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Human Resource Management

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Developing and Sustaining Empowered Work Teams

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TRW's Vehicle Safety Systems Inc. (VSSI), located in Cookeville, Tennessee, is one of the best plants in America according to *Industry Week*. Justification for this rating is not only based on the facility's ability to implement such modernized programs as Just-in-Time (JIT), but the ability to integrate Total Quality Management (TQM) concepts into all of its departments including human resources. Since 1991, production has increased at VSSI by more than a factor of twenty and the number of employees has increased to approximately 700. Today, sales have increased to five million units (\$760 M).

VSSI's extensive employee selection process is the first phase of successfully developing and sustaining an empowered work force. This nine-step process eliminates applicants who are not team-focused, qualified, or sufficiently trustworthy to be TRW employees. Although the process takes six months to complete, a sufficient pool of team-focused candidates is developed so that qualified, team-oriented employees can be selected almost immediately. The first two phases are informal: a job service screen and information exchange. These steps eliminate half of the potential applicants at VSSI on the basis that the applicant will not be able to develop VSSI's team concepts. The next phase, a panel interview, displays the direct application of empowered work teams. The interviews are conducted by representatives of plant technicians, human resources, and at least one other department.

A successful interview yields a plant trip for the applicant to further determine a possible match between VSSI and the applicant. Pending a successful reference check, the prospective employee enters the pool of new-hires. Additional steps include a job-offer as well as drug and physical screening. One-hundred new employees are obtained for every 2,000 applicants.

A second key to VSSI's empowered work teams is new employee transition. The new employee orientation not only teaches the new employees the attributes required to execute their daily tasks, but focuses on further promotion of VSSI's empowered team concept. Orientations on team roles and responsibilities and their implementation at the Cookeville plant further ensure that the desired team performance will be attained. Although new employees work during their first week, the environment during this period is modified to ensure that new employees comprehend the team approach.

Operations and employee training are integrated through VSSI's employee training program. A goal of 60 training hrs/employee/year has been achieved during recent years. Five full-time trainers teach basic, technical, and organizational skills throughout the year on an impromptu basis. Trainers develop these courses so that when production lines are shut down for brief periods (usually 2-4 hours) as a result of temporary JIT shortages in component parts or product demand, employees can receive training to further enhance their skills. This program not only improves the knowledge level of the work force, but improves morale and efficiency of the employees.

VSSI's pro-active stance of promoting TQM through the sustained empowerment of teams not only helped to increase sales as previously mentioned, but reduced the annual turnover rate to approximately 5% and the absentee rate to 1.5%. TRW's goal is to be number one or two in the world for each product

it produces. VSSI's goal is to be the best airbag manufacturer in the world. The Cookeville plant's ability to train and implement effective team concepts make both goals realistic.

Reengineering at AT&T

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The Information Resource Center (IRC) is an organization within AT&T founded in 1978 to process and distribute secondary sources of information within AT&T. IRC helps AT&T maintain the leadership role in telecommunications through the application of increased technology, the reduction of consulting costs, and the utilization of any advantages of the post-divestiture and deregulation of the telecommunications industry. This information enhances the performance of marketing and sales, strategic planning, human resources, and public relations functions at AT&T. By 1991, IRC met or exceeded all of its goals for reducing costs and disseminating relevant information to its AT&T internal customers. In order to ensure future success, IRC chose to evolve into a new, flatter, team-oriented structure which focused on strategy and core services. IRC teams performed internal and external analyses to evaluate its industry and the major cultural variables within the IRC. Despite the fact that a team-oriented, in-house, democratic approach was used to select the structure and organizational processes, there were many problems which surfaced during the reorganization. The primary problem was that 30% of IRC's 122 members left to join other divisions of AT&T.

"We like self-managed teams," was a frequent comment heard among members of the new IRC. However, the members who chose to leave obviously did not share this sentiment despite the fact that many had voted for the more modern organization. The disruption caused by the silent group decreased the likelihood for success at IRC. The IRC concluded that insufficient energy had been used in soliciting the opinions of the dissenters and surprisingly that younger MBAs resisted change the most. Many of the events which transpired supported theories in Darryl Conner's book, *Managing at the Speed of Change*, including the idea that change always has a negative impact initially, but not all people react negatively for the same length of time. Connor continues by saying it is appropriate to create a

"burning platform," but use it as the reason to define why change is required, thus putting the forthcoming change in context.

