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The Limitation of MFCA-based Cost Analysis for Serial Manufacturing Process with Sampling Scheme

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Abstract

This research aims to analyze the MFCA-based cost of a serial manufacturing process in which the incoming, in-process and outgoing inspection are based on zero acceptance number sampling plan. Negative products generally occur along the serial production stages, not only in the forms of defectives but also in the form of wastes. Without 100% inspection, defectives from previous manufacturing stage can be escaped and sent to the next stage resulting in more loss and higher negative cost. In the case of serial process where defectives cannot be identified and withdrawn, the traditional calculation of MFCA cost may not be applied to identify the ineffectiveness of the process. Hence, the negative cost of material, system, energy and waste treatment cannot be allocated along the manufacturing streams or stages since the actual inherent defectives are unfolded. Hence, this presentation will propose solution how to analyze the MFCA cost structure for such serial manufacturing process gated with sampling inspection scheme.

Keywords
MFCA, Serial Manufacturing Process, Integrated Sampling Scheme, Quality Improvement, MFCA Cost.

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Biography

Wichai Chattinnawat is an associate professor of Industrial Engineering at Chiang Mai University in Thailand. He holds Ph.D. and M.S. in Industrial Engineering, and a M.S. in Statistics from Oregon State University. His research focuses on statistical process control, quality engineering, applied statistics for quality improvement, as well as concurrent design of quality and productivity. Assoc.Prof.Wichai Chattinnawat has extended the research into the area of Material Flow Cost Accounting (MFCA) Analysis and Application in Industry. He was appointed by Thailand Productivity Institute as MFCA trainer. He conducted MFCA research for National Science and Technology Development Agency (NSTDA) of Thailand and provides consulting to leading firm in Thailand in applying the MFCA to reduce cost and improve efficiency. He has been regarded as a leader in the MFCA technique in Thailand.