Guidelines for Improving Productivity, Inventory, Turnover Rate, and Level of Defects in Manufacturing Industry

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Abstract

The purposes of this study are to study the current situation, opportunity, and obstacle in manufacturing industry, and to create a model for improving the efficiency, reducing level of inventory, turnover, and level of defect. This study used snowball sampling from 40 manufacturing companies in Thailand. The majority type of industry was plastic industry, which accounted for 20 companies, followed by electric and electronic, garment and textile, food and beverage, automotive, and construction, of which the number of companies accounted for 10, 4, 3, 2, and 1 respectively. The results showed that 13 companies were large, 13 companies were medium, and 14 companies were small. In addition, 19 plastic companies were original equipment manufacturer while the only other one produced its own brand. Meanwhile, 9 electric/electronic companies produced both their own brand and original equipment manufacturer while the only one in this field produced only its own brand. All of garment and textile, automotive, and construction companies were original equipment manufacturer companies. Employees who operated machines were measured their performance at 80-90%. In contrast, other departments which were not concerned with machine, such as finishing, assembling and packing, were not measured their performance. Plastic companies operated 7 days with 24 hours, especially injection machine department, with 2 or 3 shifts while other industries worked 6 days with 8-11 hours per day. Defect rate was controlled by customer at 2-3%. Raw material inventory was 7-30 days. Work in process inventory was 1-3 days. Meanwhile, finished goods inventory was 1-30 days. Turnover rate was 5-10%. The company should measure the performance in all departments to know strengths and weaknesses; and then create a project to improve productivity with suppliers, employees, and customers involvement such as 5S, QCC, Kaizen, TPM, TQM, ISO, SPC, and lean manufacturing system. The company should create work instructions both in Thai and Burmese or Cambodian or Laos to reduce communication issues. Since small but frequent orders were not worthwhile to set up frequently, the companies determined to produce high volume at once, leading to high level of inventory. Thus, the company should focus more on forecast and negotiation to avoid dead stock. The company should understand its employees to maintain current employees and create attractive welfare to attract prospect employees. Company qualified for quality, cost, and delivery will survive in fierce competition. According to the establishment of AEC, there are opportunities to create its own brand, and relocate to border area or AEC country to get new customers.

Keywords: Employee Performance, Machine Efficiency, Inventory, Turnover, Defects, Manufacturing Industry.