Realizing the transformation was less than successful, IRC asked itself, "What happens when TQM goes nowhere?" The answer was that TQM-based processes must contain a results-oriented approach. IRC chose to resolve its reengineering difficulties through the formation of breakthrough action teams (BATs) with the desired results being called *zest factors*. These zest factors defined attainable, intermediate goals with a sense of urgency that must be met in order to reduce the period of negative effects from change. Then these could be used as stepping stones to produce more ambitious gains. The zest factors would be accomplished through a philosophy of results-driven quality (RDQ), which as part of TQM does not represent a short term solution, but a building-block approach that would simultaneously define the need for change and move in the direction of the solution. One of the actions taken during the RDQ cycle provided training IRC members in the use of teams to solve technological and organizational problems. Because training in the use of teams was void during the initial reengineering phase, an early lack of success was partially attributed to insufficient training.

IRC's successful utilization of BATs and ability to attain the zest factors led to continued success for this organization. Information costs have been reduced by 42% (the goal was 25%) at a total amount of only 20% of the estimated external consultant rate. The efforts have also improved the productivity of human resources at IRC through better definition of desired employee skills such as resiliency and learning how to teach such traits to a professional work force.

Siemens Apprenticeship Training Program

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Siemens Corporation, and its many operating companies, is one of the leaders in several diverse industries including transportation, energy systems, information services, health care, and industrial support. In an effort to maintain this leadership role, Siemens has chosen to develop a program at its U.S. facilities which invests in employees at the earliest point in their careers, high school. The name of this

program is called "School to Work" and the concept is simple: high school is usually completed prior to entering a career path and thus a minimal early investment can produce greater results than investments attempted later in an employee's life.

Although many social factors have influenced various aspects of "School To Work," improving society is not the motivation. Improving employee performance and thus increasing the bottomline are the motivation. However, by increasing the educational opportunities/options and skills of its workers, Siemens contributes significantly to the nineteen communities in the United States where the programs have been implemented. Siemens CEO, Albert Hoser, considers employees as human capital assets which must be invested in rather than just variable costs. Shareholders benefit because a higher performing workplace translates into greater profits and reduced human resources costs. "School to Work" represents a win-win opportunity for the company and the community. Human resource costs are reduced because the estimated annual training cost of a "School to Work" employee is \$1,350 as opposed to \$13,000 for an entry level adult or \$30,000 for an adult trainee technician.

Like any other human resources program at a multinational corporation, "School to Work" is influenced by many social factors. The inability of some U.S. workers to compete on a global level is not the result of worsening schools but the failure of schools to improve at the same rate as business. Another factor is the inability of the worker to apply basic math skills in a work environment. A third social factor is the failure of industry to ensure a social contract of guaranteed lifetime employment. "School to Work" addresses all three factors. Education is provided outside the classroom and thus the loss of knowledge transfer from classroom to workplace is reduced. Obtaining additional education and skills increases advancement opportunities and thus reduces the worker turnover rate. Siemens determined the salient aspects of the future global economy and made them prerequisites in the "School to Work" apprentice program.

The structure of "School to Work" is referred to as "2+2." A cross-section of students, not necessarily premiere students, are selected at the start of their junior year of high school. The first two years are the conclusion of high school and the second two are spent at community colleges or technical schools. The younger, new employees are required to study a curriculum based on math and sciences that allow them to compete in the modernized, global economy.

Participants also work and train part-time to learn technical skills in electronics, automation, and telecommunications. Such training not only develops skills for their immediate future positions at Siemens, but also develops the appropriate perspective they will utilize upon advancement to management positions. "School to Work" is a standards driven program that teaches the hands-on practical skills that are required to manufacture a world-class product.

Although some participants leave the program after high school, many remain in the "School to Work" program or choose other Siemens-sponsored programs where they enroll full-time in engineering or science and are hired by Siemens as full-time employees during summer. Even though a percentage leave, the lost investment is less than that of technicians who are hired as adults and leave after two or three years of employment.

The results of "School to Work" are phenomenal. Not only has employee performance improved, but managers suggest an improved work environment as a result of the increased interaction between older and younger employees. "School to Work" apprentice graduates have been issued the German apprentice mid-program and final-program examinations. Despite the fact that "School to Work" is 13 months shorter than the German apprenticeship program, Siemens graduates have consistently scored better than their German counterparts, thus showing quantifiable results of improved worker skills in the U.S. plants.

Enhancing Synchronous Manufacturing Through Continuous Improvement Teams

George Meyer,
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Dayton Parts, Inc.

Dayton Parts, Inc. manufactures hundreds of different models of leaf springs used in various types of trucks manufactured over the past four decades. The key to success in this industry is reducing the response time to customers so that a customer's downtime is kept to a minimum. Part suppliers help customers reduce downtime by maintaining sufficient inventories of replacement parts or by reducing the process time of ordering, manufacture, and delivery. However, maintaining large inventories of an enormous product line can raise costs above a competitive level. Therefore, Dayton's

manufacturing and inventory processes needed to be designed to optimize customer response time and inventory costs. Dayton chose the TQM concept of Continuous Improvement Process (CIP) Teams as its tool for increasing efficiency.

