The high-performance work system: is it worth using?

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Abstract

Businesses worldwide are beginning to explore new areas of workplace change. Gone are the days of changing an element in one department and expecting results throughout the entire firm. The latest trend is the high performance work system. The implementation of such a system is not based around one department, but focuses on firm-wide change. Key elements are workplace restructuring, retraining of workers and adding new technology. It has been found that by improving the flow of information through workplace redesign, using state of the art technology and empowering employees by training them to be daily decision makers, productivity and overall quality of production increases significantly. The implementation of a high performance work system can be risky and costly but the US Government is currently developing ways to aid companies so that they can take advantage of the benefits that can result from the implementation of such a successful system.

Introduction

The purpose of this paper is to analyze whether high-performance work systems (HPWS) can add improved productivity and quality to an organization. To develop a basis for understanding, this paper will begin by defining HPWS and giving some background on how they function.

Autonomous work teams, open systems and performance-based pay are known collectively as high-performance work systems (Rouse, 2000). HPWS have also been characterized as a way of thinking about organizations. Instead of trying to fit employees into the existing technological structure within an organization, HPWS attempt to find the best fit among technologies, processes, structures and the external environment. This leads to optimal utilization of all resources and a shift in focus from internal efficiency and effectiveness to external efficiency and effectiveness (Varma et al., 1999). HPWS have also come to be known as high involvement work systems, flexible work systems and high commitment work systems.

The main focus of HPWS is organizing work so that the employees participate in decisions that affect the everyday operations of an organization. HPWS also stimulate interaction between labor and management. Creating an internal environment that supports customer needs and expectations is also a focus of HPWS. In recent studies of employee involvement in the global auto industry (MacDuffie, 1995; Pil and MacDuffie, 1996), it was found that grouping human resource practices and coordinating them with the production system and business strategy created higher levels of performance. This result proposes additional support for the model of a holistic and integrated HPWS design. An imperative feature of such organizations is that they are more flexible and able to become accustomed to change. They are, however, highly dependent on a dedicated and well-trained workforce. It should be noted that multi-skilling empowers team members to turn around jobs. This redundancy of functions (Trist, 1981) (in contrast to the redundancy of parts in conventional design) equips team members to perform all the work around which the team is designed. From the organization’s perspective, greater flexibility is introduced as individual employees have multiple skills. The integration of social and technical systems, based on sociotechnical principles (Pasmore, 1988; Trist, 1981) is the main component of the key design principles. HPWS design optimizes the needs of the people in the organization as well as the demands of the technical system.
One of the keys to successful implementation of the system is the way in which an organization utilizes its human resources. Beatty and Varma (1997) piloted a study of 39 firms to evaluate the effectiveness of HPWS initiatives in the service sectors of these organizations. They found that firms that were rigorous on changing the internal work culture and human resource practices as part of the HPWS design achieved significant improvements in operational and financial performance. However, they found that the implementation of teams toward the HPWS effort had no significant impact on outcomes. Organizations can do this by increasing the responsibility of employees, and training is a key component in this process. Several organizations have recently implemented HPWS with amazing success in increasing operational performance and productivity due to increases in employee responsibility coupled with more thorough training. Xerox, Trinova Corporation, Met P&C, Continental General Tire and Lockheed Martin are all examples of companies experiencing not only financial success, but also improved organizational structure and sustained levels of high performance and productivity.

In discussing high-performance work systems, this paper will also touch on the reasons why there are still many companies that have not implemented such systems. For example, officers and directors of large companies see HPWS as high-risk because of the sweeping change in operations that is required for their implementation. Current public policy, coupled with today’s market, is failing to offer organizations sufficient incentives for implementing HPWS. Small changes in existing federal programs can counter this trend and in turn enable the USA to compete in the global market, as we will see (Jarboe and Yudken, 1997). The Government cannot force a transformation in the structure of organizations but it can act as a catalyst. Government policy can help foster economic, political and social environments that speed the development of high-performance work practices and reduce the cost of implementing them.

Firms today are more dependent on product quality and rapid adaptation to changing conditions. In order to keep up with these changes, some firms are beginning to implement HPWS. These systems incorporate the creativity, problem-solving abilities and ingenuity of workers while providing them with information, skills, incentives and increased responsibility. In HPWS, employees may be responsible for scheduling their own tasks, and can use their knowledge of customers to act as a sales representative.

One important area that can be improved to make work systems more effective is skills training. Training emphasizes quality and aids employees in anticipating problems or mistakes. It gives the employee a broader understanding of a firm's processes and production. Training is also associated with improved quality of output. Because workers are skilled and well prepared, the rate at which products are discarded due to defects is greatly reduced.

Many companies wanting to cut costs turn to laying employees off. Advocates of HPWS believe that jobs can be added and company competitiveness or growth can be encouraged. Instead of methods like outsourcing and lay-offs, companies can order new technologies and create training programs. These programs will build and develop the skills of workers, which may lead to gains in flexibility and customer satisfaction.

