

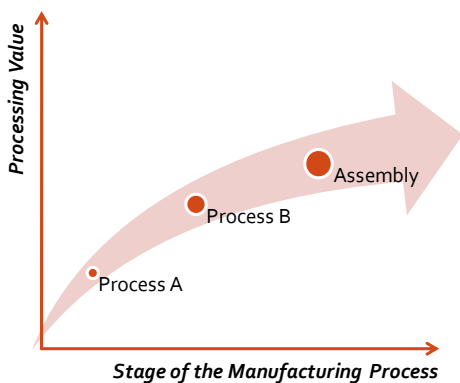


Mapping the Task Time Performance of Human-Centred Assembly Systems

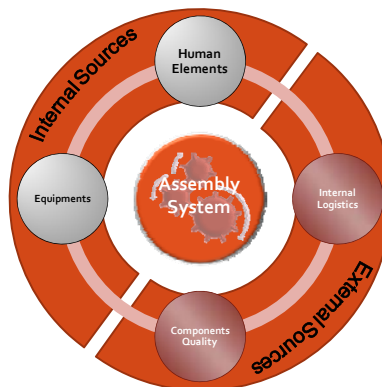
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Abstract: Due to the growing tendency of products shorter life cycles, increased model variety and demand uncertainty, an extended automation of assembly lines cannot be fully achieved. Assembly lines are often highly dependant of the human elements. In this study, factory observations are analyzed with the purpose of defining expected time performance indicators. The analysis focuses on the observed deviations on task time performance indicators with the objective of identifying the expected range of variations on manual assembly tasks in asynchronous systems. Furthermore, from that mapping it's possible to recognize types of performances that should be considered when modelling such systems.

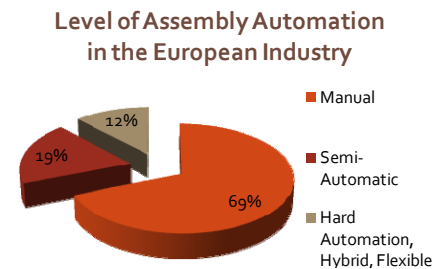
Research Motivation



Assembly Systems Key Value

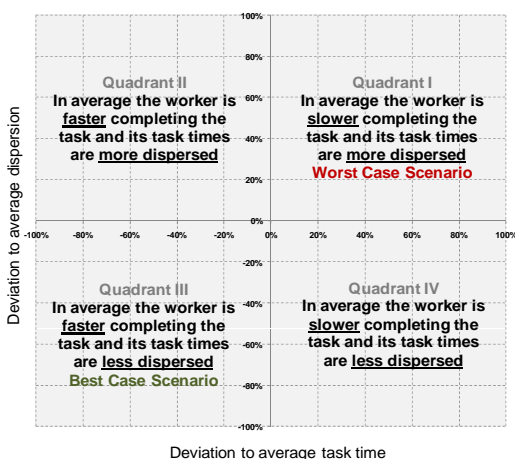


Internal and External Sources of Variability on Assembly Systems

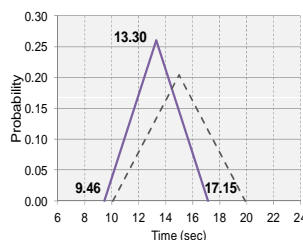


Importance of Manual Work

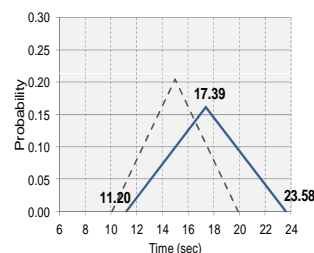
Results Obtained



Best Case Scenario - QIII



Worst Case Scenario - QI



Several workers were observed and measured performing the same type of motor content assembly. From these observations, it was possible to assess the expected time performance indicators, such as average and dispersion of task time, based on the average behaviour on such type of systems. The analysis presented in this paper is focused on the deviation of the expected performance indicators. By mapping the observed deviations of the performance indicators, the expected range of variations that can be expected was identified and classified.