

activities (tasks). An operator has to repeat ONLY the assigned task (fastening, fitting, welding etc) continuously during his shift hours. It facilitated operators not to think and keep doing whatever task was assigned – reducing the need for skilled labours. This literally bifurcated people in the organisation – *the Doers*, who only do a task and *the Thinkers* who need to think – design, plan, execute and control.

* Industrial Engineering is a branch of engineering that deals with the optimisation of processes by improving productivity and output and design of processes for higher efficiencies

This segregation and task fragmentation gave Ford a headway to further improve the productivity with the use of time study with least resistance from the workers. He also utilised the concept of Motion Study advocated by Gilberths. With the concept, he observed that his operators were moving most of the time on the floor instead of doing their assigned task. He designed moving assembly lines to eliminate excess movement of workers. He confessed that the worker on his shop floor has to work harder to comply with the norms. He compensated the hard work by increasing their wages to literally ‘double’.

The Mass Complexity of Mass Production

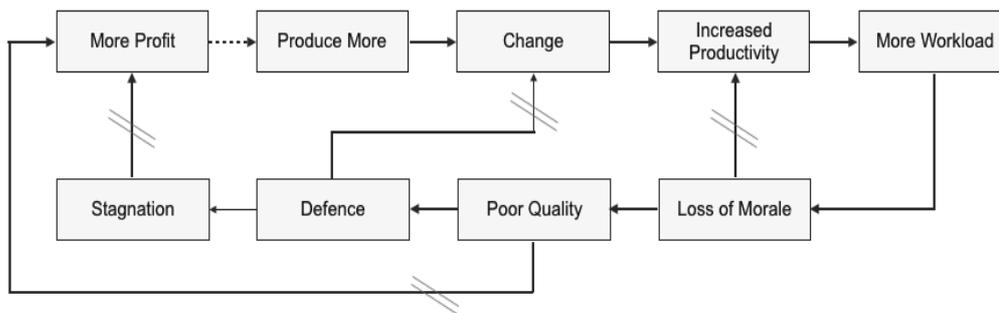
Ford went on reducing the time taken to assemble a car, resulting in the continuous price reduction. His manufacturing system is now called as Mass Production System. The entire industrial world was attracted by the productivity and profitability of Ford’s Mass Production. But they could not afford the ‘double wages’ as a compensation for hard work and the shop floor ambience grown worse.

What has happened?

1. People were completely disconnected from the overall system. They lost the pride of accomplishment – which was abundant during the craftsmen era and served as a motivational factor for higher quality and customer satisfaction.
2. The job-security (which is an oxymoron) and compensation were tied up only to the output numbers. The objectives of the Top Management, Middle Management and that of the workers were completely misaligned. Worker Unions came to defend workers against their management.
3. Any improvement was perceived as a threat at the workforce level. Managers shredded the responsibility of improvement – as it was done by ‘industrial engineers’. With the norms in place – the major job of managers was to ‘maintain’ the work standards.

4. Managers had different objectives and goals to accomplish – which were often conflicting to each other. Each manager has to defend himself against the blame game of others. Managers started spending most of their time in creating evidence that they were not wrong. Departmentalisation of the organisation.
5. Management by Objective (numbers) made managers work hard to make his department highly efficient even at the cost of organisational suffering.
6. Top Management pushed Managers to squeeze more output from the plant – with merely Time and Motion studies. Supervisors and Foremen become the ring masters. The successful master squeezer became successful managers.
7. Nobody in the organisation owned the quality of products except the quality inspection department.

Mass Production with Taylor & Ford's Productivity Approach



Production System based on Kaizen Approach

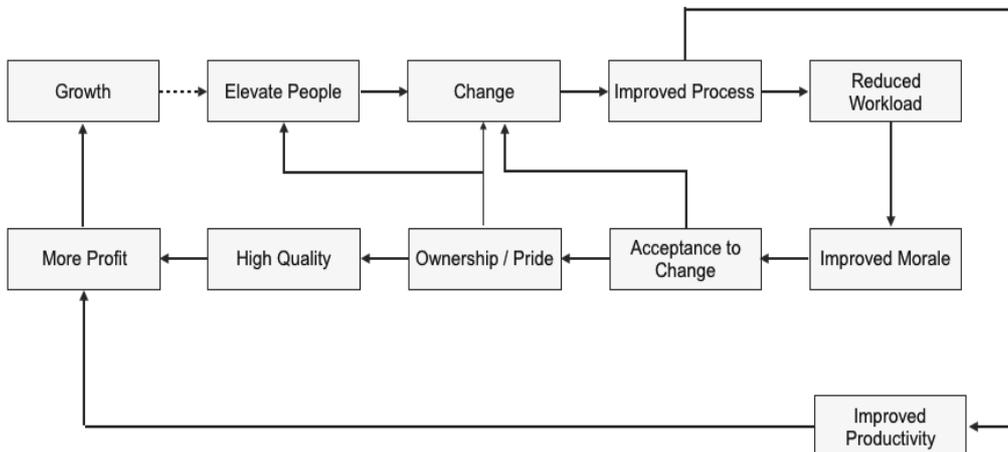


Image 59: Comparison of Process Improvement in view point of Mass Production System and in the Kaizen System