Another important area of change in HPWS is work place participation has a large impact on HPWS. In this system, workers are more involved in the decision-making process and there is a decentralization of responsibility. Employees are exposed to job rotation (on-the-job training that involves lateral transfers in which employees get to work at different jobs) and cross-training. These methods reduce employee fatigue and boredom by providing more variety in the workplace. Some firms even offer flextime scheduling to their employees. Flextime scheduling systems allow workers (within limits) to vary the number of required hours that they have to work. By giving employees more responsibility, job satisfaction is increased and absenteeism is often reduced.

Layout design

Working in teams is another characteristic of HPWS. Group work brings diversity and more complete information, increases alternatives, and shows legitimacy (Robbins and Coulter, 1999; p. 461). Working in groups or teams also increases output and performance. Nadler and Gerstein (1992) emphasized the importance of information sharing and access in addition to the notion of multi-skilling. Information sharing may be achieved more efficiently by designing a better layout. Layout design is a key factor in creating a successful HPWS. Layouts allow groups to work...
together and increase productivity. The main goals of layouts include:
- using space, equipment, and people effectively;
- increasing the flow of information and materials;
- improving employee morale;
- making customer/client relations more effective; and
- encouraging flexibility.

Technology

The use of technology is becoming increasingly important to HPWS. In order to keep up with other firms and the global market, technology must be expanded and improved. However, without employees’ skills and education to run new machinery, technology would be useless.

Technology plays a large role in HPWS. It is an essential part of a firm’s overall capability. Macy and Izumi (1993) conducted the Survey of Innovative Organizations, a benchmarking study of innovative practices in North America. They examined 102 work sites: almost half of the firms or units involved reported using relatively conventional designs, while the rest reported using high performance designs. The results indicated that organizations using the high-performance design were inclined to implement design features from four categories, i.e. structural, human resources, technology and TQM (Macy and Izumi, 1993). This finding restates the importance of holistic HPWS. There are three types of technologies to be considered. The first type is those technologies that improve the control systems over areas such as production, workplace organization and the machines themselves. Included in this type are the hardware and software that enable the empowerment of employees by providing problem-solving skills and decision-making tools. This type of technology is referred to as “hard” technology. These software programs are developed so that interaction between humans and machines is at a level of understanding. This enables the employee to have knowledge of the actual process that the automated machine is performing. If something goes astray, more often than not the worker is able to fix it on the spot or shortly thereafter. Also, in some plants where automated machinery has been introduced, the employees who run the machines have been trained to write the software programs that run them. When there is a problem, they are able to identify it readily and edit the program. This decreases repair time to an absolute minimum.

Sikorsky Aircraft in Stratford, CT has decided to involve its machine shop workers in decisions regarding process changes and the selection of new equipment. When asked, the workers made significant changes, switching their production process from a line set-up to a cell set-up. This was an improvement that was responsible for increased productivity, yet was a decision that management would not have made on its own. This is due to the different perspectives of management as compared to workers. It is only fair to assume that workers are able to provide valuable input as how to improve the processes that they perform on a daily basis.

The second type of technology is also a “hard” technology. This type gives employees the skills to participate in the design, implementation and development of a system. It has been found that when top executives are involved in the design and implementation of their information systems, the tendency is for the system to have a higher rate of success. Boeing Aircraft used this strategy when developing its 777 airliners. It used computer-aided design (CAD) systems, which allowed teams comprising designers, crewmen and mechanics to work together on the specifics.

The third type of technology to be considered is what is known as “soft” technology. This is basically skill assessment and benchmarking tools, and new standards for evaluating high performance, models and methodologies. These tools enable a firm to constantly evaluate their success, and allow for methods of comparison to other firms within that particular industry.

HPWS, despite all of the positive feedback, can sometimes be difficult to adopt. These systems require changes in an organization’s culture and restructuring. Restructuring can be risky and costly, but if the change is successful, the investments will pay off.

Analysis

When we look at the trends in the business environment over the last few centuries, we see that there has always been one commonality. That trend to move to better, faster and more productive processing has always been a common factor in the drive for improvement. The part that has changed over time is the way of achieving improvement. The measures taken to increase efficiency and productivity have focused on each and every department of firms, but today the focus is beginning to take an all-encompassing approach. In the opinion of the present author, this is where true achievements are going to be made. Pushed by the most modern technology growing stronger day by day, by global business and the rapidity of change in the current business environment, firms are sure to prosper when they engage in
reorganization and restructuring of the firm as a whole. HPWS and TQM programs are restructuring plans that incorporate such measures and are currently being tested in many industries. The results are looking positive, and in the future it seems likely that most firms will adopt HPWS. Some results from firms that have implemented this strategy are outlined below.

In the early 1990s, Lockheed Martin’s Government Electronic Systems plant in Mooretown, NJ was operating poorly and was very close to shutting down. Many employees had been let go and it seemed that closure was inevitable. Surprisingly, management did some research and decided to embark on a joint partnership with the International Union of Electrical Workers Local 106. Together, they implemented a high-performance work system, redesigning workflow and retraining their employees in how to work with the new technology and in a new environment. Between 1992 and 1995, productivity increased 64 percent, scrap and defects decreased 80 percent, product cycle time decreased 50 percent, inventory decreased 80 percent and manufacturing costs decreased 25 percent. Lockheed Martin was saved by the implementation of HPWS.

