Manufacturing systems complexity: An assessment of manufacturing performance indicators unpredictability - DTU Orbit (21/12/2018)

Manufacturing systems complexity: An assessment of manufacturing performance indicators unpredictability

Manufacturing systems, in pursuit of cost, time and flexibility optimization are becoming more and more complex, exhibiting a dynamic and non-linear behavior. Unpredictability is a distinct characteristic of such behavior and affects production planning significantly. This paper presents an approach to the assessment of unpredictability in the manufacturing domain by employing the Lempel Ziv measure. The fluctuation of critical manufacturing performance indicators is studied in order for the complexity of a manufacturing system to be evaluated. Finally, the method's potentiality is examined with the application of the proposed approach to an automotive industrial case. © 2014 CIRP.

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