

Adding Relation with Long Communication Length between the Top and a Member of a Linking Pin Organization Structure

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Abstract

This study proposes a model of adding relation between the top and a member of a complete K -ary linking pin organization structure where every pair of siblings in a complete K -ary ($K = 2, 3, \dots$) tree of height H ($H = 2, 3, \dots$) is adjacent. When a new edge between the root and a node with a depth N ($N = 2, 3, \dots, H$) in a complete K -ary linking pin organization structure is added where the length of adding edge is more than 1 and less than 2 while lengths of edges of complete K -ary linking pin organization structure are 1, we formulate the total shortening distance where the sum of shortening distances of the shortest paths between every pair of all nodes. An optimal depth N^* such that the communication of information between every member in the organization becomes the most efficient is obtained by maximizing the total shortening distance.

Keywords

Organization structure, Linking pin, Complete K -ary tree and Optimization modeling.

Biography

Kiyoshi Sawada is a Professor in the Department of Economic Information at University of Marketing and Distribution Sciences, Kobe, Japan. He earned B.Eng., M.Eng. and Dr.Eng. degrees in Systems Engineering from Kobe University, Japan. His research interests include operations research and optimization. He is member of INFORMS.