More general testing has been conducted according to industry. A test was conducted for the components manufacturing industry at Massachusetts Institute of Technology’s International Motor Vehicle Program. They collected data on labor productivity associated with the implementation of HPWS. The system would include new technology, restructuring of work systems and processes and the training of employees to work with these new aspects. Involved in the data collection was a population of 62 plants and 24 producers, representing 16 countries. The overall results were that the use of buffers such as inventory and repair space was significantly reduced. This, in turn, made problems more visible. Due to the flexibility of the new work system and the newly acquired problem identifying and solving skills of the employees, immediate corrective actions were taken, resulting in overall increased labor productivity.

Another test was conducted in 1992 for cross-industry firms. It was representative of 855 publicly held firms from all major industries. The test was a little more detailed in that they measured the relevance of two specific areas to productivity. The first was the relevance of employee skill and organizational structures. The results indicate that firms who have incorporated a type of training program, giving employees problem-solving skills as well as the knowledge of the strategy, processes and ultimate goals of the firm have benefited. Also, when work systems have been restructured for better information flow and work processes, and employees are aware of how the improvements bring benefit, productivity has increased. The positive results were also reflected in higher financial performance measures such as ROA and ratio of stock market value to total assets.

The second aspect that was measured was the relevance of employee motivation. The presence of employee involvement in decision making, compensation plans, job security and skills training also proved to provide increased levels of productivity.

Many of the studies of HPWS have been conducted in the steel industry. One particular test was conducted on two separate systems for comparison measures. One system implemented a high-performance work system while the other remained unchanged. The system comprising a HPWS was much more innovative than the other. The results showed that the more innovative system had a much greater up-time (the fraction of time that the line was running according to schedule). Output levels increased due to the prevention of delays and higher levels of productivity. Quality levels also showed an increase, along with a 13 percent greater prime yield overall. Clearly, the presence of HPWS made a significant difference and had very positive results.

Another study was conducted on Fortune 1000 companies to test the relevance of increasing the responsibility of employees. Responsibility can be increased in a number of ways, but the tests showed that among those firms using at least one method to increase employee responsibility, improvements of 60 percent increased productivity and 70 percent improved product quality were achieved.

Similar studies showed that those that introduced a type of formal training program experienced a 19 percent larger rise in productivity over those who did not introduce a program. Yet another study was conducted that comprised 157 small (500 or fewer employees) organizations located in Michigan. The test was based on formal versus informal training. Formal training provided much better results due to the significantly reduced rates at which products were being scrapped due to deficiencies. By doubling the employee training time from 15 to 30 hours, a 7 percent reduction in scrap rate was experienced.

It is evident that HPWS have a positive influence on firms that choose to implement them. To date, many firms still see HPWS as risky and costly, and sometimes unattainable. It is true that HPWS may not be appropriate for all firms, but it is worth the time to evaluate whether a firm would or would not benefit from HPWS. Certainly, the type of industry, the costs of implementing the system, the likelihood of success and positive productivity gains are all areas that need to be
taken into consideration. There are also other avenues to be researched regarding the costs of systems. Government aid is becoming more common in the implementation of HPWS. This is providing an incentive to more firms to adopt this strategy, while breaking down the barriers that prevent some companies from considering it at all. Not only does government funding provide assistance, but government policy also helps to foster economic, political and social environments that reduce the risks and costs of the implementation of HPWS. Governments can also assist in the development of tools, technologies, technical assistance and standards that will enable more and more companies to adopt HPWS.

It is clearly evident that high-performance work systems are worth considering. Many firms, as well as governments, are in support of them. The strategy is being adopted globally. In order to keep up and surpass the competition, firms need to recognize the benefits that these systems provide and not allow the opportunity to pass them by. Germany and Japan have implemented these systems, and attribute much of their success to HPWS. not only does government funding provide assistance, but government policy also helps to foster economic, political and social environments that reduce the risks and costs of the implementation of HPWS. Governments can also assist in the development of tools, technologies, technical assistance and standards that will enable more and more companies to adopt HPWS.

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Conclusion

HPWS, when implemented correctly, will almost always add improved productivity and quality to a firm. The key is to view systems not component by component, but by how they can be implemented in an all-encompassing fashion. This process involves basing implementation around the firm as a whole, including all areas of technology, the employees themselves and their respective workplaces. Not only will firms benefit financially, but also overall morale will improve and employees will be more likely to stay with the firm, thus decreasing turnover rates (yet another factor relevant to increased productivity). In the present author’s opinion, the name of this system, i.e. “high performance”, speaks for itself. It has proved to be beneficial in studies time after time. Firms need to re-evaluate and realize that although HPWS take time and money to implement, they are much more successful than any number of quick fixes that may be tried. In the long term HPWS will be less costly because they have lasting effects that – once implemented – begin to flow over to all operations. Firms that have chosen HPWS are satisfied. It is only a matter of time before other firms are pushed to make the same choice or become destined to fail. Overall, high-performance work systems provide substantial improvements and should be considered by all.

References


Further reading


