

Comparison of mass lean production socio-technical systems essay



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Throughout history, a myriad of approaches have been taken in order to develop the most efficient and cost-effective work systems for the American and global economies. The designs and division of labor of these numerous work systems directly affect productivity, work optimization, and the overall success of the economy. Production of goods of any sort stemmed from the division of labor. Production teams were originally thought to increase quality of work, dexterity, productivity and quantity. The Wealth of Nations discusses that if every country specializes in what they do best, then this must result in a more efficient economy for everyone. Before the rise of corporations, American farms relied on a local, craft production market.

Craft production consisted of high skilled workers, high costs, low value, and little to no technology. During the Industrial Revolution however, Americans discovered they could depend on unskilled workers to eventually transform the local market of production into a flourishing global economy. The division of labor, scientific management, mass production, lean production and socio-technical team-based production approaches each have contributed to specific industries' successes. During the 1880's, Frederick Taylor developed scientific management – a theory of management as a solution for the inefficiencies in the Americas. Taylor considered work to be a science, and the system of management should be regarded as a job consisting of laws and principles. His invention of the vertical division of labor standardized tasks; by deskilling the tasks and laying out exactly what needed to be done, he was able to make each task take a similar amount of time.

Taylor wanted the manager to control all aspects of work, resulting in vertical integration. In the past, traditional knowledge of the work process

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was possessed by the workmen and foremen. Now, it was the manager's responsibility to classify the knowledge, rules and laws into a science that would train the workmen (Taylor). Taylor wanted to take the old rule-of-thumb method and augment a faster and more productive way of using the tools. As well as remodeling the tools, he wanted employees to change their entire mentality toward work and their employers (Taylor). Next, to develop the workman they scientifically teach them, whereas earlier the worker had the ability to choose his own work and implement his own method of training.

Lastly, the managers cooperate with the workmen to ensure all are doing their job correctly and productively. Taylor's process focused on a task and bonus basis rather than incentive, and believed it could get workers to maximize their proficiency through the ordered system. His investment in machinery and the individual standardized the operational procedures and focused on external regulation. Essentially, Taylor invented management by observing, documenting, optimizing, standardizing, selecting, training and complying. Scientific management eventually transformed into the market of mass production.

This took Taylor's ideas of decentralizing the company into profit centers and the managers as the heads of the departments, and creating it into a technology. Because the tasks were standardized, mass production was able produce in high volumes and expand into a national market. Ford's invention of the automobile led to more companies adapting to this type of work system. The money was invested into high technology and machines, which resulted in low cost of production, low skilled labor and less variety. Workers

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were interchangeable parts that required a division of labor; that way, deskilling tasks led to multiple assembly lines, which focused on one single job. The focus of the individual, and the redundancy of parts kept inventories of parts and the people to protect the system.

The procedure prescribed what the workers should do; the technology was given, thus, the workers became the accessories of the machines. Mass production is most beneficial to products that do not need customization and variety. The technology used in mass production does not allow room for flexibility, therefore the products created on a certain production line will be identical. Although mass production reduces the possibility of human error, inflexibility of customization and design became one of the main disadvantages. As the 21st century came along, Toyota Motor Company re-invented a new, and cost-effective production approach – lean production.

The process resembled mass production with the use of technology and assembly lines, however it focused on eliminating waste, reducing cost and inventory, and increasing productivity (Womack et al). In order to improve the quality of the products, Toyota believed there should be little space in the factory in order to increase face-to-face communication. Various methods were implemented in order to avoid mistakes, cut the amount of work, and empower workers, all while responding to consumer demands. One successful method was the installation of a cord at every work station. In case of a mistake this cord would be pulled to halt the assembly line to fix the error immediately before continuing with the process.

Compared to mass production, lean was both “ capital and labor-saving” (Womack et al). Effort, plant space, inventories and cost were all successfully reduced, as productivity, quality and worker mentality increased. This lean philosophy developed by Toyota has continuously improved and become popular among numerous manufacturing systems today. Instead of the job focusing on the individual as Taylorism exemplifies, Eric Trist developed a socio-technical system by studying the technical and social aspects of a work system.

A STS emphasizes the importance of integrating people and technology in the workplace to result in a joint optimization of integrating and assisting one another (Trist). A socio-technical system is team and group oriented, meaning priority of commitment or ownership. Here, workers are both high and multi-skilled. The regulation of a STS is internal; the manager gives the workers information, sets goals, and provides them with problems to solve. Instead of employees being paid for work like Taylorism, workers are paid on a basis of skills and knowledge. In contrast to Taylorism’s redundancy of parts, a STS is a redundancy of function - where buffering by skill allows paying for more people that can accomplish more than one task.

These procedures are also more discretionary than mass production; workers are trusted to make their own decisions, therefore it is their responsibility to figure out how to improve the productivity of a product. Instead of a worker being an accessory of the machine, the workers are now compliments to the machine. Also, the socio-technical system allows for more adaptability and flexibility than mass production. Since mass production holds rigid

boundaries by solely relying on technology, it has less room for variation. All <https://assignbuster.com/comparison-of-masslean-productionsocio-technical-systems-essay/>

of the technologies of a STS are the same, however it matters who is implementing them, not how.

In Adler's article, it is discussed that the hierarchy prevents learning because of the standardized matter. The group leader of a work system tells the workers to find the best way by optimizing and standardizing, thus breaking down the complicated process. Off-line teams improve the process by creating quality circles, which involves high skills, a voice that matters in the process, as well as the ability to make a decision. The manager is responsible to step in to do the analysis and make sure they break down the process by telling the operators what to do. Here, the technology is neutral and line organization is bypassed.

The socio-technical production system relies on the interaction of social and technical factors in order to establish a well-balanced and team-oriented ideal. As a result of globalization and the expansion of consumer supply and demands, mass production has declined enormously. The United States today has transformed from a goods producing economy to a service based economy. Companies have discovered inexpensive methods to make products in other countries. Whether this is a result of other countries' international wage laws, the U. S.

succeeds economically by producing goods in other countries. We have become less of a goods producing economy and more of an exporter of services. Socio-technical work systems can improve productivity and quality through a positive, communicative and organized work environment. With present-day software and technology, a STS allows companies to store

information on computers, whereas in factory production information was difficult to organize and decipher. The open, physical setting of a STS permits a social environment where face-to-face communication reduces message errors. Overall, the American economy has transformed exponentially since the time of craft production.

Thus far, socio-technical systems have successfully impacted work organizations and have become a beneficial approach to modern-day work systems.