

Increasing Competitiveness with Productivity Improvements At



Perhaps one of the greatest business challenges is faced when a competitor decides to build a state-of-the-art manufacturing facility that competes directly with you. The implication of this action is that the competitor will be able to reduce prices because of lower costs, produce higher-quality products, and go after greater market share with the enhanced capabilities. Unless one is ready to match the technology investments, the only offensive strategy is to improve productivity and quality of products, or lower costs such that the competitor decides it is not cost-effective to go ahead with the expansion plans.

This was the issue facing Techneglas, Inc., several years ago. Techneglas is one of the world's leading producers of glass used in the production of television tubes and the largest such manufacturer in the United States. The company, headquartered in Columbus, Ohio, employs more than 3,000 people and operates three manufacturing plants. The company is a wholly owned subsidiary of Nippon Electric Glass, Ltd. (NEG). Prior to the complete acquisition in 1993, Techneglas was a 50% joint venture between NEG and Owens-Illinois, a strategic alliance that began in 1960.

The manufacturing of glass components for color televisions is a highly complex technology. The glass is subjected to precise variances in temperature and pressure and molded to highly exact requirements. The forming process uses molten glass that is manipulated by centrifugal force and presses, cooled in highly controlled environments, finished with various polishing steps, and inspected for defects in material, size, shape, and form. Products are made in two components, the front panel and the funnel. The television manufacturer will then assemble these parts and build in the electronics. If a structural integrity problem in the glass product emerges during the electronics assembly stage, the costs can be significant. Quality is crucial.

The market demand for the products is usually established a year or two in advance, based on the forecast of the major manufacturing companies. Then Techneglas and its competitors battle over contracts and demands fulfillment. If Techneglas is able to maintain a high level of productivity, competitive prices, and high quality, it will continue market dominance. If it slips in any of these relative to competitors, it will face negative implications for years to come. This is the story of how its manufacturing facility in Pittston, Pennsylvania, took on this competitive challenge.

Background of the Situation

The Pittston plant of Techneglas currently employs more than 1,800 people and is a major employer in the northeast Pennsylvania region. Its primary products are the faceplates or glass panels for color television sets with screens ranging from 19 to 36 diagonal inches.

The plant produces more than 13 million glass panels per year. It continues to make investments in plant and equipment to meet the demand for larger glass components as well as high definition television (HDTV) products. However, capital investment alone would not allow the plant to meet its full potential. There was the perception by its owners that the plant was not maximizing its return on investment.

In the late 1980s and early 1990s, Techneglas was facing increasing competition and cost pressures. The parent company questioned whether continued investments in the Pittston plant were justified; given the difficult challenges it faced to remain competitive. If the plant could demonstrate improved capacity and sustained high quality, then investments needed to retain market leadership would be made. The leadership team at the plant knew of these pending decisions and took on the challenge to dramatically improve the plant's performance.

One of the first strategies was to implement a variety of quality management initiatives to improve the manufacturing process. They implemented statistical process controls (SPC), created performance improvement teams (PITs) to engage employees in problem solving, and trained managers in performance management, a process for providing measurements, feedback, and recognition. Each of these actions made important strides in improving the performance of the plant. But soon after the initial gains, performance would return to near previous levels. The task was to sustain and increase the positive impact of these changes.

The plant manager, Bob Reynolds, and his staff, in conjunction with local labor union leadership, discussed the challenges they faced in common. They wanted to improve the productivity of the plant to make it an attractive place for investments and to retain full employment. They determined that a missing element was an incentive for each member of the organization to feel part of the process of change and to create a stake in the success of the organization. In the past, the new programs to improve quality or productivity were viewed as just more work or a troublesome change to one's routine. There was little self-interest in making the changes last.

The Development of PRIDE +

Once the decision was made to move forward with an incentive plan, management had to overcome the usual skepticism. Many felt this would be just another management fad, a program du jour. However, Bob Reynolds and Ron Drennan, the Manager of Finance and Administration, remained committed and focused on their efforts to get others involved.

Their sponsorship was key to gaining support for the development of the incentive plan at multiple levels of the organization.

They selected the Wilson Group, a consulting firm from Concord, MA, that specializes in performance-based rewards, to guide and facilitate the process, but they clearly wanted the program to be owned by the organization. They selected a design team composed of a cross section of the organization, including production supervisors, the controller, labor leaders, and direct labor employees.

