

예상되는 수요에 대한 제조시스템의 적응력 평가에 관한 연구

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ABSTRACT

For evaluation of various manufacturing systems, many authors have made an effort to define or measure a powerful ability, flexibility. However the flexibility -simply stated as the ability of a manufacturing system to cope with a variety of changes- still remains a concept that is difficult to operate, because the concept of flexibility is complex, multi-dimensional and hard-to-capture.

Up to the present, Most of the studies of flexibility have been focused rather on how to adapt a manufacturing system to environmental changes than to what extent to adapt it to them as a whole. These types of flexibility, however, are mutually interdependent and it is so difficult to evaluate the whole flexibility of a manufacturing system if they are measured separately. Another problem is the composite use of available and realized flexibility. The firms that have a certain manufacturing system cannot exploit the available flexibility to its fullest extent. In order to evaluate the flexibility of a manufacturing system in the scope of environments of a certain firm, we have to evaluate a manufacturing system by realized flexibility than available flexibility. Therefore, it is difficult that the whole flexibility in a manufacturing system is evaluated comprehensively by the types of flexibility as we noted above.

The objective of this paper is, therefore, to offer a new concept of flexibility, named comprehensive flexibility, in respect to the degree to be adapted to environmental changes as a whole -not in respect to how to be adapted to them-, and in respect to the concept of realized flexibility. Then the comprehensive flexibility is quantified. Such a measure will aid firms' decision making such as evaluating the current manufacturing system, adding equipments to existing manufacturing system, and choosing a manufacturing system or a set of machines among various manufacturing systems. A case example is then presented to illustrate the process of quantifying the proposed measure and interpret the meaning of the measure.