Dayton's CIP implementation was based on the Japanese concept of "Kaizen." However, Dayton's management believed that the new program should be presented in a manner that represented Dayton's culture and thus the term Kaizen was never used. Dayton felt that telling its work force Kaizen was being implemented would be perceived as a directive to adopt Japanese manufacturing techniques. This perception would reduce the effectiveness of CIP implementation. Dayton's goal was to use the CIP teams to get feedback from the workers on how to improve the manufacturing processes. Management felt that because nobody knows more about a particular job than the person doing it, increased employee involvement would be the source of determining how to optimize manufacturing and inventory. However, because the key was to increase the efficiency of the system, teams would be the medium of communication.

Implementation of TQM requires more than telling the work force "we're going to work in teams." At Dayton, the team process was clearly defined with the following focus points in order of priority: (1) Safety, (2) Customer Service, (3) Product Quality, and (4) Cost Reduction. Dayton CIP teams were also given guidelines of operations, which included:

1. Everyone has an equal voice.
2. All meetings shall last only one hour.
3. Teams shall meet once per week.
4. Team chairpersons shall be established.
5. Data of the operation/problem shall be collected.
6. Plan of action shall be established.
7. Meeting minutes shall be recorded.
8. Conduct must be non-judgmental and non-blaming.

An important guideline was that the meeting agenda must be defined and distributed prior to the meeting to ensure an efficient use of time and personnel. The team process at Dayton was also defined as:

1. Identify your critical process.
2. Choose the largest constraint.

3. Collect measurement data.
4. Refine and change the process.
5. Select the next problem.

Through the use of its CIP teams, Dayton developed its program of "Synchronous Manufacturing." This program stresses balancing flow within the manufacturing system rather than capacity. CIP teams determined system bottlenecks, studied the problem and determined the solution, and then identified the next bottleneck. The key to problem definition and solution was identification and collection of pertinent data. CIP teams helped determine which data was pertinent. Different parameters based on maintenance, setup time and process, material handling, and production represented constraints for the different bottlenecks within the system. This TQM process significantly reduced setup/process/maintenance times at several machines and therefore reduced the cycle times for production of different types of leaf springs. With reduced process times, less inventory was required and costs were reduced. No new machinery was required and thus savings were enormous.

Because continuous improvement is a never ending process, the system approaches but never reaches a state of perfection. Recent improvements always show where mistakes were made or improvements could have been implemented earlier. George Meyer admits that one mistake made by Dayton with CIP was the failure to implement a steering committee for the CIP teams. However, he also states proudly that the CIP team accomplishments more than outweigh this oversight.

Aligning Human Resource Management and Manufacturing Strategy: Impact on Plant Performance

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This study attempts to determine the relationship between human resource systems, manufacturing strategies, and the operational performance of an organization.

In the past, all firms utilized an "old school," administrative-type approach to the human resources (HR) function. Today, many companies have successfully transitioned to a "new school" approach where HR places a greater emphasis on

upskilling (more extensive employee training). Additional differences between old and new approaches to HR include staffing methods, performance appraisal techniques, and employee compensation. The newer HR systems invest significantly more in human capital than the "old school" approach.

For this study, the companies analyzed were categorized as having one of three manufacturing strategies: (1) Cost, (2) Quality, or (3) Flexibility. Type of quality is based on the product quality and conformance to specifications. A firm pursuing a strategy of flexibility provides many delivery options and/or a broad product scope depending on the wishes of the customer.

Operational performance is measured in terms of machine efficiency (equipment utilization and scrap minimization), employee productivity (morale and group productivity), and customer alignment (product quality and on-time delivery).

Data was collected from plant managers, operations managers, quality managers, and HR managers located at 97 different firms in Pennsylvania. All of the firms were from a designated range of SIC codes covering metal cutting industries. The geographical and industrial constraints were utilized so that little or no geographical bias would result. Data was quantified whenever possible and statistically analyzed.

Results indicate that a relationship exists between HR systems and operating performance. Firms utilizing the newer HR systems perform at higher levels in all three measures of operating performance. The data also indicates that strategy selection is of great importance. Firms selecting a quality or flexibility strategy should utilize the human capital approach of the newer HR systems to increase the likelihood of obtaining higher performance levels within their organizations. Firms in this study which chose either a quality or flexibility strategy and utilized a "new school" HR system had better relationships with customers, more productive employees, and higher equipment efficiency ratings. Firms utilizing "old school" HR systems had high performance ratings only in the area of customer alignment and only when this HR system was paired with a cost strategy. The results obtained in this study clearly suggest that firms choosing to upscale their workforces with investments in human capital obtain improved performance levels.