Their assignment was to review all the various approaches and to recommend to plant management an incentive pay program that would support the goals of the plant. The program needed to be acceptable to both labor and management, as well as by the direct factory employees and the owners of the company. Developing an approach that was acceptable to the conflicting interests of these “constituencies” was a major challenge. The team became known as the *Performance Reward Design Team* and was composed of 12 members. They met periodically for over four months to learn, discuss, and debate the issues of variable pay. They selected to approach the program with a gainsharing theme that is, if the plant were able to improve its productivity, they would share the gains with all members of the plant. The program was named during the process by one of the members of the team, Bernie Nerbecki, then a direct labor selector in the final selecting process. He coined the acronym “PRIDE +” (Performance Related Incentives Distributed Equally). This title captured the essential theme and purpose of the new program.

How the Program Works

PRIDE + involves the entire plant in a single incentive program. Although unit or team-based incentive plan options were explored extensively by the design team, it was felt that a common plan for all members would better reflect the work structure and values of the organization. The primary concern was how to keep people engaged in making a difference when the results are based on the combined efforts of more than 1,600 employees (which number has now grown to more than 1,800). The program was essentially structured with several components. First, the plant needed to produce high-quality glass panels in excess of a historical baseline performance level. If it did so, then an incentive pool would be created. The pool would be in proportion to the number of panels that exceeded the baseline, based on a portion of the unit price of the panel.

Second, the formula to determine the portion of the unit price that went into the pool was dependent on the financial health of the organization. Due to a number of previous events, the plant was not highly profitable and needed to pay down a significant debt burden. If the financial health remained unchanged, the formula for the incentive pool would be 30% of each unit’s price going to the pool, with 70% remaining with the company. If the company improved its performance to a specific level, then the split would change to 40% pool, 60% company.

And if the financial performance was even greater, then the pool could be based on a 50% even split in the price of the products. This formula established the size of the gainsharing pool.

Third, because the company's price and customer demand have a strong influence on the value of the units, employees could earn a large gainsharing payout for doing little to improve the process of the plant.

The pool had to be modified based on other performance factors of the plant. These performance measures became additional focal points for corrective actions by different departments not tied directly to the production function. The combined performance of these measures would modify the pool by plus or minus 25%.

These measures were:

- Product quality
- Employee safety
- Customer satisfaction
- Gross profit contribution

Each of these measures was assessed and displayed to the entire plant, along with the productivity to baseline performance, on a monthly basis. The goals and results were displayed on the Performance Matrix. This is shown in Figure 1. The matrix includes each measure and how it would be measured. Then the goals were arrayed across a scale (7 – minimal acceptable performance or threshold, 10 – target or desired performance, to 13 exceptional performance). Each measure was weighted based on its relative importance and ability to control the factors that produced the desired results; the total weighted needed to equal 100. At the end of the performance period (each quarter), actual performance was compared to the goals on the matrix and a score was calculated by multiplying the point on the performance scale (7 – 13) times the weighting of the measure. If the performance for a particular measure did not meet the threshold, the score was zero. If the performance exceeded the exceptional level, the maximum number was used (13 x the weighting). Then, the score was compared to the Pool Modifier Factor, and appropriate percent was identified. This score (and percent) at the end of the performance period would determine how much the pool was either increased or decreased.

Finally, the gainsharing program included all full-time employees and managers in the plant. It was based on annual goals and regarded as an annual plan. However, "progress" payouts would be made quarterly. Based on the results of each quarter, 75% of the earned amount would be paid out and 25% held in reserve. This reserve covered for any unforeseen losses that might occur during the year. If the productivity pool remained above the baseline level, then the balance would be paid out at the end of the year. The pool would then be distributed as a percentage of the employee's earnings (base wage plus overtime and vacation pay, excluding shift differentials or other bonuses or premiums) during the period. These steps are shown in Figure 2.

