Intelligent Production Planning System
Using the Post-Model Analysis Approach

Jae Kyu Lee *
Byung Sun Kang **

(Dept. of Management Science
KAIST)

ABSTRACT

This paper proposes the use of the Post-Model Analysis(PMA) approach to handle qualitative factors in aggregate production planning problems. The PMA approach excludes qualitative factors such as employee's morale and customer's goodwill from the optimization model. Instead, these factors are represented in a rule-type knowledge base. This approach automatically evaluates the optimal feasible solution that minimizes the cost function in terms of employee's morale and customer's goodwill. If any of the currently achieved goals are unsatisfactory, the tradeoffs may be invoked under the support of the non-dominated opportunity costs that are generated.

The formulation and solution process of the aggregate production planning problem by the PMA approach and its decision support system named IPPS(Intelligent Production Planning System) is described. The IPPS consists of a model management system, a knowledge management system, a PMA controller, and a data management system. The paper also demonstrates an illustrated dialogue using IPPS.

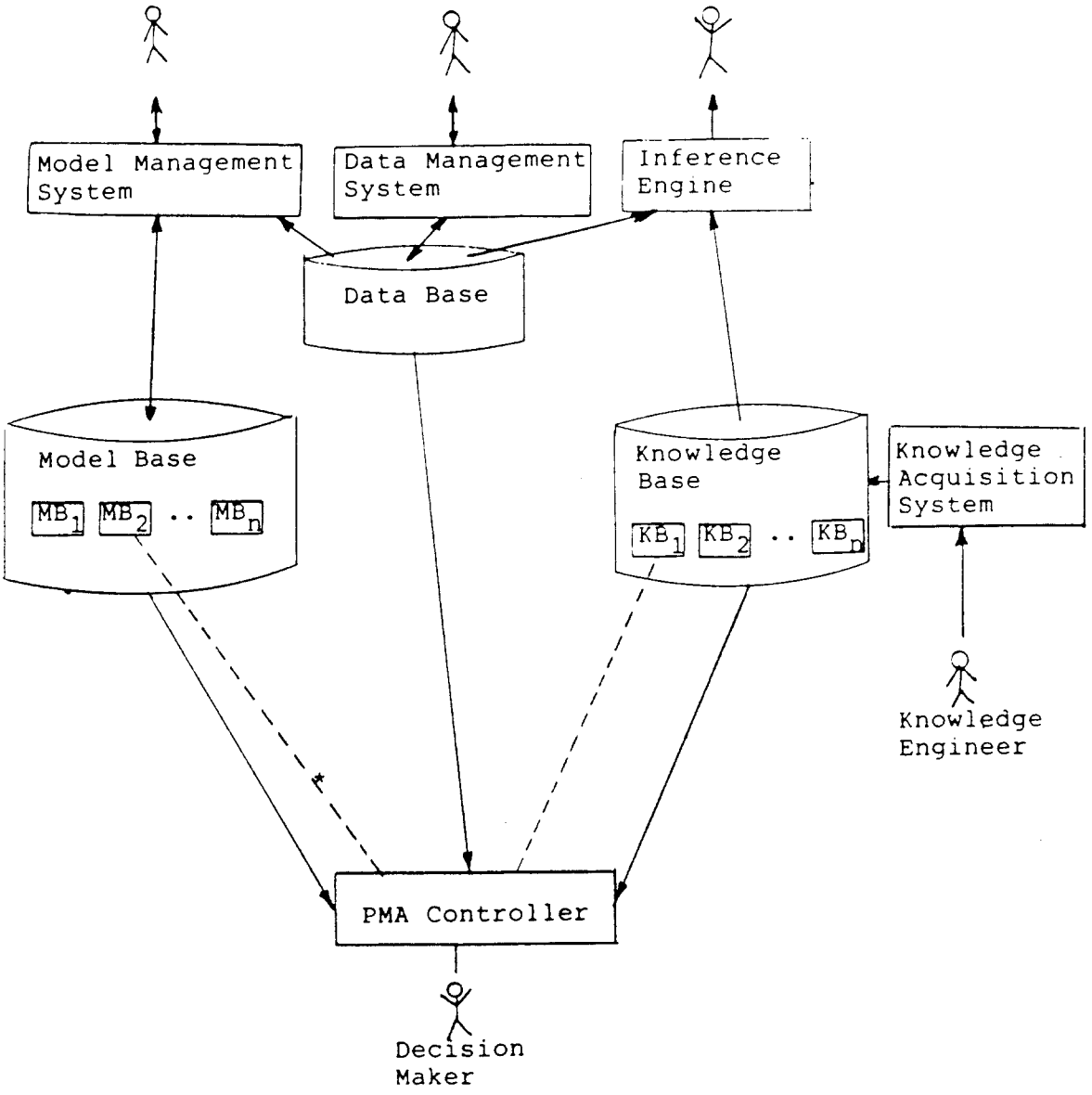

Figure 1. Overall Architecture of the Intelligent Production Planning System

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* The dashed lines imply that the Model 2 and the Knowledge Base 1 are currently selected for a particular PMA process.