

## A Method for Reconfigurable Manufacturing Systems Customization Measurement

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**Abstract :** The preservation of a company's place on the market in such aggressive competition is becoming a survival challenge for manufacturers. In this context, survivors are only those who succeed to satisfy their customers' needs as quickly as possible. The production system should be endowed with a certain level of flexibility to eliminate or reduce the rigidity of the production systems in order to facilitate the conversion and/or the change of system's features to produce different products. Therefore, it is essential to guarantee the quality, the speed and the flexibility to survive in this competition. According to literature, this adaptability is referred to as the notion of "change". Indeed, companies are trying to establish a more flexible and agile manufacturing system through several reconfiguration actions. Reconfiguration contributes to the extension of the manufacturing system life cycle by modifying its physical, organizational and computer characteristics according to the changing market conditions. Reconfigurability is characterized by six key elements that are: modularity, integrability, diagnosability, convertibility, scalability and customization. In order to control the production systems, it is essential for manufacturers to make good use of this capability in order to be sure that the system has an optimal and adapted level of reconfigurability that allows it to produce in accordance with the set requirements. This document develops a measure of customization of reconfigurable production systems. These measures do not only impact the production system but also impact the product design and the process design, which can therefore serve as a guide for the customization of manufactured product. A case study is presented to show the use of the proposed approach.

**Keywords :** reconfigurable manufacturing systems, customization, measure, flexibility

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