refinement. Through these and other steps in the iterative planning process, Zytec helps ensure that it is setting the right goals and following up with the most appropriate actions, supported by adequate resources.

Coordination and integration also are hallmarks of the way Zytec carries out its plans. Design and development of new products, for example, are carried out by interdepartmental teams, which are assigned to projects from start to finish. Working closely with customers, the same cross-functional management teams review performance at four key stages: predesign initiation, design initiation, prototype delivery and testing, and preproduction certification. The teams are empowered to address all issues of suppliers and processes, including critical parameters for measurement and control.

Zytec is a data-driven company, developing meaningful, measurable criteria for evaluating performance at all levels. In addition, benchmarking competitors' products and services as well as the practices of acknowledged quality leaders in other industries provides Zytec with a clear picture of what it takes to achieve industry- or world-best status in key areas, from employee involvement to just-in-time manufacturing to supplier

management.

To realize the full advantage of its employees, Zytec trains them in analytical and problem-solving methods -a major focus of the 72 hours of quality-related instruction received by most Zytec employees. Workers are expected to use this knowledge as their authority and responsibilities grow.

Several departments are directed by self-managed teams of workers. Zytec's production workers are encouraged to improve their knowledge and flexibility through an innovative employee evaluation and reward system called MFE -- Multi-Functional Employee program. Through MFE, employees are rewarded for the number of job skills that they acquire.

By aligning all elements of quality improvement -- human, technological, and informational -- with customer priorities, Zytec has made the most significant performance gains in the areas that count the most. Product quality, as derived from customer-supplied data on failures, has risen to the four-sigma range, putting it on track for Six Sigma quality by 1995. Since 1988, the mean-time-between-failure of a Zytec power supply has increased to over 1,000,000 hours as measured by actual field data and reliability testing, and from 1989 to 1990, the company's on-time delivery rate improved from 85 to 96 percent.

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