Figure 1: Performance Scorecard

Measures	How Measured	7	8	9	10	11	12	13	Weight	Points
Visual Quality	Defect rate for visual quality at our customer, parts per million	2900	2700	2600	2500	2400	2300	2200	30	
Customer Satisfaction	Total score of number of incidents weighted by level of priority	44	40	38	36	34	33	32	20	
Employee Safety	Rate of OSHA recordable claims by man-hours	18.69	17.80	17.35	16.91	16.61	16.31	16.02	20	
Plant Gross Profits	Gross profits as a percentage of net sales	7%	8%	9%	10%	12%	14%	15%	30	

Pool Modifier Factor	
Total Score	Modified
Below 470	No Pool
471-699	75%
700-799	80%
800-899	85%
900-999	90%
1000-1099	100%
1100-1199	115%
1200-1300	125%

Total Score

Figure 2: PRIDE + Payout Formula

Number of Available Panels 4,068,609
 Acceptable Panels Over Goal × 3.2%
Additional Panels over Goal 130,195

 Panel Value for Pool (40/60 split) × \$8.69
 Total Value of Additional Panels \$1,131,395
 Performance Matrix Score-1100 × 115%
Final Pool \$1,301,104
 Reserve (25%) - \$325,276
PRIDE+ Payout \$975,828

Making PRIDE + Personal

Once the program was developed and reviewed by managers, labor representatives, and employees, it was approved by senior management. Not only did the communication sessions describe the program in detail, they included questions and answers on what individuals could do to improve performance. A critical feature of the program was to use it to influence behavior, and this meant the program needed to be personalized.

To further support the implementation and management of the program, the design team was reconstituted into the PRIDE + Council. This group had responsibility for communicating the results, coordinating the information, and promoting the gainsharing program. Charts were displayed throughout the facility to highlight monthly and quarterly progress. Furthermore, the Council advised senior management on actions within the departments that enhanced or detracted from the support of the program. The Council served in important advisory, communication, and administrative roles for the program.

One of the important features of the program has been how department managers have translated the overall PRIDE + performance measures into responsibilities of their own units. Many set up charts and made weekly and monthly progress reports to their departments. When a department exceeded its goals, the employees did not receive any additional payouts, but they did receive significant recognition by other members of the plant. One reward for exceeding monthly goals was the option to take the department out to lunch on a given day or for the department to “buy lunch” for everyone in the plant for a given day in the cafeteria. The department employees could decide which they preferred. If they provided lunch to all employees, then a special sign was displayed in the cafeteria on what the department achieved. This continues to be an exciting celebration day at the plant.

In addition, to feedback and recognition, the organization continued to increase the SPC and PIT teams’ improvement process. They further implemented special employee safety improvement programs that measured and reinforced employees using safe behaviors. A wide variety of programs were renewed or implemented, but this time employees felt things were different. When the program could make a difference to the PRIDE + measures, directly or indirectly, it got people’s attention. Employees wanted to learn new skills, tools or procedures well, and implement them in their workplace. The enthusiasm for change became strong.

Dramatic Results Achieved by This Organization

Since the program was implemented, the results that Techneglas Pittston plant achieved were dramatic. There were financial, operational, and service achievements. But more important, the spirit of the organization increased remarkably. People from all sectors of the organization worked together to make changes, improve processes, hold others accountable, and drive success.

The PRIDE + program served as a significant catalyst and support to this change, and it enabled leaders from many levels to make a major difference.

Some of the achievements in a five year period were as follows:

- Productivity increased by 41%.
- Product quality increased by more than 60%.
- Customer satisfaction increased by more than 60%.
- Employee grievances were reduced by 54%.
- Teams increased by 250%. The number of PIT teams, with a 400% increase in the number of participants to more than 1,000 people involved.
- Employee safety increased by 21%.
- Costs for workers' compensation and healthcare declined by \$11 million.
- Gross profit contribution has stayed at levels acceptable to owners, even though there has been substantial price erosion.
- The labor contract was approved with a 95% yes vote.
- There has been a PRIDE + payout in 20 of the 22 quarters.

Based on these results, the parent company has invested millions of dollars to upgrade the plant and equipment to state-of-the-art technology. It has increased and expanded the products provided by this plant. And, most important, **the competitor decided not to build the new plant!**

The Future Is Easy to See

At the Pittston plant, they have a saying: "We are what you see." This has multiple meanings. The products require the consumer to see the television display without obstructions or distortions. Clarity of picture is critical. When you walk through the plant, you can quickly see what measures are important and how they are doing, as an overall organization and as individual units. Finally, the investments in new technology are enabling the company to see more, better, and lower-cost products to customers. The impact has benefited customers, employees, managers, and the owners.

Techneglas continues to make improvements and take actions to remain highly competitive. The challenge of success is now to remain the market leader. It has created an environment where achievement focuses on continual improvements and is rewarded in a variety of ways. People share in the success they help create. The future is clearly looking bright.